

EQUIPMENT LIST

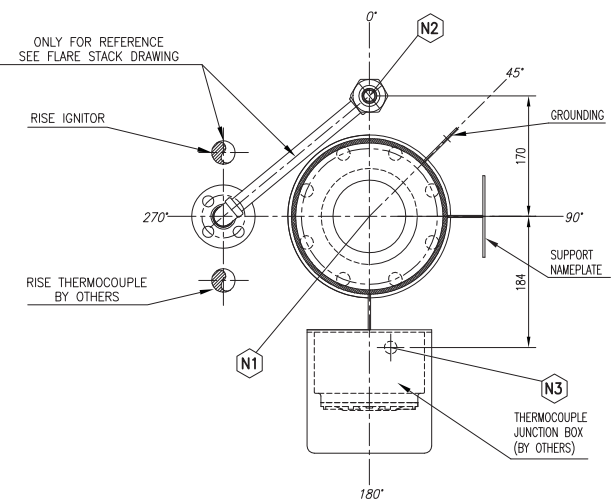
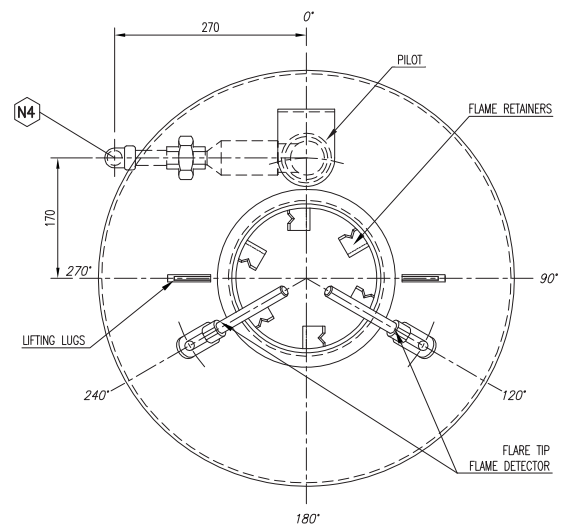
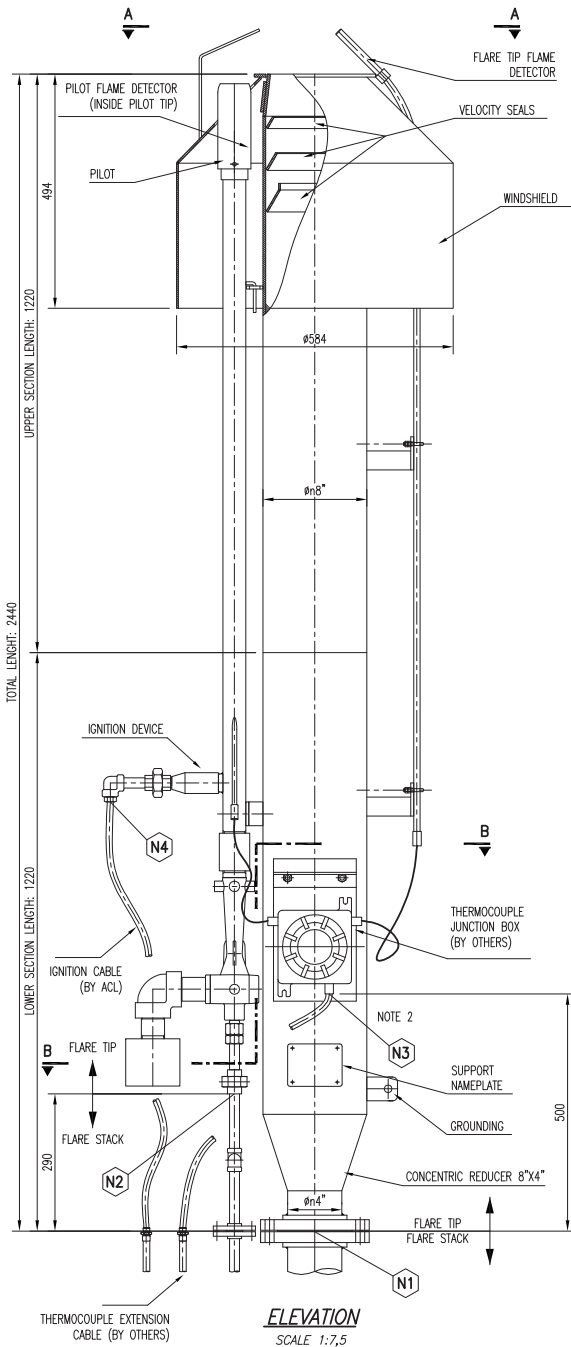
FLARE	FL-3403
STACK DIAMETER:	4"
TIP DIAMETER:	8"
FLARE TYPE:	VERTICAL
IGNITION:	ELECTRICAL
KNOCKOUT DRUM	V-3403
TYPE	VERTICAL
DIAMETER	24"
HEIGHT	1600 mm

NOTES:

