

OIL & GAS DEVELOPMENT COMPANY LIMITED
PROCUREMENT DEPARTMENT, ISLAMABAD
FOREIGN SECTION E

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material TRANSMITTERS (PRESSURE, FLOW, LEVEL, TEMPERATURE) FOR SRU OF DAKHNI PLANT
Tender Enquiry No PROC-FE/CB/P&P/DKN-3161/2017
Due Date
Evaluation Criteria FULL

SCHEDULE OF REQUIREMENT

Sr No	Description	Unit	Quantity	Unit Price (FOB)	Total Price (FOB)	Unit Price C & F BY AIR	Total Price C & F BY AIR	Deviated From Tender Spec. If Any
1	Level Transmitter, LT- 906, Model: ST 3000 Smart PT, Range: 0 – 200 Inch H2O, Serial No. 09288002460004, Span: 10–400 PSIG, Service: Sulfur Condenser, Process Limit: –40 to 125 Deg F, Make: Honeywell, USA.	Number	1					
2	BL-0901,0902, (FSS Flame Scanner Controller) Detail in long description	Number	1					
3	PT – 0907 (Pressure Transmitter) SIL – III, Detail in long description	Number	1					
4	PT– 0921 (Pressure Transmitter) SIL – II, Detail in long description	Number	1					
5	PT– 0952 (Pressure Transmitter) SIL – II, Detail in long description	Number	1					
6	FT / FE – 0905 (Flow Transmitter and Element) SIL – III, detail in long description	Number	1					
7	FT / FE – 0910 (Flow Transmitter and Element) SIL – III, detail in long description	Number	1					
8	Power Supply, Input: 200 – 240 VAC, Output: DC 24VDC / 20A, Model: 1606– XL, Make: Allen Bradley.	Number	1					
9	TT – 0912 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
10	TT – 0913 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
11	TT – 0914 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
12	BX-0901 (Ignition Transfarmor) detail in long description	Number	1					
13	HIC– 0905, (Integrated PID Controller) Detail in long description	Number	1					
14	TT – 0938 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
15	TT – 0937 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
16	TT – 0910 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
17	TT – 0911 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
18	TT – 0935 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
19	TT – 0940 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
20	TT – 0946 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
21	TT – 0915 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
22	TT – 0905 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
23	TT – 0906 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
24	TT – 0932 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					
25	TT – 0934 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1					

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Tender Enquiry No PROC-FE/CB/P&P/DKN-3161/2017
Due Date
Evaluation Criteria FULL

26	Level Transmitter, LT- 902, Model: ST 3000 Smart PT, Range: -5 - 100 Inch H2O, Serial No. 074107091406003, Span: 5-100 PSIG, Service: Acid Gas Scruber, Process Limit: -40 to 125 Deg F, Make: Honeywell, USA.	Number	1
27	Level Transmitter, LT- 903, SIL-III, Model: ST 3000 Smart PT, Range: 0 - 200 Inch H2O, Serial No. 092880021600003, Span: 10-400 PSIG, Service: Waste Heat Reclaimer, Process Limit: -40 to 125 Deg F, Make: Honeywell, USA.	Number	1
28	TT - 0947 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1
29	Power Supply, Input : 100 - 240 VAC, 50-60 Hz, 1.5 - 0.6A, OutPut : 24VDC, 5A, S.No. 0000039127, P/N: QUINT-PS/1AC/24DC/5, Rev.: 03, Order No. 2866750, Make: Phoenix Contact.	Number	2
30	Level Transmitter, LT- 901, SIL- III, Model: ST 3000 Smart PT, Range: 0 - 38 Inch H2O, Serial No. 092880021600006, Span: 10-400 PSIG, Service: Acid Gas Scruber, Process Limit: -40 to 125 Deg F, Make: Honeywell, USA.	Number	1
31	Level Transmitter, LT- 904, Model: ST 3000 Smart PT, Range: 0 - 200 Inch H2O, Serial No. 092880021600002, Span: 10-400 PSIG, Service: Waste Heat Reclaimer, Process Limit: -40 to 125 Deg F, Make: Honeywell, USA.	Number	1
32	Level Transmitter, LT- 905, SIL-III, Model: ST 3000 Smart PT, Range: 0 - 200 Inch H2O, Serial No. 092880024600005, Span: 10-400 PSIG, Service: Sulfur Condenser, Process Limit: -40 to 125 Deg F, Make: Honeywell, USA.	Number	1
33	TT - 0933 (Temperature Transmitter with Element and Thermowell) detail in long description	Number	1

Note:

- 1. Bid bond:** - Pursuant to tender clause # 2.2, 11.4, 13 & 35.3.2, bid bond amounting USD 1600/- (United States Dollars One thousand Six Hundred only) or equivalent in Pak Rupees should be submitted with the technical bid.
- 2. Shipment from ACU member Countries:** In case of shipment from ACU member countries, the LC beneficiary should be of that particular country from where the consignment is being shipped.
- 3. Terms and conditions:** -Bidders are advised to carefully read all the terms and conditions of the Tender Document available at OGDCL website in the master tender document and attached technical Terms & Conditions.
- 4.** Delivery period will be 120 days.
- 5.** Equivalent manufacturer can also be quoted against item with specific manufacturer.

