



Western Water Constructors, Inc.
Submittal Cover

Job no. 16-05



CONTRACT NAME: Manteca WQCF Digester Improvements
SPEC SECTION: 13422 Instrument and Control Panels
SUBMITTAL TITLE: Additional Control Panel Equipment – O&M
FILE NAME: 280-R0_13422-03_Additional Control Panel Equipment-OM

SUB #: 280
REV #: 0
CODE: 13422-03
DATE: 2/7/2018

WWC REVIEW/COMMENTS: **NO EXCEPTIONS** **EXCEPTIONS / DEVIATIONS AS NOTED**

REVIEWED BY: ST

SIGNED:

WWC HAS REVIEWED THIS SUBMITTAL FOR CONFORMANCE WITH THE PROJECT PLANS & SPECIFICATIONS.

OWNER REVIEW:

ITEM	DESCRIPTION	REVIEW STATUS				
		A	B	C	D	E
1	Additional Control Panel Equipment – O&M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

LEGEND: **A** = No Exceptions Taken **B** = Make Correction Noted **C** = Correct & Resubmit
 D = Rejected **E** = Accepted for Record

OWNER COMMENTS:

REVIEWER'S NAME: _____

REVIEWER'S SIGNATURE: _____ **DATE:** _____



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1096

City of Manteca

Waste Quality Control Facility Digester Improvements Project

Operation & Maintenance Manual Control Panel Equipment Volume V

Date: February 2, 2018

Project: City of Manteca – WQCF Digester Improvements Project

Subject: O&M Manual

Prepared By: Telstar Instruments, Inc.

Control No.: SR-29728



ELECTRICAL CONTRACTING, INSTRUMENTATION SALES & SERVICE
Electronic • Pneumatic • Chemical • Telemetry • Analytical • Computer Systems

Table of Contents

Tab-1:.....Bill of Material

Tab-2:.....Control Panel Hardware

Tab-3:.....Electrical Equipment

Tab-4:.....Construction Drawings

4017 Vista Park Ct. • Sacramento, CA 95834 • 916-646-1999 • Fax 916-646-1096
1717 Solano Way, Unit 34 • Concord, CA 94520 • 925-671-2888 • Fax 925-671-9507
202 South Douty Street • Hanford, CA 93230 • 559-584-7116 • Fax 559-584-8028



ELECTRICAL CONTRACTING, INSTRUMENTATION SALES & SERVICE
Electronic • Pneumatic • Chemical • Telemetry • Analytical • Computer Systems

NOTES FOR THIS SUBMITTAL

4017 Vista Park Ct. • Sacramento, CA 95834 • 916-646-1999 • Fax 916-646-1096
1717 Solano Way, Unit 34 • Concord, CA 94520 • 925-671-2888 • Fax 925-671-9507
202 South Douty Street • Hanford, CA 93230 • 559-584-7116 • Fax 559-584-8028



ELECTRICAL CONTRACTING, INSTRUMENTATION SALES & SERVICE
Electronic • Pneumatic • Chemical • Telemetry • Analytical • Computer Systems

TAB – 1

Bill of Material

4017 Vista Park Ct. • Sacramento, CA 95834 • 916-646-1999 • Fax 916-646-1096
1717 Solano Way, Unit 34 • Concord, CA 94520 • 925-671-2888 • Fax 925-671-9507
202 South Douty Street • Hanford, CA 93230 • 559-584-7116 • Fax 559-584-8028

Manteca WQCF Digester Improvements
Control Panel List

Item	ID/Qty	Type	Enclosure	Spec	Service	Drawing
1	DIG-PNL-07-210	Valve Control Station	NEMA 12	13422	DIG-VAL-07-211, -212, -213	N7-4
2	DIG-PNL-07-220	Valve Control Station	NEMA 12	13422	DIG-VAL-07-221, -222, -223	N7-3
3	DIG-PNL-07-230	Valve Control Station	NEMA 12	13422	DIG-VAL-07-231, -232, -233	N7-4
4	DIG-PNL-07-240	Valve Control Station	NEMA 12	13422	DIG-VAL-07-241, -242, -243	N7-3
5	FWST-PNL-07-782	Solenoid Valve Control Station	NEMA 4X	13422	Food Waste Receiving Station	N7-16
6	PNL-LSH-07-113	Relay Control Panel	NEMA 4X	13422	Digester No. 1 Level Switch	N7-1
7	PNL-LSH-07-123	Relay Control Panel	NEMA 4X	13422	Digester No. 2 Level Switch	N7-1
8	PNL-LSH-07-133	Relay Control Panel	NEMA 4X	13422	Digester No. 3 Level Switch	N7-2
9	PNL-LSH-07-143	Relay Control Panel	NEMA 4X	13422	Digester No. 4 Level Switch	N7-2
10	PNL-LSH-07-801 PNL-LSL-07-802	Relay Control Panel	NEMA 4X	13422	Ferric Chloride Storage Tank Level Switch	E7-85-C
11	PNL-LSH-07-806 PNL-LSL-07-807	Relay Control Panel	NEMA 4X	13422	Alum Storage Tank Level Switch	E7-85-C

**Manteca WQCF Digester Improvements
Bill of Material
Control Panels**

Item	Manufacturer	Part Number	Valve Control Stations	Solenoid Valve Control Station	Relay Control Panels	Spare Parts / Misc	Total Qty
PANEL HARDWARE							
1	HOFFMAN	A242408LP	4				4
2	HOFFMAN	A24P24	4				4
3	SAGINAW	SCE-1212CHNFSS		1			1
4	SAGINAW	SCE-12P12		1			1
5	SAGINAW	SCE-10086CHNFSS			6		6
6	SAGINAW	SCE-10P8			6		6
7	PHOENIX CONTACT	3044102	240	13	40		293
8	PHOENIX CONTACT	3044128	12	1			13
9	PHOENIX CONTACT	3046100			8		8
10	PHOENIX CONTACT	800886	48	3	12		63
11	PHOENIX CONTACT	3047028	24	2	6		32
12	PHOENIX CONTACT	3030271	A/R	A/R			A/R
13	PHOENIX CONTACT	828736	A/R	A/R	A/R		A/R
14	PHOENIX CONTACT	3240198	40FT				40FT
15	PHOENIX CONTACT	3240192		1FT			1FT
16	PHOENIX CONTACT	3240187			12FT		12FT
17	AUTOMATION DIRECT	DN-R35HS1	20FT	1FT	3FT		24FT

**Manteca WQCF Digester Improvements
Bill of Material
Control Panels**

Item	Description	Manufacturer	Part Number	Valve Control Stations	Solenoid Valve Control Station	Relay Control Panels	Spare Parts / Misc	Total Qty
ELECTRICAL EQUIPMENT								
18	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM, RED, FLUSH HD, 1NC	ALLEN BRADLEY	800H-AR6D2	12				12
19	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM, GREEN, FLUSH HD, 1NO	ALLEN BRADLEY	800H-AR1D1	12				12
20	30.5MM TYPE 4/4X/13 PTT LIGHT, LED, RED, 12-130V AC/DC, 1NO-1NC	ALLEN BRADLEY	800H-QRTH2R	12				12
21	30.5MM TYPE 4/4X/13 PTT LIGHT, LED, GREEN, 12-130V AC/DC, 1NO-1NC	ALLEN BRADLEY	800H-QRTH2G	12	2			14
22	30.5MM TYPE 4/4X/13 2 POS SEL. SWITCH-NON-ILLUM., WHITE, STD. KNOB MAINT., 2NO-1NC	ALLEN BRADLEY	800H-HR2B	12				12
23	30.5MM TYPE 4/4X/13 POS. SEL. SWITCH-NON-ILLUM. WHITE, STD. KNOB MAINT. 1NO+1NC	ALLEN BRADLEY	800H-HR2A		2			2
24	CIRCUIT BREAKER, 120VAC, 20A, 1-POLE	WEIDMULLER	9926251020	4				4
25	CIRCUIT BREAKER, 120VAC, 5A, 1-POLE	WEIDMULLER	9926251005	12	1			13
26	CONTROL RELAY, 120VAC, 15A, DPDT WITH LOCKABLE TEST BUTTON, WITH LED	SQUARE D	RPM22F7	4				4
27	2PDT CONTROL RELAY SOCKET	SQUARE D	RPZF2	4				4
28	FUSE 1A, 5 X 20MM TIME DELAY GLASS TUBE	BUSSMANN	GMC-1A			8		8



ELECTRICAL CONTRACTING, INSTRUMENTATION SALES & SERVICE
Electronic • Pneumatic • Chemical • Telemetry • Analytical • Computer Systems

TAB – 2

Panel Hardware

4017 Vista Park Ct. • Sacramento, CA 95834 • 916-646-1999 • Fax 916-646-1096
1717 Solano Way, Unit 34 • Concord, CA 94520 • 925-671-2888 • Fax 925-671-9507
202 South Douty Street • Hanford, CA 93230 • 559-584-7116 • Fax 559-584-8028



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

Wall Mount Enclosure, Back Panel

2. MANUFACTURER:

Hoffman

3. PART NUMBERS:

A242408LP, A24P24

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

DIG-PNL-07-210, DIG-PNL-07-220, DIG-PNL-07-230, DIG-PNL-07-240

5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Rexel

CONTACT: Kris Shields

PHONE: (707) 426-4009

ADDRESS: 790 Chadbourne Road Suite B, Fairfield, CA 94534

CONTINUOUS HINGE WITH CLAMPS, TYPE 12

INDUSTRY STANDARDS

 UL 508A Listed; Type 12, 13; File No. E61997
 cUL Listed per CSA C22.2 No. 94; Type 12, 13; File No. E61997

 NEMA/EEMAC Type 12 and 13
 CSA, File No. 42186: Type 12
 IEC 60529, IP65

APPLICATION

For applications requiring a bright white interior to increase control visibility, this enclosure includes a padlocking hasp and staple for security and screw-down clamps for secure closure.

SPECIFICATIONS

- 16 or 14 gauge steel
- Seams continuously welded and ground smooth
- External welded-on mounting brackets for easy installation
- Formed external return flanges around all sides of enclosure opening
- Screw-down door clamps
- Removable heavy-gauge continuous hinge pin
- Hasp and staple for padlocking
- Data pocket is high-impact thermoplastic
- Collar studs for mounting optional panels
- Bonding provision on door
- Removable door with continuous hinge
- Oil-resistant gasket

FINISH

 Body: White inside with ANSI 61 gray finish outside.
 Door: ANSI 61 gray inside and outside.

ACCESSORIES

See also Accessories.
 Drip Shield Kit for Type 12 Enclosures
 Electric Heater
 Fast-Operating Clamp Assembly
 Compact Cooling Fans
 Steel and Stainless Steel Window Kits
See also the Popular Cooling and Accessories tables following the Standard Product table.

MODIFICATION AND CUSTOMIZATION

Hoffman excels at modifying and customizing products to your specifications. Contact your local Hoffman sales office or distributor for complete information.

BULLETIN: A12

Standard Product

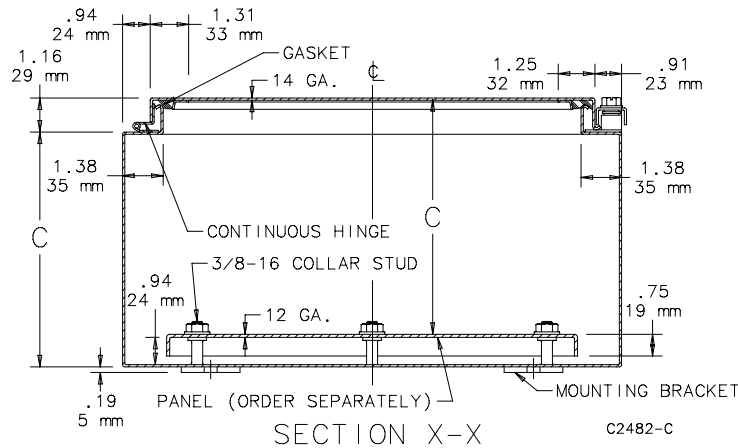
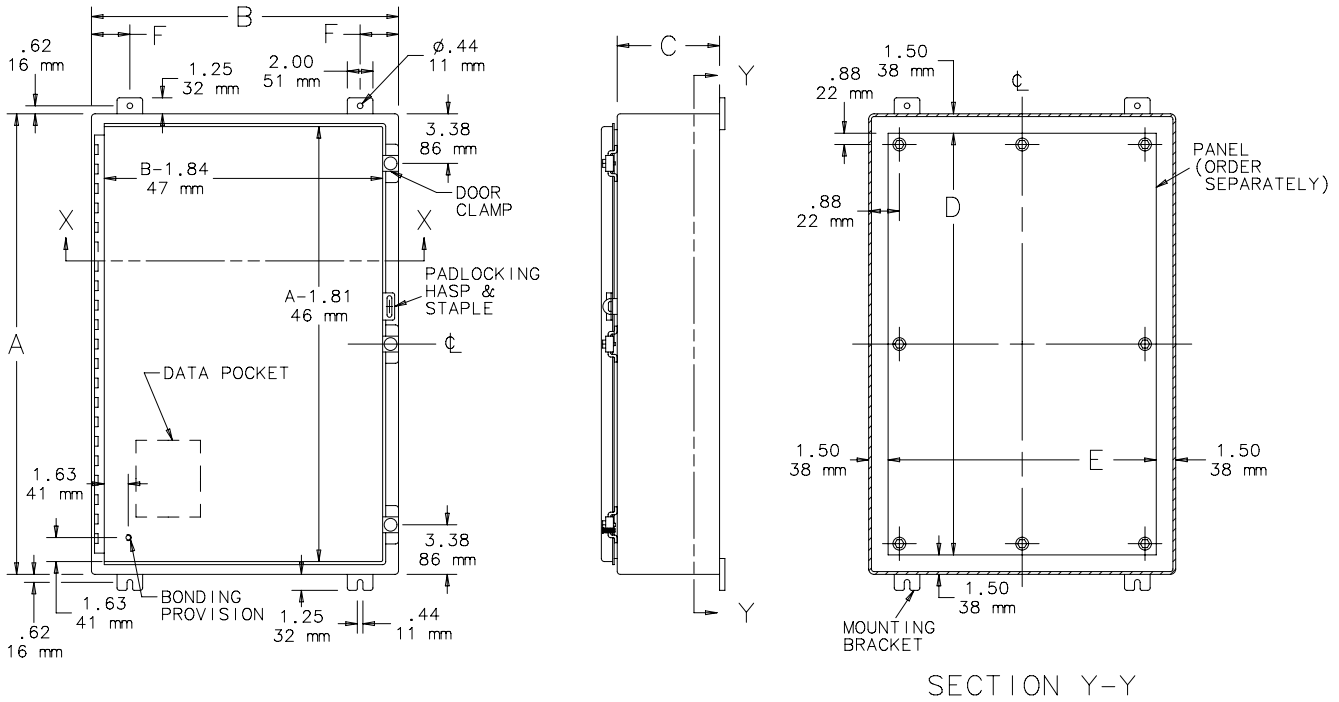
Catalog Number	AxBxC in./mm	Body Gauge	Panel	Conductive Panel	Panel Size D x E in./mm	F in./mm	Number of Clamps	Data Pocket
A122406LP	12.00 x 24.00 x 6.00 305 x 610 x 152	16	A12P24	A12P24G	9.00 x 21.00 229 x 533	3.00 76	2	Small
A161206LP	16.00 x 12.00 x 6.00 406 x 305 x 152	16	A16P12	A16P12G	13.00 x 9.00 330 x 229	1.25 32	2	Small
A161606LP	16.00 x 16.00 x 6.00 406 x 406 x 152	16	A16P16	A16P16G	13.00 x 13.00 330 x 330	3.00 76	2	Small
A162006LP	16.00 x 20.00 x 6.00 406 x 508 x 152	16	A20P16	A20P16G	17.00 x 13.00 432 x 330	3.00 76	2	Small
A201206LP	20.00 x 12.00 x 6.00 508 x 305 x 152	16	A20P12	A20P12G	17.00 x 9.00 432 x 229	1.25 32	2	Small
A201606LP	20.00 x 16.00 x 6.00 508 x 406 x 152	16	A20P16	A20P16G	17.00 x 13.00 432 x 330	3.00 76	2	Small
A202006LP	20.00 x 20.00 x 6.00 508 x 508 x 152	16	A20P20	A20P20G	17.00 x 17.00 432 x 432	3.00 76	2	Small
A202406LP	20.00 x 24.00 x 6.00 508 x 610 x 152	16	A24P20	A24P20G	21.00 x 17.00 533 x 432	3.00 76	2	Small
A241206LP	24.00 x 12.00 x 6.00 610 x 305 x 152	16	A12P24	A12P24G	9.00 x 21.00 229 x 533	1.25 32	2	Small
A241606LP	24.00 x 16.00 x 6.00 610 x 406 x 152	16	A24P16	A24P16G	21.00 x 13.00 533 x 330	3.00 76	2	Small
A242006LP	24.00 x 20.00 x 6.00 610 x 508 x 152	16	A24P20	A24P20G	21.00 x 17.00 533 x 432	3.00 76	2	Small
A242406LP	24.00 x 24.00 x 6.00 610 x 610 x 152	16	A24P24	A24P24G	21.00 x 21.00 533 x 533	3.00 76	2	Small
A301606LP	30.00 x 16.00 x 6.00 762 x 406 x 152	14	A30P16	A30P16G	27.00 x 13.00 686 x 330	3.00 76	2	Small
A302006LP	30.00 x 20.00 x 6.00 762 x 508 x 152	14	A30P20	A30P20G	27.00 x 17.00 686 x 432	3.00 76	2	Small
A302406LP	30.00 x 24.00 x 6.00 762 x 610 x 152	14	A30P24	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Large
A362406LP	36.00 x 24.00 x 6.00 914 x 610 x 152	14	A36P24	A36P24G	33.00 x 21.00 838 x 533	3.00 76	2	Large
A363006LP	36.00 x 30.00 x 6.00 914 x 762 x 152	14	A36P30	A36P30G	33.00 x 27.00 838 x 686	3.00 76	2	Large

Catalog Number	AxBxC in./mm	Body Gauge	Panel	Conductive Panel	Panel Size D x E in./mm	F in./mm	Number of Clamps	Data Pocket
A122408LP	12.00 x 24.00 x 8.00 305 x 610 x 203	16	A12P24	A12P24G	9.00 x 21.00 229 x 533	3.00 76	2	Small
A161208LP	16.00 x 12.00 x 8.00 406 x 305 x 203	16	A16P12	A16P12G	13.00 x 9.00 330 x 229	1.25 32	2	Small
A161608LP	16.00 x 16.00 x 8.00 406 x 406 x 203	16	A16P16	A16P16G	13.00 x 13.00 330 x 330	3.00 76	2	Small
A162008LP	16.00 x 20.00 x 8.00 406 x 508 x 203	16	A20P16	A20P16G	17.00 x 13.00 432 x 330	3.00 76	2	Small
A201208LP	20.00 x 12.00 x 8.00 508 x 305 x 203	16	A20P12	A20P12G	17.00 x 9.00 432 x 229	1.25 32	2	Small
A201608LP	20.00 x 16.00 x 8.00 508 x 406 x 203	16	A20P16	A20P16G	17.00 x 13.00 432 x 330	3.00 76	2	Small
A202008LP	20.00 x 20.00 x 8.00 508 x 508 x 203	16	A20P20	A20P20G	17.00 x 17.00 432 x 432	3.00 76	2	Small
A202408LP	20.00 x 24.00 x 8.00 508 x 610 x 203	16	A24P20	A24P20G	21.00 x 17.00 533 x 432	3.00 76	2	Small
A241208LP	24.00 x 12.00 x 8.00 610 x 305 x 203	16	A12P24	A12P24G	9.00 x 21.00 229 x 533	1.25 32	2	Small
A241608LP	24.00 x 16.00 x 8.00 610 x 406 x 203	16	A24P16	A24P16G	21.00 x 13.00 533 x 330	3.00 76	2	Small
A242008LP	24.00 x 20.00 x 8.00 610 x 508 x 203	14	A24P20	A24P20G	21.00 x 17.00 533 x 432	3.00 76	2	Small
A242408LP	24.00 x 24.00 x 8.00 610 x 610 x 203	16	A24P24	A24P24G	21.00 x 21.00 533 x 533	3.00 76	2	Small
A243008LP	24.00 x 30.00 x 8.00 610 x 762 x 203	14	A30P24G	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Small
A302008LP	30.00 x 20.00 x 8.00 762 x 508 x 203	14	A30P20	A30P20G	27.00 x 17.00 686 x 432	3.00 76	2	Small
A302408LP	30.00 x 24.00 x 8.00 762 x 610 x 203	14	A30P24	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Large
A303008LP	30.00 x 30.00 x 8.00 762 x 762 x 203	14	A30P30	A30P30G	27.00 x 27.00 686 x 686	3.00 76	2	Large
A303608LP	30.00 x 36.00 x 8.00 762 x 914 x 203	14	A36P30	A36P30G	33.00 x 27.00 838 x 686	3.00 76	2	Large
A362408LP	36.00 x 24.00 x 8.00 914 x 610 x 203	14	A36P24	A36P24G	33.00 x 21.00 838 x 533	3.00 76	2	Large
A363008LP	36.00 x 30.00 x 8.00 914 x 762 x 203	14	A36P30	A36P30G	33.00 x 27.00 838 x 686	3.00 76	2	Large
A363608LP	36.00 x 36.00 x 8.00 914 x 914 x 203	14	A36P36	A36P36G	33.00 x 33.00 838 x 838	3.00 76	2	Large
A422408LP	42.00 x 24.00 x 8.00 1067 x 610 x 203	14	A42P24	A42P24G	39.00 x 21.00 991 x 533	3.00 76	2	Large
A423008LP	42.00 x 30.00 x 8.00 1067 x 762 x 203	14	A42P30	A42P30G	39.00 x 27.00 991 x 686	3.00 76	2	Small
A423608LP	42.00 x 36.00 x 8.00 1067 x 914 x 203	14	A42P36	A42P36G	39.00 x 33.00 991 x 838	3.00 76	2	Large
A482408LP	48.00 x 24.00 x 8.00 1219 x 610 x 203	14	A48P24	A48P24G	45.00 x 21.00 1143 x 533	3.00 76	3	Large
A483008LP	48.00 x 30.00 x 8.00 1219 x 762 x 203	14	A48P30	A48P30G	45.00 x 27.00 1143 x 686	3.00 76	3	Small
A483608LP	48.00 x 36.00 x 8.00 1219 x 914 x 203	14	A48P36	A48P36G	45.00 x 33.00 1143 x 838	3.00 76	3	Large
A603608LP	60.00 x 36.00 x 8.00 1524 x 914 x 203	14	A60P36	A60P36G	57.00 x 33.00 1448 x 838	3.00 76	3	Large
A161210LP	16.00 x 12.00 x 10.00 406 x 305 x 254	14	A16P12	A16P12G	13.00 x 9.00 330 x 229	1.25 32	2	Small
A201610LP	20.00 x 16.00 x 10.00 508 x 406 x 254	14	A20P16	A20P16G	17.00 x 13.00 432 x 330	3.00 76	2	Small
A202010LP	20.00 x 20.00 x 10.00 508 x 508 x 254	14	A20P20	A20P20G	17.00 x 17.00 432 x 432	3.00 76	2	Small
A241210LP	24.00 x 12.00 x 10.00 610 x 305 x 254	14	A12P24	A12P24G	9.00 x 21.00 229 x 533	1.25 32	2	Small
A242010LP	24.00 x 20.00 x 10.00 610 x 508 x 254	14	A24P20	A24P20G	21.00 x 17.00 533 x 432	3.00 76	2	Small
A242410LP	24.00 x 24.00 x 10.00 610 x 610 x 254	14	A24P24G	A24P24G	21.00 x 21.00 533 x 533	3.00 76	2	Small
A302010LP	30.00 x 20.00 x 10.00 762 x 508 x 254	14	A30P20	A30P20G	27.00 x 17.00 686 x 432	3.00 76	2	Small
A302410LP	30.00 x 24.00 x 10.00 762 x 610 x 254	14	A30P24	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Large
A362410LP	36.00 x 24.00 x 10.00 914 x 610 x 254	14	A36P24	A36P24G	33.00 x 21.00 838 x 533	3.00 76	2	Large
A363010LP	36.00 x 30.00 x 10.00 914 x 762 x 254	14	A36P30	A36P30G	33.00 x 27.00 838 x 686	3.00 76	2	Large
A423010LP	42.00 x 30.00 x 10.00 1067 x 762 x 254	14	A42P30	A42P30G	39.00 x 27.00 991 x 686	3.00 76	2	Small
A423610LP	42.00 x 36.00 x 10.00 1067 x 914 x 254	14	A42P36	A42P36G	39.00 x 33.00 991 x 838	3.00 76	2	Large

Catalog Number	AxBxC in./mm	Body Gauge	Panel	Conductive Panel	Panel Size D x E in./mm	F in./mm	Number of Clamps	Data Pocket
A483010LP	48.00 x 30.00 x 10.00 1219 x 762 x 254	14	A48P30	A48P30G	45.00 x 27.00 1143 x 686	3.00 76	3	Small
A483610LP	48.00 x 36.00 x 10.00 1219 x 914 x 254	14	A48P36	A48P36G	45.00 x 33.00 1143 x 838	3.00 76	3	Large
A603610LP	60.00 x 36.00 x 10.00 1524 x 914 x 254	14	A60P36	A60P36G	57.00 x 33.00 1448 x 838	3.00 76	3	Large
A201612LP	20.00 x 16.00 x 12.00 508 x 406 x 305	14	A20P16	A20P16G	17.00 x 13.00 432 x 330	3.00 76	2	Small
A242012LP	24.00 x 20.00 x 12.00 610 x 508 x 305	14	A24P20	A24P20G	21.00 x 17.00 533 x 432	3.00 76	2	Small
A242412LP	24.00 x 24.00 x 12.00 610 x 610 x 305	14	A24P24	A24P24G	21.00 x 21.00 533 x 533	3.00 76	2	Small
A302412LP	30.00 x 24.00 x 12.00 762 x 610 x 305	14	A30P24	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Large
A303012LP	30.00 x 30.00 x 12.00 762 x 762 x 305	14	A30P30	A30P30G	27.00 x 27.00 686 x 686	3.00 76	2	Large
A362412LP	36.00 x 24.00 x 12.00 914 x 610 x 305	14	A36P24	A36P24G	33.00 x 21.00 838 x 533	3.00 76	2	Large
A363012LP	36.00 x 30.00 x 12.00 914 x 762 x 305	14	A36P30	A36P30G	33.00 x 27.00 838 x 686	3.00 76	2	Large
A363612LP	36.00 x 36.00 x 12.00 914 x 914 x 305	14	A36P36	A36P36G	33.00 x 33.00 838 x 838	3.00 76	2	Large
A423012LP	42.00 x 30.00 x 12.00 1067 x 762 x 305	14	A42P30	A42P30G	39.00 x 27.00 991 x 686	3.00 76	2	Small
A423612LP	42.00 x 36.00 x 12.00 1067 x 914 x 305	14	A42P36	A42P36G	39.00 x 33.00 991 x 838	3.00 76	2	Large
A483612LP	48.00 x 36.00 x 12.00 1219 x 914 x 305	14	A48P36	A48P36G	45.00 x 33.00 1143 x 838	3.00 76	3	Large
A603612LP	60.00 x 36.00 x 12.00 1524 x 914 x 305	14	A60P36	A60P36G	57.00 x 33.00 1448 x 838	3.00 76	3	Large
A723612LP	72.00 x 36.00 x 12.00 1829 x 914 x 305	14	A72P36	A72P36G	69.00 x 33.00 1753 x 838	3.00 76	3	Large
A242016LP	24.00 x 20.00 x 16.00 610 x 508 x 406	14	A24P20	A24P20G	21.00 x 17.00 533 x 432	3.00 76	2	Small
A242416LP	24.00 x 24.00 x 16.00 610 x 610 x 406	14	A24P24	A24P24G	21.00 x 21.00 533 x 533	3.00 76	2	Small
A302416LP	30.00 x 24.00 x 16.00 762 x 610 x 406	14	A30P24	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Large
A363016LP	36.00 x 30.00 x 16.00 914 x 762 x 406	14	A36P30	A36P30G	33.00 x 27.00 838 x 686	3.00 76	2	Large
A423616LP	42.00 x 36.00 x 16.00 1067 x 914 x 406	14	A42P36	A42P36G	39.00 x 33.00 991 x 838	3.00 76	2	Large
A483616LP	48.00 x 36.00 x 16.00 1219 x 914 x 406	14	A48P36	A48P36G	45.00 x 33.00 1143 x 838	3.00 76	3	Large
A603616LP	60.00 x 36.00 x 16.00 1524 x 914 x 406	14	A60P36	A60P36G	57.00 x 33.00 1448 x 838	3.00 76	3	Large
A302420LP	30.00 x 24.00 x 20.00 762 x 610 x 508	14	A30P24	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Large
A363020LP	36.00 x 30.00 x 20.00 914 x 762 x 508	14	A36P30	A36P30G	33.00 x 27.00 838 x 686	3.00 76	2	Large
A483620LP	48.00 x 36.00 x 20.00 1219 x 914 x 508	14	A48P36	A48P36G	45.00 x 33.00 1143 x 838	3.00 76	3	Large
A603620LP	60.00 x 36.00 x 20.00 1524 x 914 x 508	14	A60P36	A60P36G	57.00 x 33.00 1448 x 838	3.00 76	3	Large
A302424LP	30.00 x 24.00 x 24.00 762 x 610 x 610	14	A30P24	A30P24G	27.00 x 21.00 686 x 533	3.00 76	2	Large

Purchase panels separately. Optional stainless steel, conductive, composite and aluminum panels are available for most sizes.

Small Data Pocket is 6.00 in. x 6.00 in. Large Data Pocket is 12.00 in. x 12.00 in.



Popular Cooling Products

Enclosure Depth (C Dimension)	Filter Fans*
6 in. (152 mm)	SF0416414
8 in. (203 mm)	SF0516414
10 in. (254 mm)	SF0916414
12 in. (305 mm)	SF1016414
16 in. (406 mm)	SF1316414
20 in. (508 mm)	SF1316414
24 in. (610 mm)	SF1316414

*Important: Visit tools.hoffmanonline.com/attachments to access our **Cooling Selection Tool** to determine the appropriate cooling solution for your application.

Popular Accessories

Enclosure Width (B Dimension)	Light	Hole Seals	Window Kits
12 in. (305 mm)	LEDPUCK	AS050	APWK53NF
16 in. (406 mm)	LEDA2M35	AS050	APWK53NF
20 in. (508 mm)	LED24V15	AS050	APWK53NF
24 in. (610 mm)	LED24V15	AS050	APWK53NF
30 in. (762 mm)	LED24V15	AS050	APWK53NF
36 in. (914 mm)	LED24V15	AS050	APWK53NF



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

Wall Mount Enclosure, Back Panel

2. MANUFACTURER:

Saginaw

3. PART NUMBERS:

SCE-1212CHNFSS, SCE-12P12
SCE-10086CHNFSS, SCE-10P8

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

FWST-PNL-07-782, PNL-LSH-07-113, PNL-LSH-07-123, PNL-LSH-07-133,
PNL-LSH-07-143, PNL-LSH-07-801/PNL-LSL-07-802, PNL-LSH-07-806/PNL-LSL-07-807

5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Electrical Equipment Company

CONTACT: Tom Mansu

PHONE: (916) 381-5710

ADDRESS: 2 Light Sky Ct. Suite 1, Sacramento, CA 95828

304 & 316 Stainless Steel Continuous Hinge Enclosures

Application -

Designed for use as electrical junction boxes, terminal wiring boxes, instrument housings, and electrical control enclosures. For use in wet and hosed down areas and in corrosive atmospheres. For installation information, consult our Installation Manual at www.saginawcontrol.com.

Construction -

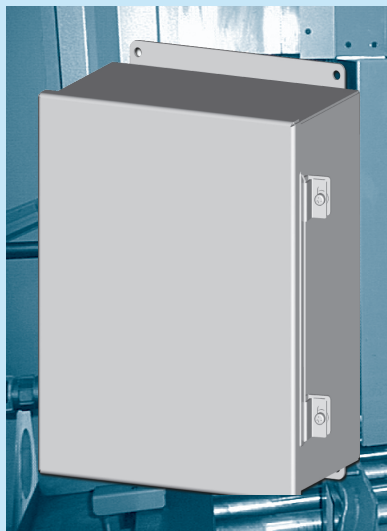
- 0.075" stainless steel Type 304 & 316/316L
- Seams continuously welded and ground smooth.
- Oil-resistant door gasket.
- Ground stud on door.
- Stainless steel continuous hinge.
- Standoffs provided for mounting optional sub-panels.

Finish -

#4 brushed finish on all exterior surfaces. Optional sub-panels are powder coated white.

IS5 - Industry Standards -

NEMA Type 4, 4X, 12 & Type 13
UL Listed Type 4, 4X & 12
CSA Type 4, 4X & 12
IEC 60529 IP66



304 STAINLESS STEEL CONTINUOUS HINGE ENCLOSURES

ENCLOSURE PRODUCT CODE S1						SUB-PANEL (P3)			
Catalog No.	Height (A)	Width (B)	Depth (C)	Industry Standard	List Price	Catalog No.	Panel Height (D)	Panel Width (E)	List Price
SCE-6044CHNFSS	6.00	4.00	4.00	IS5	176.45	SCE-6P4	4.88	2.88	3.01
SCE-606CHNFSS	6.00	6.00	4.00	IS5	220.89	SCE-6P6	4.88	4.88	3.61
SCE-8064CHNFSS	8.00	6.00	4.00	IS5	229.90	SCE-8P6	6.75	4.88	4.17
SCE-1008CHNFSS	10.00	8.00	4.00	IS5	332.84	SCE-10P8	8.75	6.88	5.70
SCE-10086CHNFSS	10.00	8.00	6.00	IS5	364.04	SCE-10P8	8.75	6.88	5.70
SCE-12106CHNFSS	12.00	10.00	6.00	IS5	411.42	SCE-12P10	10.75	8.88	7.72
SCE-12108CHNFSS	12.00	10.00	8.00	IS5	438.43	SCE-12P10	10.75	8.88	7.72
SCE-1212CHNFSS	12.00	12.00	6.00	IS5	440.78	SCE-12P12	10.75	10.88	9.08
SCE-1412CHNFSS	14.00	12.00	6.00	IS5	465.15	SCE-14P12	12.75	10.88	10.13
SCE-1614CHNFSS	16.00	14.00	6.00	IS5	548.38	SCE-16P14	14.75	12.88	19.95

316 STAINLESS STEEL CONTINUOUS HINGE ENCLOSURES

ENCLOSURE PRODUCT CODE S7						SUB-PANEL (P3)			
Catalog No.	Height (A)	Width (B)	Depth (C)	Industry Standard	List Price	Catalog No.	Panel Height (D)	Panel Width (E)	List Price
SCE-6044CHNFSS6	6.00	4.00	4.00	IS5	211.74	SCE-6P4	4.88	2.88	3.01
SCE-606CHNFSS6	6.00	6.00	4.00	IS5	241.06	SCE-6P6	4.88	4.88	3.61
SCE-8064CHNFSS6	8.00	6.00	4.00	IS5	263.88	SCE-8P6	6.75	4.88	4.17
SCE-1008CHNFSS6	10.00	8.00	4.00	IS5	389.42	SCE-10P8	8.75	6.88	5.70
SCE-10086CHNFSS6	10.00	8.00	6.00	IS5	425.88	SCE-10P8	8.75	6.88	5.70
SCE-12106CHNFSS6	12.00	10.00	6.00	IS5	457.71	SCE-12P10	10.75	8.88	7.72
SCE-12108CHNFSS6	12.00	10.00	8.00	IS5	526.12	SCE-12P10	10.75	8.88	7.72
SCE-1212CHNFSS6	12.00	12.00	6.00	IS5	504.94	SCE-12P12	10.75	10.88	9.08
SCE-1412CHNFSS6	14.00	12.00	6.00	IS5	552.19	SCE-14P12	12.75	10.88	10.13
SCE-1614CHNFSS6	16.00	14.00	6.00	IS5	658.05	SCE-16P14	14.75	12.88	19.95

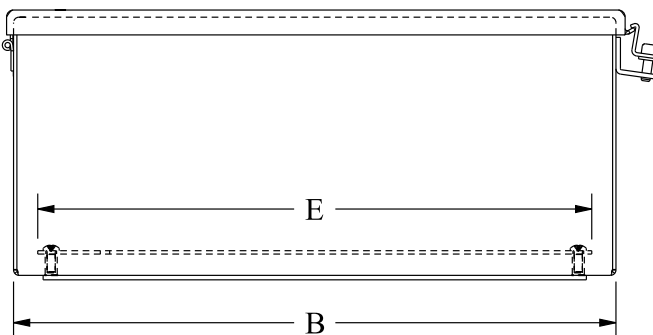
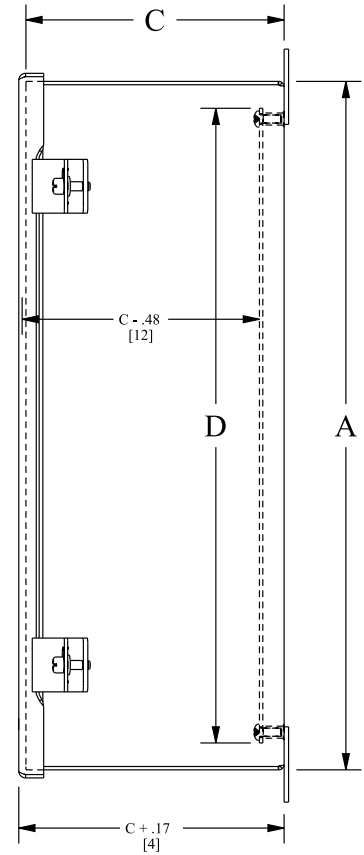
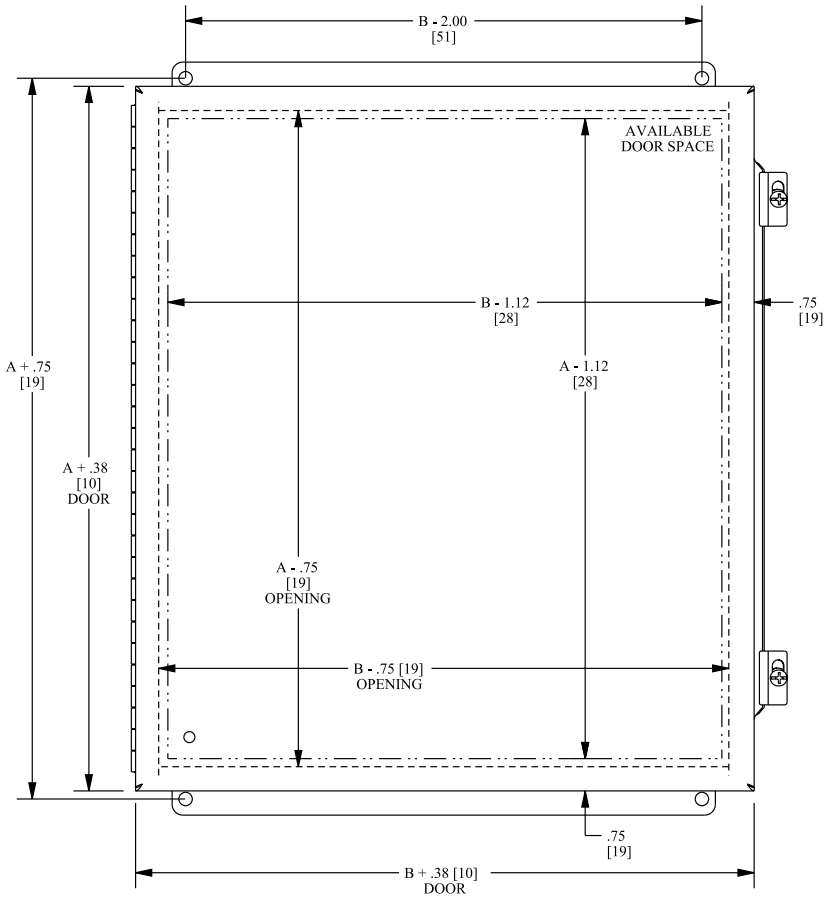
Available within 10 working days if not in stock

Phone (989) 799-6871
Fax (989) 799-4524

SCE SAGINAW
CONTROL &
ENGINEERING
Your Enclosure Source

STAINLESS STEEL CONTINUOUS HINGE ENCLOSURES

TECHNICAL DATA



NOTE:
SUB-PANEL MUST BE ORDERED SEPARATELY

CLAMPING NOTE:
ENCLOSURES < 10.00 [254] IN HEIGHT REQUIRE
3 CLAMPS ON DOOR.



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

Feed Through Terminal Blocks, Fuse Terminal Blocks, Terminal Block Ground
End Brackets, End Covers, Jumpers, Markers
Wire Duct

2. MANUFACTURER:

Phoenix Contact

3. PART NUMBERS:

3044102, 3044128, 3046100,
0800886, 3047028, 3030271, 0828736,
3240198, 3240192, 3240187

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

DIG-PNL-07-210, DIG-PNL-07-220, DIG-PNL-07-230, DIG-PNL-07-240,
FWST-PNL-07-782, PNL-LSH-07-113, PNL-LSH-07-123, PNL-LSH-07-133,
PNL-LSH-07-143, PNL-LSH-07-801/PNL-LSL-07-802, PNL-LSH-07-806/PNL-LSL-07-807

5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Graybar

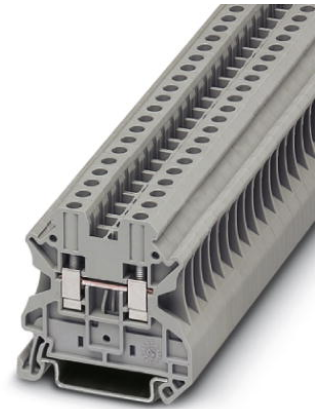
CONTACT: Maria Reynaga

PHONE: (916) 561-1900

ADDRESS: 1211 Fee Drive, Sacramento, CA 95815

UT 4

Order No.: 3044102

<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3044102>

Feed-through modular terminal block, Type of connection: Screw connection, Screw connection, Cross section: 0.14 mm² - 6 mm², AWG 26 - 10, Width: 6.2 mm, Color: gray, Mounting type: NS 35/7,5, NS 35/15



Commercial data	
EAN	4017918960391
Pack	50 pcs.
Customs tariff	85369010
Weight/Piece	0.009516 KG
Catalog page information	Page 27 (CL-2009)

Product notes

WEEE/RoHS-compliant since:
01/01/2003



<http://www.download.phoenixcontact.com>
Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation. The General Terms and Conditions of Use apply to Internet downloads.

Technical data**General**

Number of levels	1
Number of connections	2
Color	gray

Insulating material	PA
Inflammability class acc. to UL 94	V0

Dimensions

Width	6.2 mm
Length	47.7 mm
Height NS 35/7,5	47.5 mm
Height NS 35/15	55 mm

Technical data

Maximum load current	41 A (with 6 mm ² conductor cross section)
Rated surge voltage	8 kV
Pollution degree	3
Surge voltage category	III
Insulating material group	I
Connection in acc. with standard	IEC 60947-7-1
Nominal current I _N	32 A (with 4 mm ² conductor cross section)
Nominal voltage U _N	1000 V
Open side panel	ja

Connection data

Conductor cross section solid min.	0.14 mm ²
Conductor cross section solid max.	6 mm ²
Conductor cross section stranded min.	0.14 mm ²
Conductor cross section stranded max.	6 mm ²
Conductor cross section AWG/kcmil min.	26
Conductor cross section AWG/kcmil max	10
Conductor cross section stranded, with ferrule without plastic sleeve min.	0.14 mm ²
Conductor cross section stranded, with ferrule without plastic sleeve max.	4 mm ²
Conductor cross section stranded, with ferrule with plastic sleeve min.	0.14 mm ²
Conductor cross section stranded, with ferrule with plastic sleeve max.	4 mm ²
2 conductors with same cross section, solid min.	0.14 mm ²
2 conductors with same cross section, solid max.	1.5 mm ²
2 conductors with same cross section, stranded min.	0.14 mm ²

2 conductors with same cross section, stranded max.	1.5 mm ²
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, min.	0.5 mm ²
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, max.	2.5 mm ²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, min.	0.14 mm ²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, max.	1.5 mm ²
Type of connection	Screw connection
Stripping length	9 mm
Internal cylindrical gage	A4
Screw thread	M3
Tightening torque, min	0.6 Nm
Tightening torque max	0.8 Nm

Certificates / Approvals



Certification CB, CSA, CUL, DNV, GL, LR, UL, VDE-PZI

Certification Ex: IECEX, KEMA-EX

CSA

Nominal voltage U_N	600 V
Nominal current I_N	30 A
AWG/kcmil	26-10

CUL

Nominal voltage U_N	600 V
Nominal current I_N	30 A
AWG/kcmil	26-10

UL

Nominal voltage U_N	600 V
Nominal current I_N	30 A
AWG/kcmil	26-10

Accessories		
Item	Designation	Description
Assembly		
3047167	ATP-UT	Partition plate, Length: 50 mm, Width: 2 mm, Height: 48 mm, Color: gray
3022276	CLIPFIX 35-5	Snap-on end bracket, for NS 35/7.5 or NS 35/15 DIN rail, can be fitted with Zack strip ZB 5 and ZBF 5, terminal strip marker KLM 2 and KLM, parking facility for FBS...5, FBS...6, KSS 5, KSS 6, width: 5,15 mm, color: gray
3047028	D-UT 2,5/10	End cover, Length: 47.7 mm, Width: 2.2 mm, Height: 48.4 mm, Color: gray
0801762	NS 35/ 7,5 CU UNPERF 2000MM	DIN rail, material: Copper, unperforated, height 7.5 mm, width 35 mm, length: 2 m
1207640	NS 35/ 7,5 PERF 755MM	NS 35 DIN rail, height 7.5 mm, length 755 mm
1207653	NS 35/ 7,5 PERF 955MM	NS35 DIN rail, height 7.5 mm, length 955 mm
1207666	NS 35/ 7,5 PERF 1155MM	NS 35 DIN rail, height 7.5 mm, length 1155 mm
0801733	NS 35/ 7,5 PERF 2000MM	DIN rail, material: Steel, galvanized and passivated with a thick layer, perforated, height 7.5 mm, width 35 mm, length: 2 m
0801681	NS 35/ 7,5 UNPERF 2000MM	DIN rail, material: Steel, unperforated, height 7.5 mm, width 35 mm, length: 2 m
1201756	NS 35/15 AL UNPERF 2000MM	DIN rail, deep-drawn, high profile, unperforated, 1.5 mm thick, material: Aluminum, height 15 mm, width 35 mm, length 2 m
1201895	NS 35/15 CU UNPERF 2000MM	DIN rail, material: Copper, unperforated, 1.5 mm thick, height 15 mm, width 35 mm, length: 2 m
1207679	NS 35/15 PERF 755MM	NS 35 DIN rail, perforated, height 15 mm, length 755 mm
1207682	NS 35/15 PERF 955MM	NS 35 DIN rail, perforated, height 15 mm, length 955 mm
1207695	NS 35/15 PERF 1155MM	NS 35 DIN rail, perforated, height 15 mm, length 1155 mm
1201730	NS 35/15 PERF 2000MM	DIN rail, material: Steel, perforated, height 15 mm, width 35 mm, length: 2 m
1201714	NS 35/15 UNPERF 2000MM	DIN rail, material: Steel, unperforated, height 15 mm, width 35 mm, length: 2 m
1201798	NS 35/15-2,3 UNPERF 2000MM	DIN rail, material: Steel, unperforated, 2.3 mm thick, height 15 mm, width 35 mm, length: 2 m
Bridges		
3030336	FBS 2-6	Cross connector/bridge, Number of positions: 2, Color: red
3030242	FBS 3-6	Cross connector/bridge, Number of positions: 3, Color: red
3030255	FBS 4-6	Cross connector/bridge, Number of positions: 4, Color: red
3030349	FBS 5-6	Cross connector/bridge, Number of positions: 5, Color: red
3030271	FBS 10-6	Cross connector/bridge, Number of positions: 10, Color: red

3030365	FBS 20-6	Cross connector/bridge, Number of positions: 20, Color: red
3032224	FBS 50-6	Cross connector/bridge, Number of positions: 50, Color: red

Marking

0811228	X-PEN 0,35	Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm
1051016	ZB 6,LGS:FORTL.ZAHLEN	Zack strip, 10-section, printed horizontally: with the numbers, 1-10, 11-20 etc. up to 991-1000, color: white
5060935	ZB 6/WH-100:UNBEDRUCKT	Zack strip, unprinted: For individual labeling with M-PEN, ZB-T or CMS system, large batch, sufficient for labeling 1000 terminal blocks, for a terminal width of 6.2 mm, color: White
1050499	ZB 6:SO/CMS	Zack strip, 10-section, divisible, special printing, marking according to customer requirements

Plug/Adapter

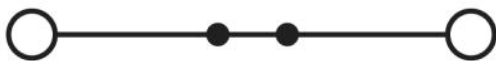
0201689	MPS-IH BU	Insulating sleeve, for MPS metal part, Color: blue
0201676	MPS-IH RD	Insulating sleeve, Color: red
0201663	MPS-IH WH	Insulating sleeve, for MPS metal part, Color: white
0201744	MPS-MT	Metal part
3030925	PAI-4	Test adapter, Color: gray
3030996	PS-6	Test adapter, Color: red

Tools

1205053	SZS 0,6X3,5	Screwdriver, bladed, matches all screw terminal blocks up to 4.0 mm ² connection cross section, blade: 0.6 x 3.5 mm, without VDE approval
---------	-------------	--

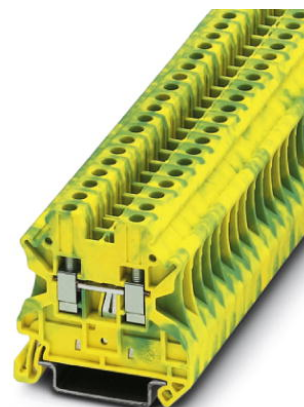
Diagrams/Drawings

Circuit diagram



UT 4-PE

Order No.: 3044128



<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3044128>

Universal ground terminal block, Type of connection: Screw connection, Screw connection, Cross section: 0.14 mm² - 6 mm², AWG 26 - 10, Width: 6.2 mm, Color: green-yellow, Mounting type: NS 35/7,5, NS 35/15



Commercial data

EAN	4017918960407
Pack	50 pcs.
Customs tariff	85369010
Weight/Piece	0.01325 KG
Catalog page information	Page 33 (CL-2009)

Product notes

WEEE/RoHS-compliant since: 01/01/2003



<http://www.download.phoenixcontact.com>
Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation. The General Terms and Conditions of Use apply to Internet downloads.