1. PIPING FROM K.O. DRUM TO FLARE MUST HAVE A MINIMUM SLOPE OF 0,21% TOWARDS K.O. DRUM, WITH NO POCKETS.
2. PIPING DIAMETER MUST FOLLOW P&ID VALUES. MUST BE FREE OF POCKETS AND A VALVE MUST BE PLACED AT THE LOWEST POINT OF PIPING ARRANGEMENT.
3. PURGE GAS MUST BE INJECTED PERMANENTLY AT VENTING MAIN MANIFOLD INLET.
4. PILOT FUEL GAS MUST BE CLEAN AND DRY, REGULATED TO A CONSTANT PRESSURE OF 0,7 kg/cm2(g) BY FV-2204.
5. PURGE FUEL GAS OR ASSISTANCE FUEL GAS FLOW CONTROL EQUIPMENT OR INSTRUMENTATION IS OUT OF FLARGENT/SUPERIOR SCOPE OF SUPPLY.
6. ASSISTANCE FUEL GAS MUST BE USED WHEN FLARING GAS RELATED TO "DCGS" VENTING CASE.
7. INSTRUMENTATION LINKED TO KNOCKOUT DRUM (LEVEL TRANSMITTER AND GAUGE) WILL BE PROVIDED BY CANMET.
8. THE FLARGENT/SUPERIOR PROVISION INCLUDES THE ELEMENTS LOCATED WITHIN THE SUPPLY LIMIT LINE
9. TO BE SUPPLIED BY OTHERS AND LOCATED ON FLARE TIP
10. PRESSURE REDUCTION VALVE FV-2204 TO BE PROVIDED BY FLARGENT/SUPERIOR AS LOOSE ITEM. PS-002 AND PI-001, TO BE PROVIDED BY OTHERS.
11. TO BE LOCATED IN THE ROOF, 10 FT FROM SPARK DEVICE
12. PANEL TO BE LOCATED INDOOR, NEAR KO DRUM

1	10/03/16	ISSUE FOR FABRICATION	EBO	PGR	FFA
0	11/02/16	ISSUE FOR FABRICATION	EBO	PGR	GDA
B	18/01/16	ISSUE FOR COMMENTS	EBO	PGR	GDA
A	17/12/15	ISSUE FOR COMMENTS	EBO	PGR	GDA

REV.	DATE	DESCRIPTION	BY	CHECK	APP.
Chacabuco 271 10º Pto (C1069AAE) Ciudad Autónoma de Buenos Aires Tel: (+54 11) 5355 2000 flargent@flargent.com www.flargent.com					
CLIENT: Superior Boiler Works and Welding Limited					
JOB: M4391 Flare System Design & Build for Canada					
FLARE FL-3403 & KNOCKOUT DRUM V-3403					
P&ID					
SPECIALITY: PROCESS	SCALE: -	SHEET: 01 OF 01			
JOB N°:	1272	DOC N°:	1272-F-PI-001	REVISION:	1



DESIGN DATA

CODES: API STD 537 2nd Ed, ASME B31.3 Ed 2008, AWS D1.1 20th Ed, AISC ASD 13th Ed.

TIP: $\varnothing 8"$

NUMBER OF PILOTS: 1

DETECTION OF PILOT FLAME: BY THERMOCOUPLE

DETECTION OF FLARE TIP FLAME: BY THERMOCOUPLE

IGNITION SYSTEM: ELECTRIC

TOTAL LENGTH: 2440mm (~8 ft)

PAINTING: SEE NOTE 3

WEIGHT: ~130 kg

QUANTITY: 1

LIST OF COMPONENTS

DESCRIPTION	MATERIAL	OBSERVATIONS
FLANGES	SS316	
SUPPORT NAMEPLATE	SS316	
UPPER SECTION LENGTH	ASTM A-240 TP310	
LOWER SECTION LENGTH	ASTM A-240 TP316	
FLAME RETAINERS	ASTM A-240 TP310	
LIFTING LUGS	ASTM A-240 TP310	
GROUNDING	ASTM A-240 TP304	
VELOCITY SEAL	ASTM A-240 TP310	
FITTINGS	ASTM A-105	
WINDSHIELD	ASTM A-240 TP310	
FLAME DETECTOR	ASTM A-240 TP310	

NOZZLES

NOZZLE	SERVICE	QTY.	SIZE	DESCRIPTION	MATERIAL
N1	INLET	1	4"	FLANGE 4" #150 SORF	AISI316
N2	PILOT GAS	1	1/2"	DOUBLE UNION 1/2" NPT S.STEEL	AISI304
N3	THERMOCOUPLE	1	1"	FLEXIBLE (BY OTHERS)	-
N4	RISE IGNITOR	1	1"	FLEXIBLE	-

NOTES

- ALL MEASUREMENTS ARE IN "MM" UNIT UNLESS OTHERWISE NOTED.
- THERMOCOUPLE JUNCTION BOX AND THERMOCOUPLE CABLE, TO BE PROVIDED BY OTHERS.
- Painting Scheme: Subtract: carbon steel structures
Preparation of surface: Degree of cleaning: SSPC-SP10 (Swedish Std. Sa 2 1/2)
Covering system: First layer: Epoxy - Thickness: 125 - 150 μ m
Second layer: Aliphatic polyurethane - Thickness: 50 - 100 μ m
Observations: Stainless steel or galvanized steel surfaces shall not be painted
- IGNITION BOX TO BE LOCATED ON ROOF, 10 FT FROM IGNITION DEVICE
- CONTROL PANEL TO BE LOCATED INDOORS, NEAR KO DRUM.