Item: 2 (2)

BL-0901 & 0902

FSS Flame Scanner Controller .

S NO.	Description	Part No	UOM	Qty Req.
01	Remote Reset Module	S7820A1007	Nos	2
02	Metal 7800 Series Subbase	Q7800B1003	Nos	1
03	Flame Amplifier, Dynamic self check, 3sec FFRT, for Relay Module	R7824C1002	Nos	2
04	7800 Series Primary control - 24 VDC	RM7824A1006	Nos	2

Manufacturer : Honeywell or Equivalent

W. M. 2

Item #3

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PT - 0907

Pressure transmitter Data .

General Specifications.

Function : Transmit
 Indicate: Yes
 Case size : Manufacturer Standard
 Service: Low Pressure Steam
 Case Color : Manufacturer Standard
 Mounting : 2 - Inch Pipe mounting
 Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]
 Power supply : 24 VDC Loop Power
 Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Transmitter Output : Smart 4 – 20mA HART SIL - III
 Calibration Range : 0 - 50 PSIG
 Transmitter Range: Vendor to Advise
 Manifold : Integral manifold
 Line Size/ Schd. : 12" / Std. Wt. (0.373" Wall)

Element Specification :

Service : GAUGE PRESSURE
 FLUID: Process Air
 Element Type : Diaphragm
 Service: From Process Air Blowers to Acid Gas Burner Assembly.
 Material 316L SS
 Range : Adj. range , over range protection
 Process Connection : 1/2" FNPT
 Process connection location: others

OPTIONS

LCD METER : YES
 INTEGRAL MANIFOLD: YES
 Electrical Connections: 2 x M20 with "EEx d" Certified Plugs

Pressure @ Flow (PSIG).

Normal: 5.8 PSIG , Maximum : 10 PSIG , Design: 15 PSIG

Temperature (Degree F).

Normal: 223 Deg F , Maximum : 250 Deg F, Design : 300 Deg F

Notes:

As minimum transmitter shall have following material of construction.
 Body: 316 SS
 O - Ring : Glass filled TFE
 Fill Fluid: Silicon Oil
 Housing : Die Cast Al, epoxy coated

For Each transmitter, vendor shall provide the following:
 Integral LCD meter with user configurable engineering units.
 A permanently attached 316 SS Identification tag plate.
 2" Pipe mounting kit.

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Item # 3

(P-2/2)

Two electrical entries with flame proof plugs.

Material & Calibration certificate.

Pressure Transmitter shall be designed as per Doc no 1029-93-03-SP-001

Transmitter shall have:

Accuracy : $\pm 0.075\%$ of Calibrated span.

Range ability: 100 : 1

Stability: 0.125 % URL over the 5 years.

Pressure Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

M 25

PT - 0921 SIL - II

Item # (H)

(P-2)

Pressure Transmitter Data .

General Specifications.

Function : Transmit

Indicate: Yes

Case size : Manufacturer Standard

Service: Low Pressure Steam

Case Color : Manufacturer Standard

Mounting : 2 - Inch Pipe mounting

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Power supply : 24 VDC Loop Power

Transmitter Data:

Transmitter Output : Smart 4 – 20mA HART

Calibration Range : 0 - 125 PSIG

Transmitter Range: Vender to Advise

Manifold : Integral manifold

Line Size/ Schd. : 2" / SCH - 40

Element Specification :

Service : GAUGE PRESSURE

FLUID: Nitrogen

Element Type : Diaphragm

Service: Nitrogen

Material 316L SS

Range : Adj. range , over range protection

Process Connection : ½" FNPT

Process connection location: others

OPTIONS

LCD METER : YES

INTEGRAL MANIFOLD: YES

Electrical Connections: 2 x M20 with "EEx d" Certified Plugs

Pressure @ Flow (PSIG).

Normal: 100 PSIG , Maximum : 110 PSIG , Design: 150 PSIG

Temperature (Degree F).

Normal: 80 Deg F , Maximum : 122 Deg F, Design : 150 Deg F

Notes:

As minimum transmitter shall have following material of construction.

Body: 316 SS

O - Ring : Glass filled TFE

Fill Fluid: Silicon Oil

Housing : Die Cast Al, epoxy coated

For Each transmitter, vendor shall provide the following:

Integral LCD meter with user configurable engineering units.

A permanently attached 316 SS Identification tag plate.