Technical data

General

Number of levels	1
Number of connections	2
Color	green-yellow

Insulating material	PA
Inflammability class acc. to UL 94	V0

Dimensions

Width	6.2 mm
Length	47.7 mm
Height NS 35/7,5	47.5 mm
Height NS 35/15	55 mm

Technical data

Rated surge voltage	8 kV
Pollution degree	3
Surge voltage category	III
Insulating material group	I
Connection in acc. with standard	IEC 60947-7-2
Open side panel	ja

Connection data

Conductor cross section solid min.	0.14 mm ²
Conductor cross section solid max.	6 mm ²
Conductor cross section stranded min.	0.14 mm ²
Conductor cross section stranded max.	6 mm ²
Conductor cross section AWG/kcmil min.	26
Conductor cross section AWG/kcmil max	10
Conductor cross section stranded, with ferrule without plastic sleeve min.	0.14 mm ²
Conductor cross section stranded, with ferrule without plastic sleeve max.	4 mm ²
Conductor cross section stranded, with ferrule with plastic sleeve min.	0.14 mm ²
Conductor cross section stranded, with ferrule with plastic sleeve max.	4 mm ²
2 conductors with same cross section, solid min.	0.14 mm ²
2 conductors with same cross section, solid max.	1.5 mm ²
2 conductors with same cross section, stranded min.	0.14 mm ²
2 conductors with same cross section, stranded max.	1.5 mm ²

2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, min.	0.5 mm ²
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, max.	2.5 mm ²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, min.	0.14 mm ²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, max.	1.5 mm ²
Type of connection	Screw connection
Stripping length	9 mm
Internal cylindrical gage	A4
Screw thread	M3
Tightening torque, min	0.6 Nm
Tightening torque max	0.8 Nm

Certificates / Approvals



Certification CB, CSA, CUL, DNV, GL, LR, UL, VDE-PZI

Certification Ex: IECEx, KEMA-EX

CSA

AWG/kcmil	26-10
-----------	-------

CUL

AWG/kcmil	26-10
-----------	-------

UL

AWG/kcmil	26-10
-----------	-------

Accessories

Item	Designation	Description
Assembly		
3047167	ATP-UT	Partition plate, Length: 50 mm, Width: 2 mm, Height: 48 mm, Color: gray

3022276	CLIPFIX 35-5	Snap-on end bracket, for NS 35/7.5 or NS 35/15 DIN rail, can be fitted with Zack strip ZB 5 and ZBF 5, terminal strip marker KLM 2 and KLM, parking facility for FBS...5, FBS...6, KSS 5, KSS 6, width: 5,15 mm, color: gray
3047028	D-UT 2,5/10	End cover, Length: 47.7 mm, Width: 2.2 mm, Height: 48.4 mm, Color: gray
0801762	NS 35/ 7,5 CU UNPERF 2000MM	DIN rail, material: Copper, unperforated, height 7.5 mm, width 35 mm, length: 2 m
1207640	NS 35/ 7,5 PERF 755MM	NS 35 DIN rail, height 7.5 mm, length 755 mm
1207653	NS 35/ 7,5 PERF 955MM	NS35 DIN rail, height 7.5 mm, length 955 mm
1207666	NS 35/ 7,5 PERF 1155MM	NS 35 DIN rail, height 7.5 mm, length 1155 mm
0801733	NS 35/ 7,5 PERF 2000MM	DIN rail, material: Steel, galvanized and passivated with a thick layer, perforated, height 7.5 mm, width 35 mm, length: 2 m
0801681	NS 35/ 7,5 UNPERF 2000MM	DIN rail, material: Steel, unperforated, height 7.5 mm, width 35 mm, length: 2 m
1201756	NS 35/15 AL UNPERF 2000MM	DIN rail, deep-drawn, high profile, unperforated, 1.5 mm thick, material: Aluminum, height 15 mm, width 35 mm, length 2 m
1201895	NS 35/15 CU UNPERF 2000MM	DIN rail, material: Copper, unperforated, 1.5 mm thick, height 15 mm, width 35 mm, length: 2 m
1207679	NS 35/15 PERF 755MM	NS 35 DIN rail, perforated, height 15 mm, length 755 mm
1207682	NS 35/15 PERF 955MM	NS 35 DIN rail, perforated, height 15 mm, length 955 mm
1207695	NS 35/15 PERF 1155MM	NS 35 DIN rail, perforated, height 15 mm, length 1155 mm
1201730	NS 35/15 PERF 2000MM	DIN rail, material: Steel, perforated, height 15 mm, width 35 mm, length: 2 m
1201714	NS 35/15 UNPERF 2000MM	DIN rail, material: Steel, unperforated, height 15 mm, width 35 mm, length: 2 m
1201798	NS 35/15-2,3 UNPERF 2000MM	DIN rail, material: Steel, unperforated, 2.3 mm thick, height 15 mm, width 35 mm, length: 2 m

Bridges

3030336	FBS 2-6	Cross connector/bridge, Number of positions: 2, Color: red
3030242	FBS 3-6	Cross connector/bridge, Number of positions: 3, Color: red
3030255	FBS 4-6	Cross connector/bridge, Number of positions: 4, Color: red
3030349	FBS 5-6	Cross connector/bridge, Number of positions: 5, Color: red
3030271	FBS 10-6	Cross connector/bridge, Number of positions: 10, Color: red
3030365	FBS 20-6	Cross connector/bridge, Number of positions: 20, Color: red
3032224	FBS 50-6	Cross connector/bridge, Number of positions: 50, Color: red

Marking

0811228	X-PEN 0,35	Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm
---------	------------	---

1051016	ZB 6,LGS:FORTL.ZAHLEN	Zack strip, 10-section, printed horizontally: with the numbers, 1-10, 11-20 etc. up to 991-1000, color: white
5060935	ZB 6/WH-100:UNBEDRUCKT	Zack strip, unprinted: For individual labeling with M-PEN, ZB-T or CMS system, large batch, sufficient for labeling 1000 terminal blocks, for a terminal width of 6.2 mm, color: White
1050499	ZB 6:SO/CMS	Zack strip, 10-section, divisible, special printing, marking according to customer requirements

Plug/Adapter

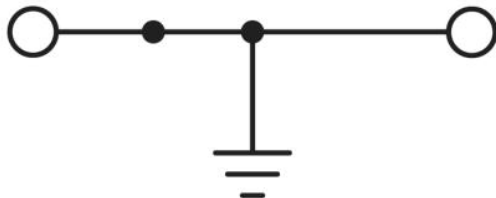
0201689	MPS-IH BU	Insulating sleeve, for MPS metal part, Color: blue
0201676	MPS-IH RD	Insulating sleeve, Color: red
0201663	MPS-IH WH	Insulating sleeve, for MPS metal part, Color: white
0201744	MPS-MT	Metal part
3030925	PAI-4	Test adapter, Color: gray
3030996	PS-6	Test adapter, Color: red

Tools

1205053	SZS 0,6X3,5	Screwdriver, bladed, matches all screw terminal blocks up to 4.0 mm ² connection cross section, blade: 0.6 x 3.5 mm, without VDE approval
---------	-------------	--

Diagrams/Drawings

Circuit diagram



UT 4-HESILA 250 (5X20)

Order No.: 3046100

The illustration shows version UT 4-HESILED 24

<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3046100>

Fuse terminal block with LED for assembly on NS 35, for 5 x 20
cartridge fuse inserts

Commercial data

EAN	4017918960957
Pack	50 pcs.
Customs tariff	85369010
Weight/Piece	0.018305 KG
Catalog page information	Page 44 (CL-2009)

Product notes

WEEE/RoHS-compliant since:
07/01/2006

<http://www.download.phoenixcontact.com>
Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation. The General Terms and Conditions of Use apply to Internet downloads.

Technical data

General

Number of levels	1
Number of connections	2
Color	black
Insulating material	PA
Inflammability class acc. to UL 94	V0

Dimensions

Width	6.2 mm
Length	57.8 mm
Height NS 35/7,5	73 mm
Height NS 35/15	80.5 mm

Technical data

Fuse	G / 5 x 20
Fuse type	Glass
LED voltage range	110 V AC ... 250 V AC
Rated surge voltage	4 kV
Pollution degree	3
Surge voltage category	III
Insulating material group	I
Connection in acc. with standard	IEC 60947-7-3
Nominal current I_N	6.3 A (if used as disconnect terminal block. With fuse, the current is determined by the fuse used.)
Nominal voltage U_N	500 V (if used as disconnect terminal block. With fuse, the voltage is determined by the light indicator used.)
	500 V (if used as disconnect terminal block. With fuse, the voltage is determined by the light indicator used.)
Power loss	≥ 1.6 W (With single arrangement of the fuse terminal block in the event of overload)
	≥ 1.6 W (With interconnected arrangement of several fuse terminal blocks in the event of overload)
	≥ 4 W (With single arrangement of the fuse terminal block in the event of a short-circuit)
	≥ 2.5 W (With interconnected arrangement of several fuse terminal blocks in the event of a short-circuit)
LED voltage range	110 V AC ... 250 V AC
LED current range	0.1 mA ... 0.5 mA

Connection data

Conductor cross section solid min.	0.14 mm ²
Conductor cross section solid max.	6 mm ²
Conductor cross section stranded min.	0.5 mm ²
Conductor cross section stranded max.	6 mm ²
Conductor cross section AWG/kcmil min.	26
Conductor cross section AWG/kcmil max	10

Conductor cross section stranded, with ferrule without plastic sleeve min.	0.14 mm ²
Conductor cross section stranded, with ferrule without plastic sleeve max.	4 mm ²
Conductor cross section stranded, with ferrule with plastic sleeve min.	0.14 mm ²
Conductor cross section stranded, with ferrule with plastic sleeve max.	4 mm ²
2 conductors with same cross section, solid min.	0.14 mm ²
2 conductors with same cross section, solid max.	1.5 mm ²
2 conductors with same cross section, stranded min.	0.14 mm ²
2 conductors with same cross section, stranded max.	1.5 mm ²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, min.	0.14 mm ²
2 conductors with same cross section, stranded, ferrules without plastic sleeve, max.	1.5 mm ²
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, min.	0.5 mm ²
2 conductors with same cross section, stranded, TWIN ferrules with plastic sleeve, max.	2.5 mm ²
Type of connection	Screw connection
Stripping length	9 mm
Internal cylindrical gage	A4
Screw thread	M3
Tightening torque, min	0.6 Nm
Tightening torque max	0.8 Nm

Certificates / Approvals



Certification

CB, CSA, CUL, DNV, GL, KEMA, LR, UL

CSA

Nominal voltage U_N	250 V
Nominal current I_N	6.3 A
AWG/kcmil	26-10

CUL

Nominal voltage U_N	600 V
Nominal current I_N	6.3 A
AWG/kcmil	26-10

UL

Nominal voltage U_N	600 V
Nominal current I_N	6.3 A
AWG/kcmil	26-10

Accessories

Item	Designation	Description
------	-------------	-------------

Assembly

3022276	CLIPFIX 35-5	Snap-on end bracket, for NS 35/7.5 or NS 35/15 DIN rail, can be fitted with Zack strip ZB 5 and ZBF 5, terminal strip marker KLM 2 and KLM, parking facility for FBS...5, FBS...6, KSS 5, KSS 6, width: 5,15 mm, color: gray
0801762	NS 35/ 7,5 CU UNPERF 2000MM	DIN rail, material: Copper, unperforated, height 7.5 mm, width 35 mm, length: 2 m
1207640	NS 35/ 7,5 PERF 755MM	NS 35 DIN rail, height 7.5 mm, length 755 mm
1207653	NS 35/ 7,5 PERF 955MM	NS35 DIN rail, height 7.5 mm, length 955 mm
1207666	NS 35/ 7,5 PERF 1155MM	NS 35 DIN rail, height 7.5 mm, length 1155 mm
0801733	NS 35/ 7,5 PERF 2000MM	DIN rail, material: Steel, galvanized and passivated with a thick layer, perforated, height 7.5 mm, width 35 mm, length: 2 m
0801681	NS 35/ 7,5 UNPERF 2000MM	DIN rail, material: Steel, unperforated, height 7.5 mm, width 35 mm, length: 2 m
1201756	NS 35/15 AL UNPERF 2000MM	DIN rail, deep-drawn, high profile, unperforated, 1.5 mm thick, material: Aluminum, height 15 mm, width 35 mm, length 2 m
1201895	NS 35/15 CU UNPERF 2000MM	DIN rail, material: Copper, unperforated, 1.5 mm thick, height 15 mm, width 35 mm, length: 2 m
1207679	NS 35/15 PERF 755MM	NS 35 DIN rail, perforated, height 15 mm, length 755 mm
1207682	NS 35/15 PERF 955MM	NS 35 DIN rail, perforated, height 15 mm, length 955 mm
1207695	NS 35/15 PERF 1155MM	NS 35 DIN rail, perforated, height 15 mm, length 1155 mm
1201730	NS 35/15 PERF 2000MM	DIN rail, material: Steel, perforated, height 15 mm, width 35 mm, length: 2 m
1201714	NS 35/15 UNPERF 2000MM	DIN rail, material: Steel, unperforated, height 15 mm, width 35 mm, length: 2 m
1201798	NS 35/15-2,3 UNPERF 2000MM	DIN rail, material: Steel, unperforated, 2.3 mm thick, height 15 mm, width 35 mm, length: 2 m
3004207	VS	Connection pin, Length: 1000 mm, Color: white

Bridges

3030336	FBS 2-6	Cross connector/bridge, Number of positions: 2, Color: red
3030242	FBS 3-6	Cross connector/bridge, Number of positions: 3, Color: red
3030255	FBS 4-6	Cross connector/bridge, Number of positions: 4, Color: red
3030349	FBS 5-6	Cross connector/bridge, Number of positions: 5, Color: red
3030271	FBS 10-6	Cross connector/bridge, Number of positions: 10, Color: red
3030365	FBS 20-6	Cross connector/bridge, Number of positions: 20, Color: red
3032224	FBS 50-6	Cross connector/bridge, Number of positions: 50, Color: red

Marking

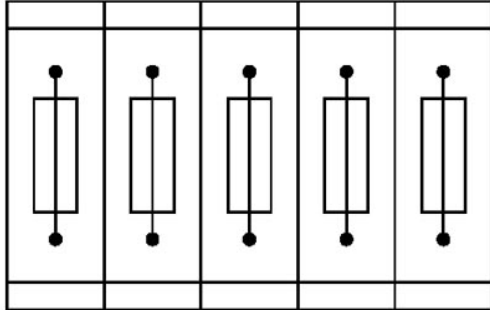
0811228	X-PEN 0,35	Marker pen without ink cartridge, for manual labeling of markers, labeling extremely wipe-proof, line thickness 0.35 mm
1050004	ZB 5 :UNBEDRUCKT	Zack strip, unprinted, 10-section, for individual labeling with M-PEN, ZB-T or CMS system, pack is sufficient for 100 terminal blocks, for a terminal width of 5.2 mm, color: White
1050017	ZB 5,LGS:FORTL.ZAHLEN	Zack strip, 10-section, printed horizontally: with the numbers, 1-10, 11-20 etc. up to 991-1000, color: white
1050020	ZB 5,QR:FORTL.ZAHLEN	Zack strip, 10-section, printed vertically: with consecutive numbers, 1-10, 11-20 a.s.o. up to 991-1000, color: white
5060906	ZB 5/WH-100:UNBEDRUCKT	Zack strip, unprinted: 10-section, for individual labeling with M-PEN, ZB-T or CMS system, large batch, sufficient for labeling 1000 terminal blocks, for a terminal width of 5.2 mm, color: White
1050295	ZB 5:SO/CMS	Zack strip, 10-section, divisible, special printing, marking according to customer requirements
1051016	ZB 6,LGS:FORTL.ZAHLEN	Zack strip, 10-section, printed horizontally: with the numbers, 1-10, 11-20 etc. up to 991-1000, color: white
5060935	ZB 6/WH-100:UNBEDRUCKT	Zack strip, unprinted: For individual labeling with M-PEN, ZB-T or CMS system, large batch, sufficient for labeling 1000 terminal blocks, for a terminal width of 6.2 mm, color: White
1050499	ZB 6:SO/CMS	Zack strip, 10-section, divisible, special printing, marking according to customer requirements

Tools

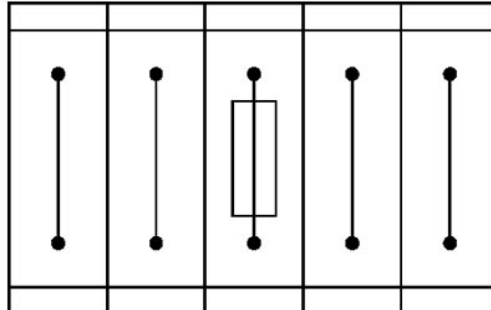
1205053	SZS 0,6X3,5	Screwdriver, bladed, matches all screw terminal blocks up to 4.0 mm ² connection cross section, blade: 0.6 x 3.5 mm, without VDE approval
---------	-------------	--

Diagrams/Drawings

Application drawing



Fuse terminal blocks in interconnected arrangement, block consisting of 5 fuse terminal blocks



Fuse terminal block in single arrangement, block consisting of one fuse terminal block and 4 feed-through terminal blocks

End clamp - E/NS 35 N - 0800886

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)




End clamp, width: 9.5 mm, color: gray

Product Features

- Large-surface labeling



Key commercial data

Packing unit	1 pc
Minimum order quantity	50 pc
GTIN	 4 017918 129309
Weight per Piece (excluding packing)	14.8 GRM
Custom tariff number	39269097
Country of origin	Germany

Technical data

Dimensions

Height	32.8 mm
Length	48.6 mm
Width	9.5 mm

General

Material	PA
Color	gray
Tightening torque, min	0.4 Nm
Tightening torque max	0.5 Nm

End clamp - E/NS 35 N - 0800886

Classifications

eCl@ss

eCl@ss 4.0	27141199
eCl@ss 4.1	27141199
eCl@ss 5.0	27141135
eCl@ss 5.1	27141145
eCl@ss 6.0	27141135
eCl@ss 7.0	27141135
eCl@ss 8.0	27141135

ETIM

ETIM 2.0	EC000761
ETIM 3.0	EC001041
ETIM 4.0	EC001041
ETIM 5.0	EC001041

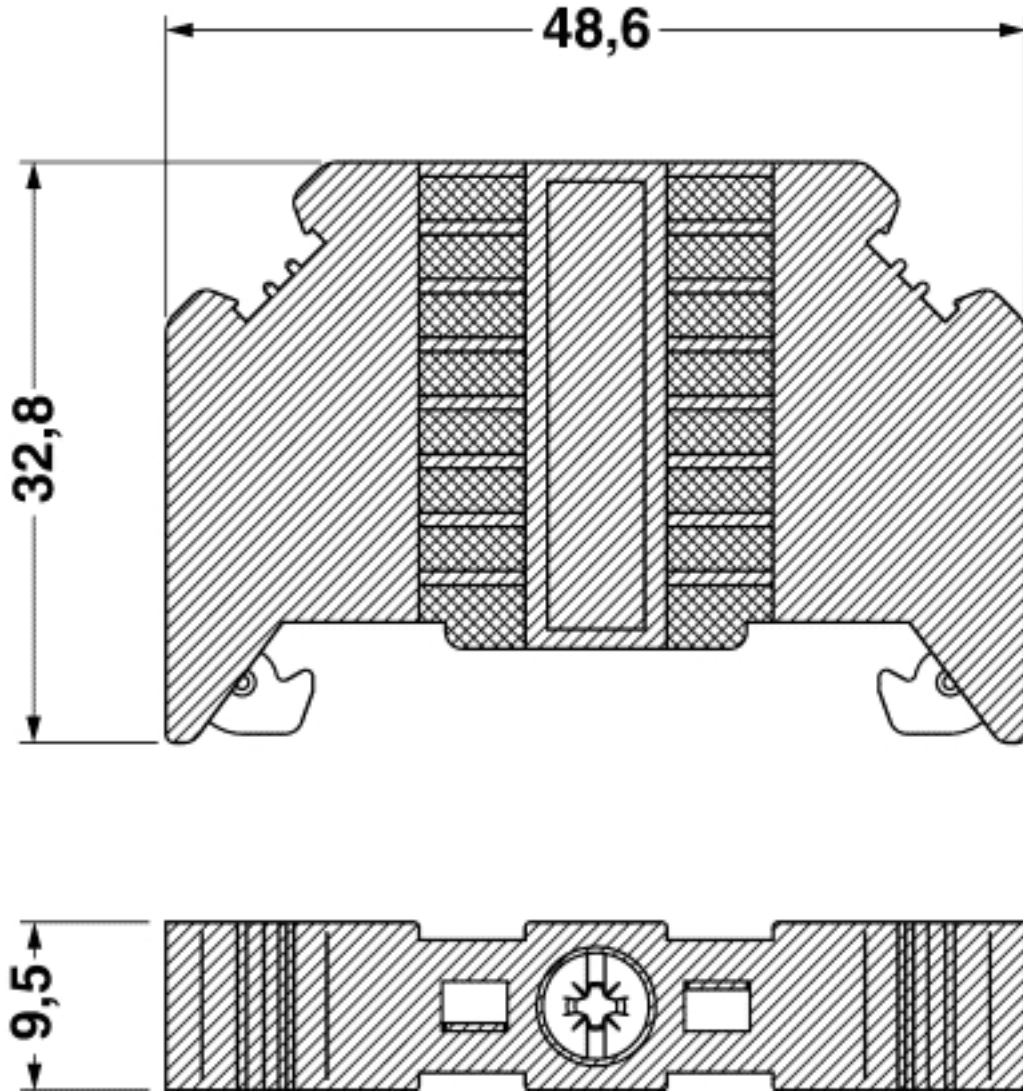
UNSPSC

UNSPSC 6.01	30212109
UNSPSC 7.0901	39121708
UNSPSC 11	39121708
UNSPSC 12.01	39121708
UNSPSC 13.2	39121708

Drawings

End clamp - E/NS 35 N - 0800886

Dimensioned drawing



D-UT 2,5/10

Order No.: 3047028

<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3047028>End cover, Length: 47.7 mm, Width: 2.2 mm, Height: 48.4 mm,
Color: gray

Commercial data	
EAN	4017918960346
Pack	50 pcs.
Customs tariff	85389099
Weight/Piece	0.00248 KG
Catalog page information	Page 26 (CL-2009)

Product notes

WEEE/RoHS-compliant since:
01/01/2003

<http://www.download.phoenixcontact.com>
Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation. The General Terms and Conditions of Use apply to Internet downloads.


FBS 10-6

Order No.: 3030271

<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3030271>

Plug-in bridge, Number of positions: 10, Color: red

Commercial data

GTIN (EAN)	 4 017918 188580
sales group	A690
Pack	10 pcs.
Customs tariff	85389099
Catalog page information	Page 8 (NTK-2010)

Product notesWEEE/RoHS-compliant since:
01/01/2003

<http://www.download.phoenixcontact.com>
Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation. The General Terms and Conditions of Use apply to Internet downloads.

Marker for terminal blocks - UCT-TM 6 - 0828736

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://download.phoenixcontact.com>)


Marker for terminal blocks, Sheet, white, Unlabeled, Can be labeled with: THERMOMARK CARD PLUS, THERMOMARK CARD, BLUEMARK CLED, BLUEMARK LED, Mounting type: Snap into tall marker groove, For terminal block width: 6.2 mm, Lettering field: 5.6 x 10.5 mm



Why buy this product

- The multi-section marking strips are easy to fit and can be easily separated if required
- Labeling service: Phoenix Contact can custom-label all UniCard markers according to your requirements
- The markers, which are supplied in uniform sheets, can be labeled quickly, easily, and precisely using the THERMOMARK CARD and the BLUEMARK LED
- The sheets provide space for including function texts
- The UCT-TM... UniCard labeling range includes markers for products with tall marker grooves

Key commercial data

Packing unit	10 pc
Minimum order quantity	10 pc
GTIN	 4 046356 522465
Weight per Piece (excluding packing)	16.34 g
Custom tariff number	39269097
Country of origin	Germany

Technical data

Dimensions

Length (b)	10.5 mm
Height	4.76 mm
Width (a)	5.6 mm

Ambient conditions

Ambient temperature (operation)	-40 °C ... 120 °C
---------------------------------	-------------------

General

Note	Can be labeled via thermal transfer
Color	white
Components	free from silicone and halogen
Inflammability class according to UL 94	V0

Marker for terminal blocks - UCT-TM 6 - 0828736

Technical data

General

Material	PC
Wipe resistance	DIN EN 61010-1 (VDE 0411-1)
Number of individual labels	60
Number of individual labels per row	10
RoHS compliant	Yes
Printability	Thermal transfer Inkjet printing
Device	5146464 THERMOMARK CARD 5146480 THERMOMARK CARD-UCT-MAG1 5147888 BLUEMARK LED 5147999 BLUEMARK CLED
Ink ribbon	0801371 THERMOMARK-RIBBON 110-TC 5147421 BLUEMARK FLUID-CARTRIDGE 5146662 BLUEMARK CLED-FLUID-CARTR.
Test for substances that would hinder coating with paint or varnish	VW PV 3.10.7:2005-02
Result	Test passed
Test specification weathering-resistance	Following ISO 4892-2:2013-03
Test duration	96 h
Wipe resistance test result	Test passed
Salt spray test specification	DIN EN ISO 9227:2012-09
Test duration	96 h
Salt spray testing result	Test passed
Alternating condensation climate with SO2 test specification	DIN 50018:2013-05
Climate level	AHT 1.0 S
Cycles	2
Condensation test result	Test passed
Wipe resistance of test specification inscriptions	IEC 61010-1:2010-06
Result	Test passed

Classifications

eCl@ss

eCl@ss 4.0	24190208
eCl@ss 4.1	24190208
eCl@ss 5.0	27149103
eCl@ss 5.1	27141137
eCl@ss 6.0	27141137
eCl@ss 7.0	27141137
eCl@ss 8.0	27141137

Marker for terminal blocks - UCT-TM 6 - 0828736

Classifications

ETIM

ETIM 2.0	EC000761
ETIM 3.0	EC000761
ETIM 4.0	EC000761
ETIM 5.0	EC000761

UNSPSC

UNSPSC 6.01	30211811
UNSPSC 7.0901	39121410
UNSPSC 11	39121410
UNSPSC 12.01	39121410
UNSPSC 13.2	39121410

Accessories

Accessories

Magazine

Magazine - THERMOMARK CARD-UCT-MAG1 - 5146480



Magazine for the THERMOMARK CARD printer, for accommodating UCT sheets (UCT-TM..., UCT1-TM..., UCT5-TM...)

CD 40X80


Order No.: 3240198



<http://eshop.phoenixcontact.de/phoenix/treeViewClick.do?UID=3240198>

Cable duct, gray, consisting of upper and lower part, width: 40 mm, height: 80 mm, length 2000 mm

Commercial data

GTIN (EAN)	 4 046356 459167
sales group	B204
Pack	10 pcs.
Customs tariff	39259020
Catalog page information	Page 102 (NTK-2010)

Product notes

WEEE/RoHS-compliant since:
10/08/2008



<http://www.download.phoenixcontact.com>
Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation. The General Terms and Conditions of Use apply to Internet downloads.

Technical data

General

Length (b)	2000 mm
Height	80 mm
Width (a)	40 mm
Color	gray
Inflammability class acc. to UL 94	V0

Ambient temperature (operation)	-5 °C ... 60 °C
Material	PVC

Certificates / Approvals



Certification

CSA, UL, VDE-PZI

Accessories

Item	Designation	Description
General		
3240286	CD COVER 40	Cover for cable duct, gray, width: 40 mm, length: 2000 mm
3240284	CD WR	Universal wire holding bracket, perforated, for wiring channels
3240498	RVT-PA 4	Plastic body-bound rivet, 4 mm diameter, for a material thickness of 1.5 ... 6 mm
3240499	RVT-PA 6	Plastic body-bound rivet, 6 mm diameter, for a material thickness of 1.5 ... 6 mm
1212478	UNIFOX-RVT P 4	Rivet setting tool, for use with RVT-PA 4 plastic body-bound rivets
1212509	UNIFOX-RVT P 6	Rivet setting tool, for use with RVT-PA 6 plastic body-bound rivets

Cable duct - CD 40X60 - 3240192

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)



Wiring channel, gray, consisting of upper and lower part, width: 40 mm, height: 60 mm, length 2000 mm

Why buy this product

- Thanks to its leverage and special cutting geometry, the PPS CD cable duct cutter enables easy, burr-free cutting with minimum effort
- Easy, burr-free cutting with minimum effort using the CUTFOX-CD cable duct cutter
- Predetermined breaking point enables tool-free, burr-free removal of bars
- The wide, diagonal heads of the cable duct bars make it easy to fit the cover and hold it securely in place
- Installed conductors are securely held in place by means of wire retaining clips that can be snapped onto bars on the side
- Plastic body-bound rivets enable easy fixing of cable ducts using the rivet setting tool

Key Commercial Data

Packing unit	1 STK
Minimum order quantity	20 STK
GTIN	 4 046356 459150
GTIN	4046356459150
Weight per Piece (excluding packing)	952.000 g
Custom tariff number	39259020
Country of origin	Germany

Technical data

Dimensions

Length (b)	2000 mm
Width (a)	40 mm
Height	60 mm

Cable duct - CD 40X60 - 3240192

Technical data

Dimensions

Diameter	40.00 mm
----------	----------

Ambient conditions

Ambient temperature (operation)	-5 °C ... 60 °C
---------------------------------	-----------------

General

Color	gray
Components	Lead-free
Flammability rating according to UL 94	V0
Material	PVC
Nominal cross section	1404 mm ²

Standards and Regulations

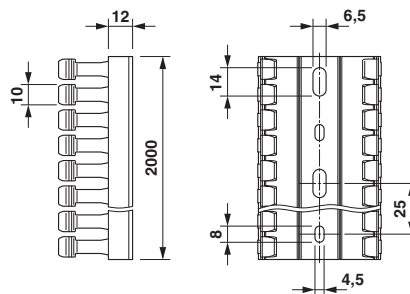
Halogen-free	no
Connection in acc. with standard	CSA
Flammability rating according to UL 94	V0

Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

Drawings

Dimensional drawing



Base perforation according to DIN EN 50085

Approvals

Approvals

Cable duct - CD 40X60 - 3240192




Approvals

Approvals

CSA / UL Recognized / VDE Zeichengenehmigung

Ex Approvals

Approval details

CSA		http://www.csagroup.org/services-industries/product-listing/	248269
UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 328576
VDE Zeichengenehmigung		http://www.vde.com/en/Institute/OnlineService/VDE-approved-products/Pages/Online-Search.aspx	40027969

Cable duct - CD 25X25 - 3240187

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)

Wiring channel, gray, consisting of upper and lower part, width: 25 mm, height: 25 mm, length 2000 mm

Why buy this product

- ✓ Easy, burr-free cutting with minimum effort using the CUTFOX-CD cable duct cutter
- ✓ Thanks to its leverage and special cutting geometry, the PPS CD cable duct cutter enables easy, burr-free cutting with minimum effort
- ✓ Predetermined breaking point enables tool-free, burr-free removal of bars
- ✓ The wide, diagonal heads of the cable duct bars make it easy to fit the cover and hold it securely in place
- ✓ Installed conductors are securely held in place by means of wire retaining clips that can be snapped onto bars on the side
- ✓ Plastic body-bound rivets enable easy fixing of cable ducts using the rivet setting tool

Key Commercial Data

Packing unit	1 STK
Minimum order quantity	25 STK
GTIN	 4 046356 459105
GTIN	4046356459105
Weight per Piece (excluding packing)	1.000 g
Custom tariff number	39259020
Country of origin	Germany

Technical data

Dimensions

Length (b)	2000 mm
Width (a)	25 mm
Height	25 mm
Diameter	25.00 mm

Ambient conditions

Ambient temperature (operation)	-5 °C ... 60 °C
---------------------------------	-----------------

General

Color	gray
-------	------

Cable duct - CD 25X25 - 3240187

Technical data

General

Components	Lead-free
Flammability rating according to UL 94	V0
Material	PVC
Nominal cross section	220 mm ²

Standards and Regulations

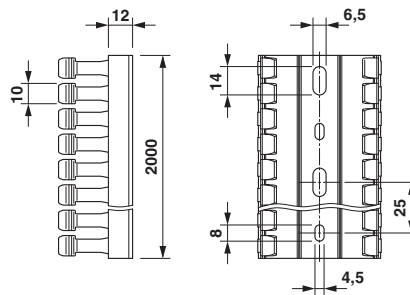
Halogen-free	no
Connection in acc. with standard	CSA
Flammability rating according to UL 94	V0

Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

Drawings

Dimensional drawing



Base perforation according to DIN EN 50085

Classifications

eCl@ss

eCl@ss 4.0	27140602
eCl@ss 4.1	27140602
eCl@ss 5.0	27140602
eCl@ss 5.1	27140602
eCl@ss 6.0	27400703
eCl@ss 7.0	27400703
eCl@ss 8.0	27400703
eCl@ss 9.0	27400703

Cable duct - CD 25X25 - 3240187

Classifications

ETIM

ETIM 2.0	EC000012
ETIM 3.0	EC000012
ETIM 4.0	EC000012
ETIM 5.0	EC000012
ETIM 6.0	EC000012

UNSPSC

UNSPSC 6.01	30101815
UNSPSC 7.0901	30101815
UNSPSC 11	30101815
UNSPSC 12.01	30101815
UNSPSC 13.2	39131712

Approvals

Approvals

Approvals

CSA / UL Recognized / VDE Zeichengenehmigung

Ex Approvals

Approval details

CSA		http://www.csagroup.org/services-industries/product-listing/	248269
-----	--	---	--------

UL Recognized		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 328576
---------------	--	---	---------------

VDE Zeichengenehmigung		http://www.vde.com/en/Institute/OnlineService/VDE-approved-products/Pages/Online-Search.aspx	40027969
------------------------	--	---	----------

Cable duct - CD 25X25 - 3240187

Accessories

Accessories

Cover

Cover profile - CD COVER 25 - 3240285



Cover for cable duct, gray, width: 25 mm, length: 2000 mm

Filler plug

Fastening clip - RVT-PA 4 - 3240498



Plastic body-bound rivet, for hole diameter of 4 mm and a material thickness of 1.5 ... 6 mm

Fastening clip - RVT-PA 6 - 3240499



Plastic body-bound rivet, for hole diameter of 6 mm and a material thickness of 1.5 ... 6 mm

Riveting tools

Tool - UNIFOX-RVT P 4 - 1212478



Rivet setting tool, for use with RVT-PA 4 plastic body-bound rivets

Cable duct - CD 25X25 - 3240187

Accessories

Tool - UNIFOX-RVT P 6 - 1212509



Rivet setting tool, for use with RVT-PA 6 plastic body-bound rivets



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

DIN Rail

2. MANUFACTURER:

Automation Direct

3. PART NUMBERS:

DN-R35HS1

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

DIG-PNL-07-210, DIG-PNL-07-220, DIG-PNL-07-230, DIG-PNL-07-240,
FWST-PNL-07-782, PNL-LSH-07-113, PNL-LSH-07-123, PNL-LSH-07-133,
PNL-LSH-07-143, PNL-LSH-07-801/PNL-LSL-07-802, PNL-LSH-07-806/PNL-LSL-07-807

5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Quantum Automation

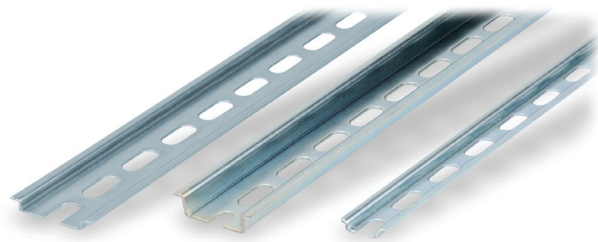
CONTACT: Noe

PHONE: 714-854-0800

ADDRESS: 4400 East La Palma Ave, Anaheim, CA 92807

DIN Rail and Accessories

Steel DIN Rails Features



35 mm wide

- Available in 1-meter lengths
- 7.5 mm-high rails primarily used to mount terminal blocks, relays, timers and small PLCs such as the DL05, DL06, DL105, DL205, CLICK, Do-more, and Productivity3000
- 15 mm-high rails for mounting larger and heavier components such as contactors and larger PLCs

15 mm wide

- Available in 1-meter lengths
- DN-R15S1 exclusively for mounting mini terminal blocks.

	Part Number	Pcs/Pkg	Price/Pkg	Part Number	Pcs/Pkg	Price/Pkg	Part Number	Pcs/Pkg	Price/Pkg
DIN Rail	DN-R35S1	10	\$28.00	DN-R35HS1	10	\$49.50	DN-R15S1	10	\$26.00
	DN-R35S1-2	2	\$9.00	DN-R35HS1-2	2	\$12.00	DN-R15S1-2	2	\$8.00
Steel DIN Rails Specifications									
Description	Steel, slotted, 3'3" (1 m) length, 35 mm (1.38 in) wide, 7.5 mm (0.30 in) high			Steel, slotted, 3'3" (1 m) length, 35 mm (1.38 in) wide, 15 mm (0.59 in) high			Steel, slotted, 3'3" (1 m) length, 15 mm (0.59 in) wide, 5.5 mm (0.22 in) high		
Plating	Zinc-plated and chromated								
International Standards	EN 60715, RoHs								
Suggested Mounting Screw Type	M6			M6			M4		

Aluminum DIN Rails Features



35 mm wide

- Non-anodized finish
- Galvanic zinc plating and passivation (minimum thickness 6 microns)
- Lightweight, easy to cut and deburr
- Terminal blocks only
- Maximum mounting screw #10-32 or M5
- Available in 1-meter lengths

35 mm wide raised

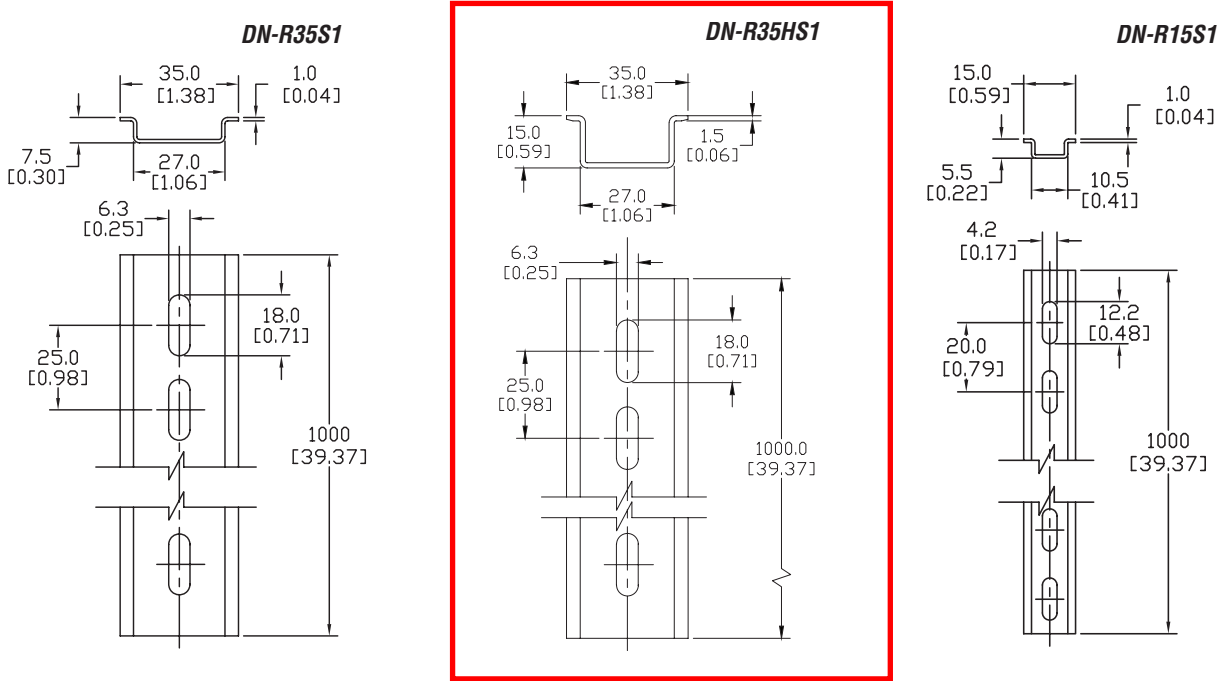
- Non-anodized finish
- Galvanic zinc plating and passivation (minimum thickness 6 microns)
- Enables users to raise terminal blocks 2¼" above the back panel
- Terminal blocks only
- Available in 1-meter lengths
- Bushing or grommet recommended for wire access hole

(example Heyco UB-875 not sold by ADC)

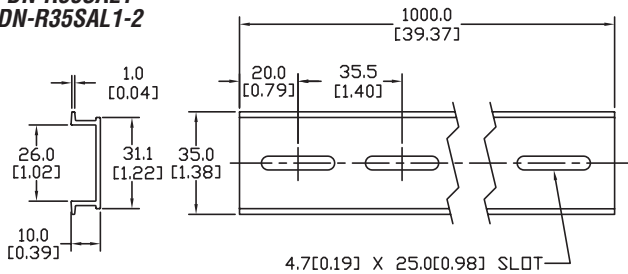
	Part Number	Pcs/Pkg	Price/Pkg	Part Number	Pcs/Pkg	Price/Pkg
DIN Rail	DN-R35SAL1	10	\$36.00	DN-R35SAL2-2	2	\$24.25
	DN-R35SAL1-2	2	\$8.00			
Aluminum DIN Rails Specifications						
Description	Aluminum, slotted, 3'3" (1 m) length, 35 mm (1.38 in) wide, 10 mm (0.39 in) high			Aluminum, slotted, 3'3" (1 m) length, 35 mm (1.38 in) wide, 58 mm (2.28 in) high		
Plating	Galvanic zinc plating, non-anodized finish					
International Standards	DIN 50960, RoHs					
Suggested Mounting Screw Type	#10-32 or M5					

DIN Rail and Accessories

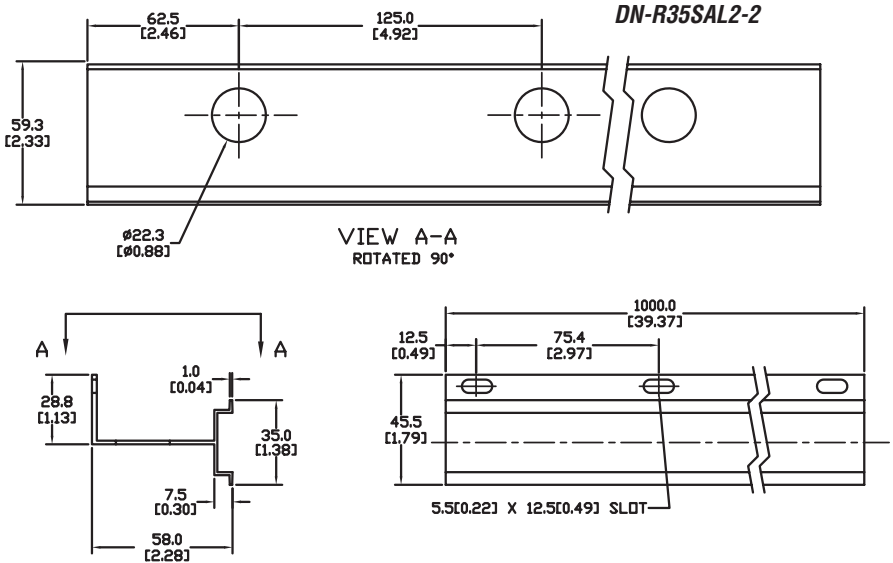
Dimensions mm [inches]



DN-R35SAL1
DN-R35SAL1-2



DN-R35SAL2-2





ELECTRICAL CONTRACTING, INSTRUMENTATION SALES & SERVICE
Electronic • Pneumatic • Chemical • Telemetry • Analytical • Computer Systems

TAB – 3

Electrical Equipment

4017 Vista Park Ct. • Sacramento, CA 95834 • 916-646-1999 • Fax 916-646-1096
1717 Solano Way, Unit 34 • Concord, CA 94520 • 925-671-2888 • Fax 925-671-9507
202 South Douty Street • Hanford, CA 93230 • 559-584-7116 • Fax 559-584-8028



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

Pilot Light, Push Button, Selector Switch

2. MANUFACTURER:

Allen Bradley

3. PART NUMBERS:

800H-AR6D2, 800H-AR1D1, 800H-QRTH2R, 800H-QRTH2G, 800H-HR2B, 800H-HR2A

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

DIG-PNL-07-210, DIG-PNL-07-220, DIG-PNL-07-230, DIG-PNL-07-240,
FWST-PNL-07-782

5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Rexel

CONTACT: Kris Shields

PHONE: (707) 426-4009

ADDRESS: 790 Chadbourne Road Suite B, Fairfield, CA 94534

800T/H 30 mm Push Buttons



Time-tested Durability, Industry Proven –
A Legacy of Leadership



LISTEN.
THINK.
SOLVE.®

Imitated, But Never Duplicated

The Allen-Bradley Bulletin 800T and 800H push button product lines are in a class by themselves. They are designed and constructed to perform in the most demanding industrial environments. Bold yet functional, rugged yet attractive, Allen-Bradley's 30 mm push buttons represent the world's most innovative and unique offering.