REFERENCES

- 1272-M-HD-001 DATA SHEET - FLARE
1272-F-PI-001 PIPING AND INSTRUMENT DIAGRAM
1272-I-ET-001 TECHNICAL SPECIFICATION - IGNITION SYSTEM

REV.	DATE	DESCRIPTION	BY	CHECK	APP.
1	11/02/16	ISSUE FOR FABRICATION			RM I RGI GDA
0	22/01/16	ISSUE FOR FABRICATION			RM I RGI GDA
A	05/01/16	ISSUE FOR COMMENTS			RM I RGI GDA

Chacabuco 271 10° Piso (C1069AAE)
Ciudad Autónoma de Buenos Aires
Tel: (54-11) 5355 - 2000
flargent@flargent.com | www.flargent.com

Flargent
North America

CLIENT: CANMET

JOB: M4391 Flare System Design & Build for Canada

FLARE FL-3403

GENERAL ARRANGEMENT - FLARE TIP

SPECIALITY: MECHANICS SCALE: INDICATED SHEET 1 OF 1

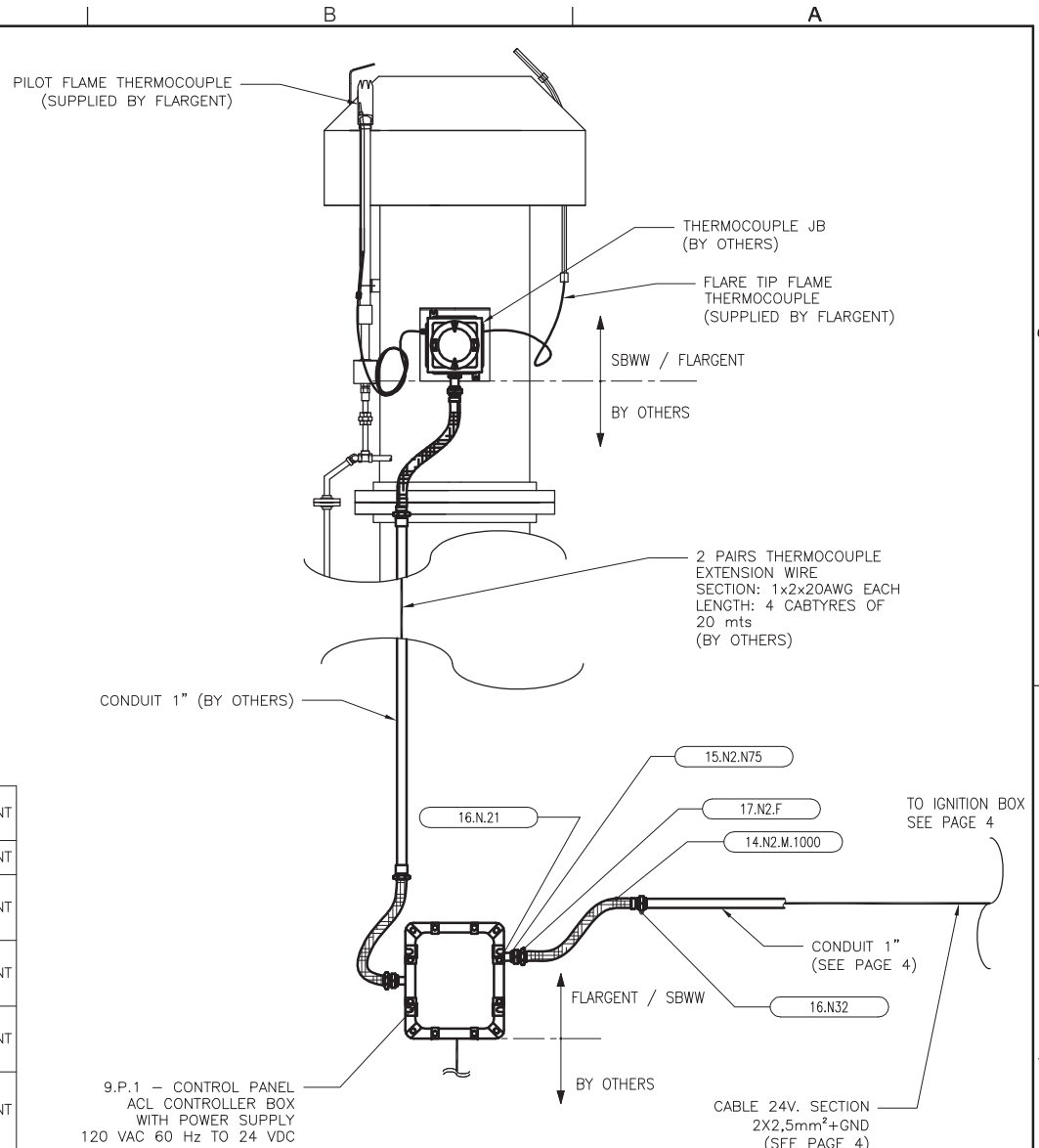
JOB N°: 1272 DOC. N°: 1272-M-RP-003 REV.: 1

INSTRUMENT LIST			
TAG	PI&D	EQUIPMENT	SKID
TE-001A/B	1272-F-PI-001	FL-3403	-
TE-002A/B	1272-F-PI-001	FL-3403	-

Note 1: materials for wire routing between thermocouple junction box and ACL controller box will be provided by others