2" Pipe mounting kit.

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Two electrical entries with flame proof plugs.

Material & Calibration certificate.

Pressure Transmitter shall be designed as per Doc no 1029-93-03-SP-001

Transmitter shall have:

Accuracy : $\pm 0.075\%$ of Calibrated span.

Range ability: 100 : 1

Stability: 0.125 % URL over the 5 years.

Pressure Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

Item # 4

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MR

165 # (5)

(B-11)

PT - 0952 SIL - II

Pressure Transmitter Data .

General Specifications.

Function : Transmit
 Indicate: Yes
 Case size : Manufacturer Standard
 Service: H.P Steam
 Case Color : Manufacturer Standard
 Mounting : 2 - Inch Pipe mounting
 Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "EExd" Class: I, Div II, Group: C & D.
 Power supply : 24 VDC Loop Power

Transmitter Data:

Transmitter Output : Smart 4 – 20mA HART SIL -II
 Calibration Range : 0 - 600 PSIG
 Transmitter Range: Vender to Advise
 Manifold : Integral manifold
 Line Size/ Schd. : 6" / SCH - 40

Element Specification :

Service : GAUGE PRESSURE
 FLUID: Steam
 Element Type : Diaphragm
 Service: H.P Steam
 Material 316L SS
 Range : Adj. range , over range protection
 Process Connection : ½ " FNPT
 Process connection location: others

OPTIONS

LCD METER : YES
 INTEGRAL MANIFOLD: YES
 Electrical Connections: 2 x M20 with "EEx d" Certified Plugs

Pressure @ Flow (PSIG).

Normal: 350 PSIG , Maximum : 489 PSIG , Design: 500 PSIG

Temperature (Degree F).

Normal: 436 Deg F , Maximum : 468 Deg F, Design : 500 Deg F

Notes:

As minimum transmitter shall have following material of construction.
 Body: 316 SS
 O - Ring : Glass filled TFE
 Fill Fluid: Silicon Oil
 Housing : Die Cast Al, epoxy coated

For Each transmitter, vendor shall provide the following:
 Integral LCD meter with user configurable engineering units.
 A permanently attached 316 SS Identification tag plate.

2" Pipe mounting kit.

Two electrical entries with flame proof plugs.

Material & Calibration certificate.

Pressure Transmitter shall be designed as per Doc no 1029-93-03-SP-001

Transmitter shall have:

Accuracy : $\pm 0.075\%$ of Calibrated span.

Range ability: 100 : 1

Stability: 0.125 % URL over the 5 years.

Pressure Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

(P-2/2)

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Item-(6)

(P: 1/3)

FT - 0905 & FE - 0905(SIL - III)

Flow transmitter Data .

General Specifications.

Function : Transmit:
Indicate: Yes
Case : Manufacturer Standard
Service: Flow
Case Color : Manufacturer Standard
Mounting : 304 SST 2 - Inch Pipe mounting
Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion
Proof: "Eexd" IIA / IIB
Power supply : 24 VDC Two Wire

Transmitter Data.

Safety Integrity Level : SIL - III

Transmitter Output : Smart 4 – 20mA HART
Service : Flow
Element Type : Diaphragm
Cover flanges and process connections Material: ASTM CF - 8M
Diaphragm Material: Hastelloy C - 278
Over Range Rating: 1.3 x maximum Pressure
Body Rating: As per Flanges.
Instrument Range : 0 ~ 50 In H2 O

Minimum Calibration Range : 0 - 10 In H2O

Instrument Span: 0 - 50 In H2O
Process Connection : ½ " NPTF

Options:

Manifold : 5 valve manifold
5 valve Manifold Model : Y53S
5 valve Manifold Model : Oliver Valves
Integral Sq. Rt. Ext. Yes
Integrator Yes
Electrical Connections: 1/2" NPT with "EEx d" certified plugs.

Flow.

Minimum : 41513.5 SCFH , Normal: 138378.3 SCFH , Maximum : 152216.2 SCFH

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Item - ⑤

(P-2/3)

Pressure @ Flow (PSIG).

Minimum : 2 PSIG , Normal: 6 PSIG , Maximum : 50 PSIG

Temperature (Degree F).