Solid-Color Button Cap

Thermoplastic polyester resin delivers excellent resistance to corrosive agents/color identification is never lost (no insert to lose).

Actuator Shaft

Rugged, dependable performance assured by zinc alloy casting.

Return Spring

Stainless steel formed wire delivers consistent operation and long life.

Operator Bushing

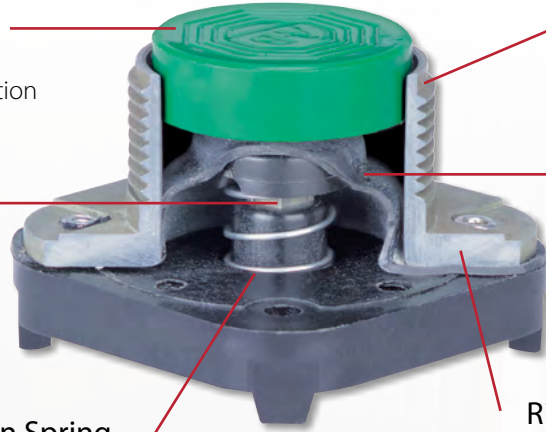
Die cast zinc alloy gives strength and stability in installation.

Diaphragm Seal

Provides a complete blanket of protection from liquids, particles and corrosive agents.

Riveted Construction

Operator bushing, diaphragm seal and base plate are secured together by four steel rivets, providing durability and tamper resistance.



Fast, Easy Installation



Operator with factory installed contact blocks



Gaskets provide type 4/13 ingress protection



Legend plate



Thrust washer with anti-turn tab



Mounting ring

Worldwide Solutions

- Designed to worldwide standards



Switching Safety

Selector Switches

- Positive detent – prevents the switch from hanging up between positions
- Constant energy – minimizes accidental switching to an unwanted change in contact state

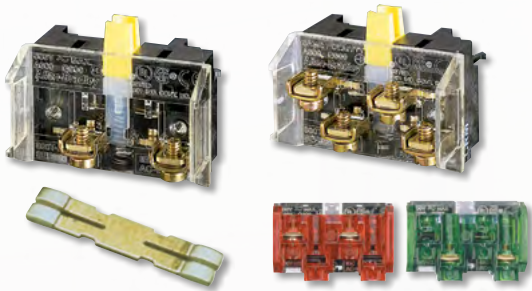


Advanced Switching Functionality

Allen-Bradley's wide range of contact blocks, offering features and capabilities found no where else in the industry, can address more applications and environments.

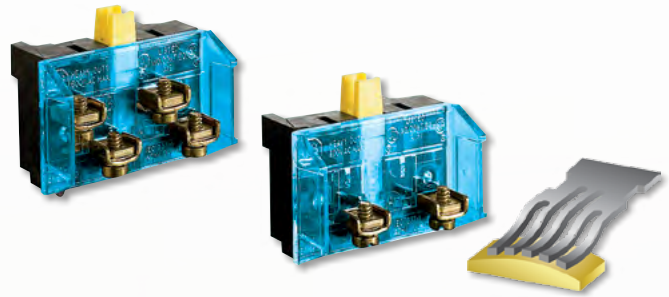
Standard Contact Blocks

- 10 A max., A600 rated – for general purpose use
- Flexible bifurcated spanner provides increased contact reliability
- Pure fine silver contacts resist corrosion
- Self-lifting saddle clamps simplify wiring
- Clear side plates allow easy inspection of contacts
- Optional color-coded finger safe (IP2X) versions



PenTUFF™ Contact Blocks

- 2.5 A max., C300 rated
- Low voltage switching reliability to 5V DC, 1 mA – ideal for interfacing with programmable logic controller input circuits
- Direct drive pentafurcated contact design
- Spanner made from corrosion resistant inert precious metals
- Optional finger-safe (IP2X) versions



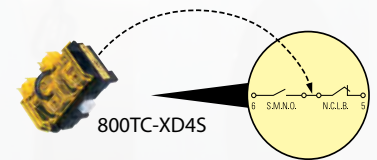
Explosion-Protected Contact Blocks

- Class I Div. 2 (Groups A, B, C and D) certified
- 1-NO, 1-NC, A600 rated (10 A max)
- Positive opening NC contact, conformance to global E-stop standards
- Rugged construction ideal for applications with high shock and vibration
- Stackable design allows maximum circuit flexibility



Self-Monitoring™ Contact Blocks

- Ensures that the normally closed contacts will open when the E-stop is actuated
- 10 A max., A600 rated
- Bifurcated spanner with pure fine silver contacts
- Color-coded yellow for easy identification
- IP2X finger safe protection standard



	Normal Operation	Actuated Button	Improperly Installed
	X	X	O
	X	O	X
	X	O	O

Note: X = Closed 0 = Open

Logic Reed Blocks



Sealed Switch Blocks



Mini Blocks



MaxDuty™ Blocks



Snap Action & Time Delay Blocks



Push Button Devices



Momentary Contact Push Buttons, Non-Illuminated

		Type 4/13 Metal (800T)		Type 4/4X/13 Plastic (800H)		
		Flush Head	Extended Head	Bootless Flush Head	Booted	
Contact Configuration	Color					
	1 N.O.		800T-A1D1	800T-B1D1	800H-AR1D1	800H-R1D1
			800T-A2D1	800T-B2D1	800H-AR2D1	800H-R1D1
		800T-A6D1	800T-B6D1	800H-AR6D1	800H-R6D1	
1 N.C.		800T-A1D2	800T-B1D2	800H-AR1D2	800H-R1D2	
		800T-A2D2	800T-B2D2	800H-AR2D2	800H-R2D2	
		800T-A6D2	800T-B6D2	800H-AR6D2	800H-R6D2	
1 N.O. – 1 N.C.		800T-A1A	800T-B1A	800H-AR1A	800H-R1A	
		800T-A2A	800T-B2A	800H-AR2A	800H-R2A	
		800T-A6A	800T-B6A	800H-AR6A	800H-R6A	

Other colors available: blue, gray, orange and white.

Momentary Contact Push Buttons, Non-Illuminated with Two-Color Molded Legend Cap

Contact Configuration	Button Color	Legend Color	Legend	Head Type	Type 4/13 Metal (800T)	Type 4/4X/13 Plastic (800H)
1 N.O. – 1 N.C.			Start	Flush	800T-A103WA	800H-AR103WA
			Stop	Extended	800T-B604WA	800H-BR604WA
1 N.O. – 1 N.C.			Forward	Flush	800T-A210WA	800H-AR210WA
			Reverse	Flush	800T-A210WA	800H-AR210WA
			Jog	Flush	800T-A210WA	800H-AR212WA
			Up	Flush	800T-A210WA	800H-AR213WA
			Down	Flush	800T-A210WA	800H-AR214WA
			Reset	Flush	800T-A707WA	800H-AR707WA

Momentary Contact Push Buttons, Illuminated

		Type 4/13 Metal (800T)		Type 4/4X/13 Plastic (800H)		
		Extended Head without Guard	Extended Head with Guard	Extended Head without Guard	Extended Head with Guard	
Type	Color					
	Universal LED 12–130V AC/DC 1 N.O. – 1 N.C.		800T-QBH2R	800T-QAH2R	800H-QRBH2R	800H-QRAH2R
			800T-QBH2G	800T-QAH2G	800H-QRBH2G	800H-QRAH2G
		800T-QBH2A	800T-QAH2A	800H-QRBH2A	800H-QRAH2A	
Transformer LED 120V AC, 50/60 HZ 1 N.O. – 1 N.C.		800T-PBH16R	800T-PAH16R	800H-PRBH16R	800H-PRAH16R	
		800T-PBH16G	800T-PAH16G	800H-PRBH16G	800H-PRAH16G	
		800T-PBH16A	800T-PAH16A	800H-PRBH16A	800H-PRAH16A	

Other colors available: blue, clear, yellow and white.

Pilot Light Devices



Type	Color	Type 4/13 Metal (800T)		Type 4/4X/13 Plastic (800H)	
		Standard Type	Push-to-Test	Standard Type	Push-to-Test
Universal LED 12-130V AC/DC					
		800T-QH2G	800T-QTH2G	800H-QRH2G	800H-QRTH2G
		800T-QH2A	800T-QTH2A	800H-QRH2A	800H-QRTH2A
Transformer LED 120V AC, 50/60 HZ		800T-PH16R	800T-PTH16R	800H-PRH16R	800H-PRTH16R
		800T-PH16G	800T-PTH16G	800H-PRH16G	800H-PRTH16G
		800T-PH16A	800T-PTH16A	800H-PRH16A	800H-PRTH16A

Other colors available: blue, clear, white and yellow

Emergency-Stop and Push-Pull Devices

2-Position Push-Pull and Trigger Action, Non-Illuminated








Contact Configuration	Operator Position	Type 4/13 Metal (800T)			Type 4/4X/13 Plastic (800H)
		Push-Pull	Trigger Action Twist Release	Trigger Action Key Release	Trigger Action Twist Release
		800TC-FX6A5	800T-TFXT6A4	800T-TFXK6A4	800H-TFRXT6A4

2-Position Push-Pull and Trigger Action, Illuminated

Type	Operator Position	Type 4/13 Metal (800T)		Type 4/4X/13 Plastic (800H)
		Push-Pull	Trigger Action Twist Release	Trigger Action Twist Release
Universal LED 12...130V AC/DC (1) N.O. (1) S.M.C.B.				
Transformer, LED 120V AC, 50/60 HZ (1) N.O. (1) N.C.L.B. /N.C.		800T-FXPH16RA1	800T-TFXTPH16RA1	800H-TFRXTPH16RA

Selector Switch Devices









2-Position Selector Switches, Non-Illuminated

		Type 4/13 Metal (800T)			Type 4/4X/13 Plastic (800H)
		Standard Knob	Knob Lever	Cylinder Lock	Standard Knob
Contact Configuration	Operator Type				
1 N.O. – 1 N.C.		800T-H2A	800T-H17A	800T-H33A	800H-HR2A
		800T-H4A	800T-H18A	800T-H42A	800H-HR4A
		800T-H5A	800T-H19A	800T-H48A	800H-HR5A



**800H-HR2B
(2NO - 2NC)**









2-Position Selector Switches, Illuminated

		Type 4/13 Metal (800T)	Type 4/4X/13 Plastic (800H)
		Standard Knob	Standard Knob
Type	Operator Type		
Universal LED 12–130V AC/DC Red Knob 1 N.O. – 1 N.C.		800T-2HRH2KB6AX	800H-2HRRH2KB6AX
		800T-2HRH4KL8AX	800H-2HRRH4KL8AX
		800T-2HRH5KL8AX	800H-2HRRH5KL8AX
Transformer Red LED 120V AC, 50/60 HZ 1 N.O. – 1 N.C.		800T-16HRH2KB6AX	800H-16HRRH2KB6AX
		800T-16HRH4KL8AX	800H-16HRRH4KL8AX
		800T-16HRH5KL8AX	800H-16HRRH5KL8AX











For more information on our complete family of 30 mm and other push button products, please visit:
<http://ab.rockwellautomation.com/Push-Buttons-and-Signaling-Devices>








3-Position Selector Switches, Non-Illuminated

Contact Configuration	Operator Type	Type 4/13 Metal (800T)			Type 4/4X/13 Plastic (800H)
		Standard Knob	Knob Lever	Cylinder Lock	Standard Knob
1 N.O. – 1 N.C.					
		800T-J4A	800T-J18A	800T-J50A	800H-JR4A
		800T-J5A	800T-J19A	800T-J38A	800H-JR5A
		800T-J91A	800T-J20A	800T-J631A	800H-JR91A

3-Position Selector Switches, Illuminated

Type	Operator Type	Type 4/13 Metal (800T)	Type 4/4X/13 Plastic (800H)
		Standard Knob	Standard Knob
Universal LED 12-130V AC/DC Red Knob 1 N.O. – 1 N.C.			
		800T-2JRH4KB7AX	800H-2JRRH4KB7AX
		800T-2JRH5KB7AX	800H-2JRRH5KB7AX
Transformer Red LED 120V AC, 50/60 HZ 1 N.O. – 1 N.C.		800T-16JRH2KB7AX	800H-16JRRH2KB7AX
		800T-16JRH4KB7AX	800H-16JRRH4KB7AX
		800T-16JRH5KB7AX	800H-16JRRH5KB7AX

4-Position Selector Switches, Non-Illuminated

Contact Configuration	Operator Type	Type 4/13 Metal (800T)			Type 4/4X/13 Plastic (800H)
		Standard Knob	Knob Lever	Cylinder Lock	Standard Knob
2 N.O. – 2 N.C.					
		800T-N3KF4B	800T-N29KF4B	800T-N133KF4B	800H-NR3KF4B
		800T-N9KF4B	800T-N30KF4B	800T-N233KF4B	800H-NR9KF4B

Specialty Devices

Potentiometer Units



Cylinder Lock Push Buttons (800T only)



Momentary Contact Flip Lever Push Buttons (800H only)



Selector Push Button Units (800T only)

Momentary Wobble Stick Units (800T only)



1-2-3-4-Way Toggle Switches (800T only)



Mechanically Interlocked Maintained Push Buttons






Momentary Padlocking Mushroom Head Push Buttons (800T only)

Cluster Pilot Lights (800T only)



Assembled Stations

Contact Configuration	Button Color	Legend Marking	Type 4/13 Metal (800T)		
			Die Cast Aluminum	Stainless Steel (Booted Operator)	Glass Polyester (Booted Operator)
One Push Button	●	Stop			
	●	Start	800T-1TA	800H-1HA4T	800H-1HA4R
	●	Emergency Stop	800T-1TB	800H-1HB4T	800H-1HB4R
	●	Break Glass	800T-1TYM	-	-
Two Push Buttons	●	Start	800T-NX114	-	-
	●	Stop	800T-2TA	800H-2HA4T	800H-2HA4R
Three-position Selector Switch	●	Hand-Off-Auto	800T-R3TA	-	-

 Connect with us.

Allen-Bradley, Listen. Think. Solve. and Rockwell Software are trademarks of Rockwell Automation, Inc. Trademarks not belonging to Rockwell Automation are property of their respective companies.

www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

Circuit Breaker

2. MANUFACTURER:

Weidmuller

3. PART NUMBERS:

9926251005, 9926251020

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

DIG-PNL-07-210, DIG-PNL-07-220, DIG-PNL-07-230, DIG-PNL-07-240,
FWST-PNL-07-782

5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Manco

CONTACT: Dave Schwartz

PHONE: (888) 372-9636

ADDRESS: 870 Napa Valley Corp Way Suite K, Napa, CA 94558



1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

Circuit Breaker, Power Relay & Socket

2. MANUFACTURER:

Square D

3. PART NUMBERS:

RPM22F7, RPZF2

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

DIG-PNL-07-210, DIG-PNL-07-220, DIG-PNL-07-230, DIG-PNL-07-240,

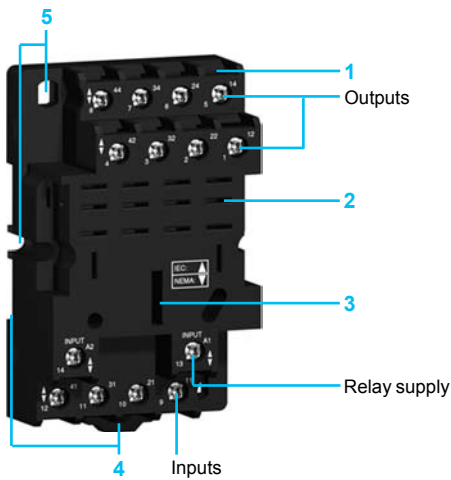
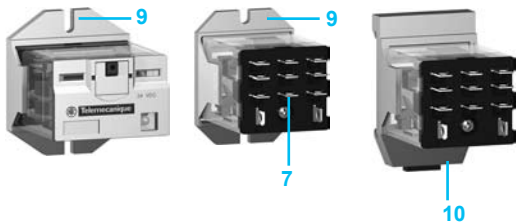
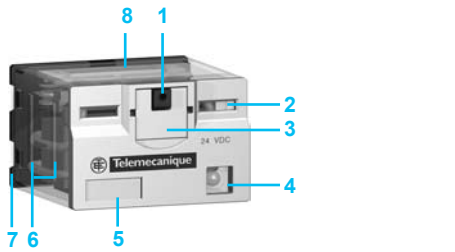
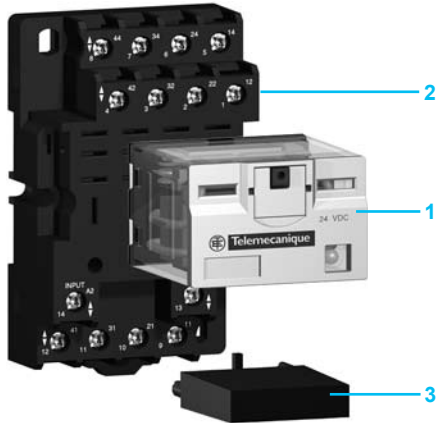
5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Alameda Electric

CONTACT: Jon Buurma

PHONE: (707) 207-7205

ADDRESS: 2870 Cordelia Road Suite 100, Fairfield, CA 94534



Introduction of the product range

The RPM power relay range includes:

- 1 15 A relays with 1, 2, 3 and 4 C/O (SPDT, DPDT, 3PDT and 4PDT) contacts.
- 2 Sockets with mixed contact terminals.
- 3 Protection modules (diode, RC circuit or varistor) or 1 timer module. Please note that the timer module can only be used with 3-pole or 4-pole sockets.
- 4 Metal hold-down clip for single-contact relays (not shown).

Relay description

- 1 Spring return push-to-test button for checking contact operation (green: —, red: ~).
- 2 Mechanical “relay status” indicator.
- 3 Removable lock-down door enables continuous engagement of the contacts for testing or maintenance purposes. During operation, this lock-down door must always be in the closed position.
- 4 Bipolar LED (depending on version) indicating the relay status.
- 5 Removable ID tag for relay identification.
- 6 Four notches for DIN rail mounting adapter or panel mounting adapter with fixing lugs.
- 7 Five, eight, eleven or fourteen quick-connect pins.
- 8 Area by which the product can be easily gripped.
- 9 Mounting adapter enabling direct mounting of the relay on a panel.
- 10 Mounting adapter enabling direct mounting of the relay on a DIN rail.

Socket description

Sockets with mixed contact terminals (1)

- 1 Connection by screw clamp terminals.
- 2 Five, eight, eleven or fourteen female contacts for the relay pins.
- 3 Location for protection modules or the timer module.
- 4 Locating slot for mounting on DIN rail with mounting clip.
- 5 Two or four mounting holes for panel mounting.

(1) The inputs are mixed with the relay coil terminals, with the outputs being located on the opposite side of the socket.

General characteristics

Conforming to standards			IEC/EN 61810-1 (iss. 2), UL 508, CSA C22-2 n° 14
Product certifications			cULus File E164862 CCN NLDX, NLDX7; cURus File E164862 CCN NLDX2, NLDX8; CSA; CE; RoHS compliant
Ambient air temperature around the device	Storage	°C (F)	-40... +85 (-40... +185)
	Operation	°C (F)	-40... +55 (-40... +131)
Vibration resistance conforming to IEC/EN 60068-2-6	In operation		3 gn (10...150 Hz/± 1 mm / 5g/5 cycles)
	Not operating		5 gn (10...150 Hz/± 1 mm / 5g/5 cycles)
Degree of protection			IP 40
Shock resistance conforming to IEC/EN 60068-2-27	Opening		15 gn
	Closing		15 gn
Protection category			RT I
Mounting position			Any

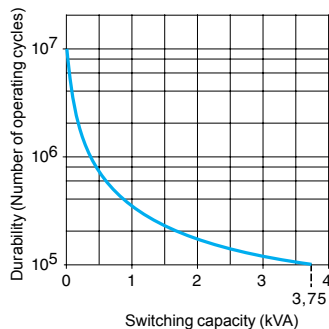
Insulation characteristics

Rated insulation voltage (Ui)	Conforming to IEC/EN 60947	V	250 (IEC), 300 (UL, CSA)
Rated impulse withstand voltage (Uimp)		kV	4 (1.2/50 μs)
Dielectric strength (rms voltage)	Between coil and contact	~ V	1550
	Between poles	~ V	1550
	Between contacts	~ V	1500

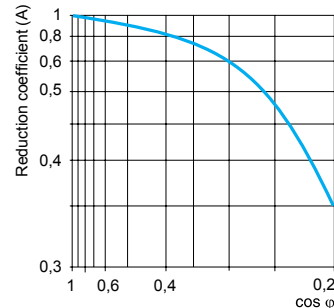
Contact characteristics

Relay type			RPM1●●●	RPM2●●●	RPM3●●●	RPM4●●●
Number and type of contacts			1 C/O	2 C/O	3 C/O	4 C/O
Contact materials			AgNi			
Conventional thermal current (Ith)	For ambient temperature ≤ 55 °C	A	15			
Rated operational current in utilization categories AC-1 and DC-1	Conforming to IEC	NO	A	15		
		NC	A	7.5		
	Conforming to UL		A	15		
Switching current	Minimum	mA	10			
Switching voltage	Maximum	V	~ 250 (IEC)			
	Minimum	V	17			
Nominal load (resistive)		A	15 / 250 ~ V			
		A	15 / 28 ~ V			
Switching capacity	Maximum	~	VA	3750		
		⋮	W	420		
	Minimum	mW	170			
Maximum operating rate In operating cycles/hour	No-load		18 000			
	Under load		1200			
Utilization coefficient			20 %			
Mechanical durability	In millions of operating cycles		10			
Electrical durability In millions of operating cycles	Resistive load		0.1			0.06
	Inductive load		See curves below			

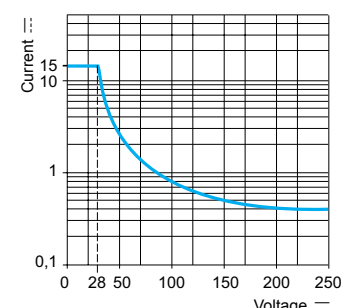
Electrical durability of contacts
Resistive load ~



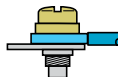
Reduction coefficient for inductive load ~
(depending on power factor cos φ)



Maximum switching capacity on resistive load ⋮



Inductive load durability = resistive load durability x reduction coefficient.

Coil characteristics				RPM1●●●	RPM2●●●	RPM3●●●	RPM4●●●		
Relay type									
Average consumption		~	VA	0.9	1.2	1.5	1.5		
		≡	W	0.7	0.9	1.7	2		
Drop-out voltage threshold		~		≥ 0.15 U _c					
		≡		≥ 0.1 U _c					
Operating time (response time)	Between coil energization and making of the NO contact	~	ms	20	25	25	20		
		≡	ms	20	25	25	20		
	Between coil de-energization and making of the NC contact	~	ms	20					
		≡	ms	20					
Control circuit voltage U _c			V	12	24	48	110	120	230
Relay control voltage codes				JD	BD	ED	FD	-	-
d.c. supply	Average resistance at 20 °C ± 10%	RPM1●●●	Ω	180	750	2600	13 100	-	-
		RPM2●●●	Ω	160	650	2600	11 000	-	-
		RPM3●●●	Ω	100	400	2600	8600	-	-
		RPM4●●●	Ω	96	388	1550	7340	-	-
	Operating voltage limits	Min.	V	9.6	19.2	38.4	88	-	-
		Max.	V	13.2	26.4	52.8	121	-	-
Relay control voltage codes				-	B7	E7	-	F7	P7
a.c. supply	Average resistance at 20 °C ± 15%	RPM1●●●	Ω	-	160	720	-	4430	15 720
		RPM2●●●	Ω	-	180	770	-	4430	15 000
		RPM3●●●	Ω	-	103	770	-	2770	12 000
		RPM4●●●	Ω	-	84.3	338	-	2220	9120
	Operating voltage limits	Min.	V	-	19.2	38.4	-	96	184
		Max.	V	-	26.4	52.8	-	132	253
Socket characteristics				RPZF1	RPZF2	RPZF3	RPZF4		
Socket type									
Relay types used				RPM1●●●	RPM2●●●	RPM3●●●	RPM4●●●		
Protection module types used				RXM02●●● RXM04●●●	RXM02●●● RXM04●●●	RUW24●●●	RUW24●●●		
Contact terminal arrangement				Mixed					
Wire connection method				Screw clamp terminals					
Product certifications				cURus File E172326 CCN SWIV2, SWIV8; CSA; CE; RoHS compliant					
Conforming to standards				IEC 61984, CE					
Electrical characteristics									
Conventional thermal current (I _{th})		A		16					
Maximum operating voltage		V		250 (IEC)					
Insulation characteristics									
Between adjacent output contacts		V _{rms}		2500					
Between input and output contacts		V _{rms}		2500					
Between contacts and DIN rail		V _{rms}		2500					
General characteristics									
Ambient air temperature around the device	Operation	°C		- 40... + 55					
	Storage	°C		- 40... + 85					
Degree of protection				IP 20					
Connection	Solid wire	1 conductor		0.5...1.5 mm ² - AWG 20...AWG 16	0.5...2.5 mm ² - AWG 20...AWG 14				
		2 conductors		0.5...1.5 mm ² - AWG 20...AWG 16	0.5...2.5 mm ² - AWG 20...AWG 14				
	Flexible wire with cable end	1 conductor		0.25...1 mm ² - AWG 22...AWG 17	0.25...1.5 mm ² - AWG 22...AWG 16				
		2 conductors		0.25...1 mm ² - AWG 22...AWG 17	0.25...1.5 mm ² - AWG 22...AWG 16				
Maximum tightening torque / Screw size		Nm		1 / M3 screw	1 / M3.5 screw				
Mounting				35 mm DIN rail / panel mount					
Mounting on DIN rail				By red plastic clip					
Terminal referencing				IEC, NEMA					
Compatibility with the metal hold-down clip				Yes	No				
Timer module compatibility				No			Yes		
Protection module				RXM040W, RXM041●●, RXM021●●			RUW24●●		
Clip-in ID tags				No					
Wire connection method		Screw clamp terminals							



RPM41BD

Power relays without LED (sold in lots of 10)								
Control circuit voltage	Number and type of contacts - Thermal current (Ith)							
	1 C/O - 15 A		2 C/O - 15 A		3 C/O - 15 A		4 C/O - 15 A	
	Catalog number	Weight	Catalog number	Weight	Catalog number	Weight	Catalog number	Weight
V		kg		kg		kg		kg
≡ 12	RPM11JD	0.026	RPM21JD	0.036	RPM31JD	0.054	RPM41JD	0.071
≡ 24	RPM11BD	0.026	RPM21BD	0.036	RPM31BD	0.054	RPM41BD	0.071
≡ 48	RPM11ED	0.026	RPM21ED	0.036	RPM31ED	0.054	RPM41ED	0.071
≡ 110	RPM11FD	0.026	RPM21FD	0.036	RPM31FD	0.054	RPM41FD	0.071
~ 24	RPM11B7	0.026	RPM21B7	0.036	RPM31B7	0.054	RPM41B7	0.071
~ 48	RPM11E7	0.026	RPM21E7	0.036	RPM31E7	0.054	RPM41E7	0.071
~ 120	RPM11F7	0.026	RPM21F7	0.036	RPM31F7	0.054	RPM41F7	0.071
~ 230	RPM11P7	0.026	RPM21P7	0.036	RPM31P7	0.054	RPM41P7	0.071



RPM42BD

Power relays with LED (sold in lots of 10)								
Control circuit voltage	Number and type of contacts - Thermal current (Ith)							
	1 C/O - 15 A		2 C/O - 15 A		3 C/O - 15 A		4 C/O - 15 A	
	Catalog number	Weight	Catalog number	Weight	Catalog number	Weight	Catalog number	Weight
V		kg		kg		kg		kg
≡ 12	RPM12JD	0.026	RPM22JD	0.036	RPM32JD	0.054	RPM42JD	0.071
≡ 24	RPM12BD	0.026	RPM22BD	0.036	RPM32BD	0.054	RPM42BD	0.071
≡ 48	RPM12ED	0.026	RPM22ED	0.036	RPM32ED	0.054	RPM42ED	0.071
≡ 110	RPM12FD	0.026	RPM22FD	0.036	RPM32FD	0.054	RPM42FD	0.071
~ 24	RPM12B7	0.026	RPM22B7	0.036	RPM32B7	0.054	RPM42B7	0.071
~ 48	RPM12E7	0.026	RPM22E7	0.036	RPM32E7	0.054	RPM42E7	0.071
~ 120	RPM12F7	0.026	RPM22F7	0.036	RPM32F7	0.054	RPM42F7	0.071
~ 230	RPM12P7	0.026	RPM22P7	0.036	RPM32P7	0.054	RPM42P7	0.071





1717 Solano Way, Unit 34 • Concord, California 94520 • 925-671-2888 • FAX 925-671-9507
202 South Douty Street • Hanford, California 93230 • 559-584-7116 • FAX 559-584-8028
4017 Vista Park Ct. • Sacramento, California 95834 • 916-646-1999 • FAX 916-646-1906

OPERATION AND MAINTENANCE MANUALS

MAINTENANCE SUMMARY

1. EQUIPMENT ITEM:

Fuses

2. MANUFACTURER:

Bussmann

3. PART NUMBERS:

GMC-1A

4. EQUIPMENT IDENTIFICATION TAG NUMBERS:

PNL-LSH-07-113, PNL-LSH-07-123, PNL-LSH-07-133, PNL-LSH-07-143,
PNL-LSH-07-801/PNL-LSL-07-802, PNL-LSH-07-806/PNL-LSL-07-807

5. MANUFACTURER'S LOCAL REPRESENTATIVE:

NAME: Manco

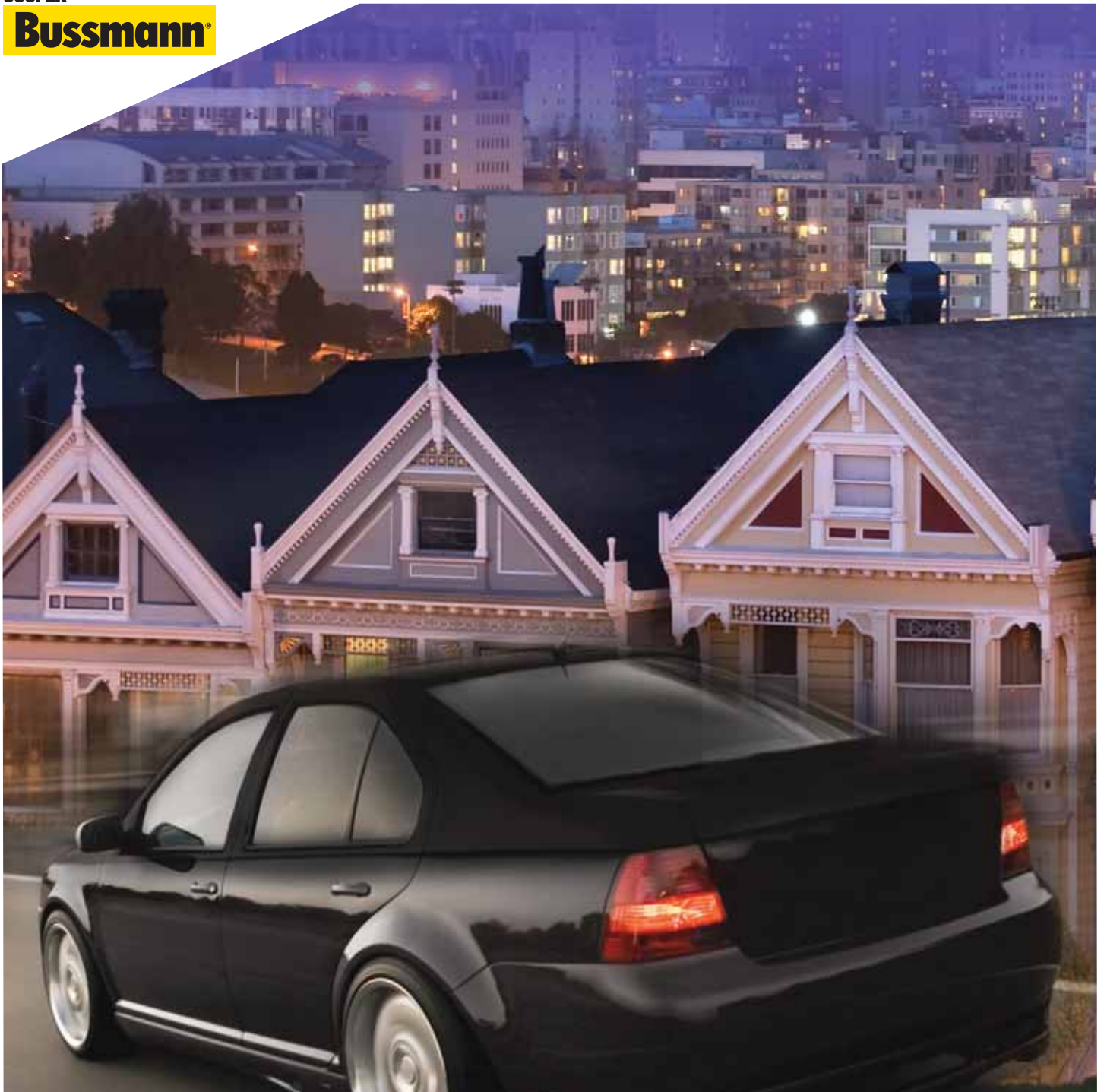
CONTACT: Dave Schwartz

PHONE: (888) 372-9636

ADDRESS: 870 Napa Valley Corp Way Suite K, Napa, CA 94558

COOPER

Bussmann®



Consumer Aftermarket Product Catalog

Glass and Ceramic Tube Fuses

COOPER Bussmann

Glass & Ceramic Tube Fuses

Automotive

Used in older-model cars, glass tube fuses today are found primarily in automotive accessory applications. The expansive Cooper Bussmann line of glass fuses includes many types and sizes in addition to those listed in this catalog. Call Cooper Bussmann for more product details if you have requirements which are not covered here.

Appliances and Consumer Electronics

Glass and ceramic tube fuses are often used to protect appliances and consumer electronics. As electronic equipment becomes smaller, the circuits and components become more delicate and easily damaged. Fuses are the preferred method of protection due to their accuracy, small size and reliability. Fuses are available in a wide variety of amp ratings to provide precise protection. Generally, two sizes of user-replaceable fuses are found: the 1/4" x 1 1/4" and 5 x 20mm. Each is available in a variety of volt and amp ratings.

Fuse Types

There are two basic types of fuses available for appliances and consumer electronics: fast-acting or time-delay. Any replacement fuse must match the one it's replacing. In general, fast-acting fuses are a single strand of wire or strip of metal. Time-delay fuses usually have a coiled wire, a thick element wrapped in wire, or a spring. Most electronic fuses will have the voltage and amp rating stamped on the end cap. The type of fuse can generally be visually identified. Also, owner's manuals will have the correct replacement fuse generically identified. For example: "Use a 2 amp, time-delay, 250 volt fuse."

Glass and ceramic tube fuses vary by diameter and length:

- AGU fuses: 13/32" x 1 1/2"
- ABC, AGC, GBB, MDA, MDL and MDQ fuses: 1/4" x 1 1/4"
- AGX fuses: 1/4" x 1"
- GBC fuses: 1/4" x 3 1/32"
- AGW fuses: 1/4" x 7/8"
- AGA fuses: 1/4" x 5/8"
- SFE fuses are 1/4" diameter and change in length as amp ratings increase
- GDA, GDB, GDC, GMA, GMC and GMD fuses: 5 x 20mm

Fuse Selection Criteria

- For electronic/electrical applications, fuse must be rated at 125V or better.
- Voltage must match or exceed the fuse being replaced (125V for household current; 12V for auto; 24V for heavy duty).
- Fuse must match required fuse characteristic – either fast-acting or time-delay.
- Amp rating must match that of the original fuse.

A Note on Voltage Rating

All fuses have a voltage rating. To maintain safety, this voltage rating should not be exceeded in application, although it is acceptable to use a higher rated fuse in a lower voltage application. For example: A fuse rated for 125 volts is appropriate in household (110V) or automotive (12V), while a fuse rated for 32 volts is appropriate for automotive (12V), but not for household (125V). Always replace a fuse with one of the same or higher voltage rating. See page 4 for technical specifications.

Fast-Acting 1/4" Diameter Fuses

AGA - 1/4" x 5/8" Fast-Acting Glass Tube Fuses

Part No. (Amps)*
AGA-1/4
AGA-1
AGA-1 1/2
AGA-2
AGA-2 1/2
AGA-3
AGA-5
AGA-6
AGA-15

*See Price Sheet for all available ratings.



AGW - 1/4" x 7/8" Fast-Acting Glass Tube Fuses

Part No. (Amps)*	Blister Pack	Tri-Lingual Blister
AGW-1		
AGW-2 1/2		
AGW-3		
AGW-4		
AGW-5		
AGW-6		
AGW-7 1/2		
AGW-10		
AGW-15	X	X
AGW-20	X	X
AGW-30		

*See Price Sheet for all available ratings.



AGX - 1/4" x 1" Fast-Acting Glass Tube Fuses

Part No. (Amps)*	Blister Pack	Poly-bag	Tri-Lingual Blister
AGX-1			
AGX-2			
AGX-2 1/2			
AGX-3			
AGX-5			
AGX-7		X	
AGX-10			
AGX-15			
AGX-20	X		X
AGX-30			

*See Price Sheet for all available ratings.



Glass & Ceramic Tube Fuses

ABC - 1/4" x 1 1/4" Fast-Acting Ceramic Tube Fuses

Part No. Amps	Poly Bag	Blister Pack	Tri-Lingual Blister
ABC-1/4			
ABC-1/2			
ABC-1			
ABC-2			
ABC-2 1/2			
ABC-3			
ABC-4			
ABC-5			
ABC-6			
ABC-7			
ABC-8			
ABC-10	X	X	X
ABC-12			
ABC-15	X	X	X
ABC-20	X		
ABC-25			
ABC-30			



*See Price Sheet for all available ratings.

AGC - 1/4" x 1 1/4" Fast-Acting Glass Tube Fuses

Part No. (Amps)*	Poly Bag	Blister Pack	Tri-Lingual Blister
AGC-1/8			
AGC-3/10			
AGC-1/4			
AGC-3/8			
AGC-1/2	X	X	X
AGC-3/4			
AGC-1	X	X	X
AGC-1 1/4			
AGC-1 1/2	X	X	X
AGC-2	X	X	X
AGC-2 1/2	X	X	
AGC-3	X	X	X
AGC-3 3/10			
AGC-3 1/2			
AGC-4	X	X	X
AGC-5	X	X	X
AGC-6	X	X	
AGC-6 1/4			
AGC-7		X	
AGC-7 1/2	X	X	X
AGC-8	X		
AGC-10	X	X	X
AGC-12			
AGC-15	X	X	X
AGC-20	X	X	X
AGC-25	X	X	X
AGC-30	X	X	X
AGC-35	X	X	X
AGC-50			



*See Price Sheet for all available ratings.

GBB - 1/4" x 1 1/4" Very Fast-Acting Ceramic Tube Fuses

Polybag Part No. (Amps)*
GBB-10BC



*See Price Sheet for all available ratings.

GBC - 1/4" x 3 1/32" Fast-Acting German Automotive Fuses

Color Code	Part No. (Amps)*	Blister Pack	Tri-Lingual Blister
Yellow	GBC-5		
White	GBC-8	X	X
Red	GBC-16	X	X
Blue	GBC-25	X	X



*See Price Sheet for all available ratings.

SFE Fast-Acting, 1/4" Diameter Size-Rejecting Automotive Glass Tube Fuses

Fuse Length	Part No. (Amps)*	Blister Pack	Tri-Lingual Blister
5/8"	SFE-4	X	X
3/4"	SFE-6	X	X
7/8"	SFE-7 1/2	X	X
7/8"	SFE-9	X	X
1 1/16"	SFE-14	X	X
1 1/4"	SFE-20	X	X
1 7/16"	SFE-30	X	X



*See Price Sheet for all available ratings.

AGU - 13/32" x 1 1/2" Fast-Acting Glass Tube Midget Fuses

Available with gold-plated end caps for high-end stereo and AV markets.

Part No. (Amps)*	Blister Pack
Nickel-Plated	
AGU-10	
AGU-15	
AGU-20	
AGU-25	
AGU-30	X
AGU-40	X
AGU-50	X
AGU-60	X
Gold-Plated	
AGU-10GP	X
AGU-15GP	X
AGU-20GP	X
AGU-25GP	X
AGU-30GP	X
AGU-35GP	X
AGU-40GP	X
AGU-50GP	X
AGU-60GP	X



*See Price Sheet for all available ratings.

Glass & Ceramic Tube Fuses

Time-Delay 1/4" Diameter Fuses

MDA - 1/4" x 1 1/4" Time-Delay Ceramic Tube Fuses

Part No. (Amps)*	Blister Pack
MDA-1	
MDA-1 1/2	
MDA-2	
MDA-2 1/2	
MDA-3	
MDA-4	
MDA-5	
MDA-6	
MDA-7	
MDA-8	X
MDA-10	
MDA-12	
MDA-15	
MDA-20	
MDA-25	
MDA-30	



*See Price Sheet for all available ratings.

MDL - 1/4" x 1 1/4" Time-Delay Glass Tube Fuses

Part No. (Amps)*	Poly Bag	Blister Pack	Tri-Lingual Blister
MDL-1/16			
MDL-1/8			
MDL-1/4			
MDL-3/8			
MDL-1/2	X	X	
MDL-3/4			
MDL-1	X	X	X
MDL-1 1/4			
MDL-1 1/2	X	X	
MDL-2	X	X	X
MDL-2 1/2			
MDL-3	X	X	
MDL-3 7/10			
MDL-3 1/2			
MDL-4	X	X	
MDL-5	X	X	X
MDL-6	X	X	
MDL-6 1/4			
MDL-7	X	X	
MDL-7 1/2			
MDL-8	X	X	
MDL-10	X	X	
MDL-12			
MDL-15	X	X	
MDL-20	X		
MDL-25			
MDL-30			
MDL-40			



*See Price Sheet for all available ratings.

MDQ - 1/4" x 1 1/4" Dual-Element, Time-Delay Glass Tube Fuses

Part No. (Amps)*

MDQ-2



*See Price Sheet for all available ratings.

Glass & Ceramic Tube Fuses

Fast-Acting 5 x 20mm Fuses

GDA - IEC 5 X 20mm High-Break Fast-Acting Ceramic Tube Fuses

Part No. (Amps)*
GDA-500mA
GDA-630mA
GDA-1A
GDA-1.25A
GDA-1.6A
GDA-2A
GDA-2.5A
GDA-3.15A
GDA-4A
GDA-5A
GDA-6.3A



*See Price Sheet for all available ratings.

GDB - IEC 5 X 20mm Fast-Acting Glass Tube Fuses

Part No. (Amps)*
GDB-160mA
GDB-2A
GDB-4A
GDB-6.3A
GDB-8A
GDB-10A



*See Price Sheet for all available ratings.

GMA - UL 5 X 20mm Fast-Acting Glass Tube Fuses

Part No. (Amps)*	Poly Bag	Tri-lingual Blister
GMA-63mA		
GMA-100mA		
GMA-125mA		
GMA-200mA		
GMA-250mA	X	
GMA-300mA		
GMA-315mA		
GMA-500mA	X	X
GMA-600mA		
GMA-750mA	X	
GMA-800mA		
GMA-1A	X	X
GMA-1.25A		
GMA-1.5A		
GMA-1.6A		
GMA-2A	X	X
GMA-2.5A		
GMA-3A	X	X
GMA-3.15A	X	
GMA-3.5A		
GMA-4A		
GMA-5A	X	X
GMA-6A	X	X
GMA-7A	X	
GMA-8A		



*See Price Sheet for all available ratings.

Time-Delay 5 x 20mm Fuses

GDC - IEC 5 X 20mm Time-Delay Glass Tube Fuses

Part No. (Amps)*	Poly Bag	Blister Pack
GDC-500mA		
GDC-1A		
GDC-1.6A		
GDC-2A		
GDC-2.5A		
GDC-3.15A		
GDC-4A		
GDC-5A	X	X
GDC-6.3A		



*See Price Sheet for all available ratings.

GMC - UL 5 x 20mm Medium Time-Delay Glass Tube Fuses

Part No. (Amps)*	Poly Bag
GMC-500mA	
GMC-630mA	
GMC-1A	
GMC-1.5A	
GMC-1.6A	
GMC-2A	
GMC-3A	
GMC-3.5A	
GMC-4A	
GMC-5A	
GMC-6A	
GMC-7A	X



*See Price Sheet for all available ratings.

GMD - UL 5 x 20mm Medium Time-Delay Glass Tube Fuses

Part No.(Amps)*
GMD-1A



*See Price Sheet for all available ratings.