17.N2.F	1	UNION FEMALE-FEMALE, 3/4"-NPT. MATERIAL: GALVANIZED STEEL CERTIFICATE: Ex(d) IIB+H2	SBWW / FLARGENT
16.N32	1	REDUCER, 1" x 3/4"-NPT. MATERIAL: GALVANIZED STEEL. CERTIFICATE: CSA - EXPLOSION PROOF	SBWW / FLARGENT
16.N.21	1	REDUCER, 3/4" x 1/2"-NPT. MATERIAL: GALVANIZED STEEL. CERTIFICATE: CSA - EXPLOSION PROOF	SBWW / FLARGENT
15.N2.N75	1	NIPLE, 3/4" x 3/8" NPT. MATERIAL: GALVANIZED STEEL	SBWW / FLARGENT
14.N2.M.1000	1	GALVANIZED STEEL CORRUGATED FLEXIBLE COUPLING WITH STAINLESS STEEL BRAIDED COVER, LIQUIDTIGHT, 3/4"-NPTM. LONGITUD: 1000mm. MALE-MALE ENDS. CERTIFICATE: CSA - EXPLOSION PROOF	SBWW / FLARGENT
9.P.1	1	ACL CONTROLLER BOX - 12/24 VDC. WITH TWO 1/2" NPT ACCESSSES (MINIMUM) FOR THERMOCOUPLE AND IGNITION POWER CABLE & 1" ACCESS FOR POWER CABLE. WITH POWER SUPPLY 120 VAC 60 Hz TO 24 VDC WEIDMÜLLER CP SNT 48W 12V 4A	SBWW / FLARGENT (ACL)
	1	JUNCTION BOX, WITH 12 CONNECTION TERMINALS, SIZE 2,5mm2, WITH LATERAL ACCESSSES SIZE 1/2"-NPT (MINIMUM 2 PER SIDE) AND LOWER ACCESSSES (MINIMUM 1) SIZE 1"-NPT. ALL NON USED ACCESSSES WITH PLUG. MATERIAL: ALUMINUM CASTING. PROTECTION DEGREE IP66. CERTIFICATE: CSA - EXPLOSION PROOF	OTHERS
	2 PAIRS	THERMOCOUPLE EXTENSION WIRE. SECTION: 1x2x20AWG (EACH PAIR). LENGTH: 30 mts (EACH CABTYRE)	OTHERS
ITEM	QTY	DESCRIPTION	SUPPLIED BY

BILL OF MATERIALS (THERMOCOUPLES)