Minimum : 100 Deg F , Normal: 136 Deg F , Maximum : 160 Deg F

Flow element

ORIFICE PLATE

Concentric (square edge): Flow Measuring orifice

ISA Standard : ISO 5167-1

Bore: Maximum Rate

Material : 316SS

Ring Type : N/A

Manufacturer & Model Type: Vendor to Advise

ORIFICE FLANGES

Taps: Flange

Tap size: 1/2"NPTF

Type : Weld Neck

Material : 304 SS / 316 SS

Supply: Included

FLUID DATA

Tag No. FE - 0905

P & ID No. : 1029-09-06-DR-005

Service : Acid Gas Flow

Line number: 10"-AG- 09015-S10-3H

Fluid: Acid Gas

Fluid state: GAS

Normal flow: 138378.3 SCFH

Maximum flow : 152216.3 SCFH

Inlet pressure : @Base 14.697 PSIG ; @Flowing: 50 PSIG

Operating Temperature: @Base 60 Deg F ; @Flowing: 160 Deg F

Operating Specific Gravity : @ Base : 1.164 @ Flowing : 1.164

Operating Density : 0.093 lb/ft³

Mol. weight : 33.72

Signature
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(8 - 3/3)

Operating Viscosity : 0.0163 cp

Z-factor : 1

K-factor : 1.295

Base pressure : 14.697 PSIA ,

Base Temperature : 60 Deg F

METER

Type of meter : DIFFERENTIAL PRESSURE

Chart or scale range N / A

Diff range (in H2O): 0 - 20" WC

Static pressure Range: Vendor To Advise

Seal Specific Gravity at 15 Deg C: N/A

PLATE AND FLANGE

Beta ratio : 0.3 - 0.7

Orifice bore diameter (in.) : Vendor To Advise

Pipe dia (in) / Schedule : 10 " / SCH 40

Flange rating, material: ANSI 300#/FORGED Stl. ASTM A-105. RF

Vent or drain hole: type/size (in.): Drain /HOLD

Plate thickness (mm): Vendor To Advise

DP Calc. @ Process conditions (in H2O) : Vendor To Advise

Max Allowable Pressure Drop (in H2O) : Vendor To Advise

Quantity : 01

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Item # 7

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FT - 0910 & FE - 0910 (SIL - III)

Flow transmitter Data .

General Specifications.

Function : Transmit:
 Indicate: Yes
 Case : Manufacturer Standard
 Service: Flow
 Case Color : Manufacturer Standard
 Mounting : 304 SST 2 - Inch Pipe mounting
 Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "Eexd" IIA / IIB
 Power supply : 24 VDC Two Wire

Transmitter Data.

Safety Integrity Level : SIL - III

Transmitter Output : Smart 4 – 20mA HART
 Service : Flow
 Measurement Type : Diaphragm
 Cover flanges and process connections Material: ASTM CF - 8M
 Diaphragm Material: Hastelloy C - 278
 Over Range Rating: 1.3 x maximum Pressure
 Body Rating: As per Flanges.
 Instrument Range : 0 ~ 50 In H2 O

Minimum Calibration Range : 0 - 10 In H2O

Instrument Span: 0 - 50 In H2O
 Process Connection : 1/2" NPTF

Options:

Manifold : 5 valve manifold
 5 valve Manifold Model : Y53S
 5 valve Manifold Model : Oliver Valves
 Integral Sq. Rt. Ext. Yes
 Integrator Yes
 Electrical Connections: 1/2" NPT with "EEx d" certified plugs.

Flow.

Minimum : 41513.5 SCFH , Normal: 138378.3 SCFH , Maximum : 152216.2 SCFH

Pressure @ Flow (PSIG).

Minimum : 2 PSIG , Normal: 6 PSIG , Maximum : 50 PSIG

Temperature (Degree F).

Minimum : 100 Deg F , Normal: 136 Deg F , Maximum : 160 Deg F

Flow element

ORIFICE PLATE

Concentric (square edge): Flow Measuring orifice
 ISA Standard : ISO 5167-1
 Bore: Maximum Rate
 Material : 316SS

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Item # 7

P (2/2)

Ring Type : N/A
Manufacturer & Model Type: Vendor to Advise

ORIFICE FLANGES

Taps: Flange
Tap size: 1/2"NPTF
Type : Weld Neck
Material : 304 SS / 316 SS
Supply: Included

FLUID DATA

Tag No. FE - 0910
P & ID No. : 1029-09-06-DR-005

Service : Acid Gas Flow

Line number: 10"-AG- 09015-S10-3H

Fluid: Acid Gas

Fluid state: GAS

Normal flow: 138378.3 SCFH

Maximum flow : 152216.3 SCFH

Inlet pressure : @Base 14.697 PSIG ; @Flowing: 50 PSIG

Operating Temperature: @Base 60 Deg F ; @Flowing: 160 Deg F

Operating Specific Gravity : @ Base : 1.164 @ Flowing : 1.164

Operating Density : 0.093 lb/ft³
Mol. weight : 33.72

Operating Viscosity : 0.0163 cp

Z-factor : 1

K-factor : 1.295
Base pressure : 14.697 PSIA ,
Base Temperature : 60 Deg F

METER

Type of meter : DIFFERENTIAL PRESSURE

Chart or scale range N / A

Diff range (in H2O): 0 - 20" WC

Static pressure Range: Vendor To Advise

Seal Specific Gravity at 15 Deg C: N/A

PLATE AND FLANGE

Beta ratio : 0.3 - 0.7

Orifice bore diameter (in.) : Vendor To Advise

Pipe dia (in) / Schedule : 10 " / SCH 40

Flange rating, material: ANSI 300#/FORGED Stl. ASTM A-105. RF

Vent or drain hole: type/size (in.): Drain /HOLD

Plate thickness (mm): Vendor To Advise

DP Calc. @ Process conditions (in H2O) : Vendor To Advise

Max Allowable Pressure Drop (in H2O) : Vendor To Advise

Quantity : 01

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item # (9)