ELECTRICAL CONTRACTING, INSTRUMENTATION SALES & SERVICE
Electronic • Pneumatic • Chemical • Telemetry • Analytical • Computer Systems

TAB – 4

Construction Drawings

4017 Vista Park Ct. • Sacramento, CA 95834 • 916-646-1999 • Fax 916-646-1096
1717 Solano Way, Unit 34 • Concord, CA 94520 • 925-671-2888 • Fax 925-671-9507
202 South Douty Street • Hanford, CA 93230 • 559-584-7116 • Fax 559-584-8028

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
PNEUMATIC VALVE CONTROL STATION
DIG-PNL-07-210
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-PVC-07210-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-PVC-07210-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-PVC-07210-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-PVC-07210-04	TERMINAL LAYOUT	1	01-19-2018
5	29728-PVC-07210-05	PRIMARY SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
6	29728-PVC-07210-06	TWAS SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
7	29728-PVC-07210-07	FOG/FW SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018

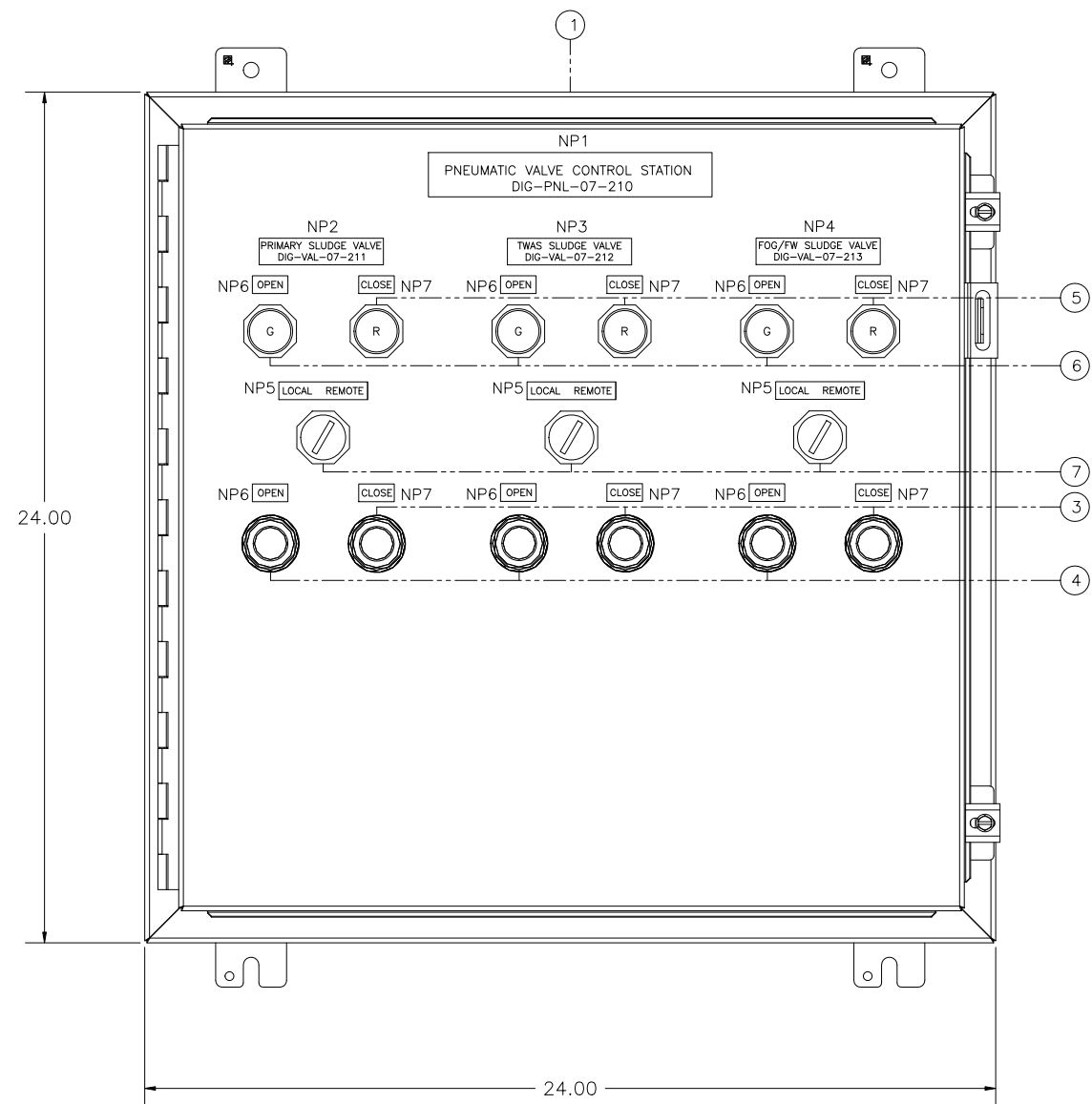
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

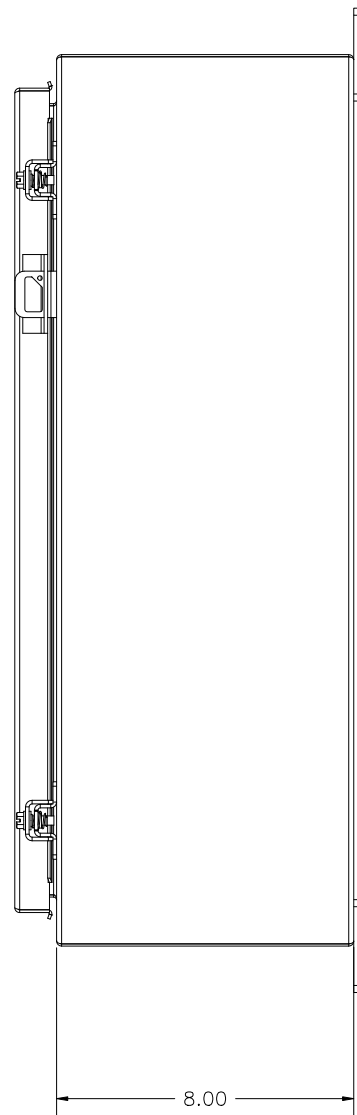


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

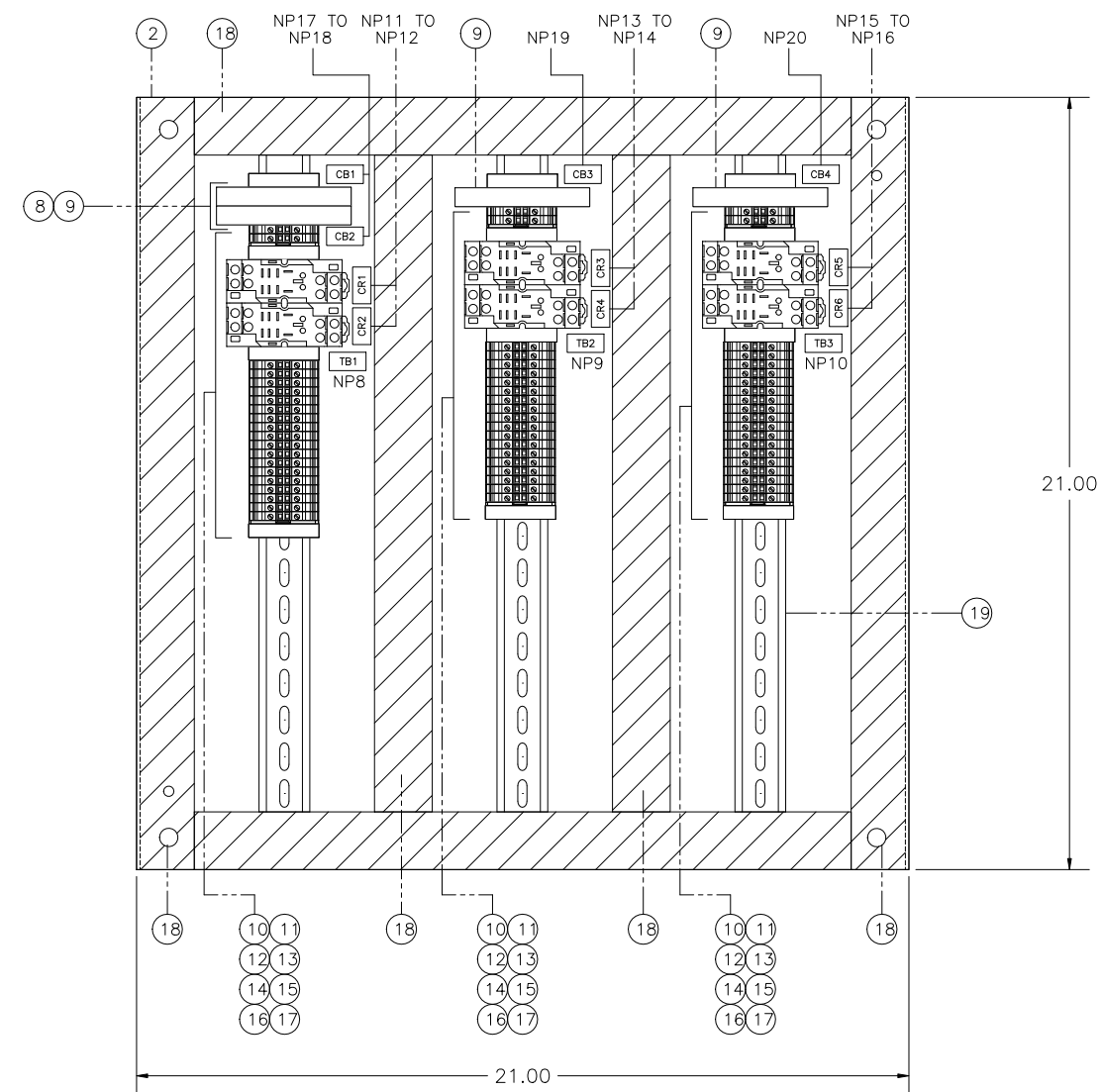
CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-210) INDEX SHEET AND LEGEND SHEET			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07210-01.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	01	1



FRONT PANEL LAYOUT



SIDE VIEW



BACKPLATE LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-210) FRONT AND BACKPLATE LAYOUT			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07210-02.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	02	1

01/19/18 3:04 PM

BILL OF MATERIAL				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	WALL MOUNTED TYPE 12 ENCLOSURE (24"H X 24"W X 8"D)	HOFFMAN	A242408LP
2	1	ENCLOSURE BACK PANEL	HOFFMAN	A24P24
3	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., RED, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR6D1
4	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., GREEN, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR1D1
5	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, RED, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2R
6	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, GREEN, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2G
7	3	30.5MM TYPE 4/4X/13 2 POS SEL. SWITCH-NON-ILLUM., WHITE, STD. KNOB MAINT., 2 NO-2 NC	ALLEN BRADLEY	800H-HR2B
8	1	CIRCUIT BREAKER 1-POLE 20A	WEIDMULLER	9926251020
9	3	CIRCUIT BREAKER 1-POLE 5A	WEIDMULLER	9926251005
10	6	CONTROL RELAY, 120VAC, 15A, DPDT WITH LOCKABLE TEST BUTTON, WITH LED	SQUARE D	RPM22F7
11	6	RELAY SOCKET	SQUARE D	RPZF2
12	57	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
13	3	TERMINAL BLOCK, GROUND, UT4	PHOENIX CONTACT	3044128
14	12	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
15	6	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
16	A/R	JUMPERS FOR TERMINAL BLOCK	PHOENIX CONTACT	3030271
17	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
18	10FT	WIREWAY 1.5"W x 3"H	PHOENIX CONTACT	3240198
19	5FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1

NAMEPLATE SCHEDULE						
NP NO.	NP QTY.	NP SIZE L X H	LETTER HEIGHT	TEXT LINE 1	TEXT LINE 2	TEXT LINE 3
1	1	8" X 1.25"	1/4"	PNEUMATIC VALVE CONTROL STATION	DIG-PNL-07-210	~~~~~
2	1	3.50" X 0.75"	3/16"	PRIMARY SLUDGE VALVE	DIG-VAL-07-211	~~~~~
3	1	3.50" X 0.75"	3/16"	TWAS SLUDGE VALVE	DIG-VAL-07-212	~~~~~
4	1	3.50" X 0.75"	3/16"	FOG/FW SLUDGE VALVE	DIG-VAL-07-213	~~~~~
5	3	2.5" X 0.50"	3/16"	LOCAL REMOTE	~~~~~	~~~~~
6	6	1" X 0.5"	3/16"	OPEN	~~~~~	~~~~~
7	6	1" X 0.5"	3/16"	CLOSE	~~~~~	~~~~~
8	1	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
9	1	1" X 0.5"	3/16"	TB2	~~~~~	~~~~~
10	1	1" X 0.5"	3/16"	TB3	~~~~~	~~~~~
11	1	1" X 0.5"	3/16"	CR1	~~~~~	~~~~~
12	1	1" X 0.5"	3/16"	CR2	~~~~~	~~~~~
13	1	1" X 0.5"	3/16"	CR3	~~~~~	~~~~~
14	1	1" X 0.5"	3/16"	CR4	~~~~~	~~~~~
15	1	1" X 0.5"	3/16"	CR5	~~~~~	~~~~~
16	1	1" X 0.5"	3/16"	CR6	~~~~~	~~~~~
17	1	1" X 0.5"	3/16"	CB1	~~~~~	~~~~~
18	1	1" X 0.5"	3/16"	CB2	~~~~~	~~~~~
19	1	1" X 0.5"	3/16"	CB3	~~~~~	~~~~~
20	1	1" X 0.5"	3/16"	CB4	~~~~~	~~~~~

NOTES:

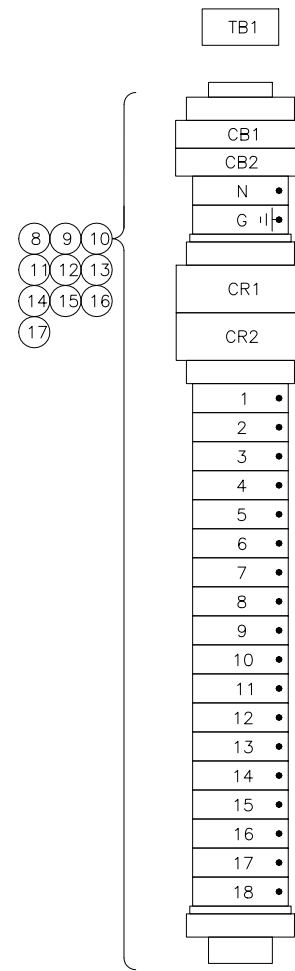


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-210) BILL OF MATERIAL AND NAMEPLATE SCHEDULE			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07210-03.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	03	1

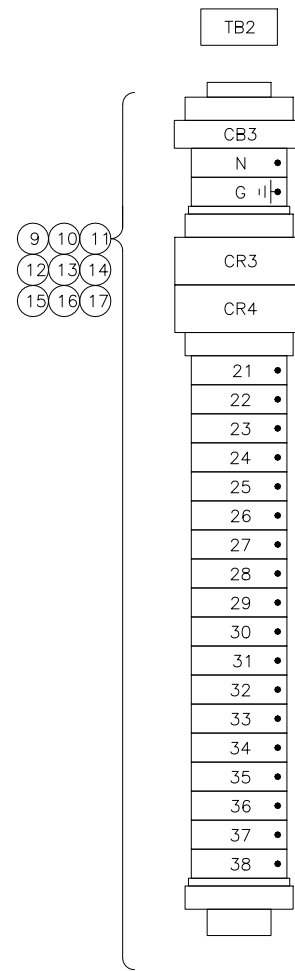
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

01/19/18 3:04 PM



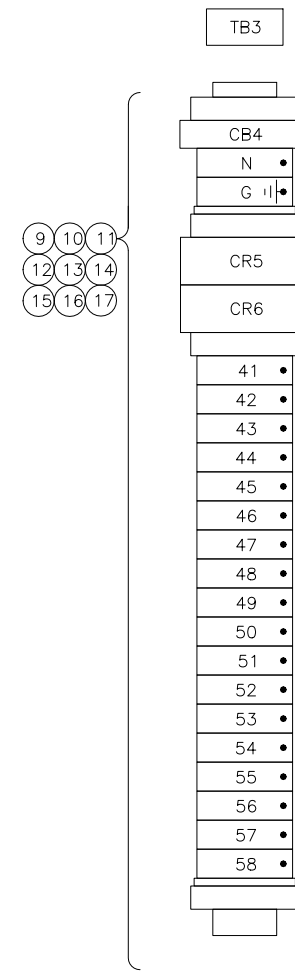
TERMINAL LAYOUT

PRIMARY SLUDGE VALVE NO. 1
(DIG-VAL-07-211)



TERMINAL LAYOUT

TWAS SLUDGE VALVE NO. 1
(DIG-VAL-07-212)



TERMINAL LAYOUT

FOG/FW SLUDGE VALVE NO. 1
(DIG-VAL-07-213)

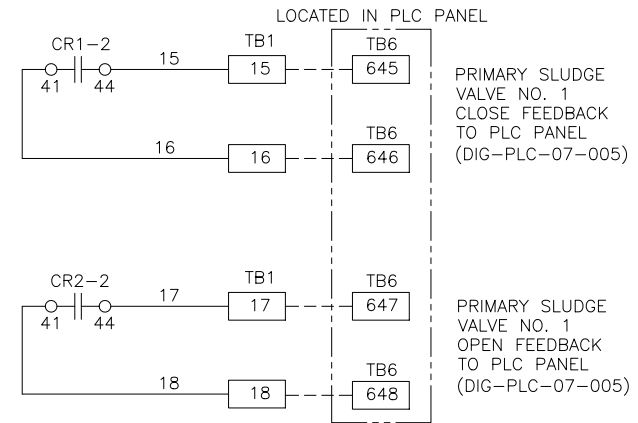
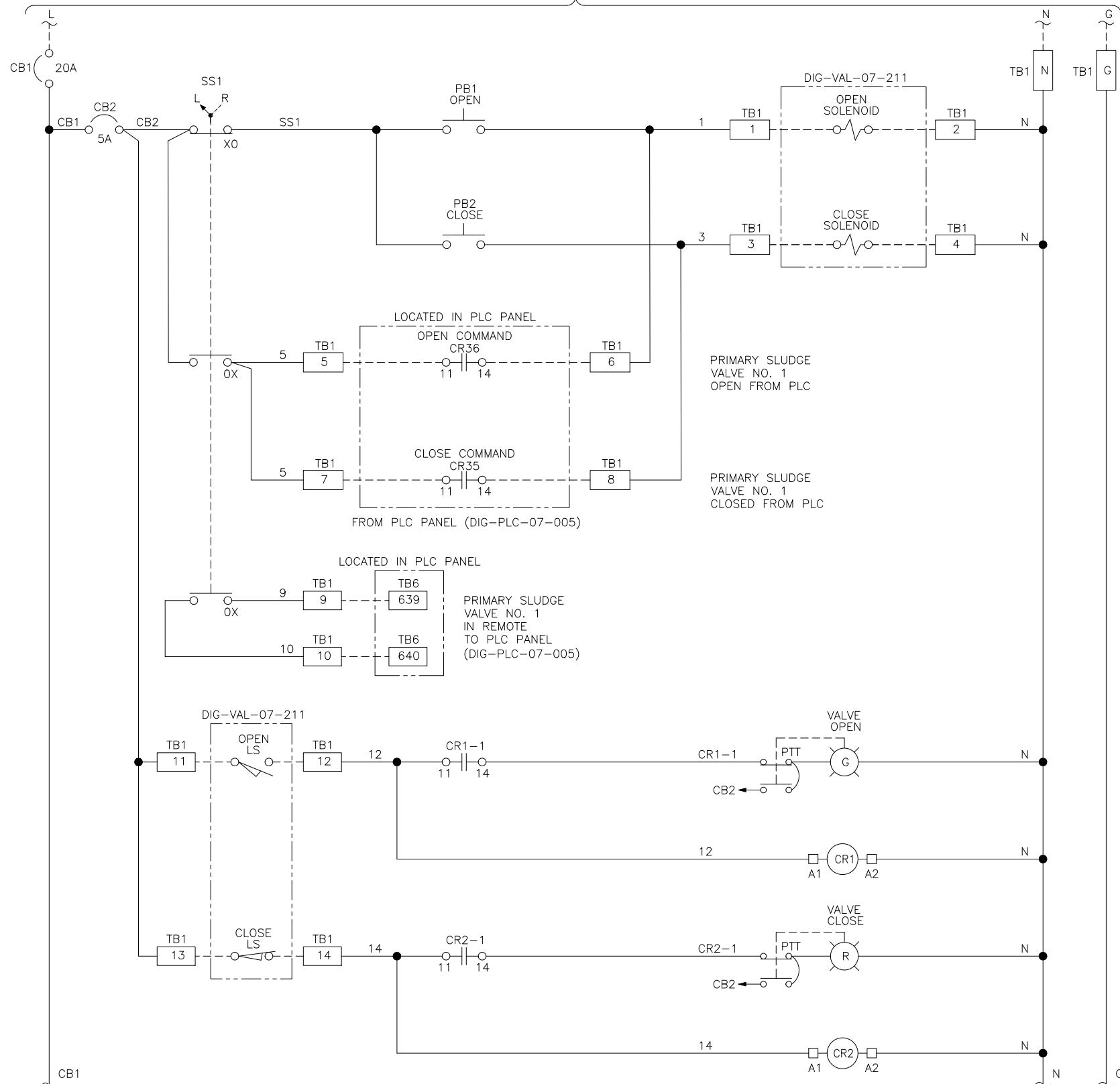
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-210) TERMINAL LAYOUT			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07210-04.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 04	REV 1



CONTINUED TO
DWG. #29728-PVC-07210-06

CONTINUED TO
DWG. #29728-PVC-07210-06

PRIMARY SLUDGE VALVE NO. 1 (DIG-VAL-07-211)

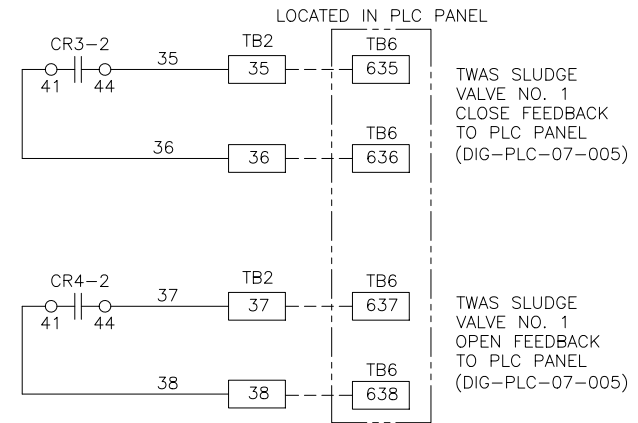
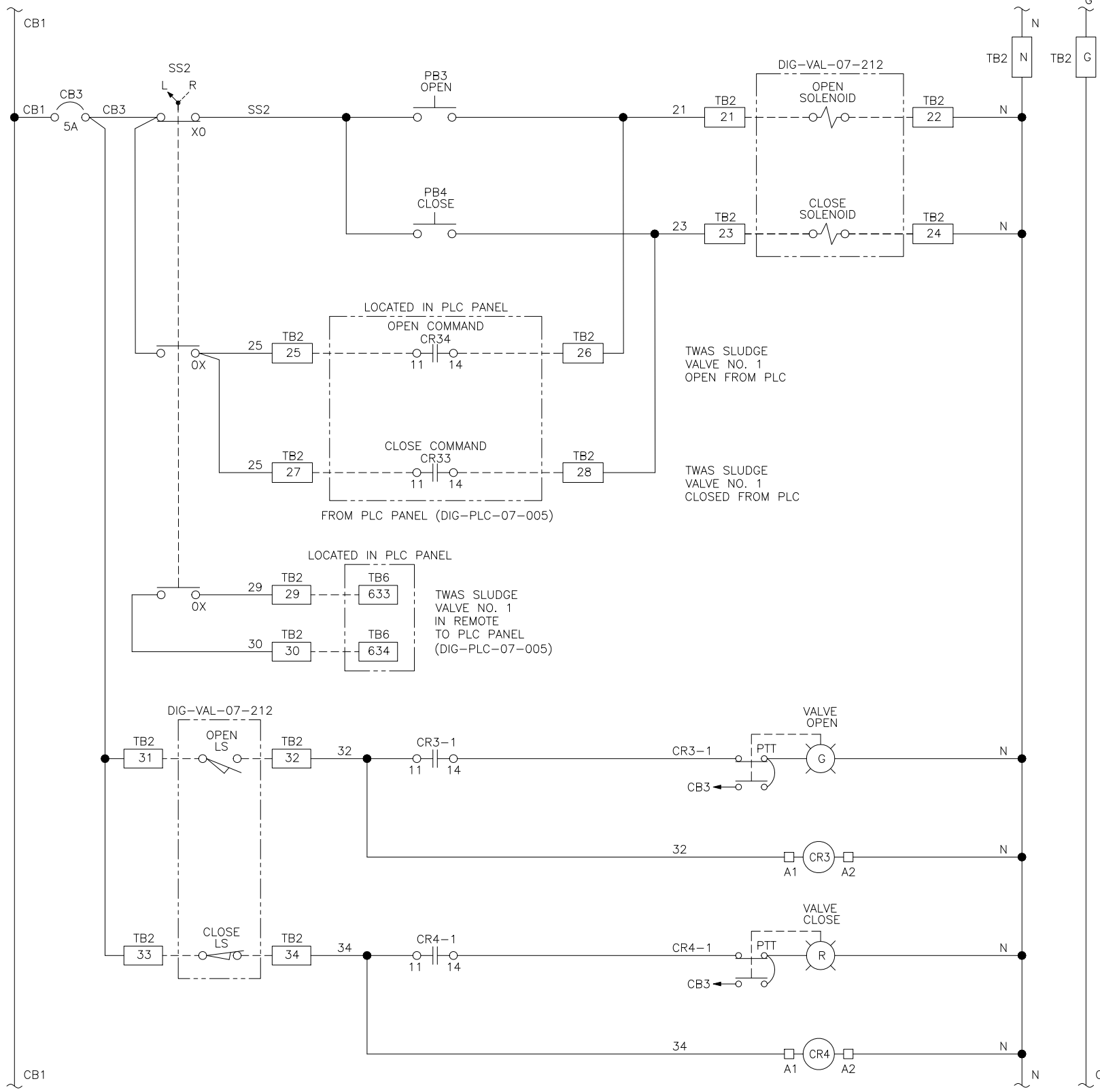
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-210) PRIMARY SLUDGE VALVE NO. 1 (DIG-VAL-07-211) WIRING DIAGRAM			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07210-05.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 05	REV 1

01/19/18 3:04 PM



TWAS SLUDGE VALVE NO. 1 (DIG-VAL-07-212)

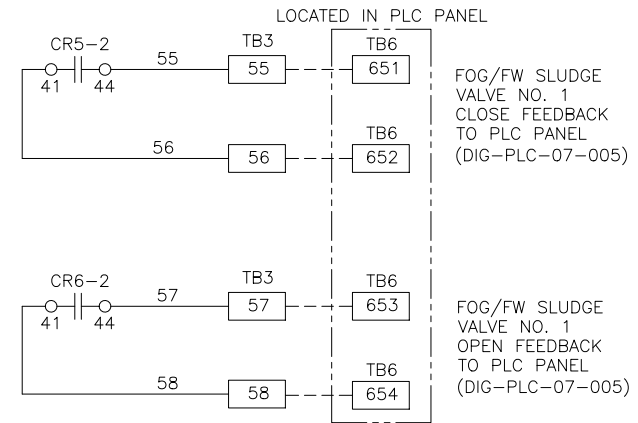
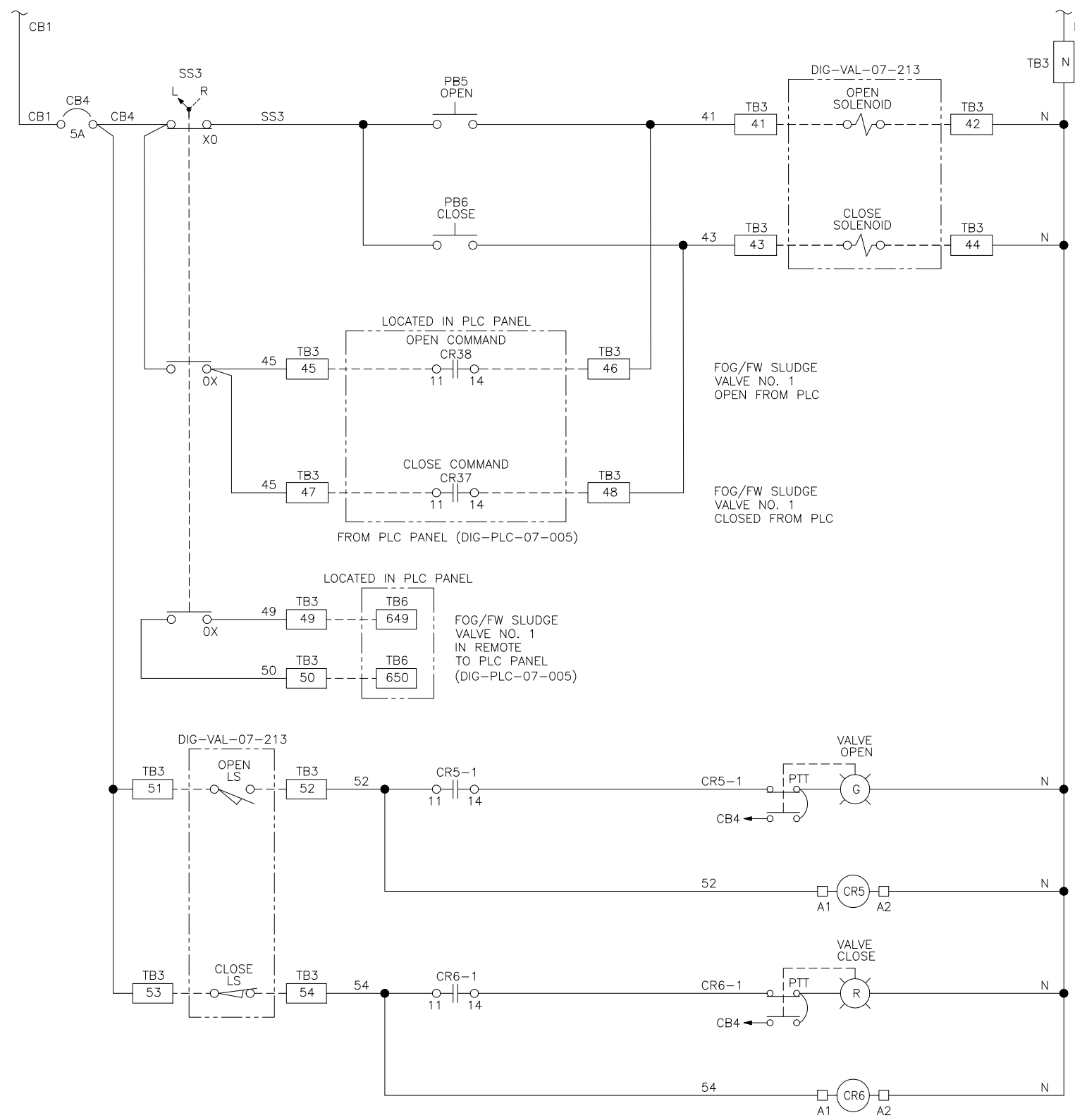
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-210) TWAS SLUDGE VALVE NO. 1 (DIG-VAL-07-212) WIRING DIAGRAM			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07210-06.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 06	REV 1

01/19/18 3:04 PM



FOG/FW SLUDGE VALVE NO. 1 (DIG-VAL-07-213)

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY			
DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-210)			
FOG/FW SLUDGE VALVE NO. 1 (DIG-VAL-07-213) WIRING DIAGRAM			
DRAWN BY	DATE	SCALE	
SSJ	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07210-07.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	07	1

01/19/18 3:04 PM

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
PNEUMATIC VALVE CONTROL STATION
DIG-PNL-07-220
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-PVC-07220-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-PVC-07220-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-PVC-07220-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-PVC-07220-04	TERMINAL LAYOUT	1	01-19-2018
5	29728-PVC-07220-05	PRIMARY SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
6	29728-PVC-07220-06	TWAS SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
7	29728-PVC-07220-07	FOG/FW SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018

NOTES:

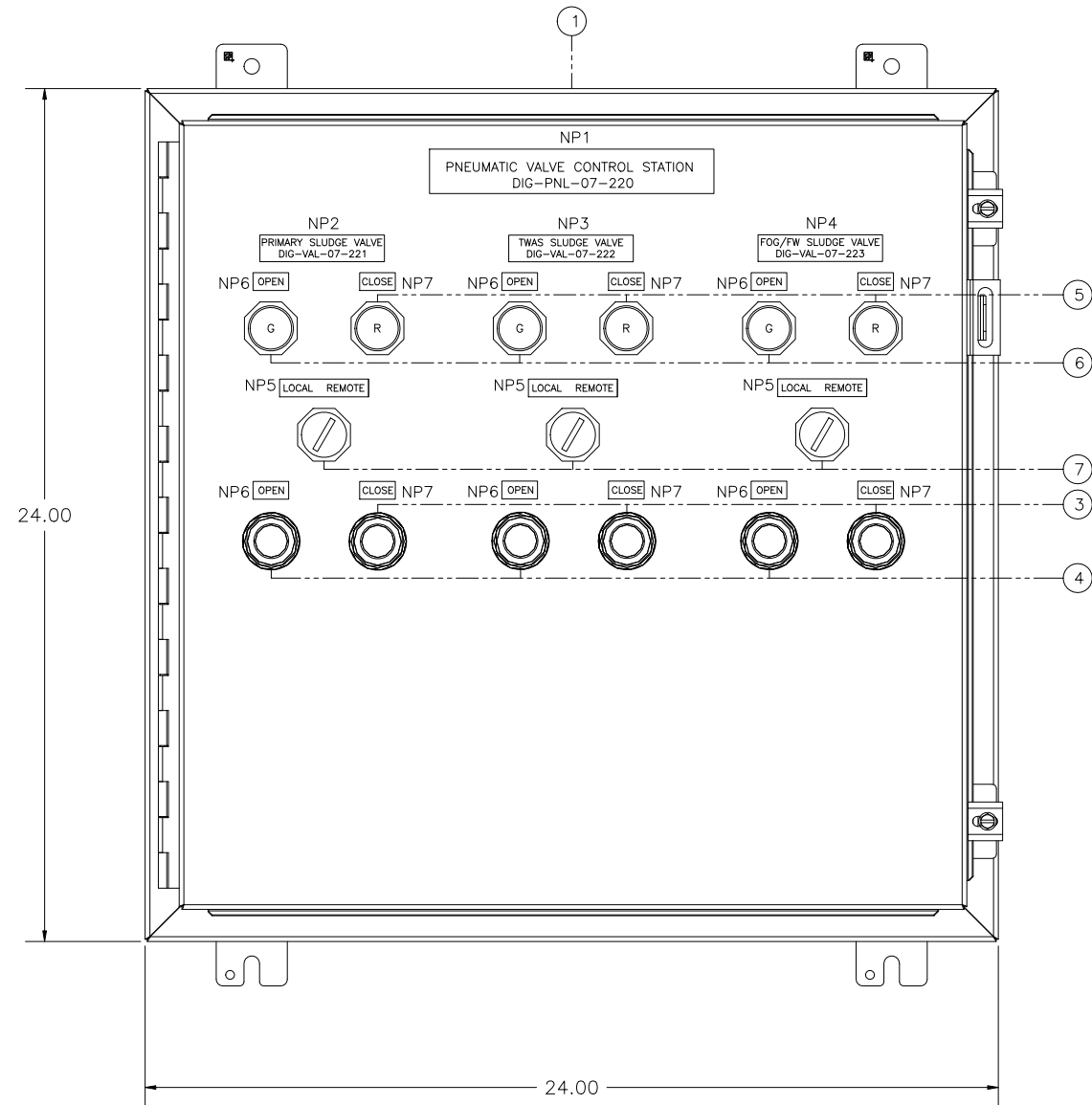
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



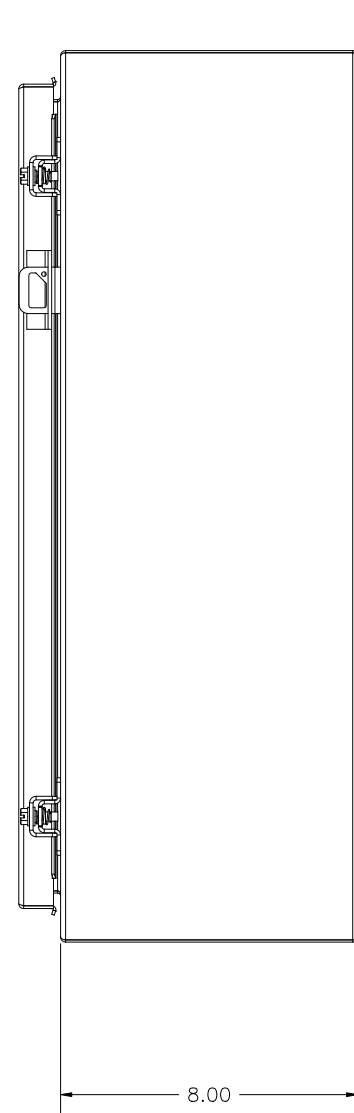
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-220) INDEX SHEET AND LEGEND SHEET			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME 29728-PVC-07220-01.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1

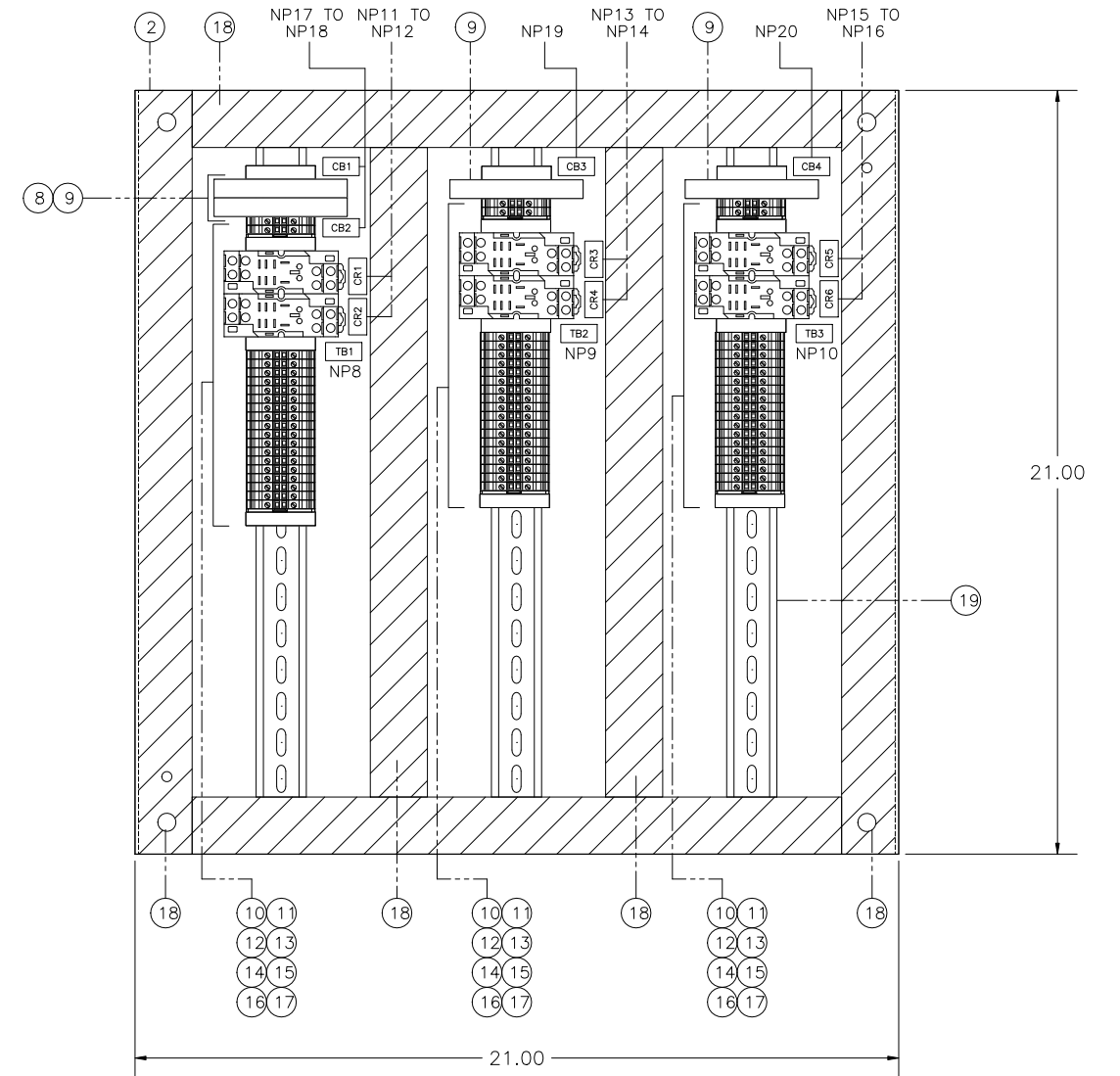
01/19/18 3:06 PM



FRONT PANEL LAYOUT



SIDE VIEW



BACKPLATE LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-220) FRONT AND BACKPLATE LAYOUT			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07220-02.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	02	1

01/19/18 3:06 PM

BILL OF MATERIAL				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	WALL MOUNTED TYPE 12 ENCLOSURE (24"H X 24"W X 8"D)	HOFFMAN	A242408LP
2	1	ENCLOSURE BACK PANEL	HOFFMAN	A24P24
3	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., RED, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR6D1
4	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., GREEN, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR1D1
5	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, RED, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2R
6	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, GREEN, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2G
7	3	30.5MM TYPE 4/4X/13 2 POS SEL. SWITCH-NON-ILLUM., WHITE, STD. KNOB MAINT., 2 NO-2 NC	ALLEN BRADLEY	800H-HR2B
8	1	CIRCUIT BREAKER 1-POLE 20A	WEIDMULLER	9926251020
9	3	CIRCUIT BREAKER 1-POLE 5A	WEIDMULLER	9926251005
10	6	CONTROL RELAY, 120V AC, 15A, DPDT WITH LOCKABLE TEST BUTTON, WITH LED	SQUARE D	RPM22F7
11	6	RELAY SOCKET	SQUARE D	RPZF2
12	57	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
13	3	TERMINAL BLOCK, GROUND, UT4	PHOENIX CONTACT	3044128
14	12	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
15	6	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
16	A/R	JUMPERS FOR TERMINAL BLOCK	PHOENIX CONTACT	3030271
17	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
18	10FT	WIREWAY 1.5"W x 3"H	PHOENIX CONTACT	3240198
19	5FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1

NAMEPLATE SCHEDULE						
NP NO.	NP QTY.	NP SIZE L X H	LETTER HEIGHT	TEXT LINE 1	TEXT LINE 2	TEXT LINE 3
1	1	8" X 1.25"	1/4"	PNEUMATIC VALVE CONTROL STATION	DIG-PNL-07-220	~~~~~
2	1	3.50" X 0.75"	3/16"	PRIMARY SLUDGE VALVE	DIG-VAL-07-221	~~~~~
3	1	3.50" X 0.75"	3/16"	TWAS SLUDGE VALVE	DIG-VAL-07-222	~~~~~
4	1	3.50" X 0.75"	3/16"	FOG/FW SLUDGE VALVE	DIG-VAL-07-223	~~~~~
5	3	2.5" X 0.50"	3/16"	LOCAL REMOTE	~~~~~	~~~~~
6	6	1" X 0.5"	3/16"	OPEN	~~~~~	~~~~~
7	6	1" X 0.5"	3/16"	CLOSE	~~~~~	~~~~~
8	1	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
9	1	1" X 0.5"	3/16"	TB2	~~~~~	~~~~~
10	1	1" X 0.5"	3/16"	TB3	~~~~~	~~~~~
11	1	1" X 0.5"	3/16"	CR1	~~~~~	~~~~~
12	1	1" X 0.5"	3/16"	CR2	~~~~~	~~~~~
13	1	1" X 0.5"	3/16"	CR3	~~~~~	~~~~~
14	1	1" X 0.5"	3/16"	CR4	~~~~~	~~~~~
15	1	1" X 0.5"	3/16"	CR5	~~~~~	~~~~~
16	1	1" X 0.5"	3/16"	CR6	~~~~~	~~~~~
17	1	1" X 0.5"	3/16"	CB1	~~~~~	~~~~~
18	1	1" X 0.5"	3/16"	CB2	~~~~~	~~~~~
19	1	1" X 0.5"	3/16"	CB3	~~~~~	~~~~~
20	1	1" X 0.5"	3/16"	CB4	~~~~~	~~~~~

NOTES:

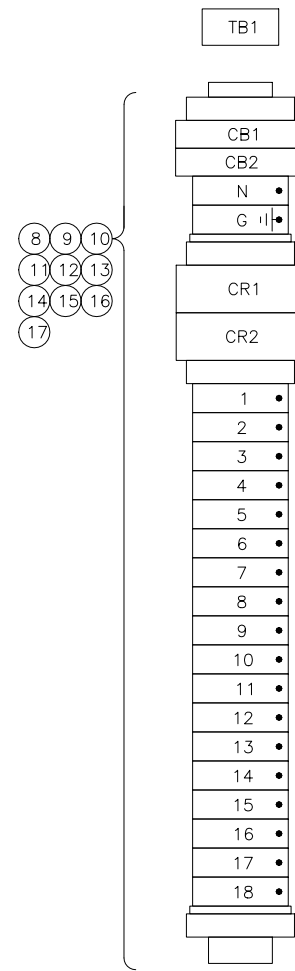


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-220) BILL OF MATERIAL AND NAMEPLATE SCHEDULE			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07220-03.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	03	1

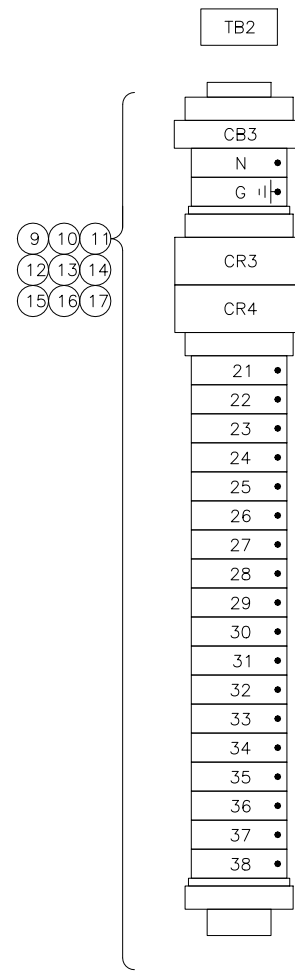
01/19/18 3:06 PM

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



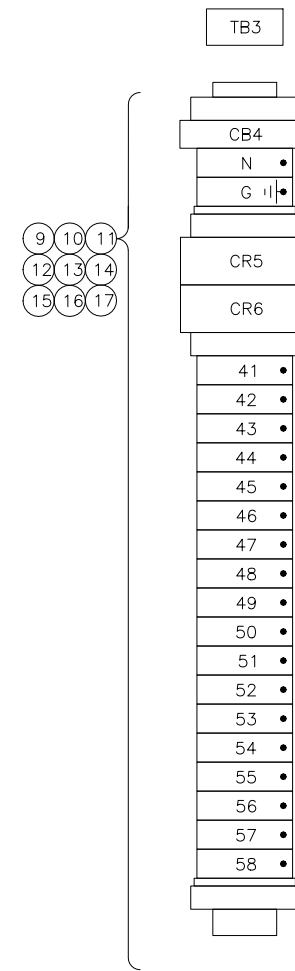
TERMINAL LAYOUT

PRIMARY SLUDGE VALVE NO. 2
(DIG-VAL-07-221)