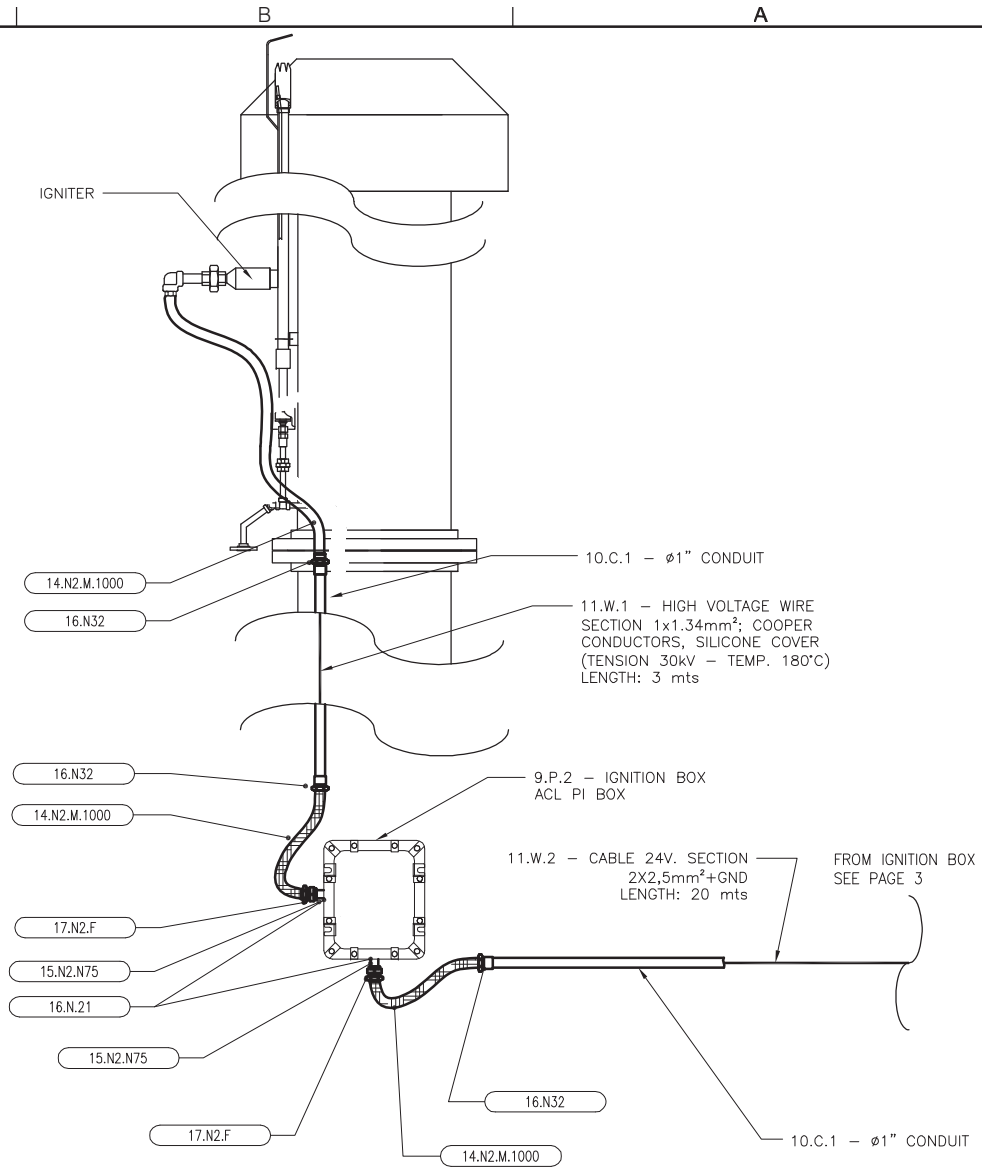


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CLIENT: Superior Boiler Works and Welding Limited			
JOB: M4391 Flare System Design & Build for Canada			
INSTRUMENT INSTALLATION DETAILS			
INSTRUMENTS			

INSTRUMENT LIST			
TAG	PI&D	EQUIPMENT	SKID

17.N2.F	2	UNION FEMALE-FEMALE, 3/4"-NPT. MATERIAL: GALVANIZED STEEL CERTIFICATE: CSA - EXPLOSION PROOF	SBWW / FLARGENT
16.N.32	3	REDUCER, 1" x 3/4"-NPT. MATERIAL: GALVANIZED STEEL. CERTIFICATE: CSA - EXPLOSION PROOF	SBWW / FLARGENT
16.N.21	2	REDUCER, 3/4" x 1/2"-NPT. MATERIAL: GALVANIZED STEEL. CERTIFICATE: CSA - EXPLOSION PROOF	SBWW / FLARGENT
15.N2.N75	2	NIIPLE, 3/4"x3"lg. MATERIAL: GALVANIZED STEEL	SBWW / FLARGENT
14.N2.M.1000	3	GALVANIZED STEEL CORRUGATED FLEXIBLE COUPLING WITH STAINLESS STEEL BRAIDED COVER, LIQUIDTIGHT, 3/4"-NPTM. LENGTH: 1000mm. MALE-MALE ENDS CERTIFICATE: CSA - EXPLOSION PROOF	SBWW / FLARGENT
11.W.1	3 m	HIGH VOLTAGE WIRE. SECTION 1x1,34mm ² ; COPPER CONDUCTORS, SILICONE COVER (TENSION 30kv - TEMP. 180°C).	SBWW / FLARGENT (ACL)
11.W.2	30 m	24V POWER CABLE. PVC INSULATED. 2X2,5mm ² OR 3X14AWG. PVC OUTLET JACKET.	SBWW / FLARGENT
10.C.1	30 m	CONDUIT SIZE 1". NPT ENDS. MATERIAL: RIGID GALVANIZED STEEL	SBWW / FLARGENT
9.P.2	1	REMOTE MOUNT KIT WITH BACKPAN, WIRING HARNESS, STRAIN RELIEFS AND IGNITION MODULE (ACL PI BOX). BOX WITH TWO 1/2" NPT ACCESSES (MINIMUM) FOR IGNITION POWER CABLE	SBWW / FLARGENT (ACL)
ITEM	QTY	DESCRIPTION	SUPPLIED BY

BILL OF MATERIALS (ELECTRICAL IGNITION)



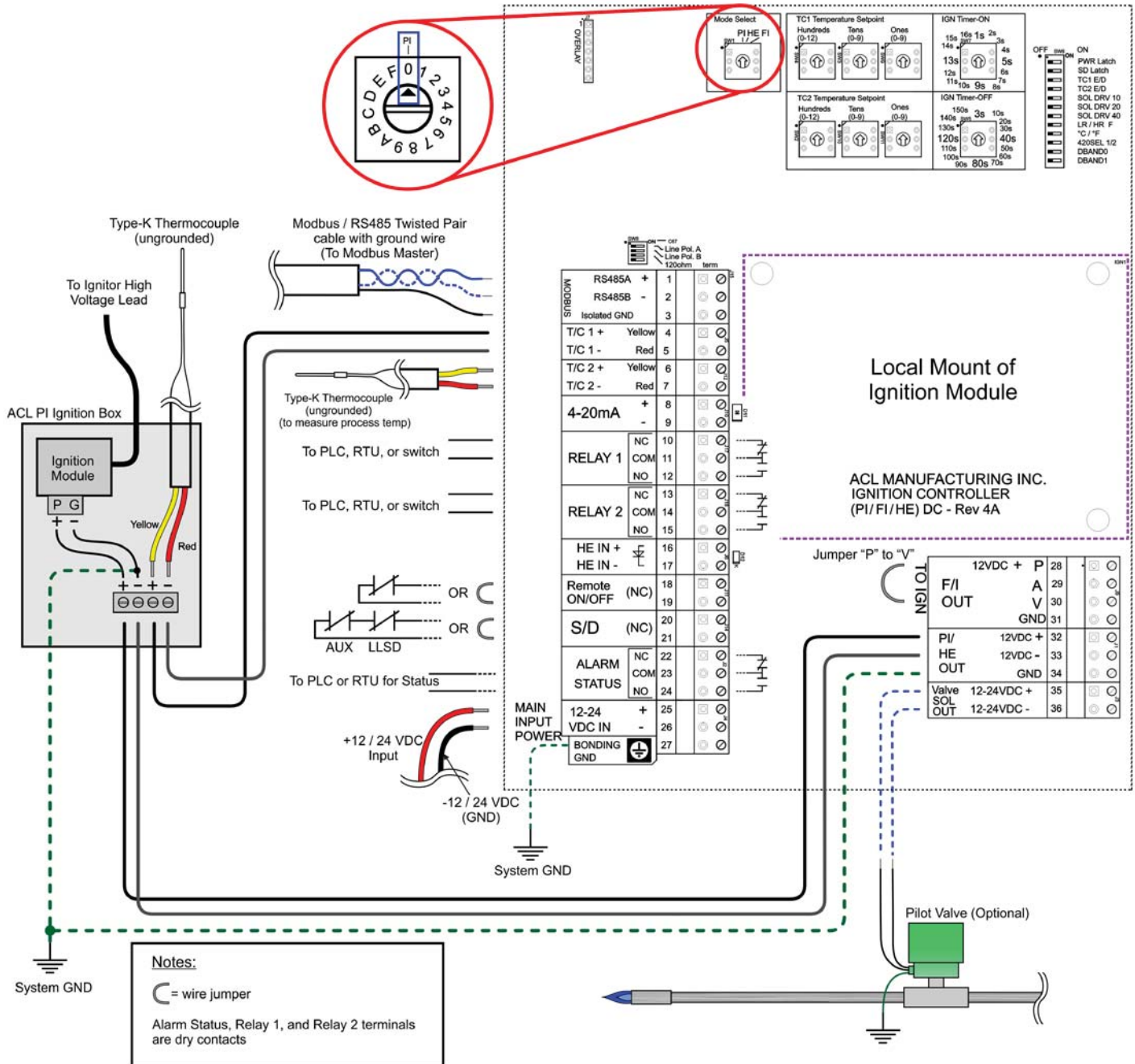
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CLIENT: Superior Boiler Works and Welding Limited			
JOB: M4391 Flare System Design & Build for Canada			
INSTRUMENT INSTALLATION DETAILS			
INSTRUMENTS			