(8-12)

TT - 0912

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0912 , TE - 0912, TW - 0912

Service: Reactor Furnace

Line No. / Trim No : N/A

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor

FLUID: Sulfur Vapor

Fluid Velocity: 108.49 ft / sec

Density : 0.054 lb / ft³

Viscosity : 0.022 cp

Sensor Type : K - Type Thermocouple

Calibration : Thermocouple as per IEC standard

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Remote mounting

Range : Adj. range , over range protection

Process Connection : 1 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 300 Deg F , Normal : 404 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 1000 Deg F,

Thermowell .

Type : Well (U) 36" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 1" NPT,

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Item # (91)

(P-2/2)

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 1" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.
A permanently attached 316 SS Identification tag plate.
2" Pipe mounting kit.
Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

MDS

item # 10

(B-1/2)

TT - 0913

Temperature Transmitter Data

General Specifications.

Function : Transmit
Indicate: Yes
Case Dimension : Manufacturer Standard
Case Color : Manufacturer Standard
Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0913 , TE - 0913, TW - 0913
Service: Reactor Furnace
Line No. / Trim No : N/A
Transmitter Output : Smart 4 – 20mA HART
Electrical Connection: M 20 Female
Power supply : 24 VDC Loop Power
Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor
FLUID: Sulfur Vapor
Fluid Velocity: 108.49 ft / sec
Density : 0.054 lb / ft³
Viscosity : 0.022 cp

Sensor Type : K- Type Thermocouple
Calibration : Thermocouple as per IEC standard
Material : 316 SS Sheathed
Sensor outer diameter: Manufacturer Standard
Transmitter Mounting : Remote mounting
Range : Adj. range , over range protection
Process Connection : 1 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 400 Deg F , Normal : 569 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 1000 Deg F,

Thermowell .

Type : Well (U) 36" Drilled Bar Stock
Construction: Tapered
Thermowell Connections: 1" NPT,

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(16-#10)

(P-21)

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 1" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

- Transmitters shall be provided with LCD meter.
- A permanently attached 316 SS Identification tag plate.
- 2" Pipe mounting kit.
- Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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Item # 11

(P-1/2)

TT - 0914

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0914 , TE - 0914, TW - 0914

Service: Reactor Furnace

Line No. / Trim No : N/A

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor

FLUID: Sulfur Vapor

Fluid Velocity: 108.49 ft / sec

Density : 0.054 lb / ft3

Viscosity : 0.022 cp

Sensor Type : K - Type Thermocouple

Calibration : Thermocouple as per IEC standard

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Remote mounting

Range : Adj. range , over range protection

Process Connection : 1 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 400 Deg F , Normal : 569 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F, Maximum : 1000 Deg F,

Thermowell .

Type : Well (U) 36" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 1" NPT,

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(A-2/2)

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 1" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

- Transmitters shall be provided with LCD meter.
- A permanently attached 316 SS Identification tag plate.
- 2" Pipe mounting kit.
- Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

Item-12

Ignition Transformer.(BX-0901)

Description: Ignition Transformer
Part No : F06-SA6
Primary: 220, 50HZ, 175VA
Secondary: 6000V, 20mA
Manufacturer: Dongan (China) or Equivalent

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Item- 13

HIC – 0905 (Integrated PID Controller).

Part No : PM6C4FJ-ARFAAAA

Description: Integrated PID Controller

Power Supply : 12 to 40V (DC) and 20 to 28V(AC)

Analog inputs : 2

Analog Input 1: Thermocouple, RTD, Process (V, mV, mA, 1k Potentiometer)

Analog Input 2: Thermocouple, RTD, Process (V, mV, mA. 1k Potentiometer)

Analog Outputs : 2

Analog Output 1 : Universal process/ retransmit, output range selectable, 0 – 10 V (DC), 0 – 20 mA

Analog Output 2: universal process/ Retransmit, output range selectable, 0 – 10 V (DC), 0 – 20 mA

Discrete Inputs/ Outputs : 2

Discrete Inputs/ Outputs 1 : Digital input (or output) 1, selectable, Switch, Volts DC

Discrete Inputs/ Outputs 2 : Digital input (or output) 2, selectable, Switch, Volts DC

Relay Outputs : 1

Relay Outputs 1: Mechanical relay 5A, form A

Auxiliary control : Remote Set point (Enable)

Communication: EIA-485 Standard Bus

Manufacturer: Watlow or Equivalent

13

Item # (14)

(P-1)2

TT - 0938

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0938 , TE - 0938, TW, 0938

Line No. / Trim No : H-1901-3

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 1000 Deg F

Mounting Specification :

Service : Reactor Furnace

FLUID: Skin Temperature

Sensor Type : k - Type Thermocouple

Calibration : Thermocouple as per IEC standard

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : ½ " FNPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: Ambient , Normal : 400 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 1000 Deg F,

Thermowell .