TERMINAL LAYOUT

TWAS SLUDGE VALVE NO. 2
(DIG-VAL-07-222)



TERMINAL LAYOUT

FOG/FW SLUDGE VALVE NO. 2
(DIG-VAL-07-223)

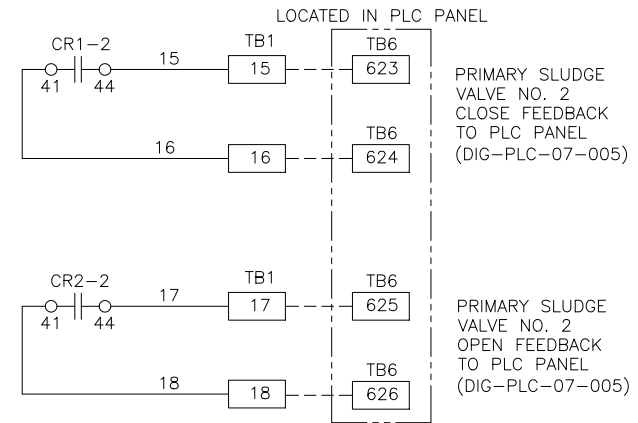
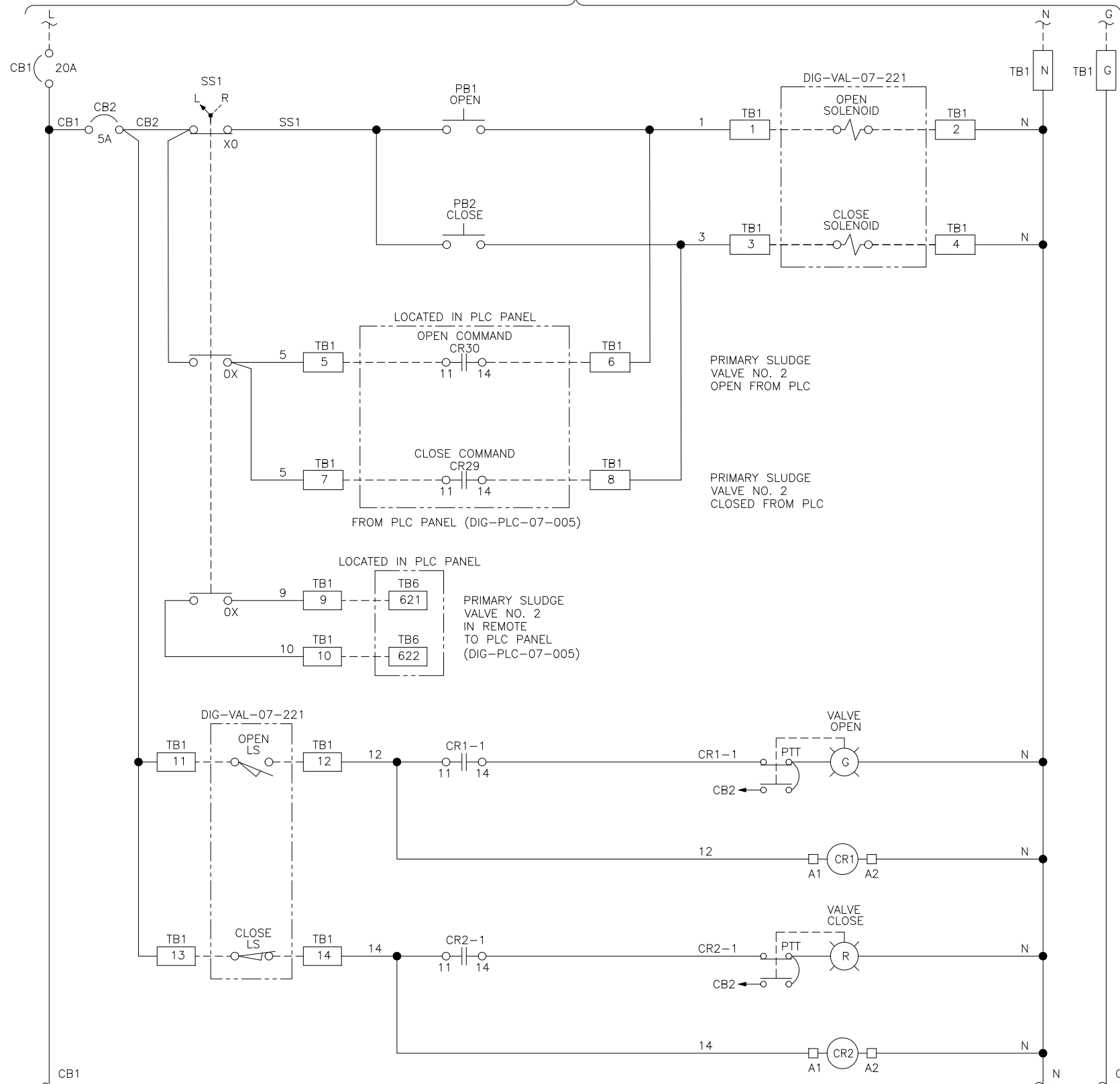
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-220) TERMINAL LAYOUT			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07220-04.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 04	REV 1



CONTINUED TO
DWG. #29728-PVC-07220-06

CONTINUED TO
DWG. #29728-PVC-07220-06

PRIMARY SLUDGE VALVE NO. 2 (DIG-VAL-07-221)

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

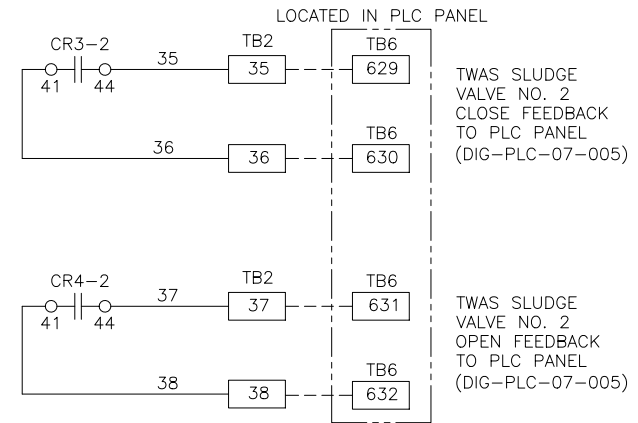
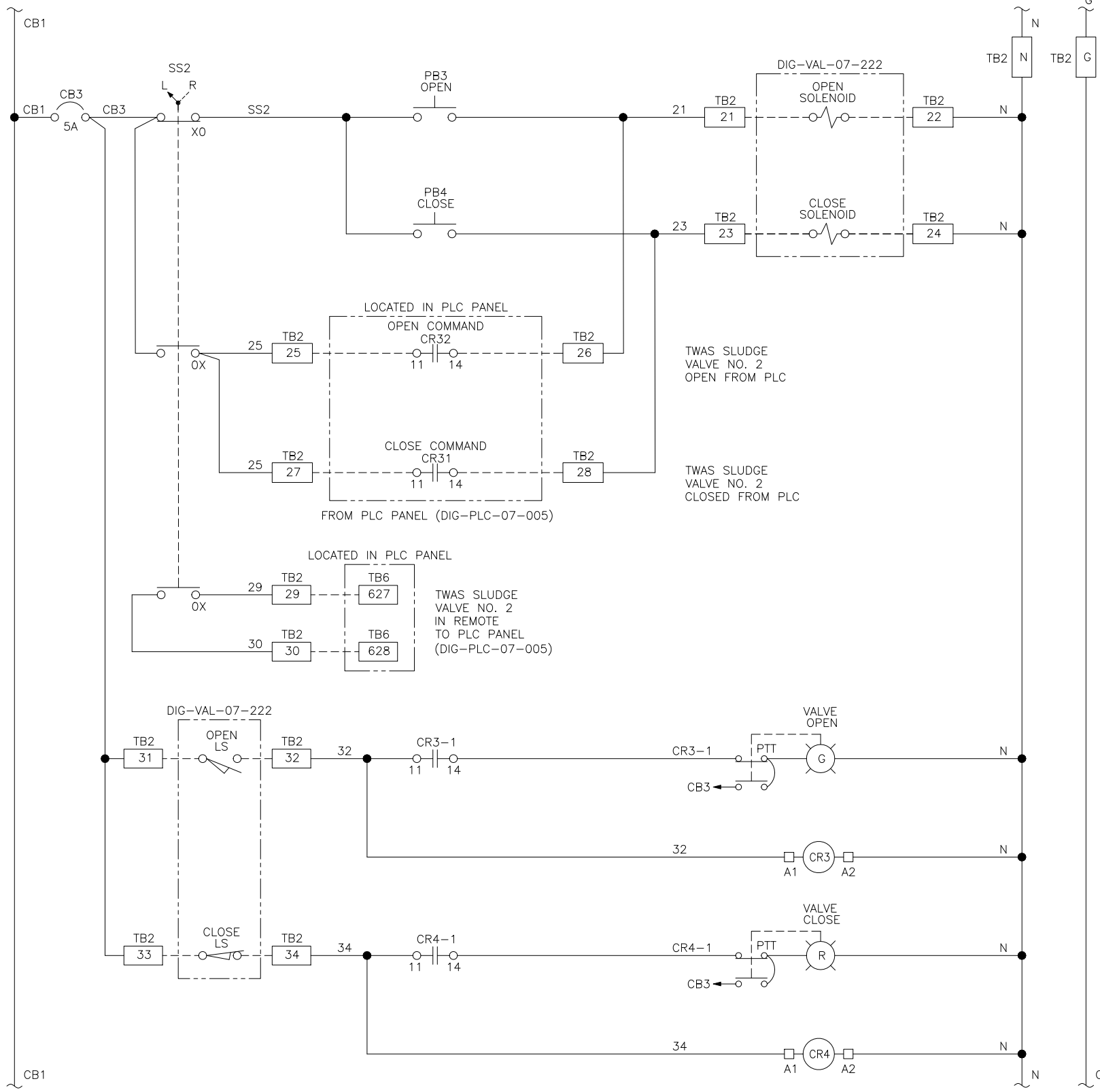


CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-220) PRIMARY SLUDGE VALVE NO. 2 (DIG-VAL-07-221) WIRING DIAGRAM			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07220-05.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 05	REV 1

01/19/18 3:06 PM

CONTINUED FROM
DWG. #29728-PVC-07220-05

CONTINUED FROM
DWG. #29728-PVC-07220-05



CONTINUED TO
DWG. #29728-PVC-07220-07

CONTINUED TO
DWG. #29728-PVC-07220-07

TWAS SLUDGE VALVE NO. 2 (DIG-VAL-07-222)

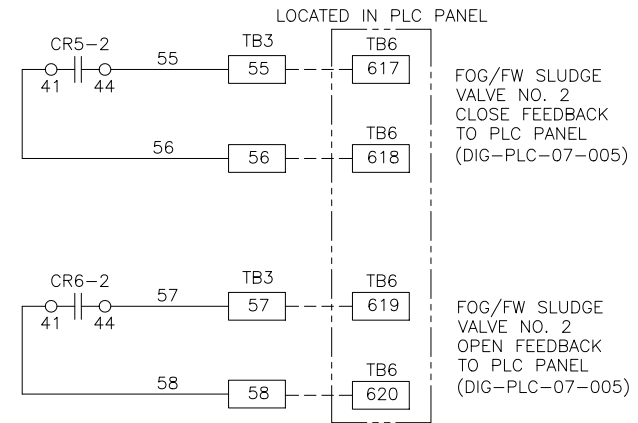
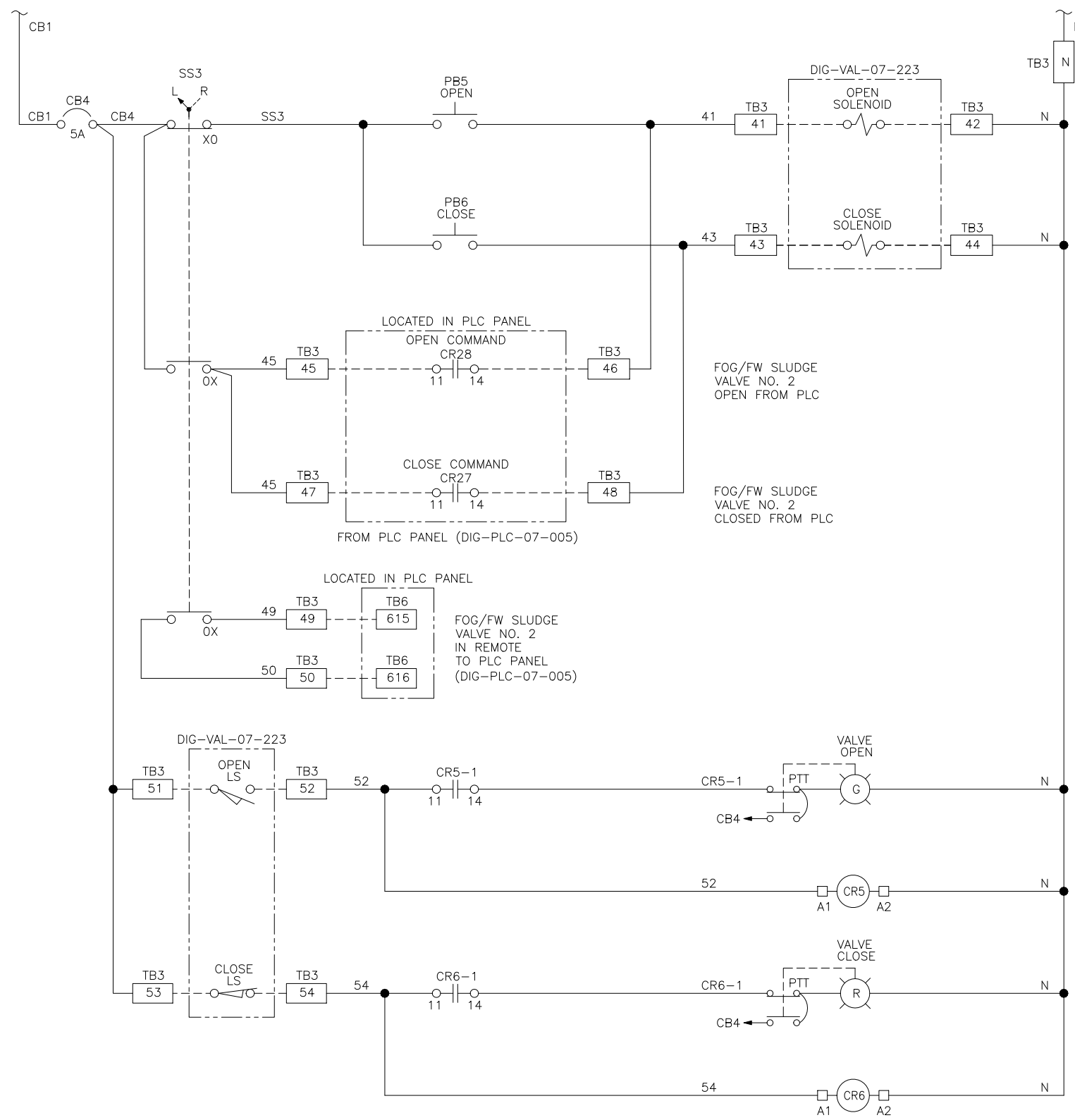
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-220) TWAS SLUDGE VALVE NO. 2 (DIG-VAL-07-222) WIRING DIAGRAM			
DRAWN BY	DATE	SCALE	
SSJ	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07220-06.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	06	1

01/19/18 3:06 PM



FOG/FW SLUDGE VALVE NO. 2 (DIG-VAL-07-223)

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-220) FOG/FW SLUDGE VALVE NO. 2 (DIG-VAL-07-223) WIRING DIAGRAM			
DRAWN BY	DATE	SCALE	
SSJ	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07220-07.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	07	1

01/19/18 3:06 PM

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

———— DENOTES PANEL WIRING (INSIDE OF PANEL)
 - - - - - DENOTES FIELD WIRING (OUTSIDE OF PANEL)

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
PNEUMATIC VALVE CONTROL STATION
DIG-PNL-07-230
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-PVC-07230-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-PVC-07230-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-PVC-07230-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-PVC-07230-04	TERMINAL LAYOUT	1	01-19-2018
5	29728-PVC-07230-05	PRIMARY SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
6	29728-PVC-07230-06	TWAS SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
7	29728-PVC-07230-07	FOG/FW SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018

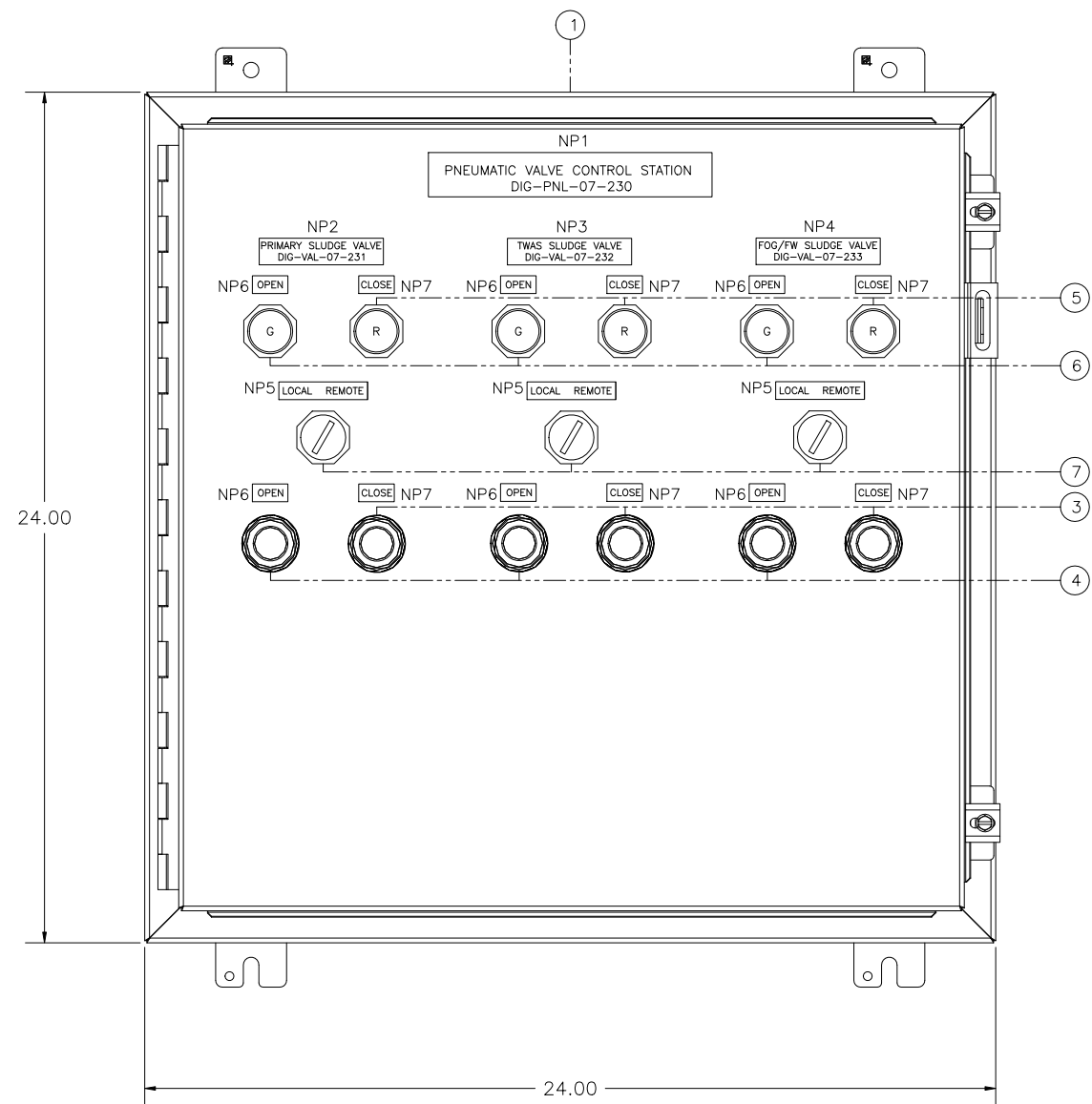
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

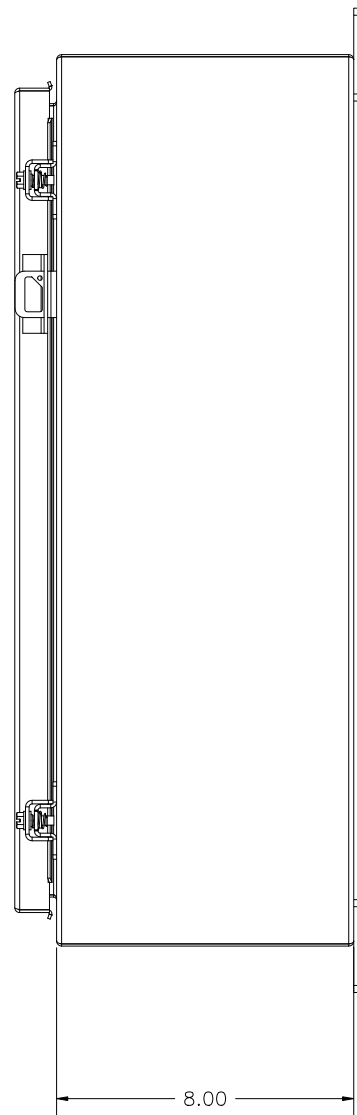


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

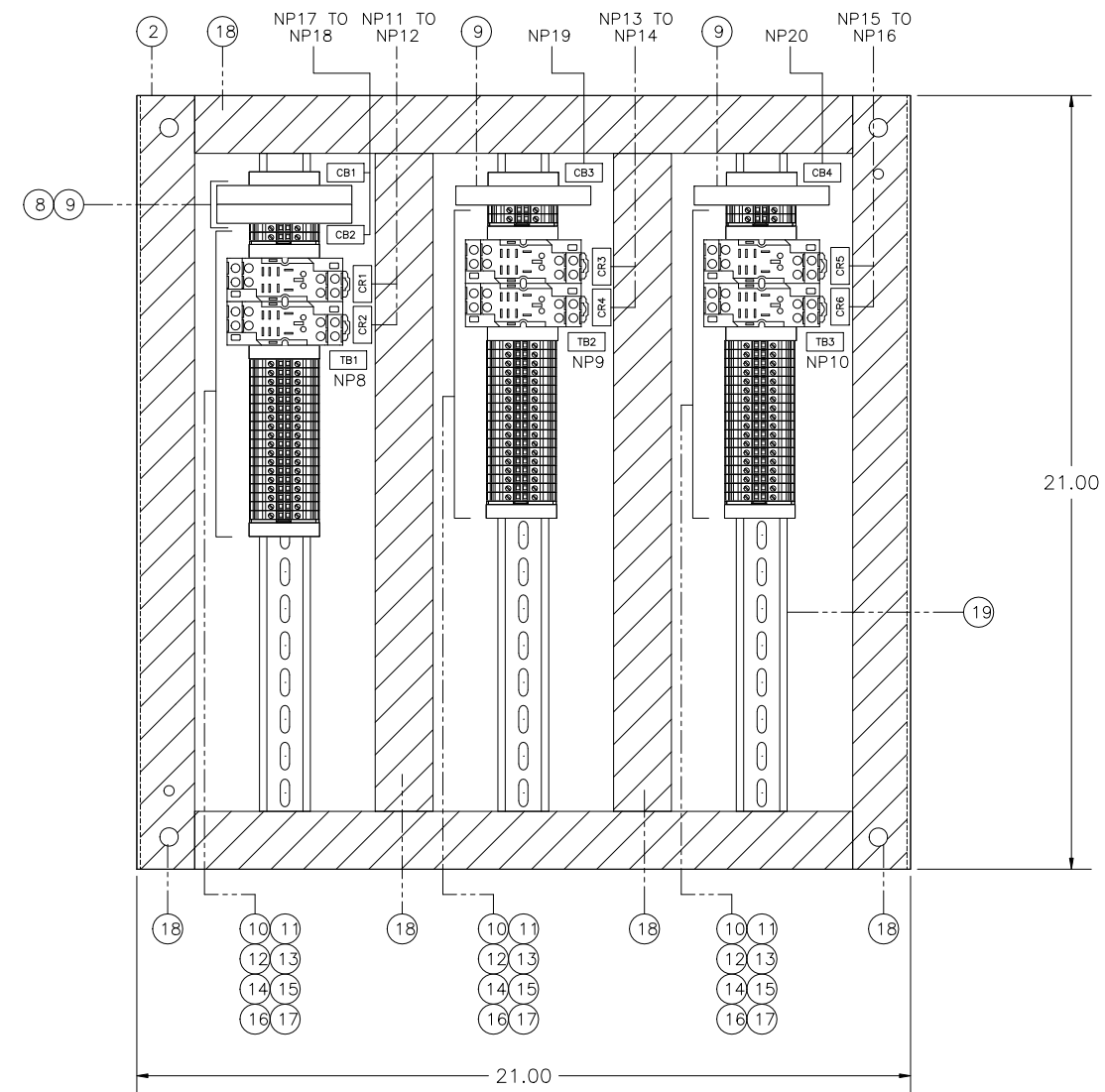
CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-230) INDEX SHEET AND LEGEND SHEET			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME 29728-PVC-07230-01.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1



FRONT PANEL LAYOUT



SIDE VIEW



BACKPLATE LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-230) FRONT AND BACKPLATE LAYOUT			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07230-02.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	02	1

01/19/18 3:08 PM

BILL OF MATERIAL				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	WALL MOUNTED TYPE 12 ENCLOSURE (24"H X 24"W X 8"D)	HOFFMAN	A242408LP
2	1	ENCLOSURE BACK PANEL	HOFFMAN	A24P24
3	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., RED, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR6D1
4	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., GREEN, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR1D1
5	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, RED, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2R
6	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, GREEN, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2G
7	3	30.5MM TYPE 4/4X/13 2 POS SEL. SWITCH-NON-ILLUM., WHITE, STD. KNOB MAINT., 2 NO-2 NC	ALLEN BRADLEY	800H-HR2B
8	1	CIRCUIT BREAKER 1-POLE 20A	WEIDMULLER	9926251020
9	3	CIRCUIT BREAKER 1-POLE 5A	WEIDMULLER	9926251005
10	6	CONTROL RELAY, 120V AC, 15A, DPDT WITH LOCKABLE TEST BUTTON, WITH LED	SQUARE D	RPM22F7
11	6	RELAY SOCKET	SQUARE D	RPZF2
12	57	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
13	3	TERMINAL BLOCK, GROUND, UT4	PHOENIX CONTACT	3044128
14	12	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
15	6	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
16	A/R	JUMPERS FOR TERMINAL BLOCK	PHOENIX CONTACT	3030271
17	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
18	10FT	WIREWAY 1.5"W x 3"H	PHOENIX CONTACT	3240198
19	5FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1

NAMEPLATE SCHEDULE						
NP NO.	NP QTY.	NP SIZE L X H	LETTER HEIGHT	TEXT LINE 1	TEXT LINE 2	TEXT LINE 3
1	1	8" X 1.25"	1/4"	PNEUMATIC VALVE CONTROL STATION	DIG-PNL-07-230	~~~~~
2	1	3.50" X 0.75"	3/16"	PRIMARY SLUDGE VALVE	DIG-VAL-07-231	~~~~~
3	1	3.50" X 0.75"	3/16"	TWAS SLUDGE VALVE	DIG-VAL-07-232	~~~~~
4	1	3.50" X 0.75"	3/16"	FOG/FW SLUDGE VALVE	DIG-VAL-07-233	~~~~~
5	3	2.5" X 0.50"	3/16"	LOCAL REMOTE	~~~~~	~~~~~
6	6	1" X 0.5"	3/16"	OPEN	~~~~~	~~~~~
7	6	1" X 0.5"	3/16"	CLOSE	~~~~~	~~~~~
8	1	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
9	1	1" X 0.5"	3/16"	TB2	~~~~~	~~~~~
10	1	1" X 0.5"	3/16"	TB3	~~~~~	~~~~~
11	1	1" X 0.5"	3/16"	CR1	~~~~~	~~~~~
12	1	1" X 0.5"	3/16"	CR2	~~~~~	~~~~~
13	1	1" X 0.5"	3/16"	CR3	~~~~~	~~~~~
14	1	1" X 0.5"	3/16"	CR4	~~~~~	~~~~~
15	1	1" X 0.5"	3/16"	CR5	~~~~~	~~~~~
16	1	1" X 0.5"	3/16"	CR6	~~~~~	~~~~~
17	1	1" X 0.5"	3/16"	CB1	~~~~~	~~~~~
18	1	1" X 0.5"	3/16"	CB2	~~~~~	~~~~~
19	1	1" X 0.5"	3/16"	CB3	~~~~~	~~~~~
20	1	1" X 0.5"	3/16"	CB4	~~~~~	~~~~~

NOTES:

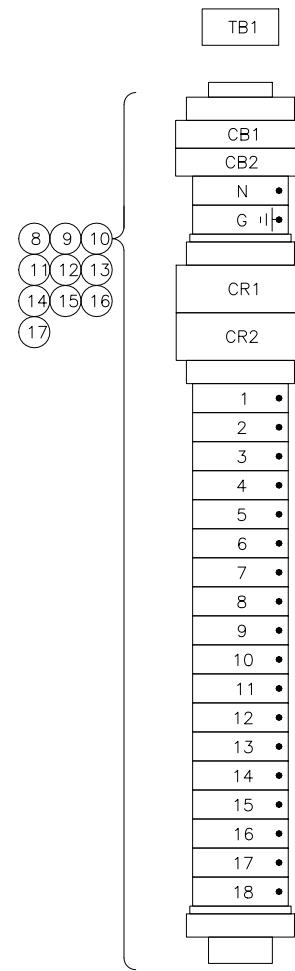


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-230) BILL OF MATERIAL AND NAMEPLATE SCHEDULE			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07230-03.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	03	1

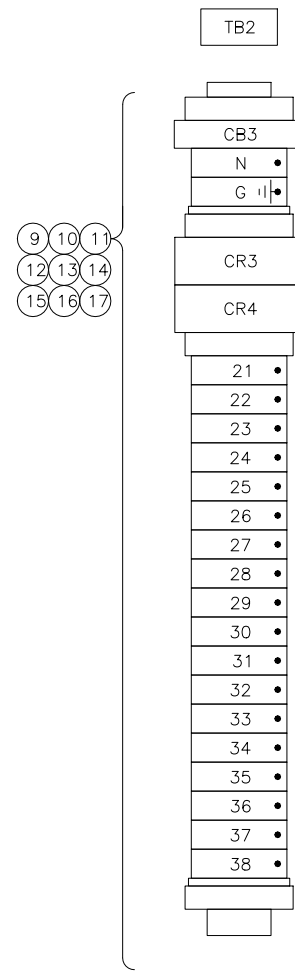
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

01/19/18 3:08 PM



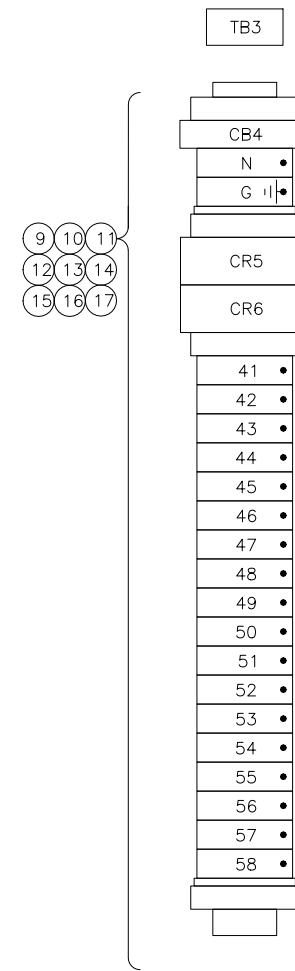
TERMINAL LAYOUT

PRIMARY SLUDGE VALVE NO. 3
(DIG-VAL-07-231)



TERMINAL LAYOUT

TWAS SLUDGE VALVE NO. 3
(DIG-VAL-07-232)



TERMINAL LAYOUT

FOG/FW SLUDGE VALVE NO. 3
(DIG-VAL-07-233)

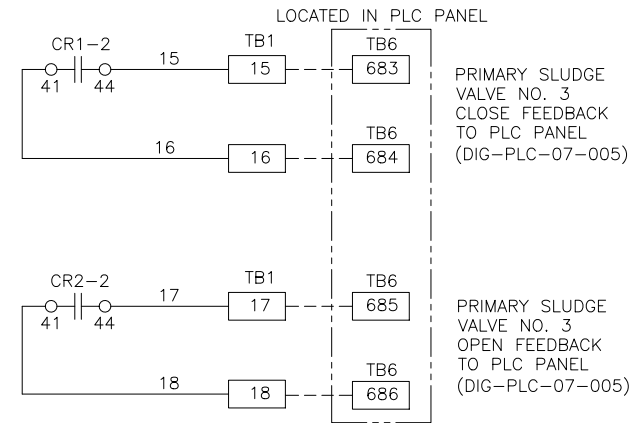
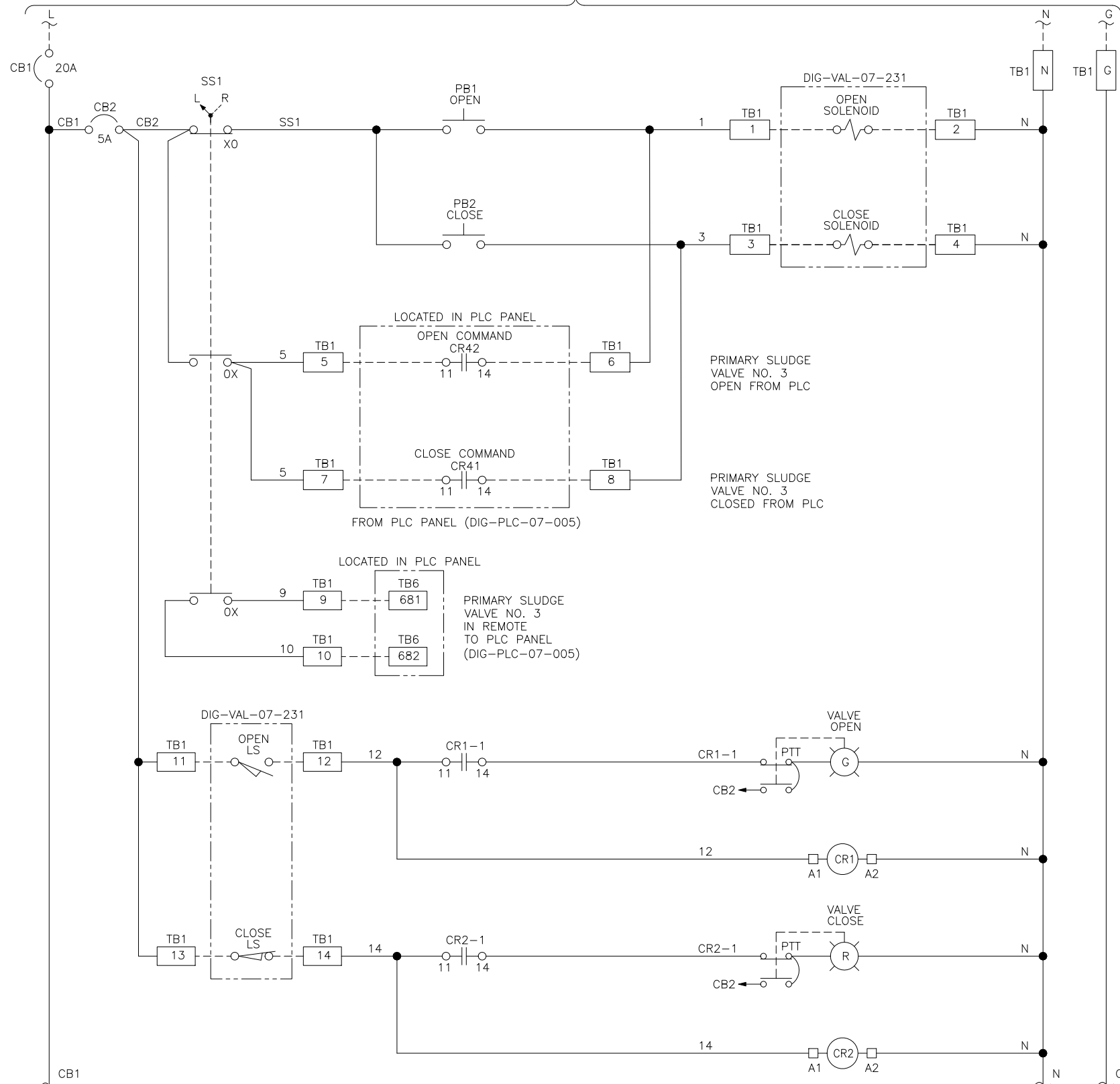
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-230) TERMINAL LAYOUT			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07230-04.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	04	1



CONTINUED TO
DWG. #29728-PVC-07230-06

CONTINUED TO
DWG. #29728-PVC-07230-06

PRIMARY SLUDGE VALVE NO. 3 (DIG-VAL-07-231)

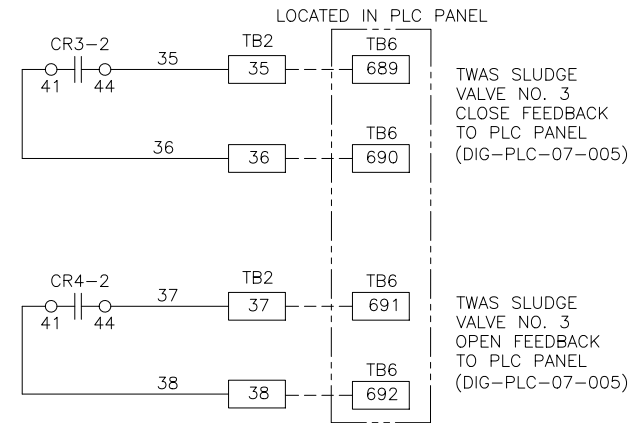
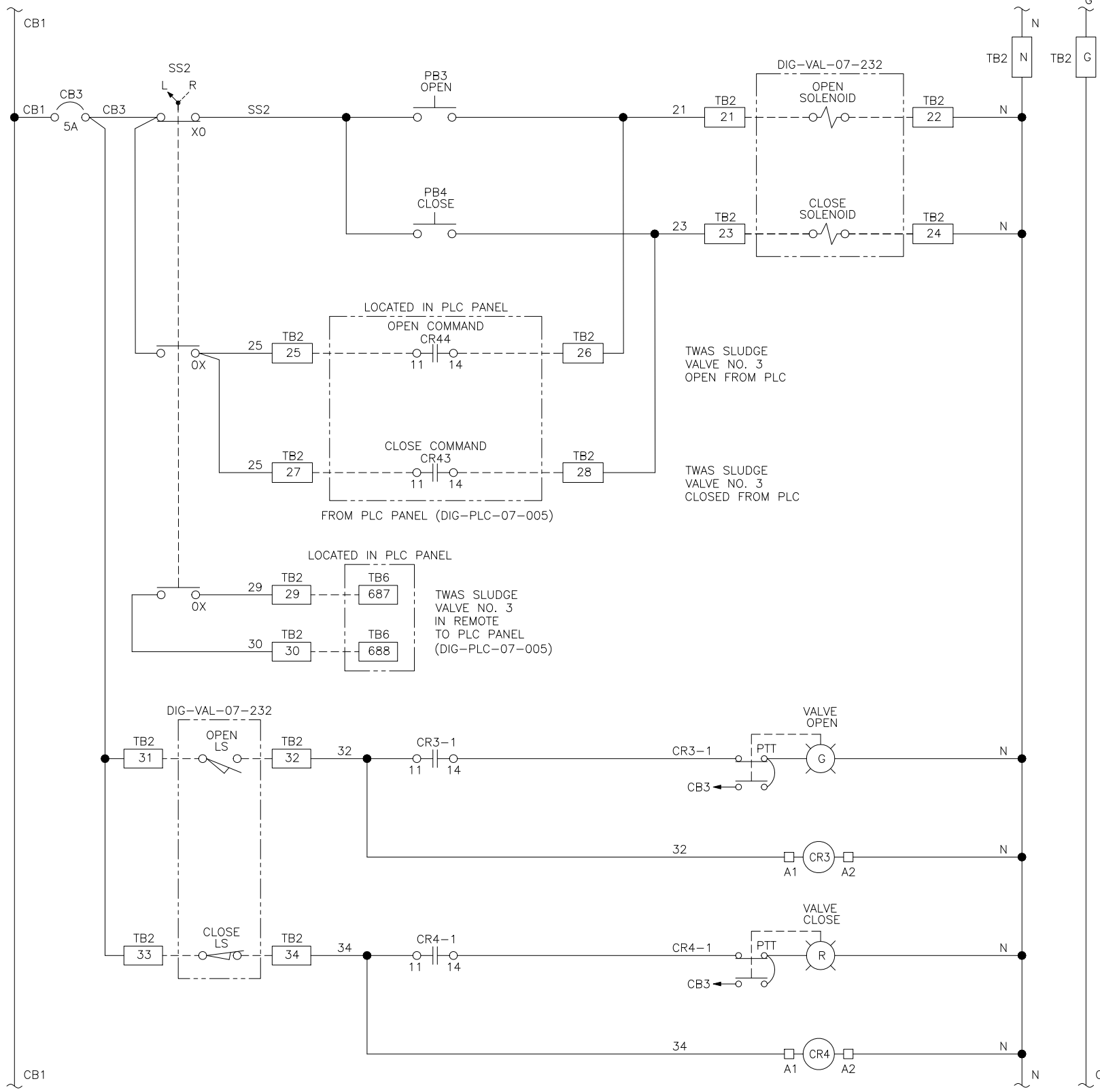
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-230) PRIMARY SLUDGE VALVE NO. 3 (DIG-VAL-07-231) WIRING DIAGRAM			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07230-05.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 05	REV 1

01/19/18 3:08 PM



TWAS SLUDGE VALVE NO. 3 (DIG-VAL-07-232)

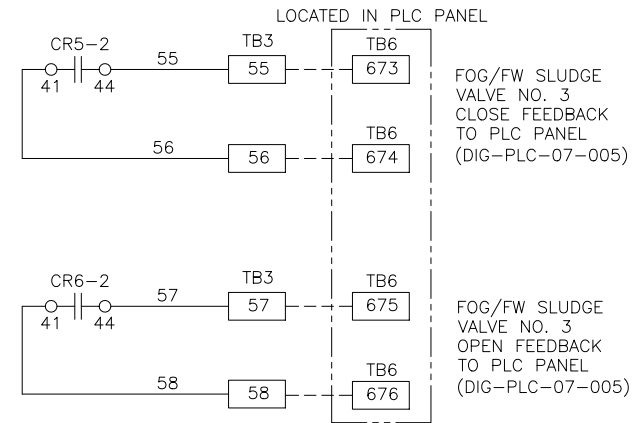
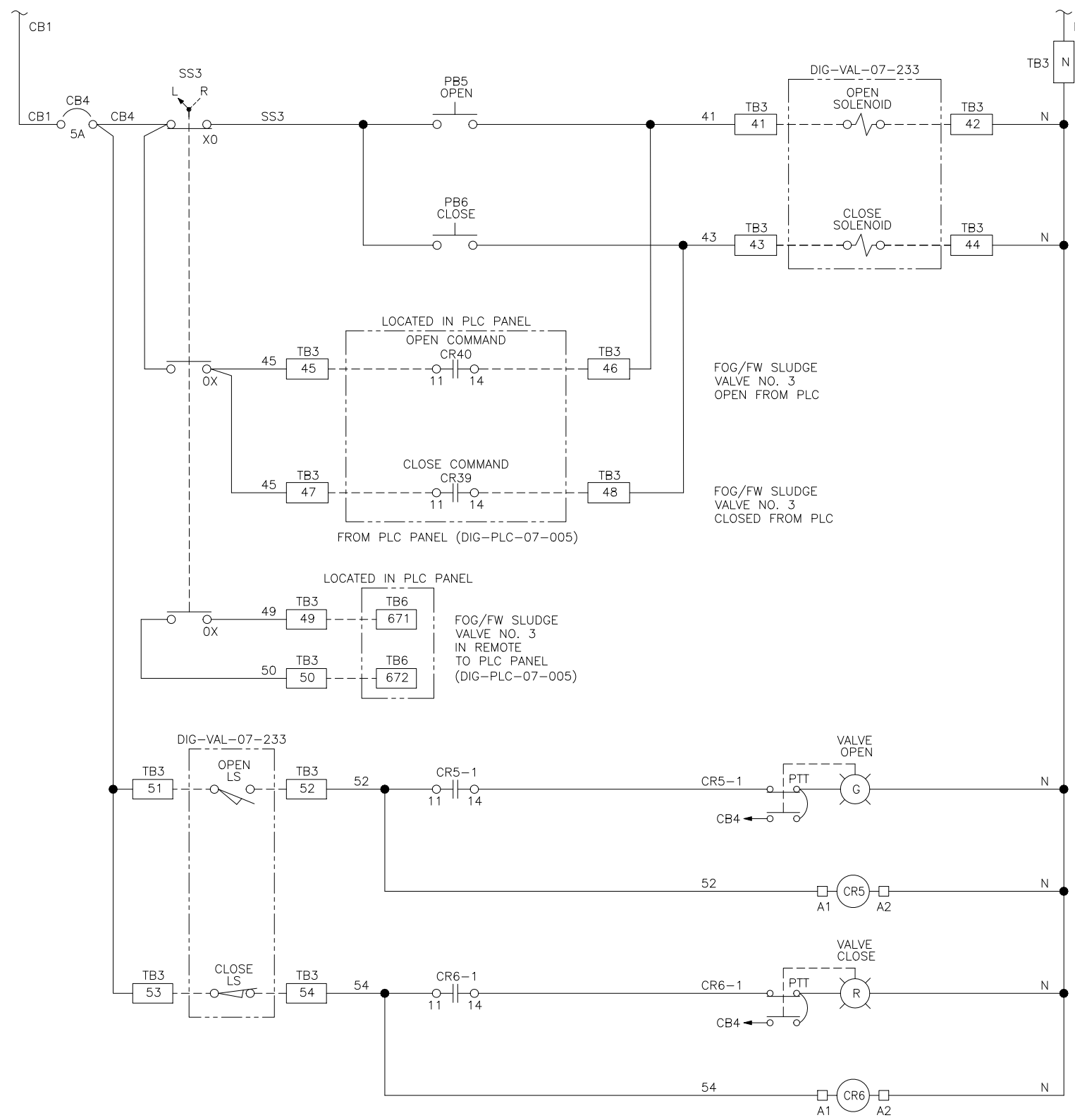
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-230) TWAS SLUDGE VALVE NO. 3 (DIG-VAL-07-232) WIRING DIAGRAM			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07230-06.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 06	REV 1