Pilot Ignitor (PI) Connection Diagram

The following diagram shows the wiring connections for the ACL3200 Flare Stack / Incinerator Ignition System in PI mode.

Figure 5 - ACL3200 Wiring Diagram - PI Mode

ACL3200 Wiring Diagram - PI Mode





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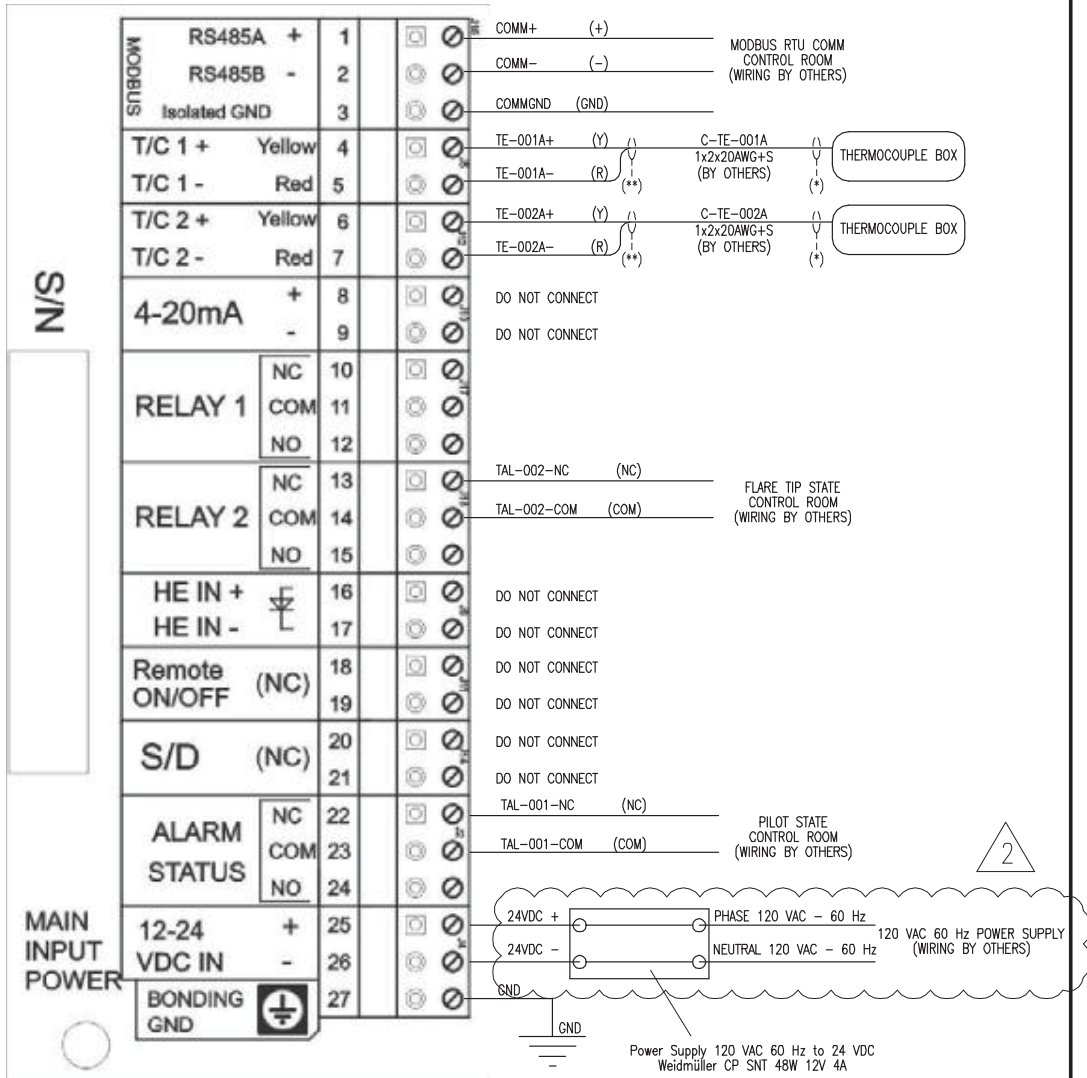
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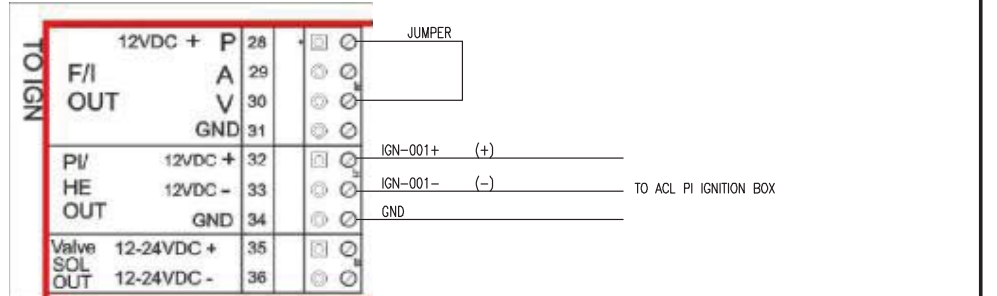
CONNECTION DIAGRAM