Type : Drilled Bar Stock

Construction: Tapered

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 1" 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.
A permanently attached 316 SS Identification tag plate.
2" Pipe mounting kit.

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Material & Calibration certificate.

Item # 14

(1-2)

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

Note: T/ C should be spring loaded so that it maintains contact with the furnace shell when screwed into a 1" 3000 # full coupling.

W. Baker

Item # (75)

(P-1/2)

TT - 0937

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0937 , TE - 0937, TW - 0937

Service: Reactor Furnace

Line No. / Trim No : H-1901-3

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 3000 Deg F

Element Specification :

Service : Reactor Furnace

FLUID: Acid Gas

Sensor Type : K- Type Thermocouple

Calibration : Thermocouple as per IEC standard

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : ½ " FNPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 1800 Deg F , Normal : 2000 Deg F, Maximum : 2300 Deg F

Design Temperature (Degree F).

Minimum: 400 Deg F, Maximum : 3000 Deg F,

Thermowell .

Type : Well (U) 36" Drilled Bar Stock

Construction: Tapered

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 6" RF 150 #

Notes:

For Each transmitter, vendor shall provide the following:

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item # (15)

(P-712)

Transmitters shall be provided with LCD meter.
A permanently attached 316 SS Identification tag plate.
2" Pipe mounting kit.
Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

Note: Special thermocouple for sulfur plant (for clause thermal reactors) shall be used, e.g Delta controls Corp HTP model.

W. M. S.

TT - 0910

Item #16

(8-15)

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0910 , TE - 0910, TW - 0910

Service: Reactor Furnace

Line No. / Trim No : N / A

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor

FLUID: Sulfur Vapor

Sensor Type : K - Type Thermocouple

Calibration : Thermocouple as per IEC standard

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Remote mounting

Range : Adj. range , over range protection

Process Connection : 1 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 300 Deg F , Normal : 404 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 1000 Deg F,

Thermowell .

Type : Well (U) 36" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 1" NPT,

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 1" NPT 3000 #

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Item # (16)

(8-2/2)

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.

A permanently attached 316 SS Identification tag plate.

2" Pipe mounting kit.

Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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Item# (17)

(P-1/2)

TT - 0911

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0911 , TE - 0911, TW - 0911

Service: Reactor Furnace

Line No. / Trim No : N/A

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor

FLUID: Sulfur Vapor

Fluid Velocity: 108.49 ft / sec

Density : 0.054 lb / ft3

Viscosity : 0.022 cp

Sensor Type : K - Type Thermocouple

Calibration : Thermocouple as per IEC standard

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Remote mounting

Range : Adj. range , over range protection

Process Connection : 1 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 300 Deg F , Normal : 404 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 1000 Deg F,

Thermowell .

Type : Well (U) 36" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 1" NPT,

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17

Item # (17)

(P. 2/2)

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 1" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.

A permanently attached 316 SS Identification tag plate.

2" Pipe mounting kit.

Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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Item # (18)

(P-12)

TT - 0935

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0935 , TE - 0935, TW - 0935

Service: Reactor

Line No. / Trim No : 16"-SV-09030-S10-3H

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 550 Deg F

Element Specification :

Service : Sulfur Condenser

FLUID: Sulfur Vapor

Fluid Velocity: 106.13 ft / sec

Density : 0.048 lb / ft³

Viscosity : 0.018 cp

Sensor Type : Resistance Temperature Detector PT 100 (- 50 – 350 °C)

Calibration : Single element 3 wire, Class A IEC 751

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : 3/4 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 200 Deg F , Normal : 263 Deg F, Maximum : 650 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 750 Deg F,

Thermowell .

Type : Well (U) 14" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 3/4" NPT,

Instrument Connections: 1/2" NPTF

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(P-2/2)

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 3/4" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

- Transmitters shall be provided with LCD meter.
- A permanently attached 316 SS Identification tag plate.
- 2" Pipe mounting kit.
- Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

Notes

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(P-112)

TT - 0940

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]
Div II, Group: C & D.