01/19/18 3:08 PM



FOG/FW SLUDGE VALVE NO. 3 (DIG-VAL-07-233)

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-230) FOG/FW SLUDGE VALVE NO. 3 (DIG-VAL-07-233) WIRING DIAGRAM			
DRAWN BY	DATE	SCALE	
SSJ	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07230-07.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	07	1

01/19/18 3:08 PM

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
PNEUMATIC VALVE CONTROL STATION
DIG-PNL-07-240
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-PVC-07240-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-PVC-07240-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-PVC-07240-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-PVC-07240-04	TERMINAL LAYOUT	1	01-19-2018
5	29728-PVC-07240-05	PRIMARY SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
6	29728-PVC-07240-06	TWAS SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018
7	29728-PVC-07240-07	FOG/FW SLUDGE VALVE WIRING DIAGRAM	1	01-19-2018

NOTES:

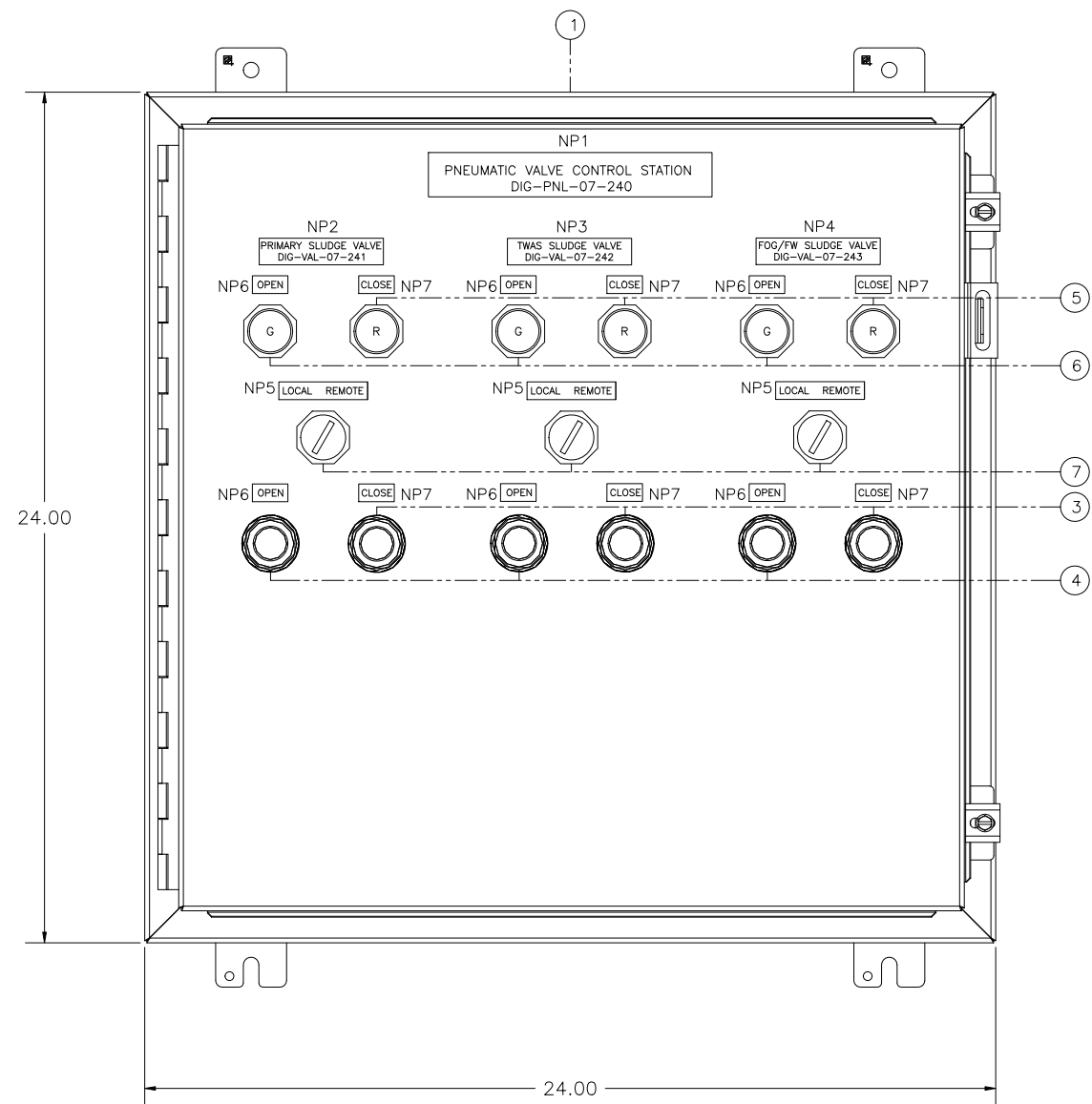
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



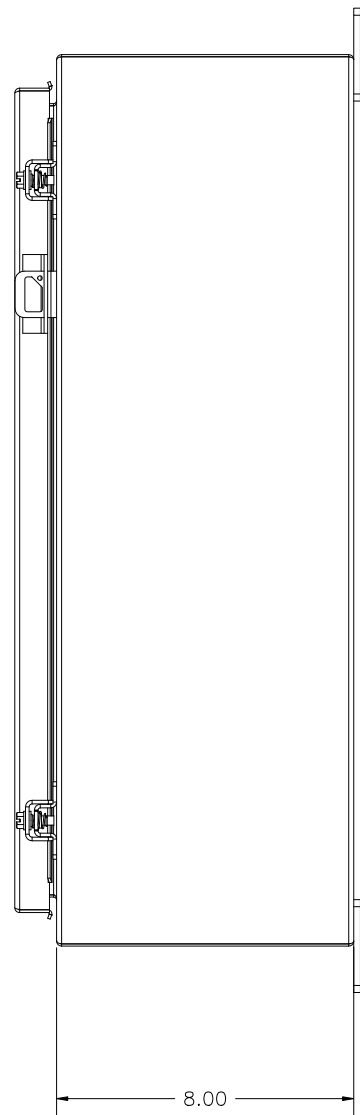
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-240) INDEX SHEET AND LEGEND SHEET			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07240-01.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	01	1

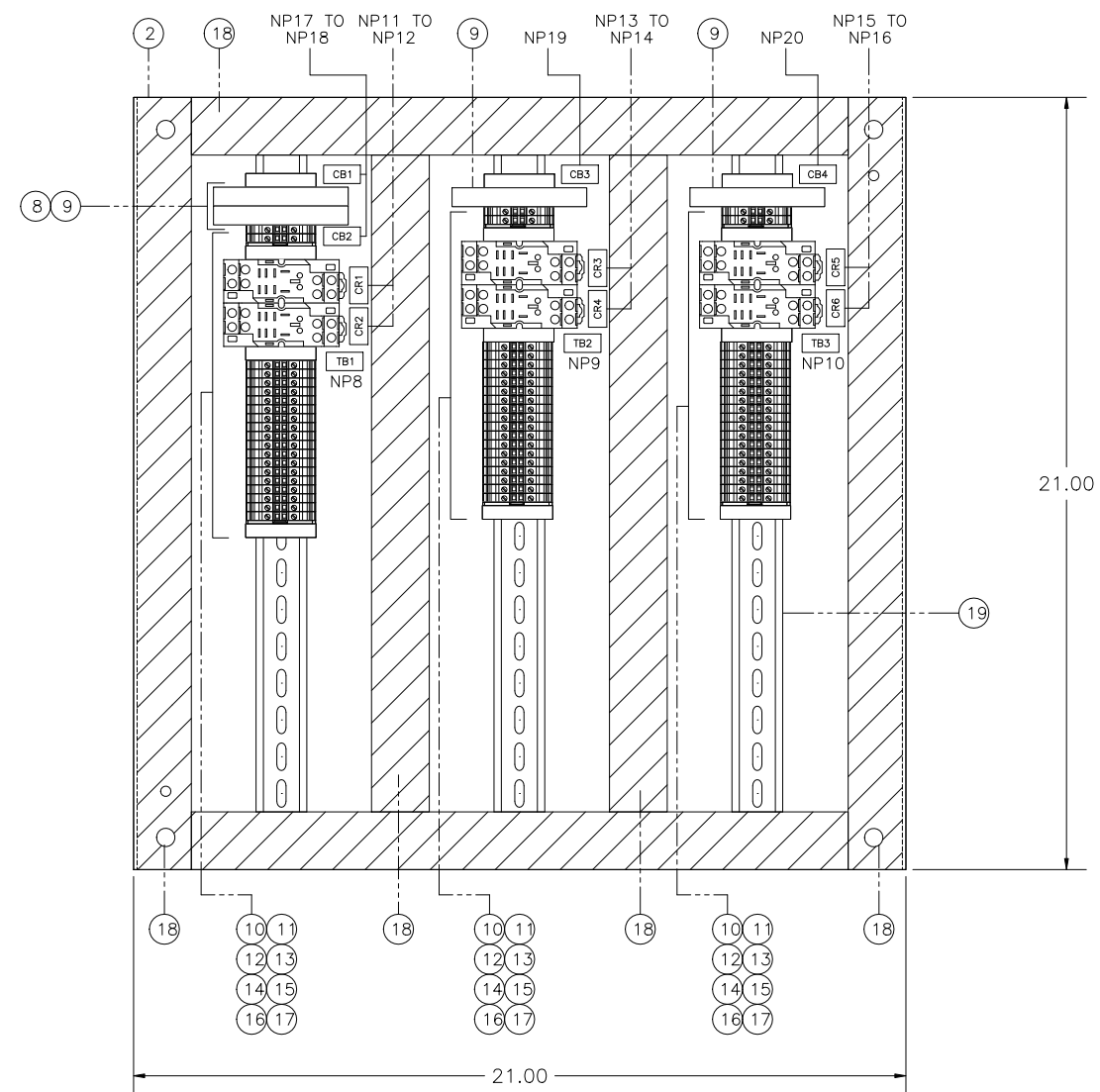
01/19/18 3:11 PM



FRONT PANEL LAYOUT



SIDE VIEW



BACKPLATE LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-240) FRONT AND BACKPLATE LAYOUT			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07240-02.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	02	1

01/19/18 3:11 PM

BILL OF MATERIAL				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	WALL MOUNTED TYPE 12 ENCLOSURE (24"H X 24"W X 8"D)	HOFFMAN	A242408LP
2	1	ENCLOSURE BACK PANEL	HOFFMAN	A24P24
3	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., RED, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR6D1
4	3	30.5MM TYPE 4/4X/13 MOM. CONTACT PB, NON-ILLUM., GREEN, FLUSH HD, 1 NO	ALLEN BRADLEY	800H-AR1D1
5	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, RED, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2R
6	3	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, GREEN, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2G
7	3	30.5MM TYPE 4/4X/13 2 POS SEL. SWITCH-NON-ILLUM., WHITE, STD. KNOB MAINT., 2 NO-2 NC	ALLEN BRADLEY	800H-HR2B
8	1	CIRCUIT BREAKER 1-POLE 20A	WEIDMULLER	9926251020
9	3	CIRCUIT BREAKER 1-POLE 5A	WEIDMULLER	9926251005
10	6	CONTROL RELAY, 120V AC, 15A, DPDT WITH LOCKABLE TEST BUTTON, WITH LED	SQUARE D	RPM22F7
11	6	RELAY SOCKET	SQUARE D	RPZF2
12	57	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
13	3	TERMINAL BLOCK, GROUND, UT4	PHOENIX CONTACT	3044128
14	12	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
15	6	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
16	A/R	JUMPERS FOR TERMINAL BLOCK	PHOENIX CONTACT	3030271
17	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
18	10FT	WIREWAY 1.5"W x 3"H	PHOENIX CONTACT	3240198
19	5FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1

NAMEPLATE SCHEDULE						
NP NO.	NP QTY.	NP SIZE L X H	LETTER HEIGHT	TEXT LINE 1	TEXT LINE 2	TEXT LINE 3
1	1	8" X 1.25"	1/4"	PNEUMATIC VALVE CONTROL STATION	DIG-PNL-07-240	~~~~~
2	1	3.50" X 0.75"	3/16"	PRIMARY SLUDGE VALVE	DIG-VAL-07-241	~~~~~
3	1	3.50" X 0.75"	3/16"	TWAS SLUDGE VALVE	DIG-VAL-07-242	~~~~~
4	1	3.50" X 0.75"	3/16"	FOG/FW SLUDGE VALVE	DIG-VAL-07-243	~~~~~
5	3	2.5" X 0.50"	3/16"	LOCAL REMOTE	~~~~~	~~~~~
6	6	1" X 0.5"	3/16"	OPEN	~~~~~	~~~~~
7	6	1" X 0.5"	3/16"	CLOSE	~~~~~	~~~~~
8	1	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
9	1	1" X 0.5"	3/16"	TB2	~~~~~	~~~~~
10	1	1" X 0.5"	3/16"	TB3	~~~~~	~~~~~
11	1	1" X 0.5"	3/16"	CR1	~~~~~	~~~~~
12	1	1" X 0.5"	3/16"	CR2	~~~~~	~~~~~
13	1	1" X 0.5"	3/16"	CR3	~~~~~	~~~~~
14	1	1" X 0.5"	3/16"	CR4	~~~~~	~~~~~
15	1	1" X 0.5"	3/16"	CR5	~~~~~	~~~~~
16	1	1" X 0.5"	3/16"	CR6	~~~~~	~~~~~
17	1	1" X 0.5"	3/16"	CB1	~~~~~	~~~~~
18	1	1" X 0.5"	3/16"	CB2	~~~~~	~~~~~
19	1	1" X 0.5"	3/16"	CB3	~~~~~	~~~~~
20	1	1" X 0.5"	3/16"	CB4	~~~~~	~~~~~

NOTES:

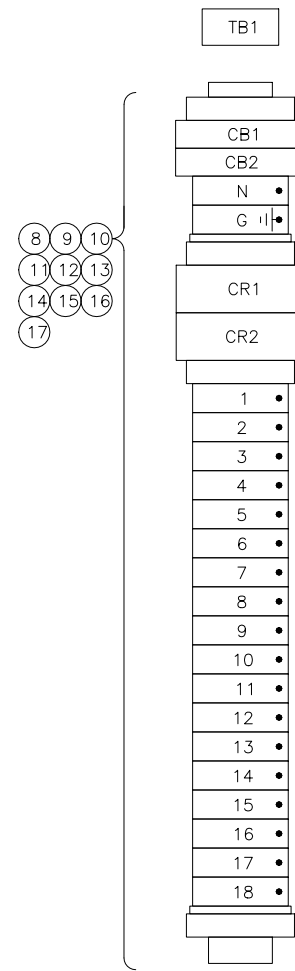


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-240) BILL OF MATERIAL AND NAMEPLATE SCHEDULE			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07240-03.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	03	1

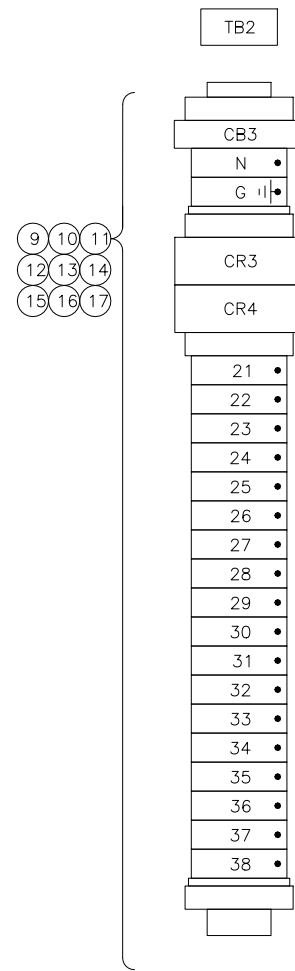
01/19/18 3:11 PM

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



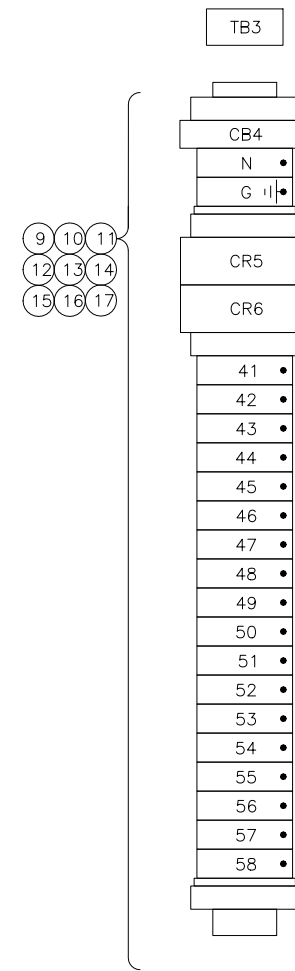
TERMINAL LAYOUT

PRIMARY SLUDGE VALVE NO. 4
(DIG-VAL-07-241)



TERMINAL LAYOUT

TWAS SLUDGE VALVE NO. 4
(DIG-VAL-07-242)



TERMINAL LAYOUT

FOG/FW SLUDGE VALVE NO. 4
(DIG-VAL-07-243)

NOTES:

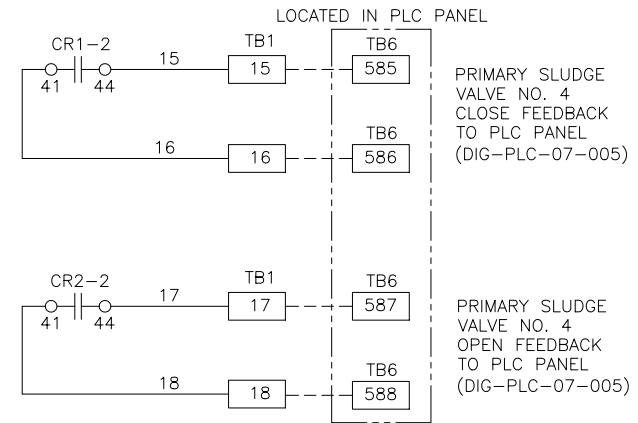
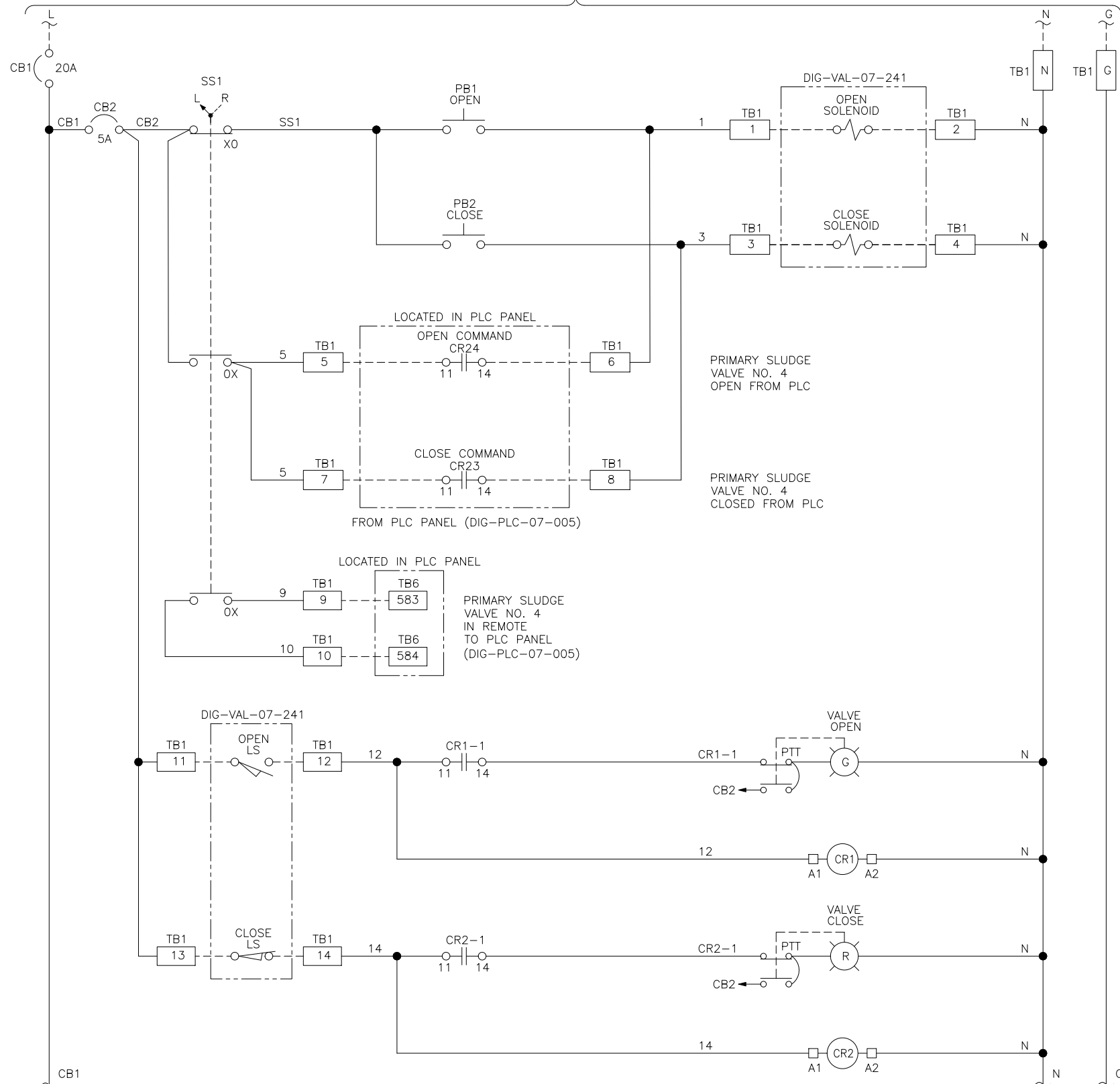
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-240) TERMINAL LAYOUT			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07240-04.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 04	REV 1

01/19/18 3:11 PM



CONTINUED TO DWG. #29728-PVC-07240-06

CONTINUED TO DWG. #29728-PVC-07240-06

PRIMARY SLUDGE VALVE NO. 4 (DIG-VAL-07-241)

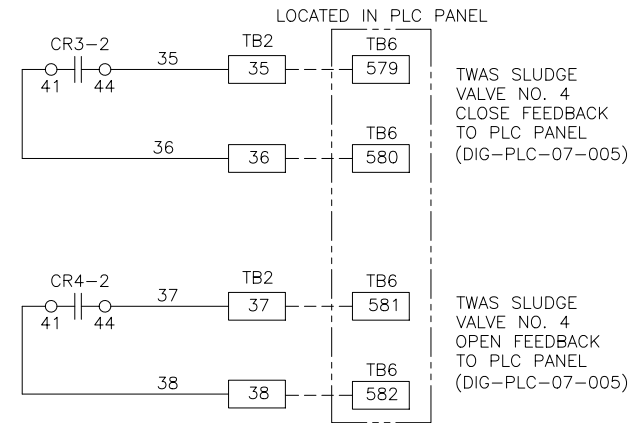
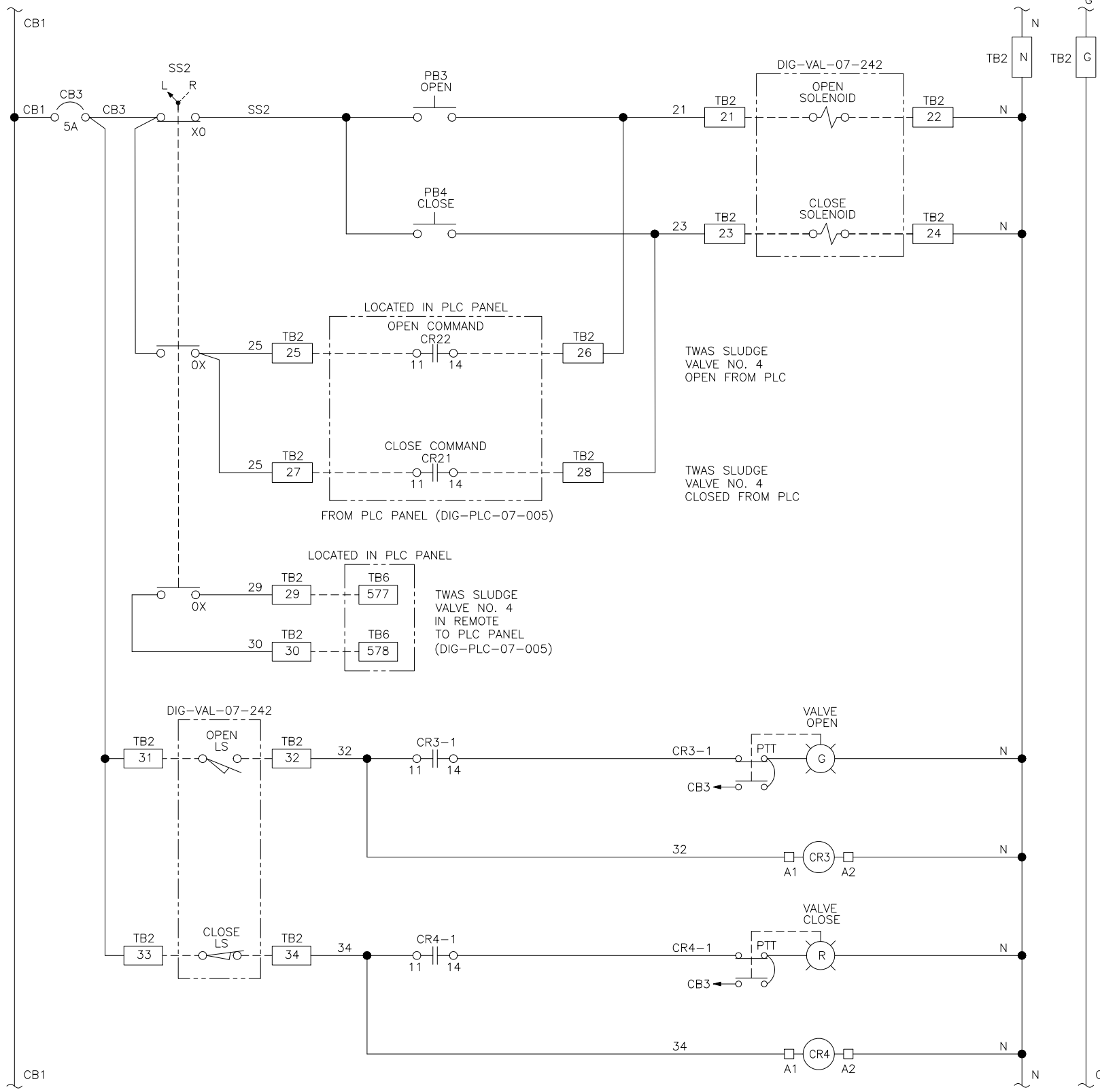
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER: CITY OF MANTECA			
DWG. TITLE: WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-240) PRIMARY SLUDGE VALVE NO. 4 (DIG-VAL-07-241) WIRING DIAGRAM			
DRAWN BY: SSJ	DATE: 01-19-18	SCALE: NONE	
CHECKED BY: DDR	DATE: 01-19-18	CAD FILE NAME: 29728-PVC-07240-05.dwg	
APPROVED: VJP	DATE: 01-19-18	DRAWING NO. 05	REV 1

01/19/18 3:11 PM



TWAS SLUDGE VALVE NO. 4 (DIG-VAL-07-242)

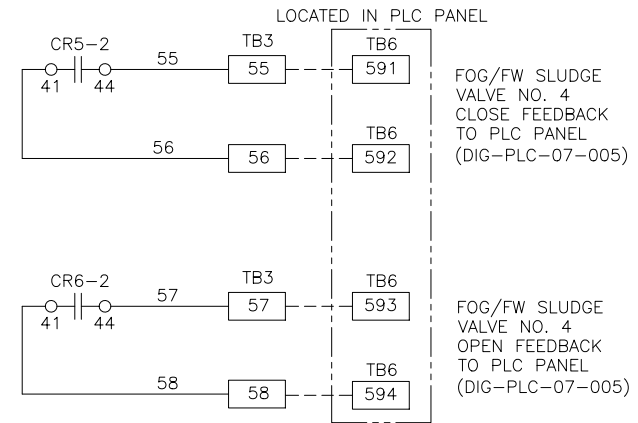
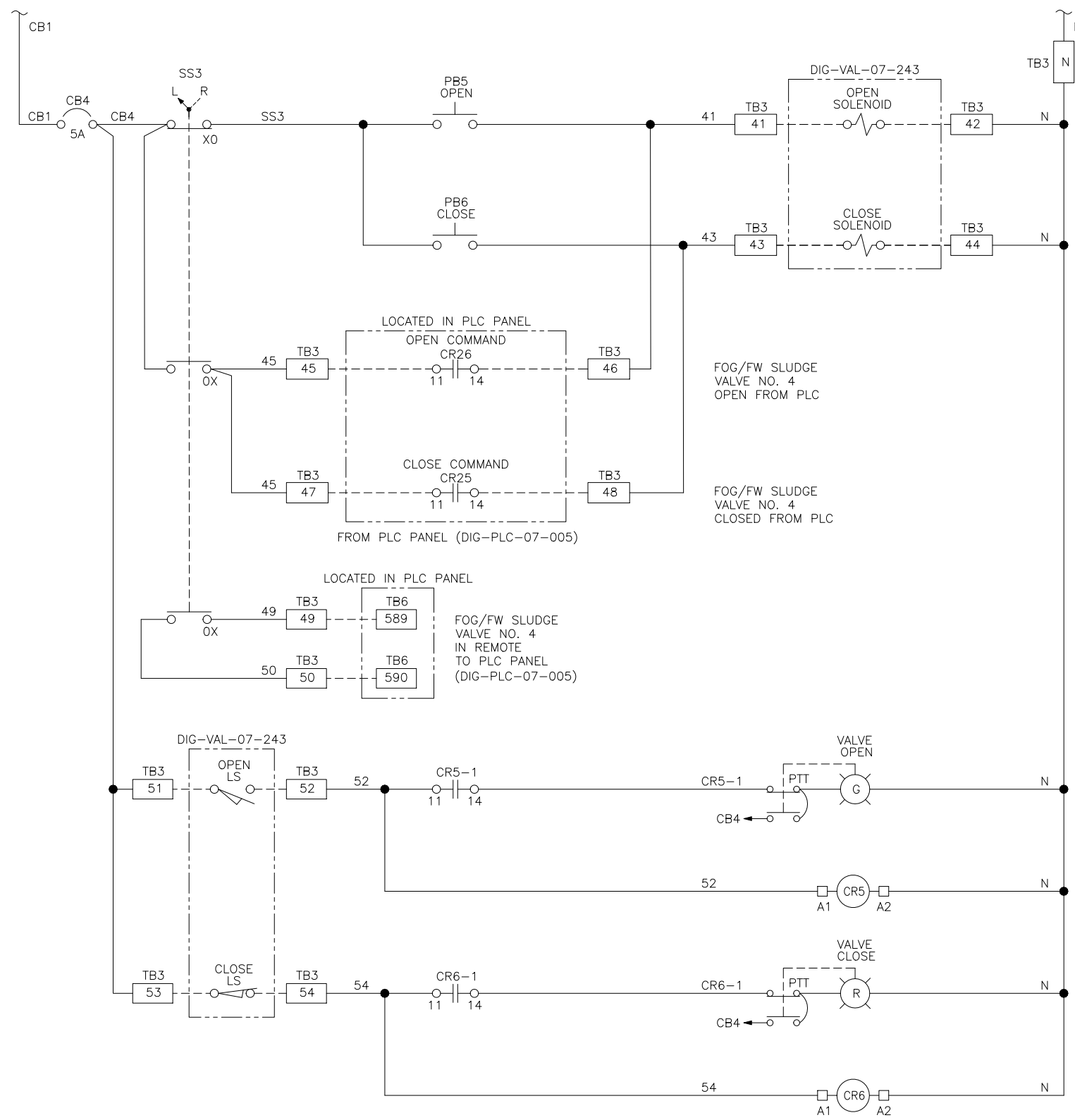
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-240) TWAS SLUDGE VALVE NO. 4 (DIG-VAL-07-242) WIRING DIAGRAM			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-PVC-07240-06.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 06	REV 1

01/19/18 3:11 PM



FOG/FW SLUDGE VALVE NO. 4 (DIG-VAL-07-243)

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-09-17	ORIGINAL ISSUE	-



CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT PNEUMATIC VALVE CS (DIG-PNL-07-240) FOG/FW SLUDGE VALVE NO. 4 (DIG-VAL-07-243) WIRING DIAGRAM			
DRAWN BY	DATE	SCALE	
SSJ	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-PVC-07240-07.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	07	1

01/19/18 3:11 PM

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
SOLENOID VALVE CONTROL STATION
FWST-PNL-07-782
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-SVC-07782-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-SVC-07782-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-SVC-07782-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-SVC-07782-04	TERMINAL LAYOUT	1	01-19-2018
5	29728-SVC-07782-05	FOOD BIN WASH SOLENOID VALVE 783 & 784 WIRING DIAGRAM	1	01-19-2018

NOTES:

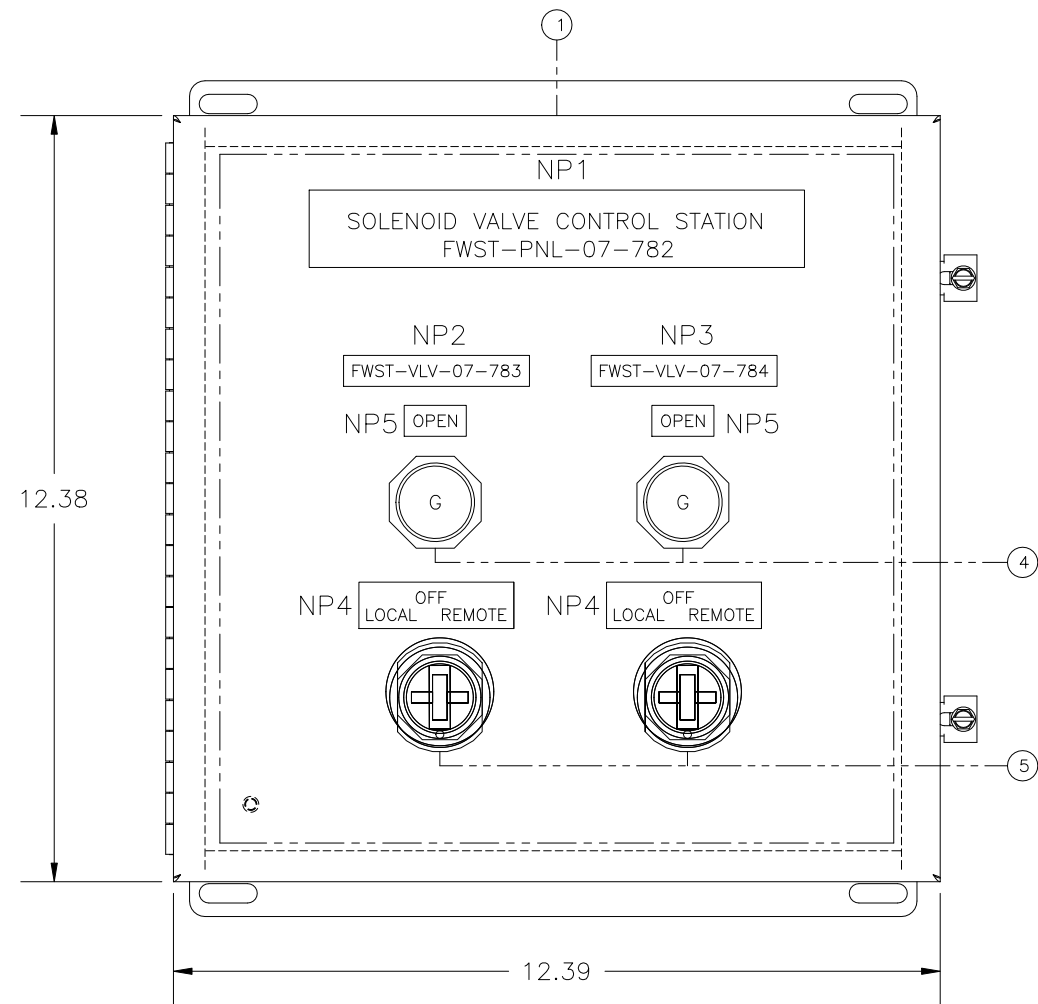
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-11-17	ORIGINAL ISSUE	-



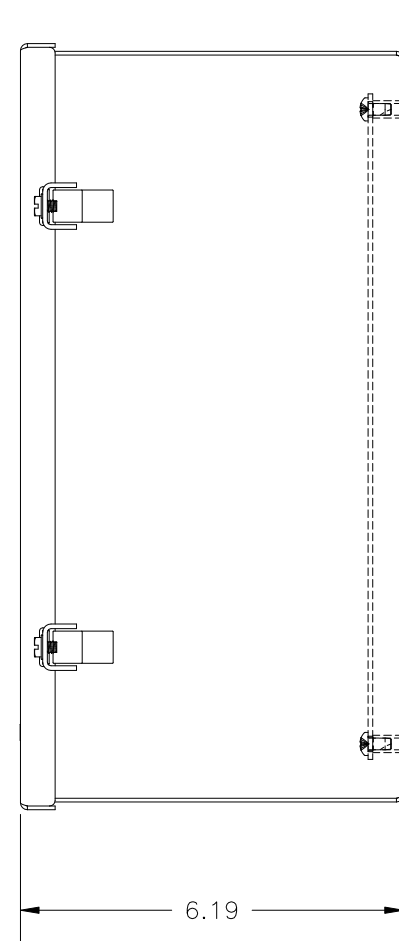
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT SOLENOID VALVE CS (FWST-PNL-07-782) INDEX SHEET AND LEGEND SHEET			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-SVC-07782-01.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	01	1

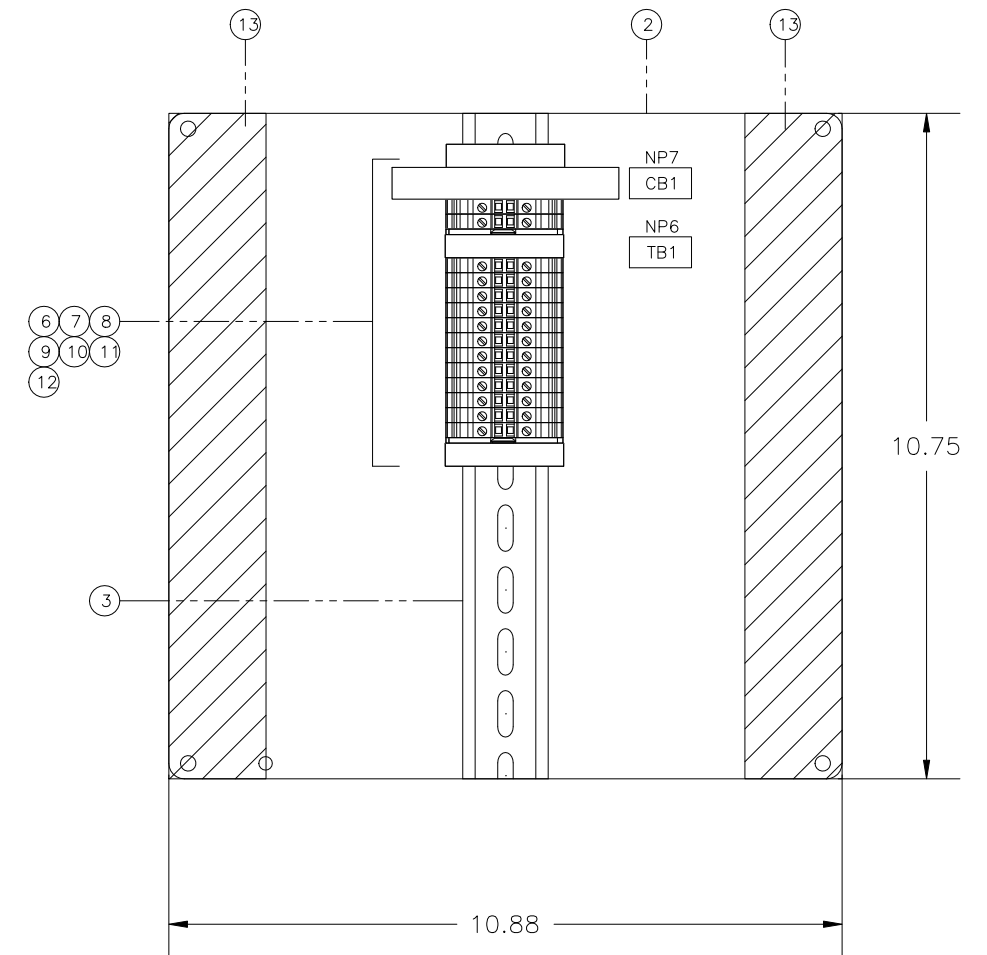
01/19/18 3:12 PM



FRONT PANEL LAYOUT



SIDE VIEW



BACKPLATE LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-11-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT SOLENOID VALVE CS (FWST-PNL-07-782) FRONT AND BACKPLATE LAYOUT			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-SVC-07782-02.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 02	REV 1

01/19/18 3:12 PM

BILL OF MATERIAL				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	WALL MOUNTED TYPE 4X ENCLOSURE (12"H X 12"W X 6"D)	SAGINAW	SCE-1212CHNFSS
2	1	ENCLOSURE BACK PANEL	SAGINAW	SCE-12P12
3	1FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1
4	2	30.5MM TYPE 4/4X/13 PUSH TO TEST LIGHT, LED, GREEN, 12-130V AC/DC, 1 NO-1 NC	ALLEN BRADLEY	800H-QRTH2G
5	2	30.5MM TYPE 4/4X/13 3 POS. SEL. SWITCH-NON-ILLUM., WHITE, STD. KNOB MAINT. 1NO+1NC	ALLEN BRADLEY	800H-JR2A
6	1	CIRCUIT BREAKER 120 VAC, 5A 1POLE	WEIDMULLER	9926251005
7	13	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
8	1	TERMINAL BLOCK, GROUND, UT4	PHOENIX CONTACT	3044128
9	3	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	800886
10	2	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
11	A/R	JUMPERS FOR TERMINAL BLOCK	PHOENIX CONTACT	3030271
12	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	828736
13	1FT	WIREWAY 1.5"W x 2"H	PHOENIX CONTACT	3240192

NAMEPLATE SCHEDULE						
NP NO.	NP QTY.	NP SIZE	LETTER HEIGHT	TEXT LINE 1	TEXT LINE 2	TEXT LINE 3
		L X H				
1	1	8" X 1.25"	1/4"	SOLENOID VALVE CONTROL STATION	FWST-PNL-07-782	~~~~~
2	1	3" X 0.50"	3/16"	FWST-VLV-07-783	~~~~~	~~~~~
3	1	3" X 0.50"	3/16"	FWST-VLV-07-784	~~~~~	~~~~~
4	2	2.5" X 0.75"	3/16"	OFF	LOCAL REMOTE	~~~~~
5	2	1" X 0.5"	3/16"	OPEN	~~~~~	~~~~~
6	1	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
7	1	1" X 0.5"	3/16"	CB1		

NOTES:

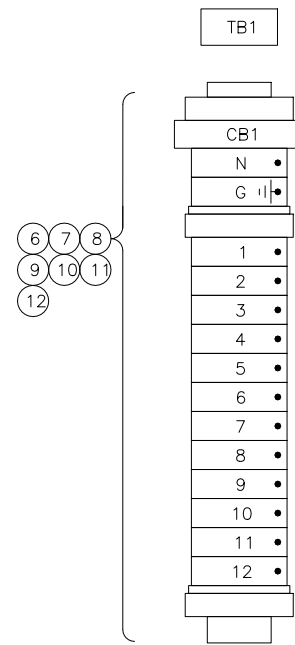


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT SOLENOID VALVE CS (FWST-PNL-07-782) BILL OF MATERIAL AND NAMEPLATE SCHEDULE			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-SVC-07782-03.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	03	1

01/19/18 3:12 PM

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-11-17	ORIGINAL ISSUE	-



TERMINAL LAYOUT

FOOD BIN WASH SOLENOID VALVE
(FWST-VLV-07-783 & 784)

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-11-17	ORIGINAL ISSUE	-

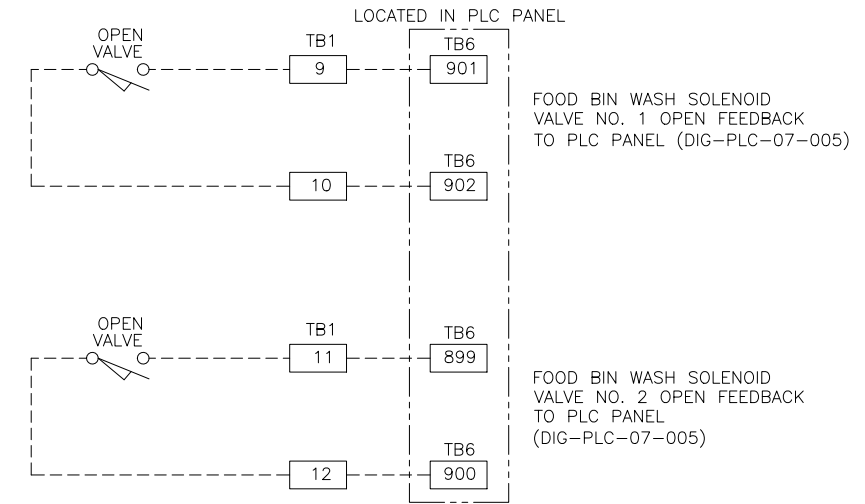
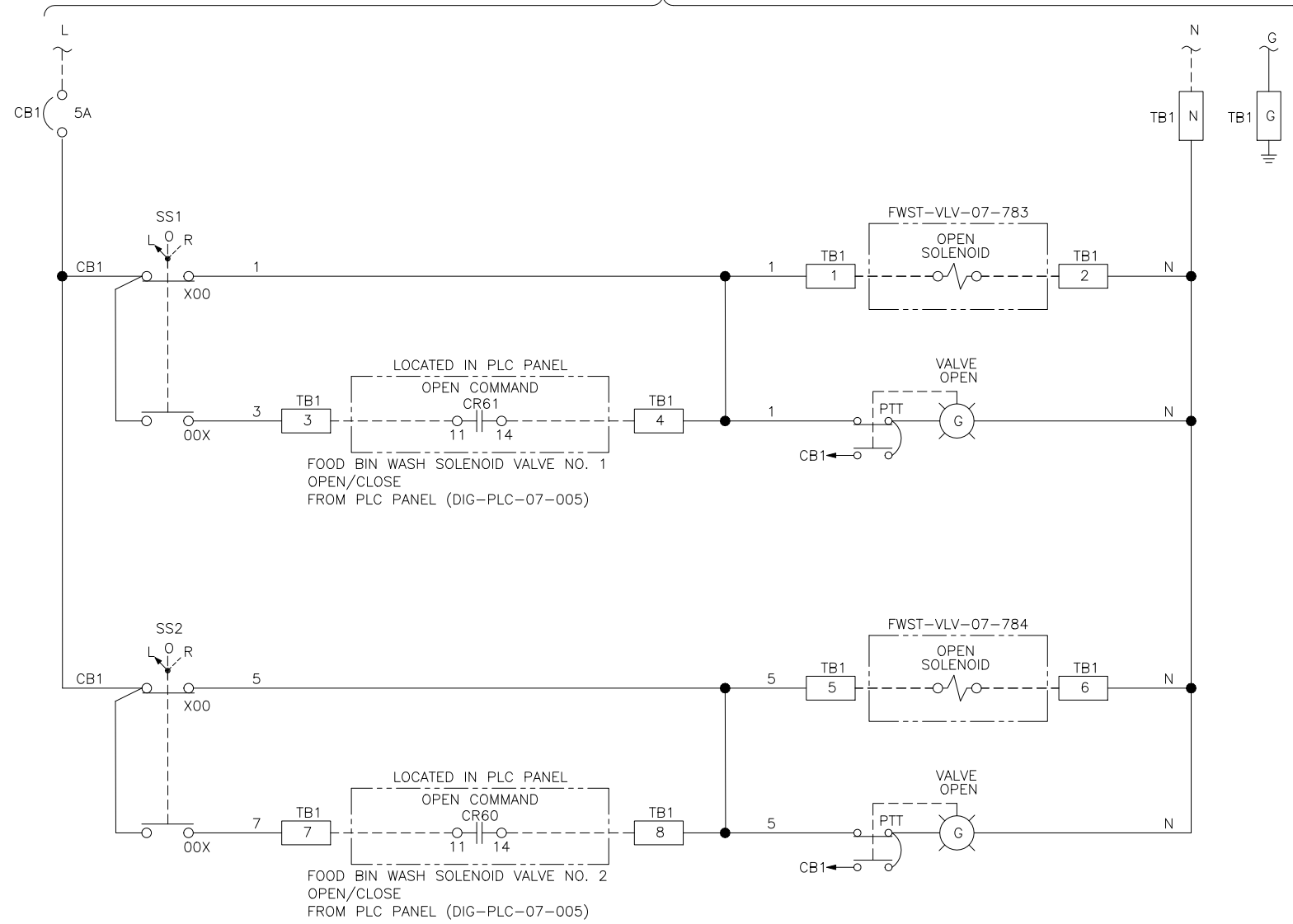
TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE			
WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT SOLENOID VALVE CS (FWST-PNL-07-782) TERMINAL LAYOUT			
DRAWN BY	DATE	SCALE	NONE
SSJ	01-19-18		
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-SVC-07782-04.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	04	1