INSTRUMENT OR PANEL	CABLE TAG	CONDUCTOR NUMBER	TERMINAL NUMBER	CONDUCTOR NUMBER	CABLE TAG	INSTRUMENT OR PANEL
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ACL 3200 CONTROLLER



MAIN INPUT POWER





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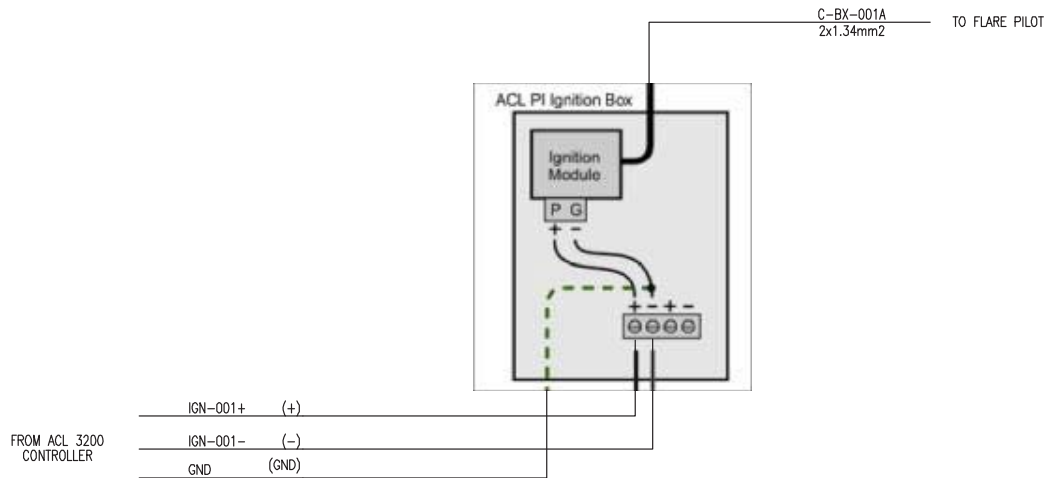
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CONNECTION DIAGRAM

INSTRUMENT OR PANEL	CABLE TAG	CONDUCTOR NUMBER	TERMINAL NUMBER	CONDUCTOR NUMBER	CABLE TAG	INSTRUMENT OR PANEL
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ACL PI IGNITION BOX





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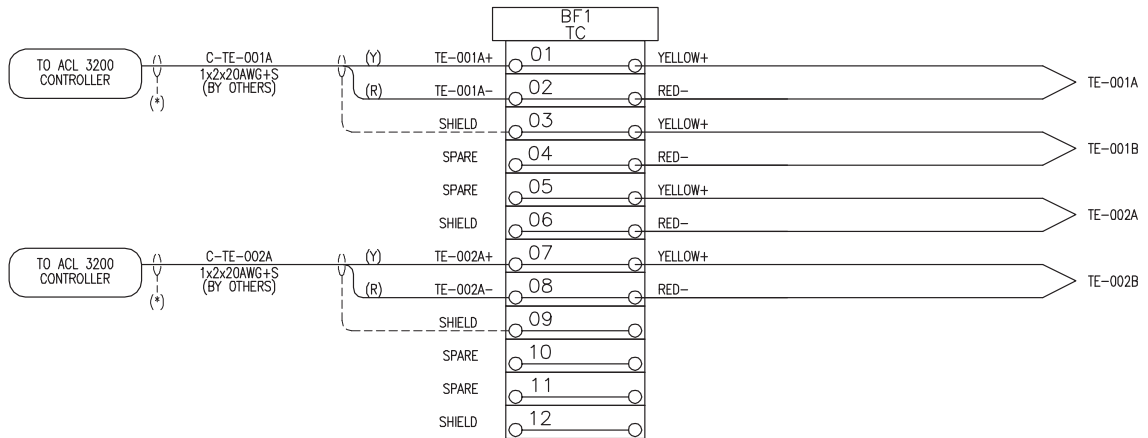
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CONNECTION DIAGRAM