Explosion Proof: "EExd" Class: I,

Transmitter Data:

Tag No. : TT - 0940 , TE - 0940, TW - 0940

Service: MP Steam De-Super heater

Line No. / Trim No : 3"-ST-09436-A12-2H

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor

FLUID: Sulfur Vapor

Fluid Velocity: 18.42 ft / sec

Density : 59.596 lb / ft³

Viscosity : 0.268 cp

Sensor Type : Resistance Temperature Detector PT 100 (- 50 – 350 °C)

Calibration : Single element 3 wire, Class A IEC 751

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

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P(2/2)

Range : Adj. range , over range protection

Process Connection : 3/4 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 300 Deg F , Normal : 439 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 750 Deg F,

Thermowell.

Type : Well (U) 14" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 3/4" NPT,

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 3/4" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.

A permanently attached 316 SS Identification tag plate.

2" Pipe mounting kit.

Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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Item # (20)

(P-71)

TT - 0946

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0946 , TE - 0946, TW - 0946

Service: Acid Gas to Burner

Line No. / Trim No : 16"-SV-09028-S10-4H

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 250 Deg F

Element Specification :

Service : Acid Gas to Burner

FLUID: Acid Gas

Fluid Velocity: 70.82 ft / sec

Density : 0.083 lb / ft³

Viscosity : 0.016 cp

Sensor Type : Resistance Temperature Detector PT 100 (- 50 – 350 °C)

Calibration : Single element 3 wire, Class A IEC 751

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : 3/4 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 100 Deg F , Normal : 225 Deg F, Maximum : 264Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 350 Deg F,

Thermowell .

Type : Well (U) 11" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 3/4" NPT,

Instrument Connections: 1/2" NPTF

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Item # 20

(B-2/2)

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 3/4" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

- Transmitters shall be provided with LCD meter.
- A permanently attached 316 SS Identification tag plate.
- 2" Pipe mounting kit.
- Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).



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TT - 0915

Temperature Transmitter Data

General Specifications.

Function : Transmit
Indicate: Yes
Case Dimension : Manufacturer Standard
Case Color : Manufacturer Standard
Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0915 , TE - 0915, TW - 0915
Service: Reactor Furnace
Line No. / Trim No : N/A
Transmitter Output : Smart 4 – 20mA HART
Electrical Connection: M 20 Female
Power supply : 24 VDC Loop Power
Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor
FLUID: Sulfur Vapor
Fluid Velocity: 108.49 ft / sec
Density : 0.054 lb / ft³
Viscosity : 0.022 cp

Sensor Type : K - Type Thermocouple
Calibration : Thermocouple as per IEC standard
Material : 316 SS Sheathed
Sensor outer diameter: Manufacturer Standard
Transmitter Mounting : Remote mounting
R: Adj. range , over range protection
Process Connection : 1 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 400 Deg F , Normal : 569 Deg F, Maximum : 750 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F, Maximum : 1000 Deg F,

Thermowell .

Type : Well (U) 36" Drilled Bar Stock
Construction: Tapered
Thermowell Connections: 1" NPT,

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TC-#21 (8-2/2)

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 1" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.

A permanently attached 316 SS Identification tag plate.

2" Pipe mounting kit.

Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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Item-

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TT-0905

Temperature Transmitter Data

Calibrated range: 400 - 3000 Degree F

Out put: 4 - 20mA corresponding to 400 - 3000 Degree F

Emissivity adjustment : Digital emissivity switch with the range of 0.01 - 0.99

Housing: Suitable for class 1, Division 2, Group A,B,C & D T4A, Outdoor,
Weather proof

Mounting: Mounts directly to 2" 150 # RF Flange

Accessories : SOF-1(Swing-out Fixture)

VP-10 (Viewport)

BUP-10/ COP-10 Combination:

BUP-10 (Back-Up Probe) assembly With type **K** thermocouple
including

Thermocouple adapter assembly with packing gland (standard
length is 5'-0")

Model KTC-1 portable digital thermocouple display.

Services conditions:

Furnace Pressure : Minimum: 01 PSIG , Maximum: 14 PSIG

Furnace Temperature: Minimum 1800 Deg F , Maximum : 2300 Deg F

Ambient Temperature: Minimum 32 Deg F , Maximum : 122 Deg F

Manufacturer : Mikron/E² TECHNOLOGY or Equivalent

4475 Du Pont Court#9, Ventura, CA 93003 (805) 644-9544

MAKE & MODEL NO: Pulsar II 7000SR - EXP-B/C

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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TT-0906

Temperature Transmitter Data

Calibrated range: 400 - 3000 Degree F

Out put: 4 - 20mA corresponding to 400 - 3000 Degree F

Emissivity adjustment : Digital emissivity switch with the range of 0.01 - 0.99

Housing: Suitable for class 1, Division 2, Group A,B,C & D T4A, Outdoor,
Weather proof

Mounting: Mounts directly to 2" 150 # RF Flange

Accessories : SOF-1(Swing-out Fixture)

VP-10 (Viewport)

BUP-10/ COP-10 Combination:

BUP-10 (Back-Up Probe) assembly With type **K** thermocouple
including

Thermocouple adapter assembly with packing gland (standard
length is 5'-0")

Model KTC-1 portable digital thermocouple display.