01/19/18 3:12 PM

120VAC FROM DIG-BKP-07-002, CKT#41



FOOD BIN WASH SOLENOID VALVE (FWST-VLV-07-783 & 784)

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-11-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT SOLENOID VALVE CS (FWST-PNL-07-782) FOOD BIN WASH SOLENOID VALVE 783 & 784 WIRING DIAGRAM			
DRAWN BY SSJ	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-SVC-07782-05.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 05	REV 1

01/19/18 3:12 PM

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
RELAY CONTROL PANEL
PNL-LSH-07-113
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-LSH-07113-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-LSH-07113-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-LSH-07113-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-LSH-07113-04	120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT	1	01-19-2018

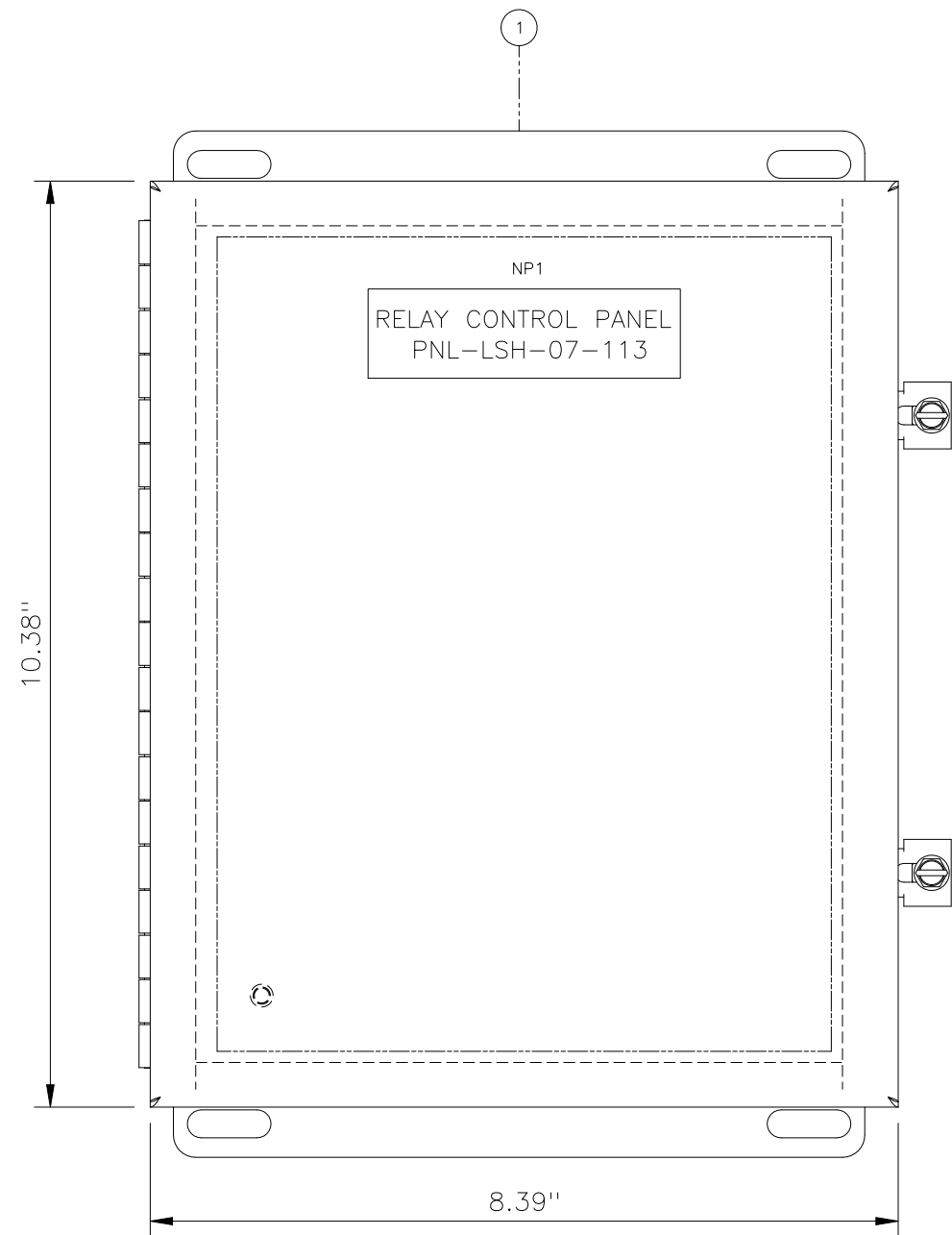
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-

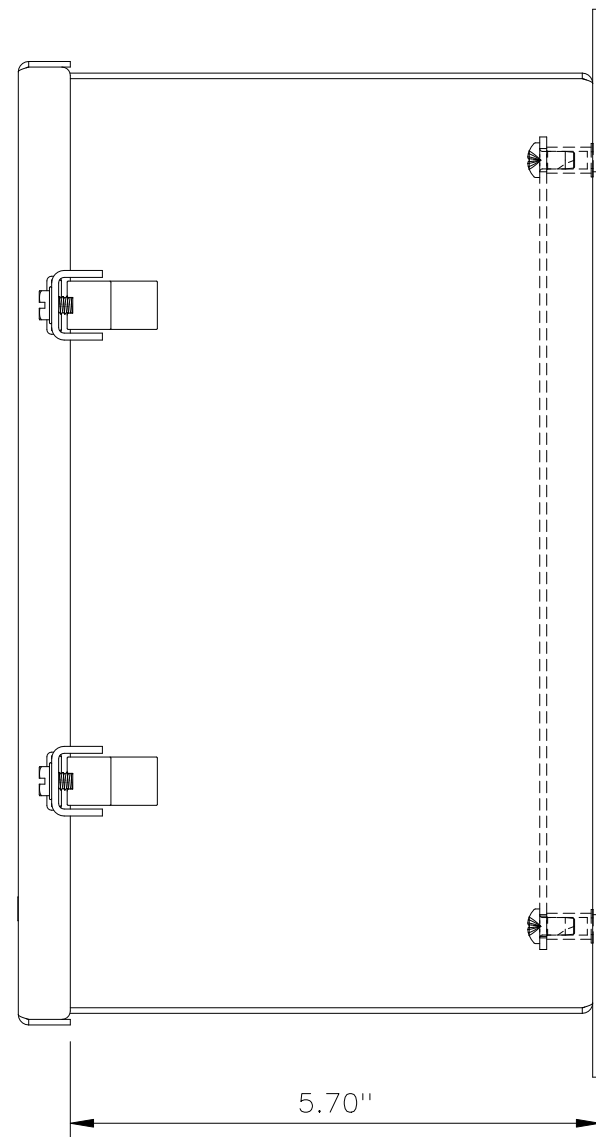


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

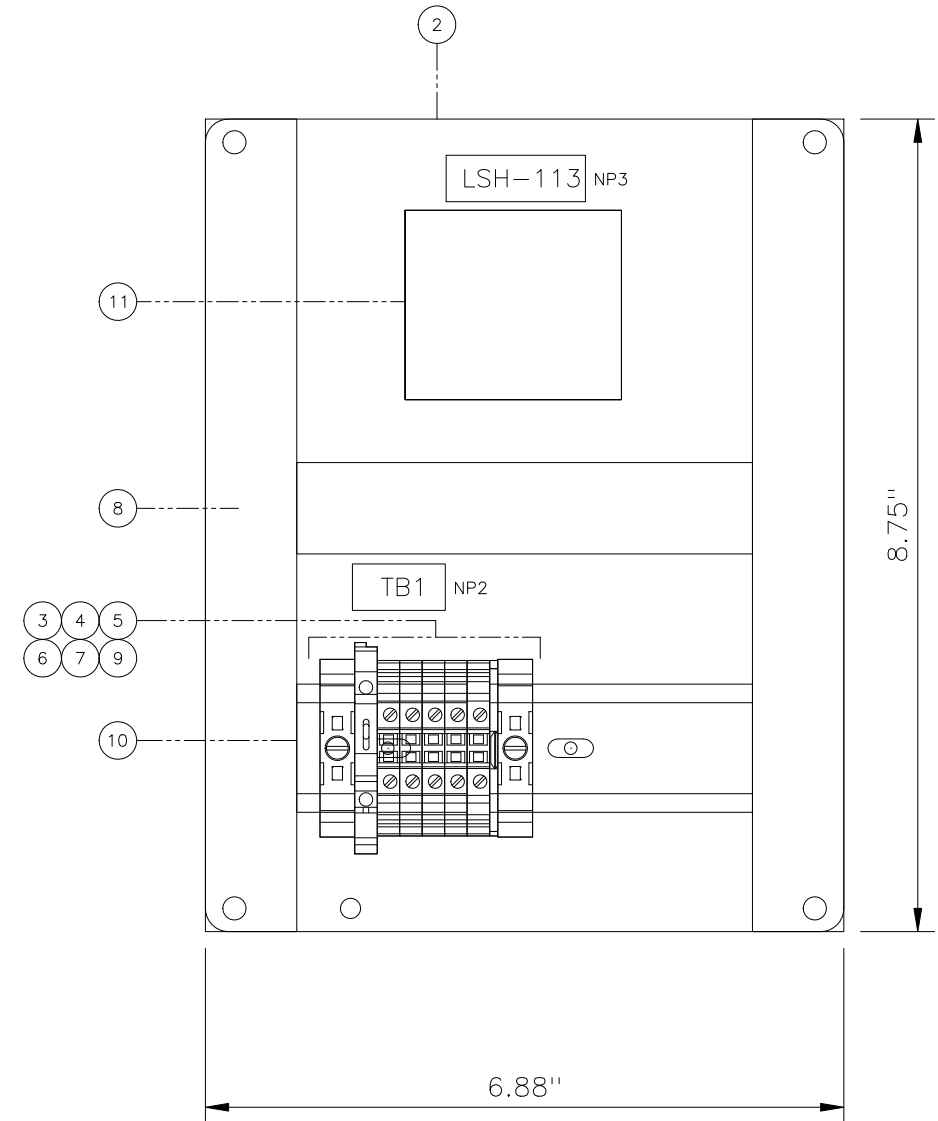
CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-113) INDEX SHEET & LEGEND SHEET			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07113-01.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1



FRONT VIEW



SIDE VIEW



BACKPANEL LAYOUT

FRONT PANEL LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-113) FRONT AND BACKPLATE LAYOUT			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07113-02.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 02	REV 1

01/19/18 2:46 PM

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	ENCLOSURE (10"H X 8"W X 6"D)	SAGINAW	SCE-10086CHNFSS
2	1	ENCLOSURE BACK PANEL (8.75"H X 6.88"W)	SAGINAW	SCE-10P8
3	5	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
4	1	FUSE TERMINAL BLOCK , BLOWN IND. UT 4-HESILA 250	PHOENIX CONTACT	3046100
5	2	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
6	1	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
7	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
8	2 FT	WIRE DUCT 1" W X 1" H WITH COVER	PHOENIX CONTACT	3240187
9	1	FUSES 1A, 5 x 20mm TIME DELAY GLASS TUBE FUSES	BUSSMANN	GMC-1A
10	0.5 FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1
11	1	SOLID STATE PLUG-IN RELAY MODULES, 120VAC, 8PIN OCTAL SOCKET	GEMS	16MB1A0

NOTE 1

NAMEPLATE SCHEDULE

NP NO.	SIZE	TEXT	ENGRAVING		
		HEIGHT	1st LINE	2nd LINE	3rd LINE
1	3.5" X 1"	3/16"	RELAY CONTROL PANEL	PNL-LSH-07-113	~~~~~
2	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
3	1.5" X 0.5"	3/16"	LSH-113	~~~~~	~~~~~

NOTES:
1 GEMS RELAY MODULE APPROVED IN INSTRUMENT SUBMITTAL.

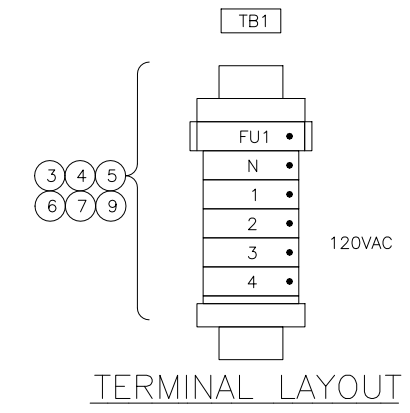
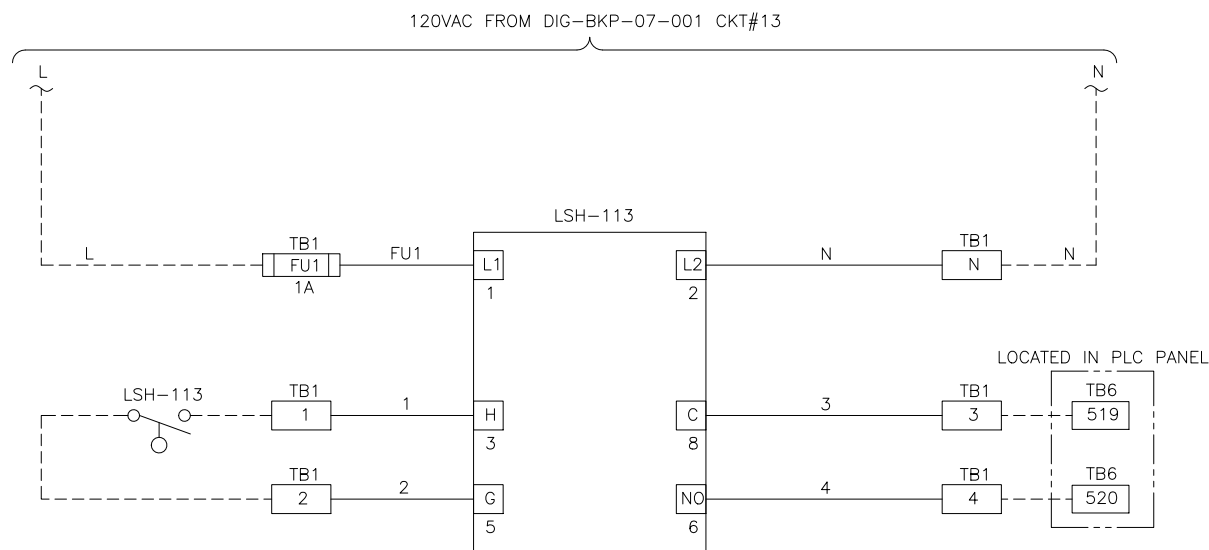


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER				CITY OF MANTECA	
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-113) BILL OF MATERIAL AND NAMEPLATE SCHEDULE					
DRAWN BY	RPS	DATE	01-19-18	SCALE	NONE
CHECKED BY	DDR	DATE	01-19-18	CAD FILE NAME:	29728-LSH-07113-03.dwg
APPROVED	VJP	DATE	01-19-18	DRAWING NO.	03
				REV	1

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-

01/19/18 2:46 PM



01/19/18 2:46 PM

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-



CUSTOMER			
CITY OF MANTECA			
DWG. TITLE			
WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-113) 120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT			
DRAWN BY	DATE	SCALE	
RPS	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-LSH-07113-04.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	04	1

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
RELAY CONTROL PANEL
PNL-LSH-07-123
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-LSH-07123-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-LSH-07123-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-LSH-07123-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-LSH-07123-04	120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT	1	01-19-2018

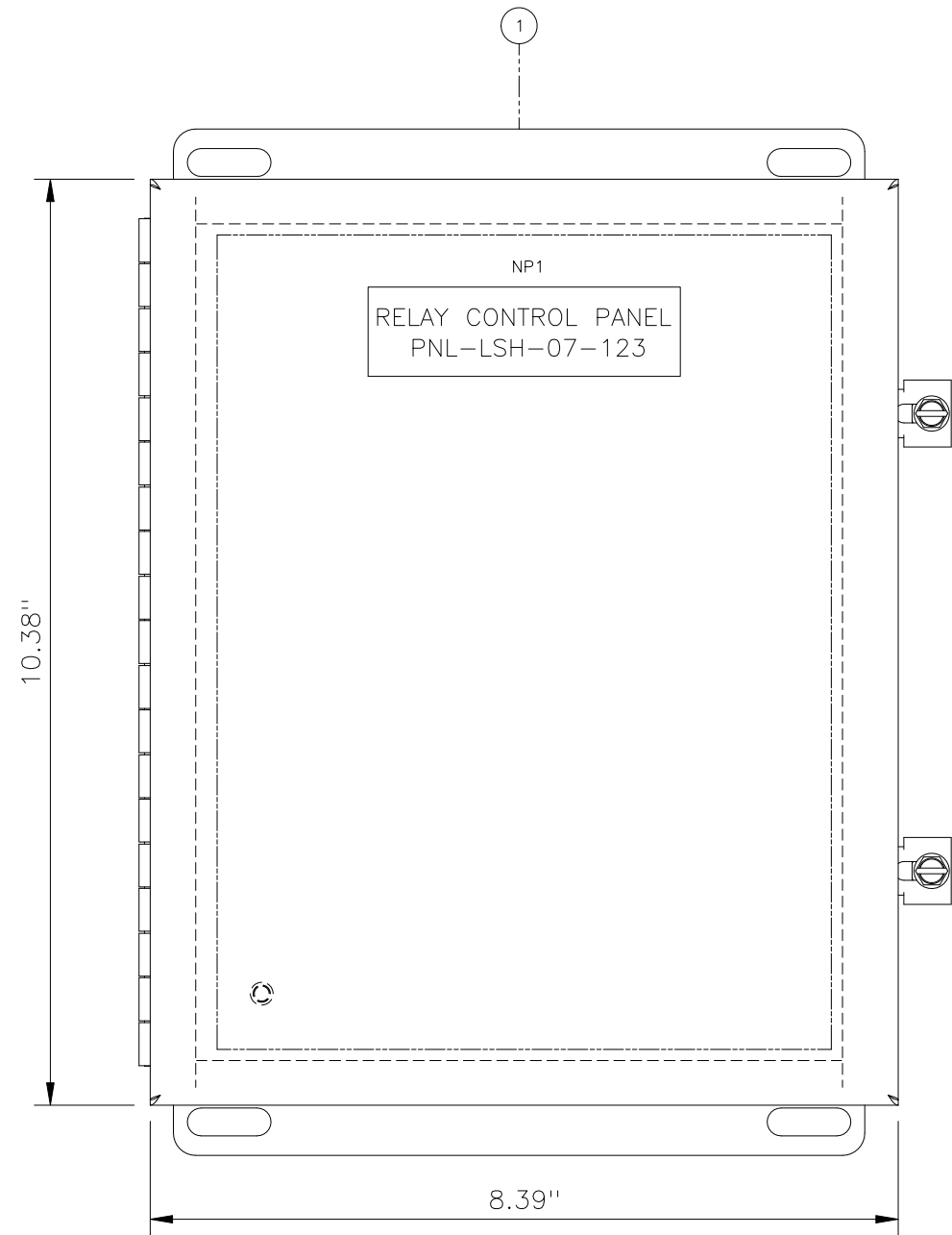
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-

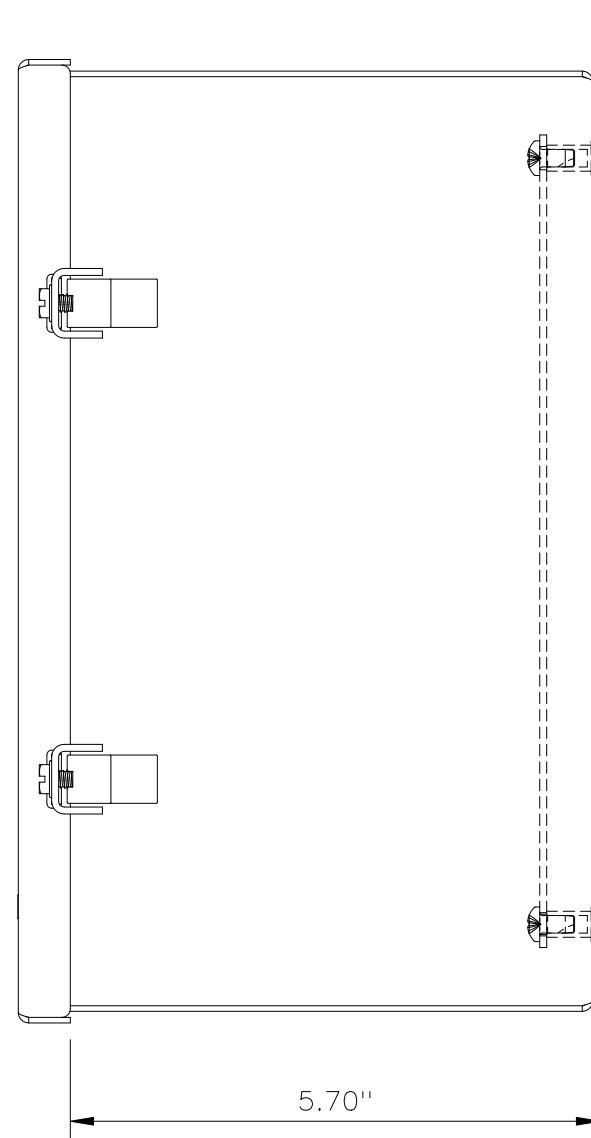


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

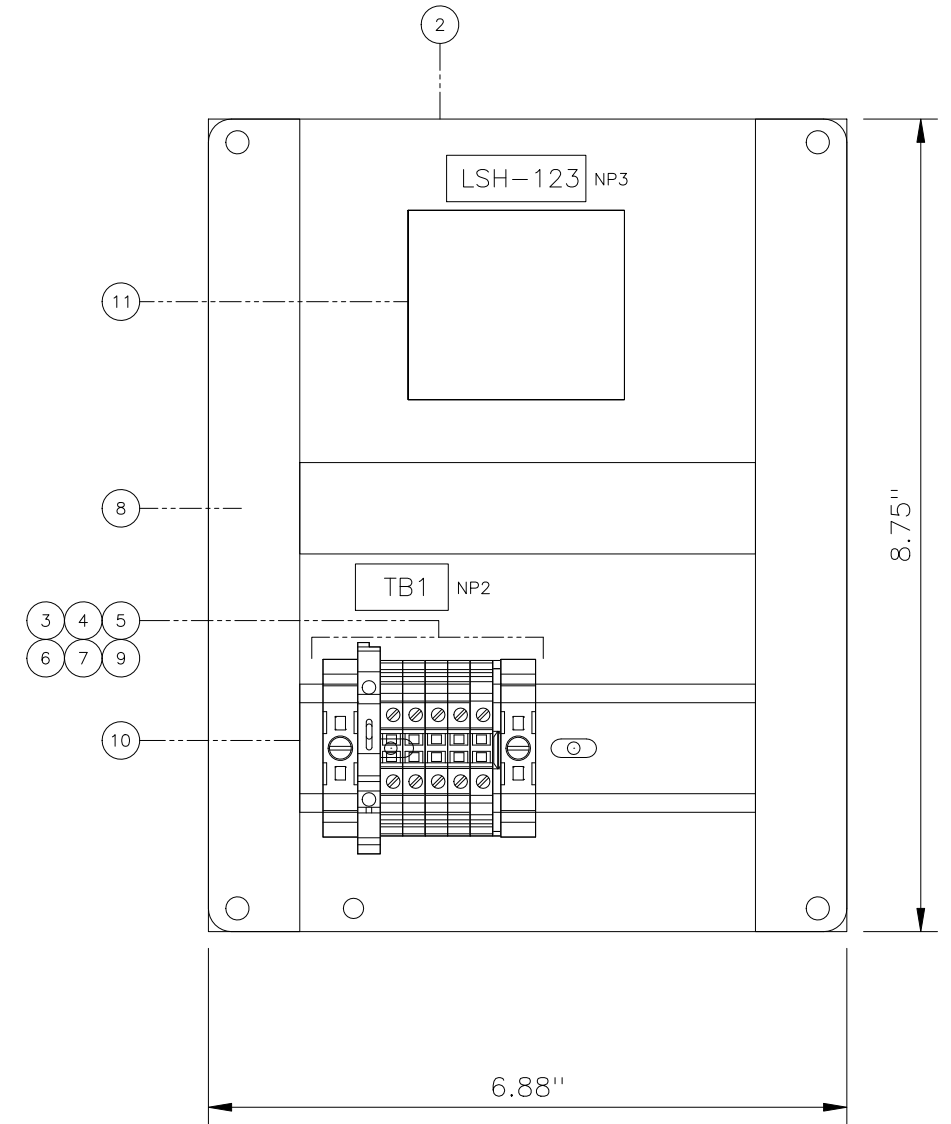
CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-123) INDEX SHEET & LEGEND SHEET			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07123-01.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1



FRONT VIEW



SIDE VIEW



BACKPANEL LAYOUT

FRONT PANEL LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-123) FRONT AND BACKPLATE LAYOUT			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07123-02.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 02	REV 1

01/19/18 2:55 PM

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	ENCLOSURE (10"H X 8"W X 6"D)	SAGINAW	SCE-10086CHNFSS
2	1	ENCLOSURE BACK PANEL (8.75"H X 6.88"W)	SAGINAW	SCE-10P8
3	5	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
4	1	FUSE TERMINAL BLOCK , BLOWN IND. UT 4-HESILA 250	PHOENIX CONTACT	3046100
5	2	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
6	1	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
7	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
8	2 FT	WIRE DUCT 1" W X 1" H WITH COVER	PHOENIX CONTACT	3240187
9	1	FUSES 1A, 5 x 20mm TIME DELAY GLASS TUBE FUSES	BUSSMANN	GMC-1A
10	0.5 FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1
11	1	SOLID STATE PLUG-IN RELAY MODULES, 120VAC, 8PIN OCTAL SOCKET	GEMS	16MB1A0

NOTE 1

NAMEPLATE SCHEDULE

NP NO.	SIZE	TEXT	ENGRAVING		
		HEIGHT	1st LINE	2nd LINE	3rd LINE
1	3.5" X 1"	3/16"	RELAY CONTROL PANEL	PNL-LSH-07-123	~~~~~
2	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
3	1.5" X 0.5"	3/16"	LSH-123	~~~~~	~~~~~

NOTES:
1 GEMS RELAY MODULE APPROVED IN INSTRUMENT SUBMITTAL.

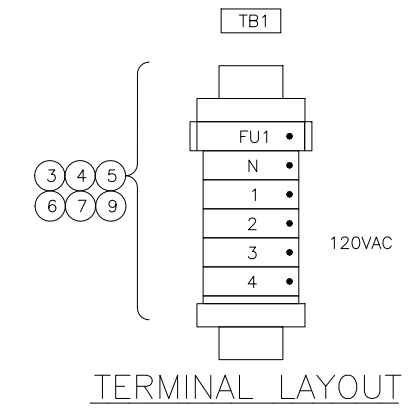
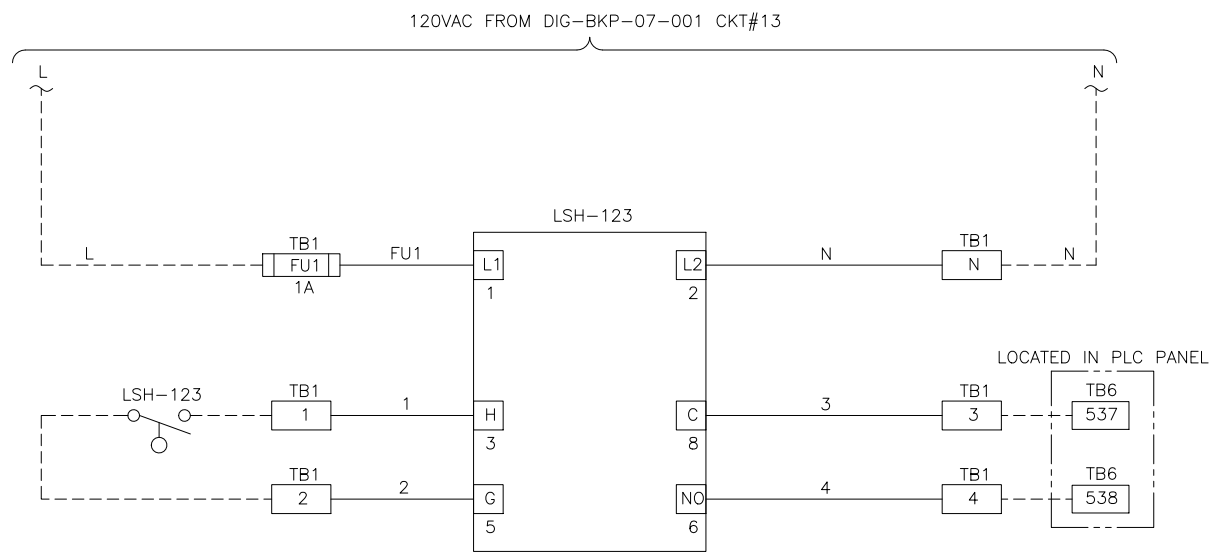


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER				CITY OF MANTECA	
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-123) BILL OF MATERIAL AND NAMEPLATE SCHEDULE					
DRAWN BY	RPS	DATE	01-19-18	SCALE	NONE
CHECKED BY	DDR	DATE	01-19-18	CAD FILE NAME:	29728-LSH-07123-03.dwg
APPROVED	VJP	DATE	01-19-18	DRAWING NO.	03
				REV	1

01/19/18 2:55 PM

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-



01/19/18 2:55 PM

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	08-10-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER				CITY OF MANTECA	
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-123) 120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT					
DRAWN BY	RPS	DATE	01-19-18	SCALE	NONE
CHECKED BY	DDR	DATE	01-19-18	CAD FILE NAME:	29728-LSH-07123-04.dwg
APPROVED	VJP	DATE	01-19-18	DRAWING NO.	04
				REV	1

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
RELAY CONTROL PANEL
PNL-LSH-07-133
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-LSH-07133-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-LSH-07133-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-LSH-07133-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-LSH-07133-04	120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT	1	01-19-2018

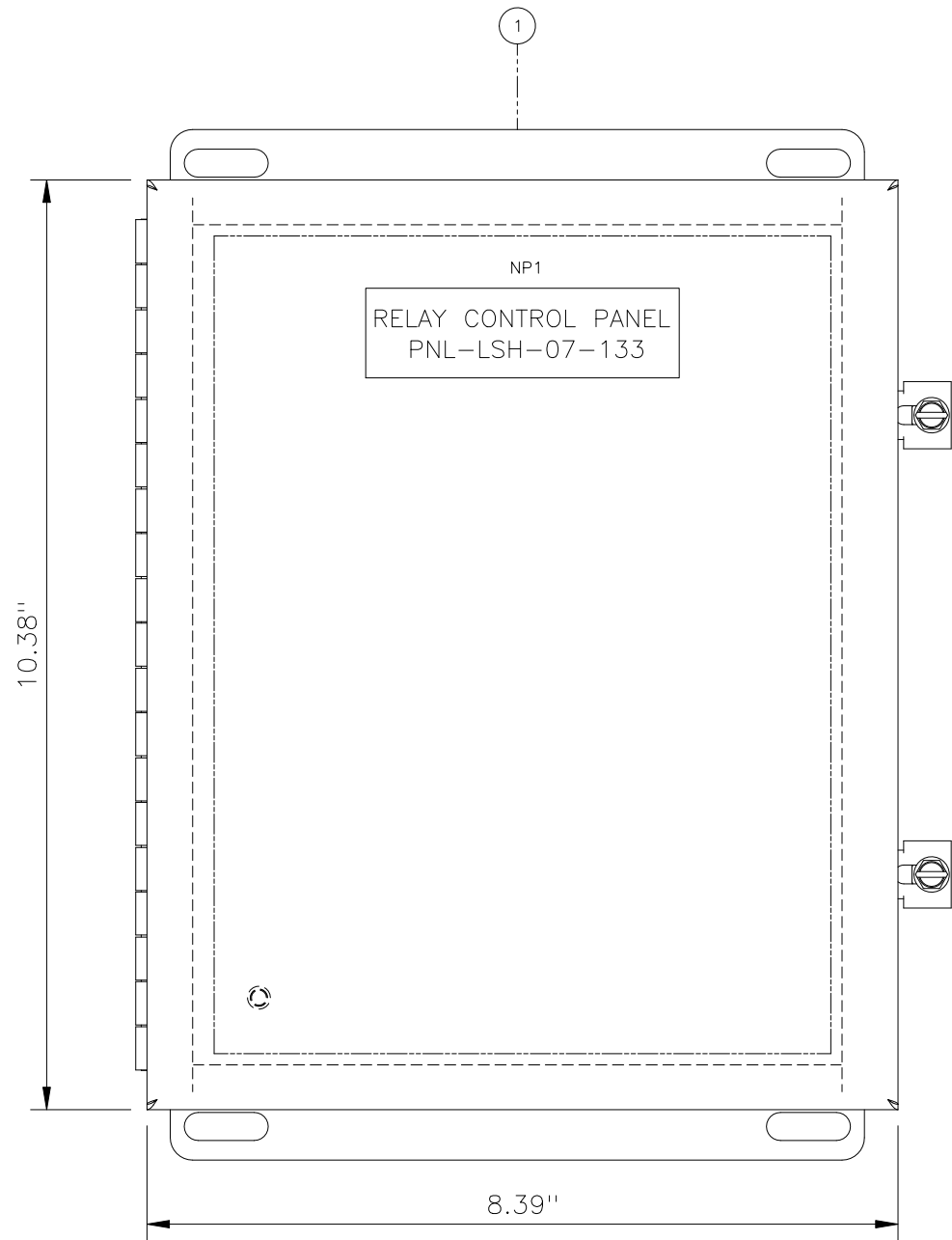
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

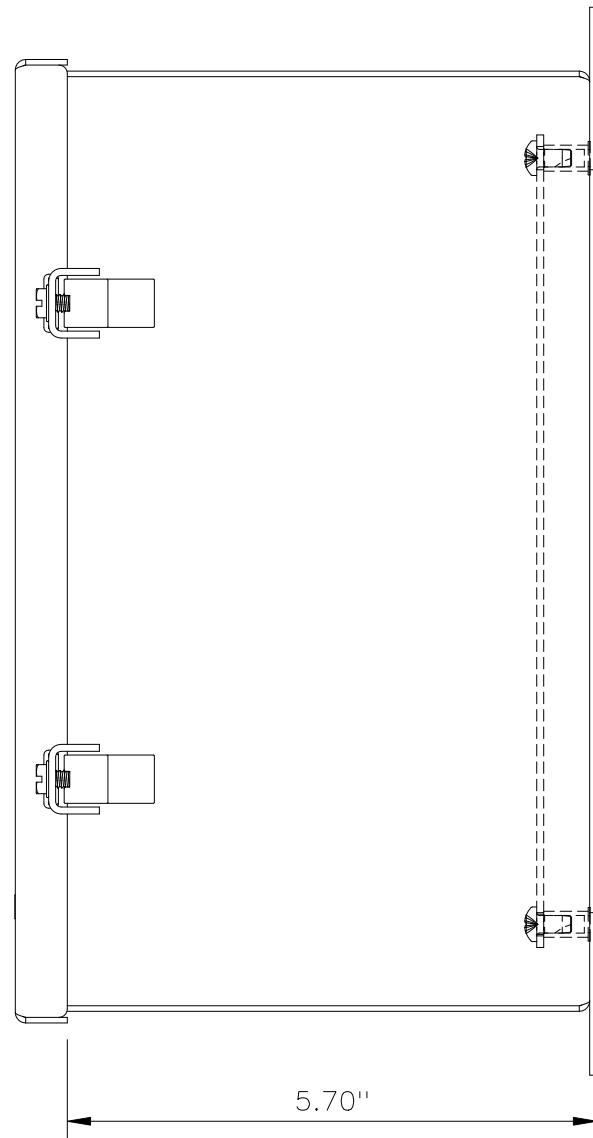


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

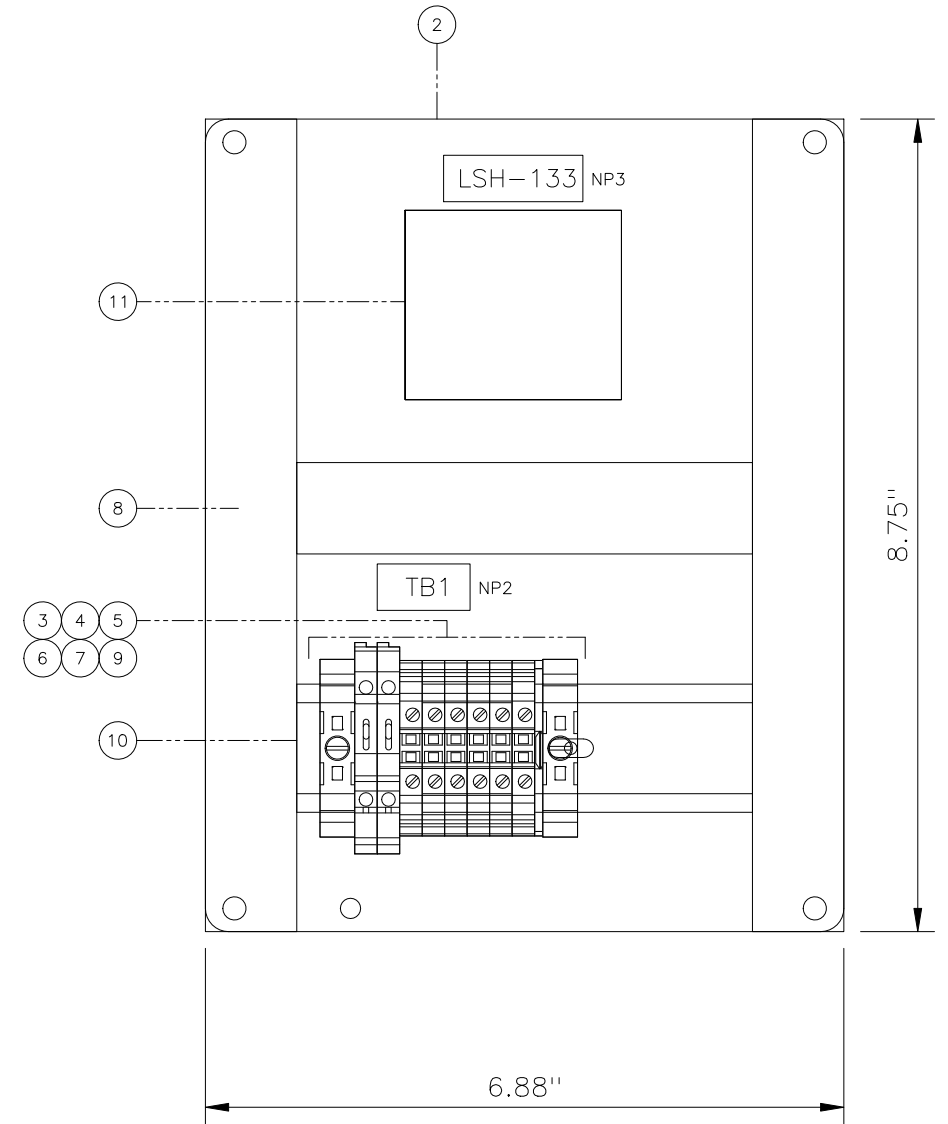
CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-133) INDEX SHEET & LEGEND SHEET			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07133-01.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1



FRONT VIEW



SIDE VIEW



BACKPANEL LAYOUT

FRONT PANEL LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-133) FRONT AND BACKPLATE LAYOUT			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07133-02.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 02	REV 1

01/19/18 2:57 PM

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	ENCLOSURE (10"H X 8"W X 6"D)	SAGINAW	SCE-10086CHNFSS
2	1	ENCLOSURE BACK PANEL (8.75"H X 6.88"W)	SAGINAW	SCE-10P8
3	6	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
4	2	FUSE TERMINAL BLOCK , BLOWN IND. UT 4-HESILA 250	PHOENIX CONTACT	3046100
5	2	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
6	1	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
7	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
8	2 FT	WIRE DUCT 1" W X 1" H WITH COVER	PHOENIX CONTACT	3240187
9	2	FUSES 1A, 5 x 20mm TIME DELAY GLASS TUBE FUSES	BUSSMANN	GMC-1A
10	0.5 FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1
11	1	SOLID STATE PLUG-IN RELAY MODULES, 120VAC, 8PIN OCTAL SOCKET	GEMS	16MB1A0

NOTE 1

NAMEPLATE SCHEDULE

NP NO.	SIZE	TEXT	ENGRAVING		
		HEIGHT	1st LINE	2nd LINE	3rd LINE
1	3.5" X 1"	3/16"	RELAY CONTROL PANEL	PNL-LSH-07-133	~~~~~
2	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
3	1.5" X 0.5"	3/16"	LSH-133	~~~~~	~~~~~

NOTES:
1 GEMS RELAY MODULE APPROVED IN INSTRUMENT SUBMITTAL.