INSTRUMENT OR PANEL	CABLE TAG	CONDUCTOR NUMBER	TERMINAL NUMBER	CONDUCTOR NUMBER	CABLE TAG	INSTRUMENT OR PANEL
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THERMOCOUPLE JUNCTION BOX (BY OTHERS)

THERMOCOUPLE SIGNALS





System Features

- CSA Approved C22.2 No 199-M89
- CSA Approved for Class I, Div 2 Locations
- 10-30 VDC operation
- Low power consumption for solar operation
- 4-20mA transmitter output
- Weatherproof enclosure
- No programming necessary
- On board adjustable timer for on/off settings
- Onboard scaled thermocouple adjustments with relay outputs
- Fail safe alarm output
- Modbus communication onboard
- Onboard solenoid drivers
- Stainless steel construction
- Fully retractable
- 1400lb winch and 5/32 SST aircraft hoisting cable

Pilot Ignition System Features

- Continuous gas pilot
- Air/Fuel mixer
- Automatic relight
- Alarm provided by thermocouple sensing

Flame Ignition System Features

- Continuous gas pilot
- Continuous spark
- Automatic relight
- Alarm sensing through flame ionization

Ignitor Only System Features

- Continuous high voltage
- Spark ignition
- No gas required, or where fuel gas is not available

High Energy System Features

- Continuous spark ignition
- Alarm provided by electronic sensing of spark integrity
- Ignitor sparks in extreme wet conditions
- No gas required

ACL 3200 PI /FI/ I / HE Ignition System

The ACL 3200 controller is configurable for our Pilot Ignition System (**PI**), Flame Ionization system (**FI**), Ignitor Only System (**I**), and our High Energy Sparking System (**HE**).

The **ACL 3200 Pilot Ignition System (PI)** is a continuous pilot which uses a high voltage spark to light the pilot. The pilot is then monitored by a thermocouple. The thermocouple is used for alarming purposes or to turn off the sparking when the pilot is lit.

The **ACL Flame Ionization System (FI)** uses a continuous pilot and high voltage sparker to light the pilot. It uses a single ignitor/flame rod to provide both flame acknowledgment and ignition. Maybe used with ACL 1500 pilot/flame rod assembly.

The **ACL 3200 Ignitor Only System (I)** is a continuous sparking system that provides a high voltage spark that will continually spark at a user defined interval set by an onboard timer. For use where pilot gas is not available

The **ACL 3200 High Energy System (HE)** is a continuous sparking system which uses a high energy excitor. There is no pilot required as this unit will continually spark at a user defined interval set by an onboard timer. For use in wet or severe service.

1430AC

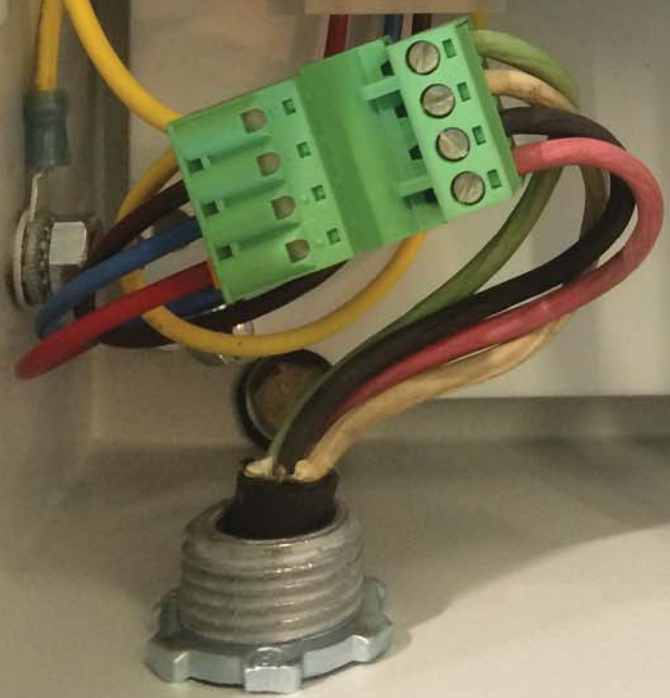
ACL
Manufacturing Inc.

FENWAL 35-530913-001
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TRIALS FOR IGNITION: ONE
ANSI Z21.20 - 2005
CAN/CSA-C22.2 NO.199-M89
INPUT: 12VDC 300mA.
VALVE: 12VDC 1.0A. MAX.
AUTOMATIC IGNITION SYSTEM



GROUND
VALVE
ALARM
POWER

HI-VOLTAGE
CAUTION



ACL Manufacturing Inc.
35-530913-001
FENWAL 35-530913-001
IGNITION TIME 5 SEC.
TRIALS FOR IGNITION: ONE
ANSI Z21.20 - 2005
CAN/CSA-C22.2 NO.199-M89
INPUT: 12VDC 300mA.
VALVE: 12VDC 1.0A. MAX.
AUTOMATIC IGNITION SYSTEM
UL
CSA
IN LINE