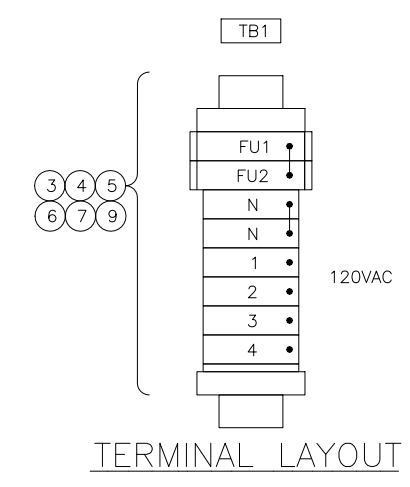
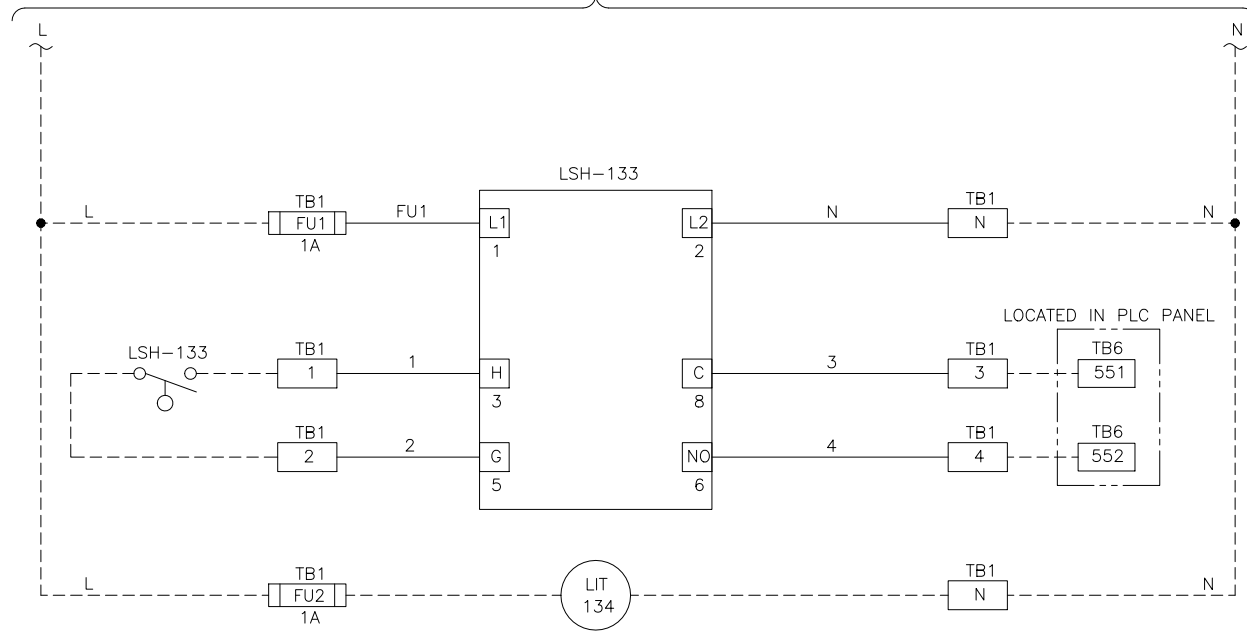
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER				CITY OF MANTECA	
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-133) BILL OF MATERIAL AND NAMEPLATE SCHEDULE					
DRAWN BY	RPS	DATE	01-19-18	SCALE	NONE
CHECKED BY	DDR	DATE	01-19-18	CAD FILE NAME:	29728-LSH-07133-03.dwg
APPROVED	VJP	DATE	01-19-18	DRAWING NO.	03
				REV	1

01/19/18 2:57 PM

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

120VAC FROM DIG-BKP-07-001 CKT#17



01/19/18 2:57 PM

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE			
DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-133) 120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT			
DRAWN BY	DATE	SCALE	
RPS	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-LSH-07133-04.dwg	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	04	1

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
RELAY CONTROL PANEL
PNL-LSH-07-143
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-LSH-07143-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-LSH-07143-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-LSH-07143-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-LSH-07143-04	120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT	1	01-19-2018

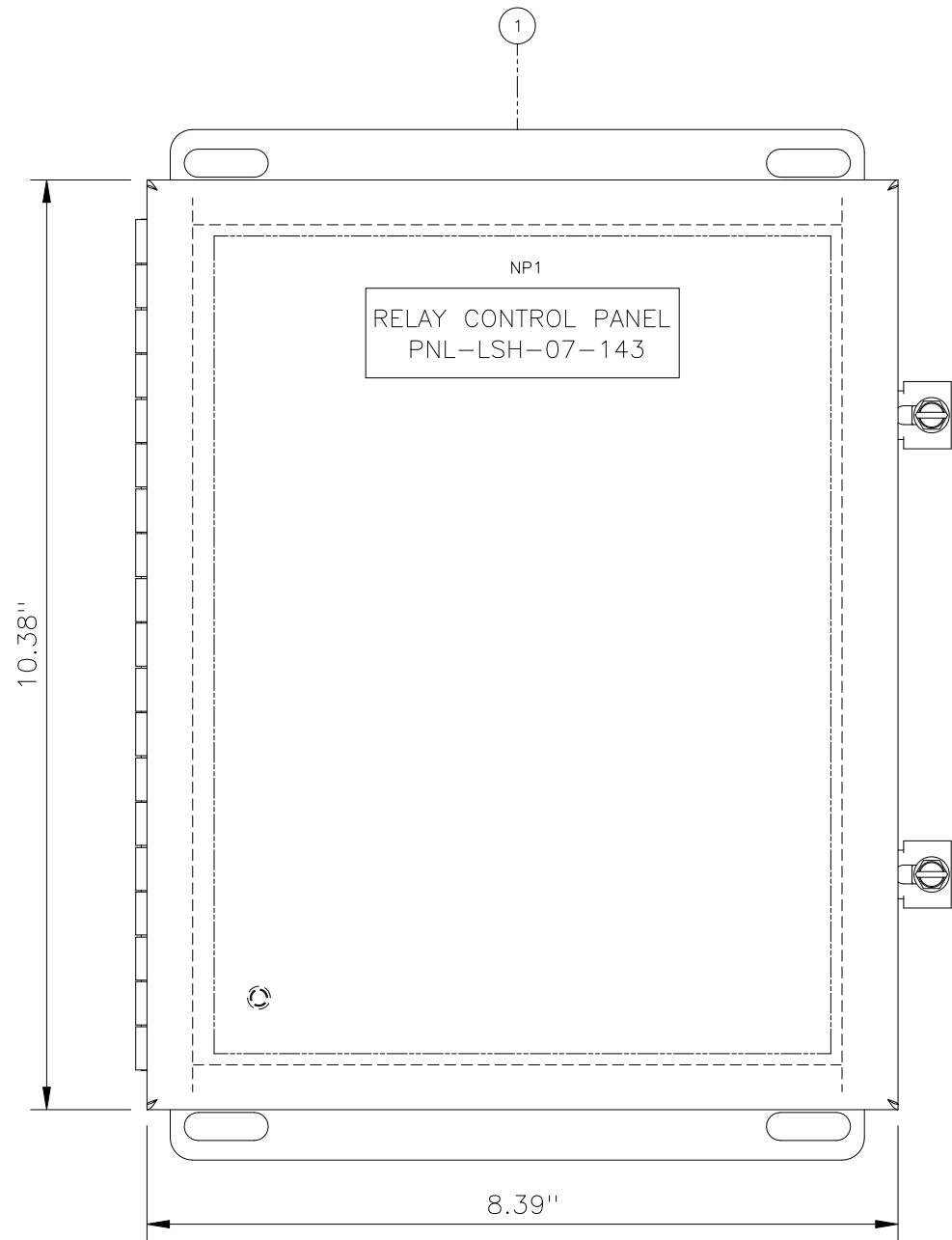
NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

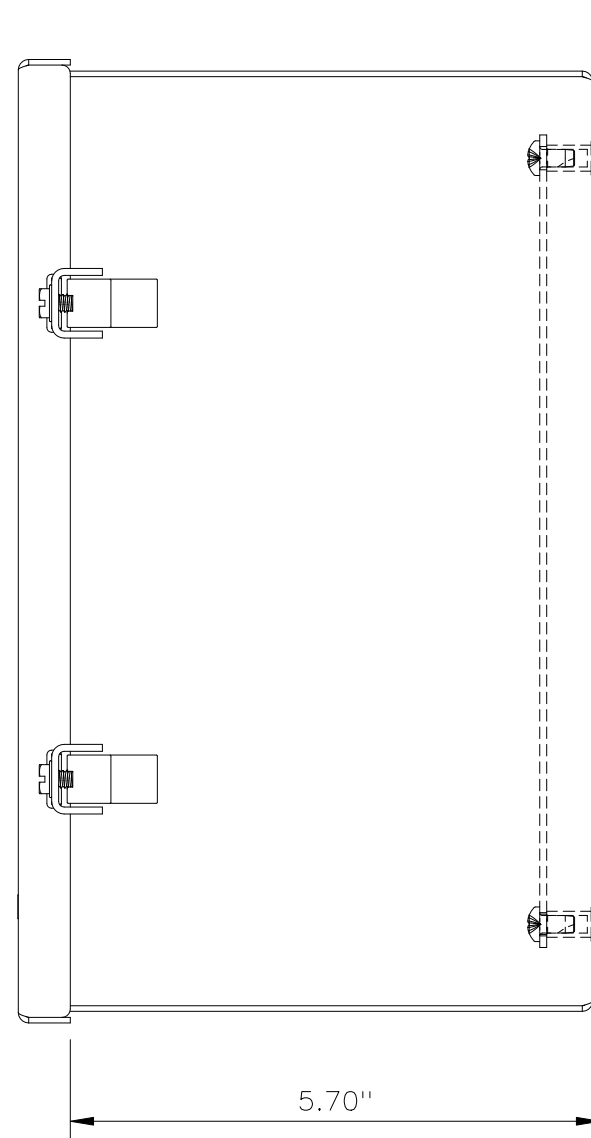


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

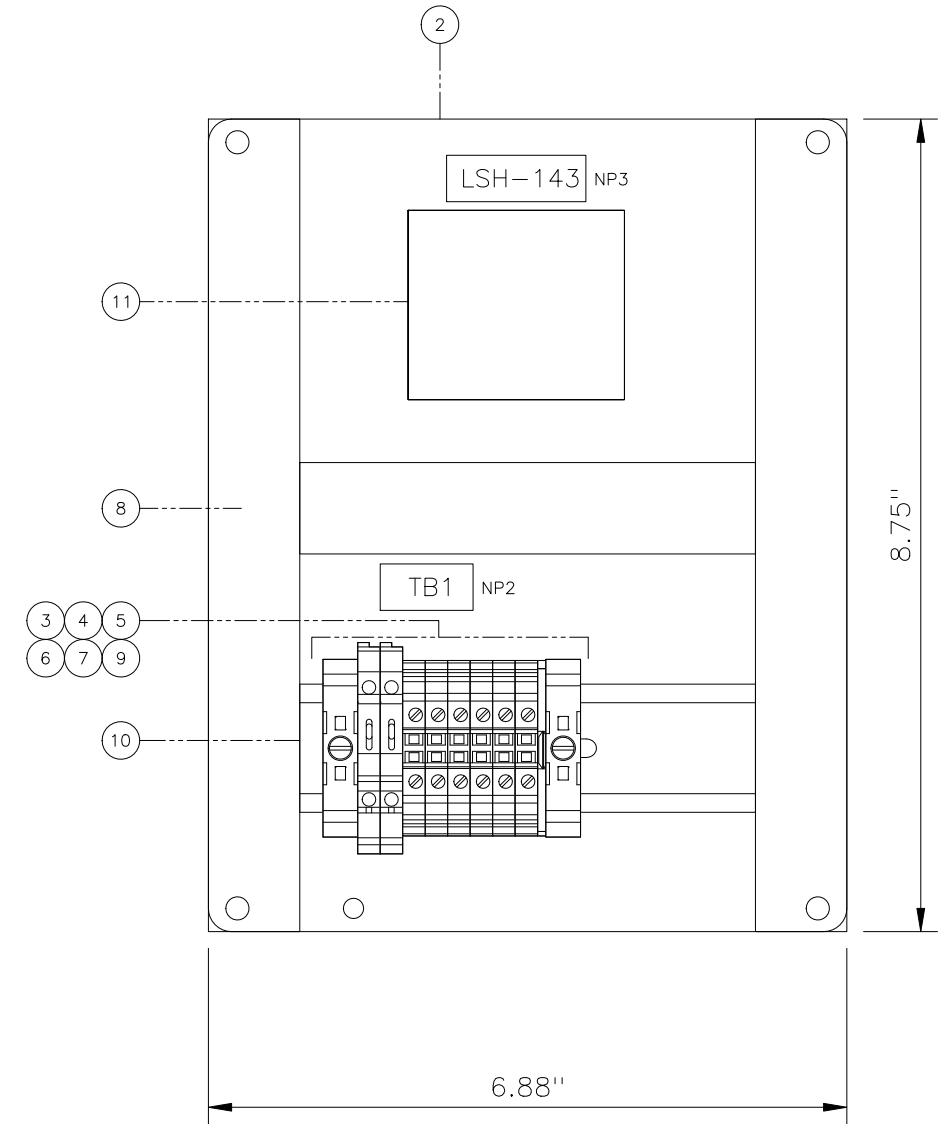
CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-143) INDEX SHEET & LEGEND SHEET			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07143-01.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1



FRONT VIEW



SIDE VIEW



BACKPANEL LAYOUT

FRONT PANEL LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-143) FRONT AND BACKPLATE LAYOUT			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH-07143-02.dwg	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 02	REV 1

01/19/18 2:59 PM

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	ENCLOSURE (10"H X 8"W X 6"D)	SAGINAW	SCE-10086CHNFSS
2	1	ENCLOSURE BACK PANEL (8.75"H X 6.88"W)	SAGINAW	SCE-10P8
3	6	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
4	2	FUSE TERMINAL BLOCK , BLOWN IND. UT 4-HESILA 250	PHOENIX CONTACT	3046100
5	2	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
6	1	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
7	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
8	2 FT	WIRE DUCT 1" W X 1" H WITH COVER	PHOENIX CONTACT	3240187
9	2	FUSES 1A, 5 x 20mm TIME DELAY GLASS TUBE FUSES	BUSSMANN	GMC-1A
10	0.5 FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1
11	1	SOLID STATE PLUG-IN RELAY MODULES, 120VAC, 8PIN OCTAL SOCKET	GEMS	16MB1A0

NOTE 1

NAMEPLATE SCHEDULE

NP NO.	SIZE	TEXT	ENGRAVING		
		HEIGHT	1st LINE	2nd LINE	3rd LINE
1	3.5" X 1"	3/16"	RELAY CONTROL PANEL	PNL-LSH-07-143	~~~~~
2	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
3	1.5" X 0.5"	3/16"	LSH-143	~~~~~	~~~~~

NOTES:
1 GEMS RELAY MODULE APPROVED IN INSTRUMENT SUBMITTAL.



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER				CITY OF MANTECA	
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-143) BILL OF MATERIAL AND NAMEPLATE SCHEDULE					
DRAWN BY	RPS	DATE	01-19-18	SCALE	NONE
CHECKED BY	DDR	DATE	01-19-18	CAD FILE NAME:	29728-LSH-07143-03.dwg
APPROVED	VJP	DATE	01-19-18	DRAWING NO.	03
				REV	1

01/19/18 2:59 PM

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

———— DENOTES PANEL WIRING (INSIDE OF PANEL)
 - - - - - DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
RELAY CONTROL PANEL
PNL-LSH-07-801 & PNL-LSL-07-802
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-LSH07801-LSL07802-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-LSH07801-LSL07802-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-LSH07801-LSL07802-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-LSH07801-LSL07802-04	120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT	1	01-19-2018

NOTES:

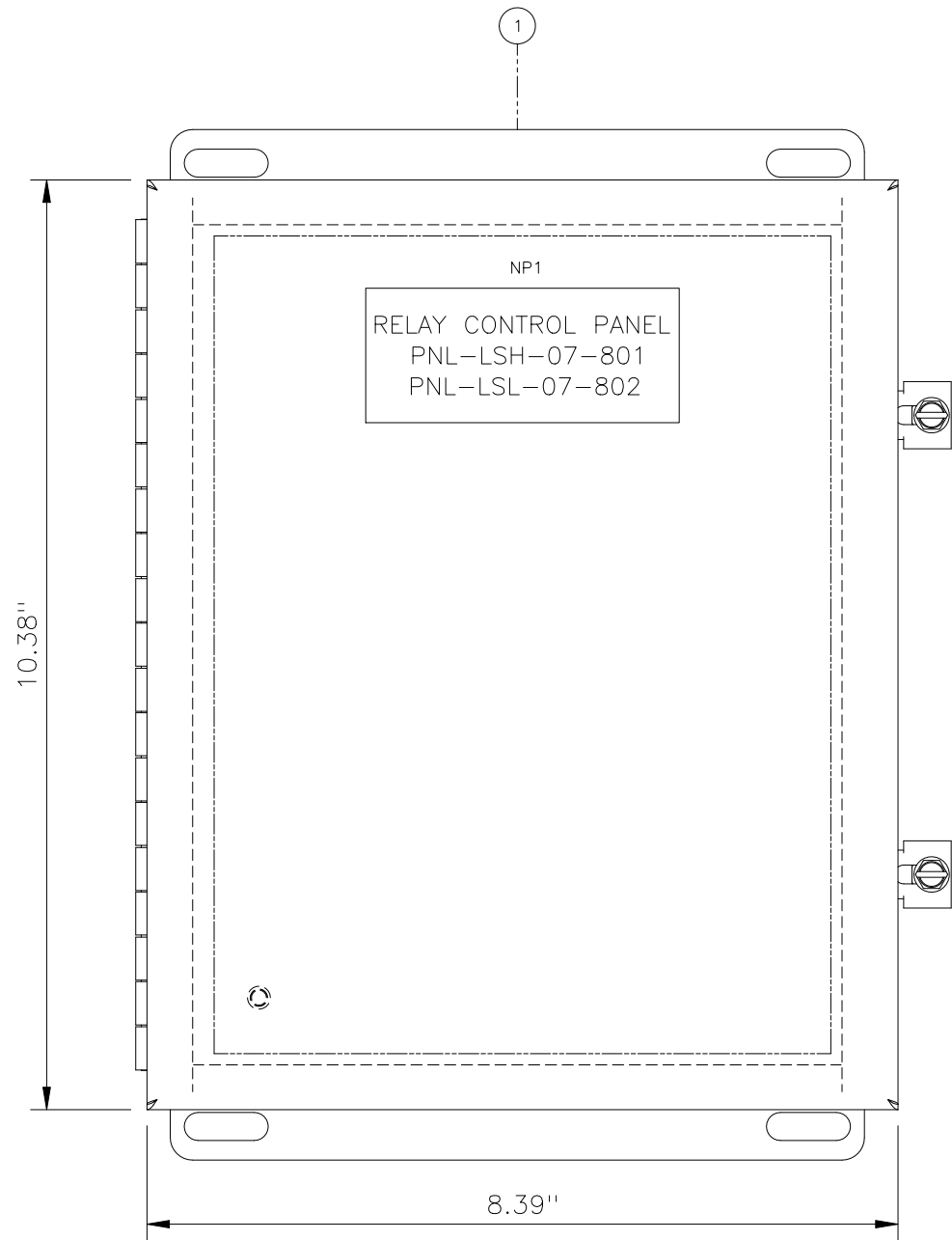
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-



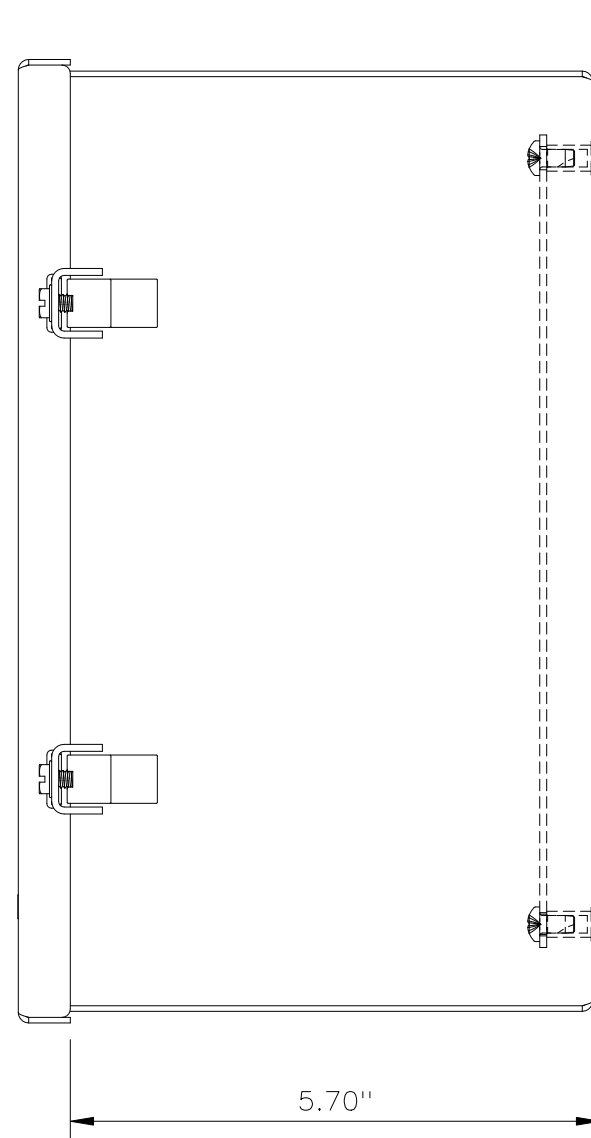
1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-801 & PNL-LSL-07-802) INDEX SHEET & LEGEND SHEET			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH07801-LSL07802-01	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1

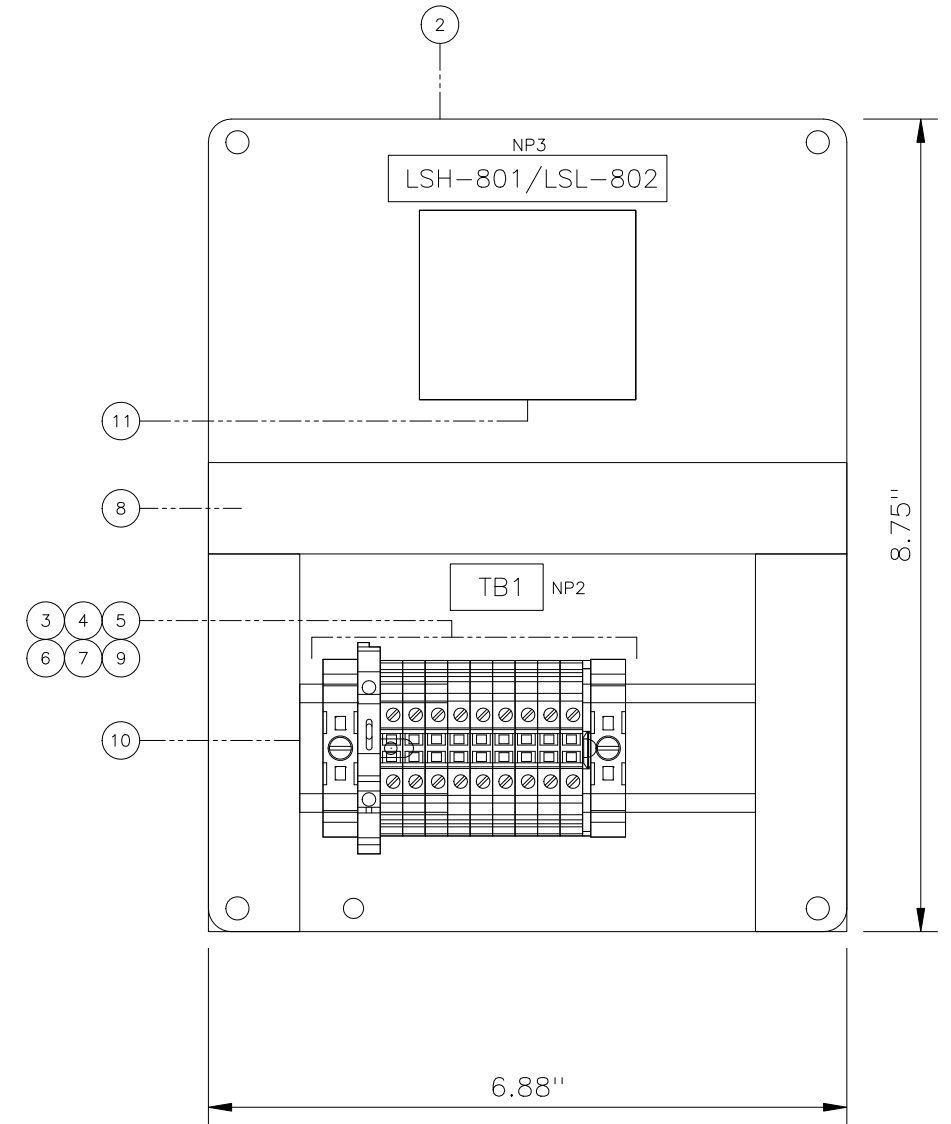
01/19/18 3:01 PM



FRONT VIEW



SIDE VIEW



BACKPANEL LAYOUT

FRONT PANEL LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-801 & PNL-LSL-07-802) FRONT AND BACKPLATE LAYOUT			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH07801-LSL07802-02	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 02	REV 1

01/19/18 3:01 PM

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	ENCLOSURE (10"H X 8"W X 6"D)	SAGINAW	SCE-10086CHNFSS
2	1	ENCLOSURE BACK PANEL (8.75"H X 6.88"W)	SAGINAW	SCE-10P8
3	9	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
4	1	FUSE TERMINAL BLOCK , BLOWN IND. UT 4-HESILA 250	PHOENIX CONTACT	3046100
5	2	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
6	1	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
7	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
8	1.5 FT	WIRE DUCT 1" W X 1" H WITH COVER	PHOENIX CONTACT	3240187
9	1	FUSES 1A, 5 x 20mm TIME DELAY GLASS TUBE FUSES	BUSSMANN	GMC-1A
10	0.5 FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1
11	1	SOLID STATE PLUG-IN RELAY MODULES, 120VAC, 8PIN OCTAL SOCKET	GEMS	16MB1A0

NOTE 1

NAMEPLATE SCHEDULE

NP NO.	SIZE	TEXT	ENGRAVING		
		HEIGHT	1st LINE	2nd LINE	3rd LINE
1	3.5" X 1.5"	3/16"	RELAY CONTROL PANEL	PNL-LSH-07-801	PNL-LSL-07-802
2	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
3	3" X 0.5"	3/16"	LSH-801/LSL-802	~~~~~	~~~~~

NOTES:
1 GEMS RELAY MODULE APPROVED IN INSTRUMENT SUBMITTAL.

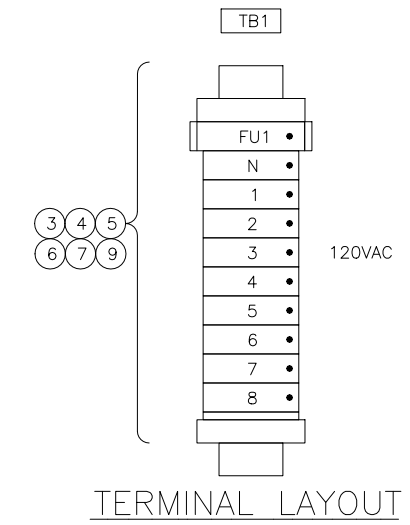
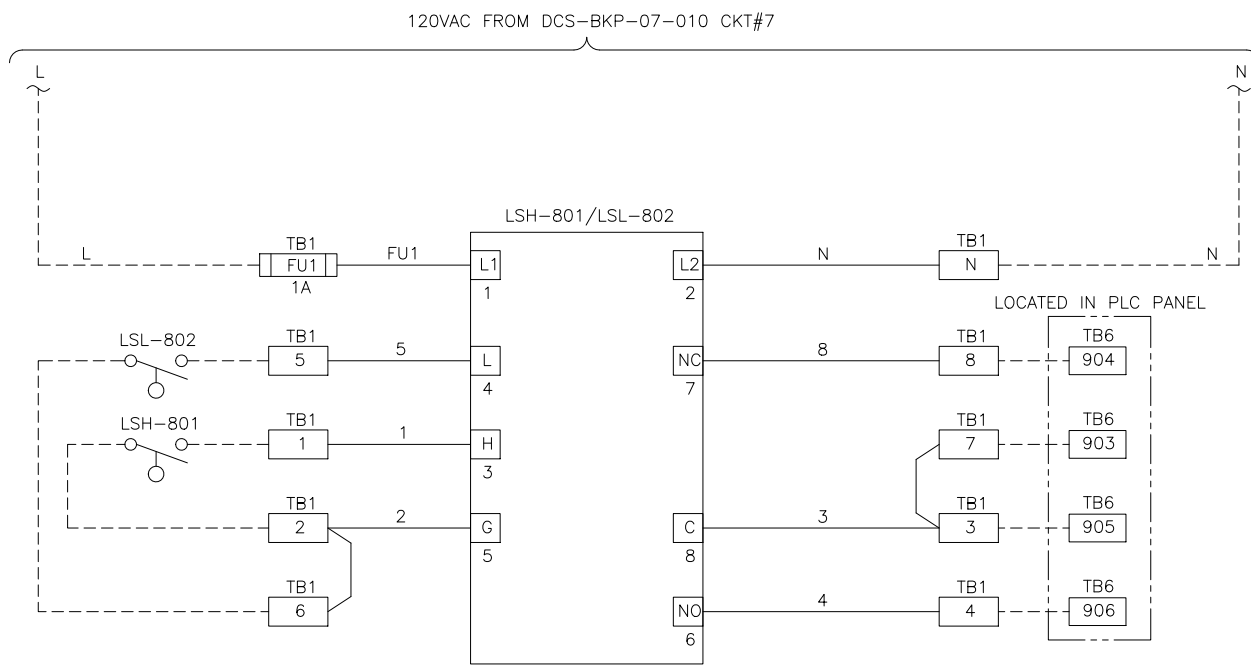


1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER				CITY OF MANTECA	
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-801 & PNL-LSL-07-802) BILL OF MATERIAL AND NAMEPLATE SCHEDULE					
DRAWN BY	RPS	DATE	01-19-18	SCALE	NONE
CHECKED BY	DDR	DATE	01-19-18	CAD FILE NAME:	29728-LSH07801-LSL07802-03
APPROVED	VJP	DATE	01-19-18	DRAWING NO.	03
				REV	1

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

01/19/18 3:01 PM



NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-801 & PNL-LSL-07-802) 120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT			
DRAWN BY	DATE	SCALE	
RPS	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-LSH07801-LSL07802-04	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	04	1

LEGEND SHEET

ELECTRICAL COMPONENTS

	TERMINAL BLOCK
	FUSED TERMINAL BLOCK
	CONTROL RELAY
	DUPLEX RECEPTACLE
	EARTH GROUND
	CHASSIS GROUND
	GROUNDING RECEPTACLE
	FUSE
	HORN
	TRANSFORMER
	SOLENOID
	OVERLOAD RELAY
	CIRCUIT BREAKER
	MOTOR (NO. DENOTES HORSEPOWER)
	NO CONTACT N.O.
	NO CONTACT N.C.
	SHIELDED CABLE
	BLOCKING DIODE

WIRING INFORMATION

POWER/SIGNAL	USE	COLOR	SIZE / TYPE
120VAC POWER	LINE	RED	#12 AWG
	NEUTRAL	WHITE	#12 AWG
	GROUND	GREEN	#12 AWG
120VAC CONTROL	LINE	RED	#14 AWG
	NEUTRAL	WHITE	#14 AWG
24VDC	POWER	BLUE	#16 AWG
	COMMON	BLUE / WHITE STRIPE	#16 AWG
ANALOG	+	BLACK	#16 AWG TWISTED SHIELDED PAIR
	-	WHITE	

PRESSURE SWITCHES

	OPEN-CLOSES ON RISING PRESSURE
	CLOSED-CLOSES ON FALLING PRESSURE
	OPEN-OPENS ON RISING PRESSURE
	CLOSED-OPENS ON FALLING PRESSURE

LIMIT SWITCHES

	NORMALLY OPEN
	HELD OPEN
	NORMALLY CLOSED
	HELD CLOSED

LEVEL FLOAT SWITCHES

	CLOSES ON RISING LEVEL
	CLOSES ON FALLING LEVEL
	OPENS ON RISING LEVEL
	OPENS ON FALLING LEVEL

LINE TYPE

- DENOTES PANEL WIRING (INSIDE OF PANEL)
- DENOTES FIELD WIRING (OUTSIDE OF PANEL)

TEMPERATURE SWITCHES

	CLOSES ON RISING TEMPERATURE
	CLOSES ON FALLING TEMPERATURE
	OPENS ON RISING TEMPERATURE
	OPENS ON FALLING TEMPERATURE

TIME DELAY CONTACTS

	OFF DELAY TIMER	INST. CLOSE TIME OPEN
		INST. OPEN TIME CLOSE
	ON DELAY TIMER	INST. OPEN TIME CLOSE
		INST. CLOSE TIME OPEN

OPERATORS

	PUSHBUTTON WITH LOCKOUT STOP
	PUSHBUTTON NORMALLY CLOSED
	PUSHBUTTON NORMALLY OPEN
	TWO POSITION SELECTOR SWITCH
	THREE POSITION SELECTOR SWITCH X DENOTES CLOSED CONTACT IN THAT POSITION
	TOGGLE SWITCH
	PILOT LIGHT PUSH TO TEST

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
DIGESTER IMPROVEMENTS PROJECT
RELAY CONTROL PANEL
PNL-LSH-07-806 & PNL-LSL-07-807
29728
INDEX SHEET

SHEET	DRAWING NO.	DRAWING TITLE	REV.	REV. DATE
1	29728-LSH07806-LSL07807-01	INDEX SHEET AND LEGEND SHEET	1	01-19-2018
2	29728-LSH07806-LSL07807-02	FRONT AND BACKPLATE LAYOUT	1	01-19-2018
3	29728-LSH07806-LSL07807-03	BILL OF MATERIAL AND NAMEPLATE SCHEDULE	1	01-19-2018
4	29728-LSH07806-LSL07807-04	120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT	1	01-19-2018

NOTES:

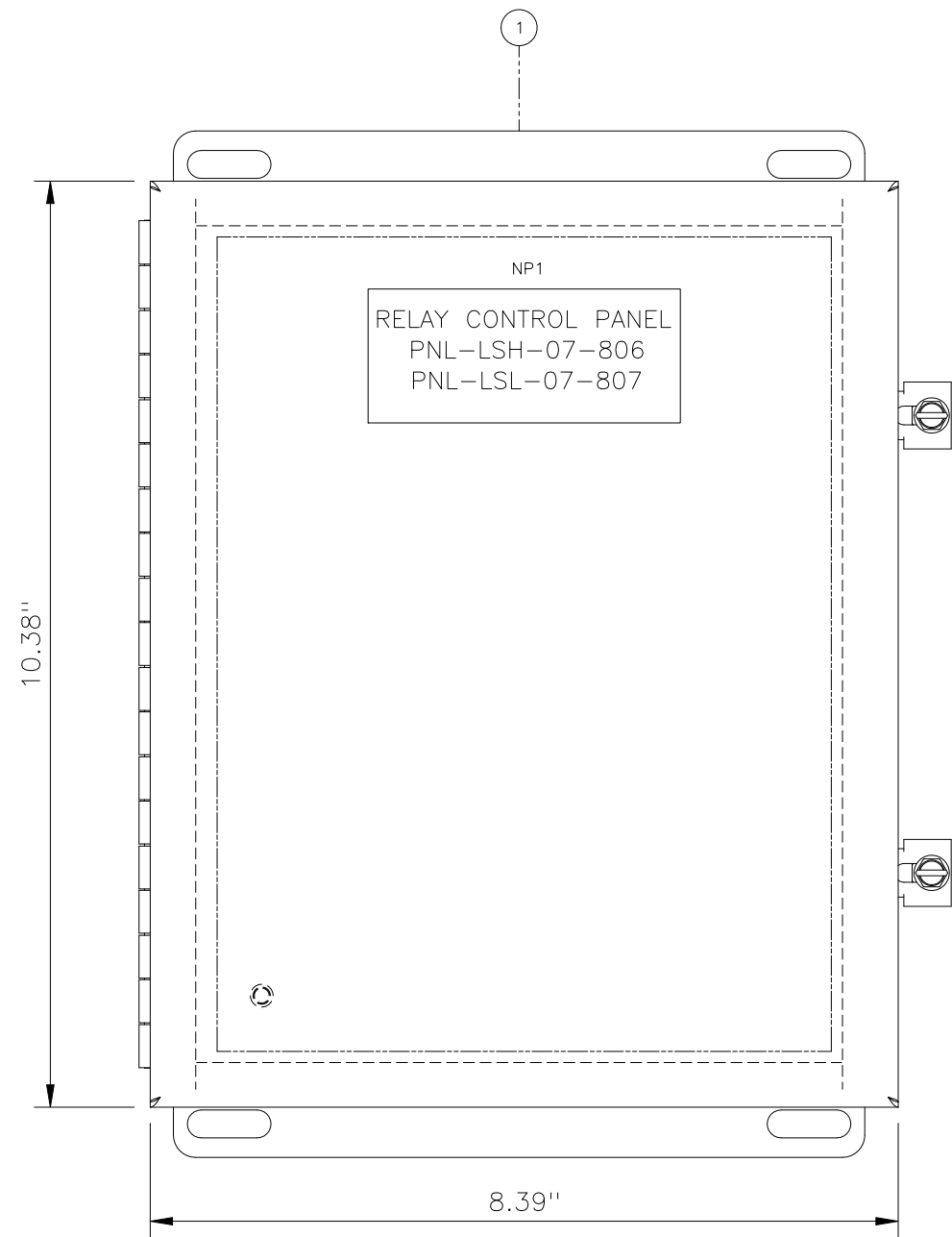
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
 TEL: (925) 671-2888 FAX: (925) 671-9507

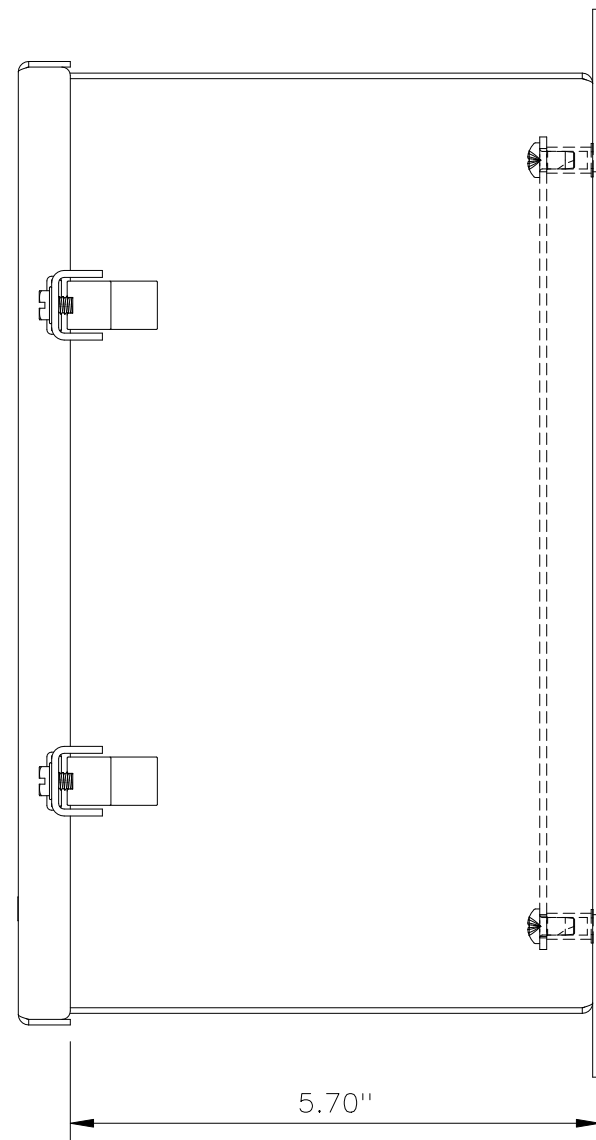
CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-806 & PNL-LSL-07-807) INDEX SHEET & LEGEND SHEET			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH07806-LSL07807-01	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 01	REV 1

01/19/18 3:03 PM

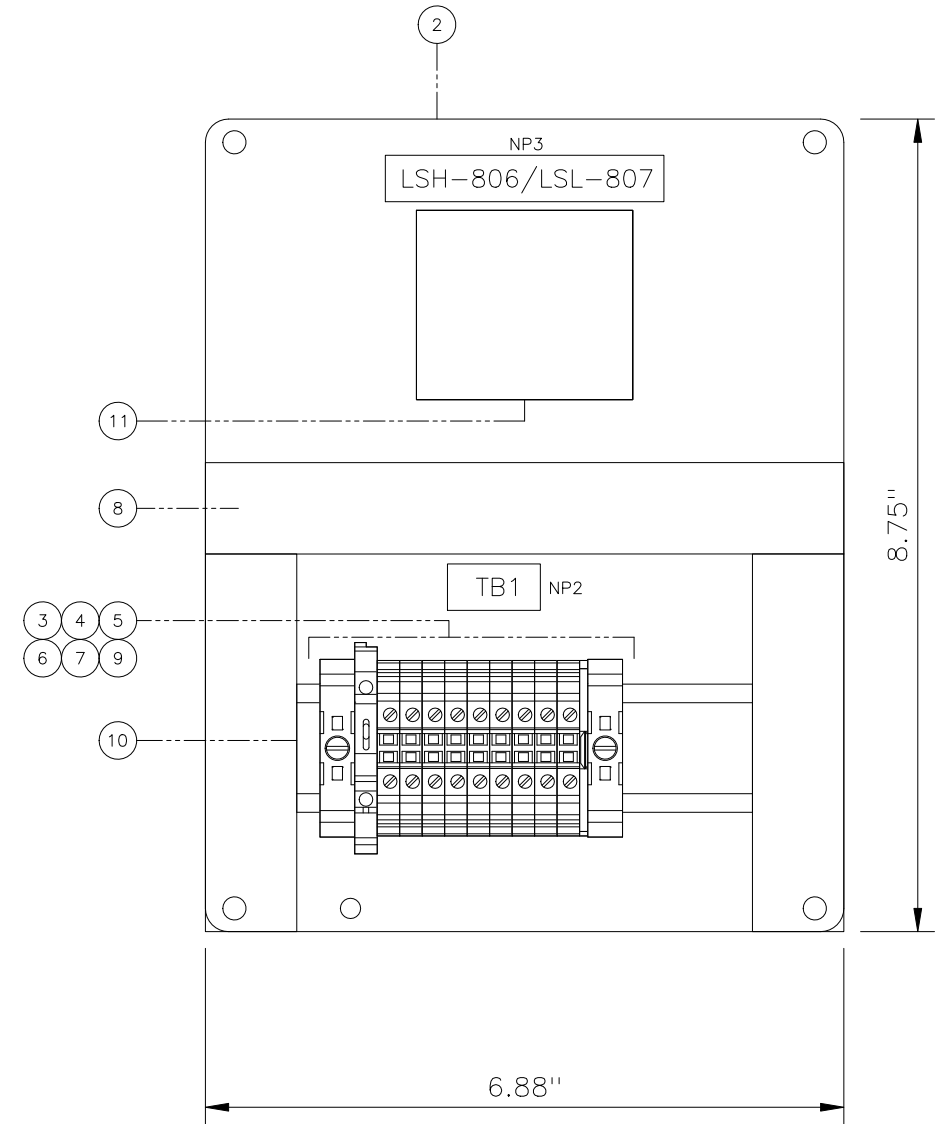


FRONT VIEW

FRONT PANEL LAYOUT



SIDE VIEW



BACKPANEL LAYOUT

NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-806 & PNL-LSL-07-807) FRONT AND BACKPLATE LAYOUT			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH07806-LSL07807-02	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 02	REV 1

01/19/18 3:03 PM

BILL OF MATERIAL

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART NUMBER
1	1	ENCLOSURE (10"H X 8"W X 6"D)	SAGINAW	SCE-10086CHNFSS
2	1	ENCLOSURE BACK PANEL (8.75"H X 6.88"W)	SAGINAW	SCE-10P8
3	9	FEED THROUGH TERMINAL BLOCK, UT4	PHOENIX CONTACT	3044102
4	1	FUSE TERMINAL BLOCK , BLOWN IND. UT 4-HESILA 250	PHOENIX CONTACT	3046100
5	2	TERMINAL BLOCK END BRACKET E/NS 35 N	PHOENIX CONTACT	0800886
6	1	TERMINAL BLOCK END COVER, D-UT 2.5/10	PHOENIX CONTACT	3047028
7	A/R	TERMINAL BLOCK MARKER	PHOENIX CONTACT	0828736
8	1.5 FT	WIRE DUCT 1" W X 1" H WITH COVER	PHOENIX CONTACT	3240187
9	1	FUSES 1A, 5 x 20mm TIME DELAY GLASS TUBE FUSES	BUSSMANN	GMC-1A
10	0.5 FT	DIN RAIL	AUTOMATION DIRECT	DN-R35HS1
11	1	SOLID STATE PLUG-IN RELAY MODULES, 120VAC, 8PIN OCTAL SOCKET	GEMS	16MB1A0

NOTE 1

NAMEPLATE SCHEDULE

NP NO.	SIZE	TEXT	ENGRAVING		
		HEIGHT	1st LINE	2nd LINE	3rd LINE
1	3.5" X 1.5"	3/16"	RELAY CONTROL PANEL	PNL-LSH-07-806	PNL-LSL-07-807
2	1" X 0.5"	3/16"	TB1	~~~~~	~~~~~
3	3" X 0.5"	3/16"	LSH-806/LSL-807	~~~~~	~~~~~

NOTES:
1 GEMS RELAY MODULE APPROVED IN INSTRUMENT SUBMITTAL.

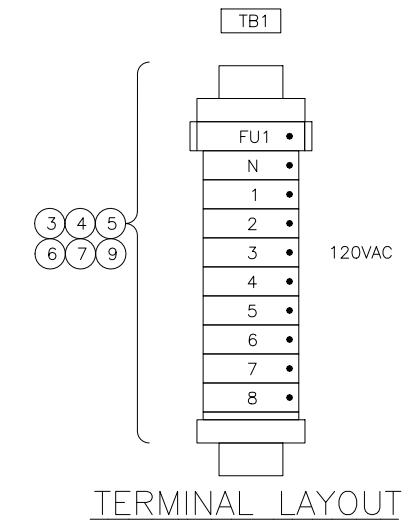
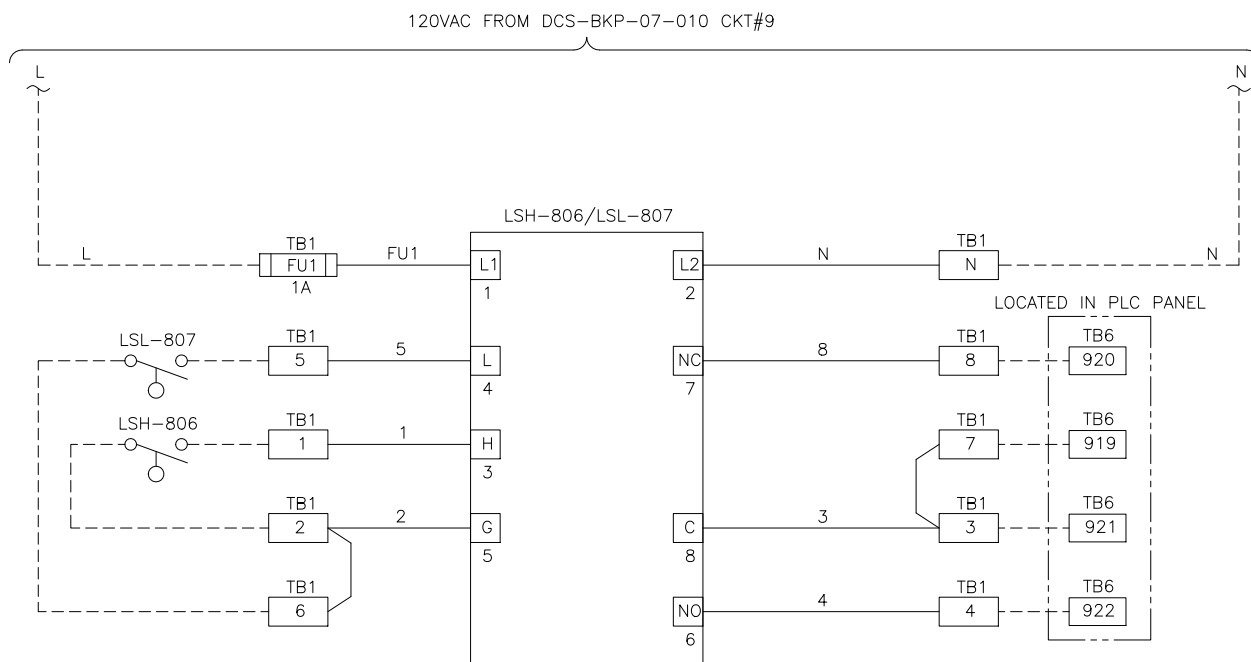
REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-



1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-806 & PNL-LSL-07-807) BILL OF MATERIAL AND NAMEPLATE SCHEDULE			
DRAWN BY RPS	DATE 01-19-18	SCALE NONE	
CHECKED BY DDR	DATE 01-19-18	CAD FILE NAME: 29728-LSH07806-LSL07807-03	
APPROVED VJP	DATE 01-19-18	DRAWING NO. 03	REV 1

01/19/18 3:03 PM



NOTES:

REV	DATE	DESCRIPTION	BY
1	01-19-18	AS-BUILT	-
0	11-09-17	ORIGINAL ISSUE	-

TELSTAR
INSTRUMENTS

1717 SOLANO WAY UNIT 34 CONCORD CALIFORNIA 94520
TEL: (925) 671-2888 FAX: (925) 671-9507

CUSTOMER			
CITY OF MANTECA			
DWG. TITLE WASTEWATER QUALITY CONTROL FACILITY DIGESTER IMPROVEMENTS PROJECT RELAY CP (PNL-LSH-07-806 & PNL-LSL-07-807) 120VAC POWER DISTRIBUTION AND TERMINAL LAYOUT			
DRAWN BY	DATE	SCALE	
RPS	01-19-18	NONE	
CHECKED BY	DATE	CAD FILE NAME:	
DDR	01-19-18	29728-LSH07806-LSL07807-04	
APPROVED	DATE	DRAWING NO.	REV
VJP	01-19-18	04	1