Services conditions:

Furnace Pressure : Minimum: 01 PSIG , Maximum: 14 PSIG

Furnace Temperature: Minimum 1800 Deg F , Maximum : 2300 Deg F

Ambient Temperature: Minimum 32 Deg F , Maximum : 122 Deg F

Manufacturer : Mikron/E² TECHNOLOGY or Equivalent

4475 Du Pont Court#9, Ventura, CA 93003 (805) 644-9544

MAKE & MODEL NO: Pulsar II 7000SR - EXP-B/C

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).



Item # (24)

(8-1/2)

TT - 0932

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0932 , TE - 0932, TW - 0932

Service: Sulfur Condenser

Line No. / Trim No : 16"-SV-09018-S10-3H

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 500 Deg F

Element Specification :

Service : Sulfur Condenser

FLUID: Sulfur Vapor

Fluid Velocity: 93.74 ft / sec

Density : 0.063 lb / ft³

Viscosity : 0.019 cp

Sensor Type : Resistance Temperature Detector PT 100 (- 50 – 350 °C)

Calibration : Single element 3 wire, Class A IEC 751

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : 3/4 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 270 Deg F , Normal : 303 Deg F, Maximum : 650 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 750 Deg F,

Thermowell.

Type : Well (U) 14" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 3/4" NPT,

Instrument Connections: 1/2" NPTF

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Thermowell Material : 316 SS

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(8-2/2)

Process connection (size, Type & Rating) : 3/4" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.
A permanently attached 316 SS Identification tag plate.
2" Pipe mounting kit.
Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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(P-112)

TT - 0934

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0934 , TE - 0934, TW - 0934

Service: Sulfur Condenser

Line No. / Trim No : 16"-SV-09026-S10-3H

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 750 Deg F

Element Specification :

Service : Reactor

FLUID: Sulfur Vapor

Fluid Velocity: 99.04 ft / sec

Density : 0.052 lb / ft3

Viscosity : 0.019 cp

Sensor Type : Resistance Temperature Detector PT 100 (- 50 – 350 °C)

Calibration : Single element 3 wire, Class A IEC 751

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : 3/4 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 200 Deg F , Normal : 267 Deg F, Maximum : 650 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 750 Deg F,

Thermowell.

Type : Well (U) 14" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 3/4" NPT,

Instrument Connections: 1/2" NPTF

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Thermowell Material : 316 SS

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(P-2/2)

Process connection (size, Type & Rating) : 3/4" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

- Transmitters shall be provided with LCD meter.
- A permanently attached 316 SS Identification tag plate.
- 2" Pipe mounting kit.
- Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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Item-

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(P-1,2)

TT - 0947

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum] Explosion
Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0947 , TE - 0947, TW - 0947

Service: Acid Gas from Scrubber

Line No. / Trim No : 16"-SV-09028-S10-4H

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 250 Deg F

Element Specification :

Service : Acid Gas from Scrubber

FLUID: Acid Gas

Fluid Velocity: 60.10 ft / sec

Density : 0.110 lb / ft³

Viscosity : 0.014 cp

Sensor Type : Resistance Temperature Detector PT 100 (- 50 – 350 °C)

Calibration : Single element 3 wire, Class A IEC 751

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W # 28

(P-22)

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : 3/4 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 100 Deg F , Normal : 136 Deg F, Maximum : 160 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F , Maximum : 250 Deg F,

Thermowell .

Type : Well (U) 11" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 3/4" NPT,

Instrument Connections: 1/2" NPTF

Thermowell Material : 316 SS

Process connection (size, Type & Rating) : 3/4" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

- Transmitters shall be provided with LCD meter.
- A permanently attached 316 SS Identification tag plate.
- 2" Pipe mounting kit.
- Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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TT - 0933

Temperature Transmitter Data

General Specifications.

Function : Transmit

Indicate: Yes

Case Dimension : Manufacturer Standard

Case Color : Manufacturer Standard

Enclosure Class: [General Purpose : Weather Proof, IP65 Minimum]

Explosion Proof: "EExd" Class: I, Div II, Group: C & D.

Transmitter Data:

Tag No. : TT - 0933 , TE - 0933, TW - 0933

Service: Sulfur Condenser

Line No. / Trim No : 16"-SV-09019-S10-3H

Transmitter Output : Smart 4 – 20mA HART

Electrical Connection: M 20 Female

Power supply : 24 VDC Loop Power

Temperature Range: 0 - 550 Deg F

Element Specification :

Service : Sulfur Condenser

FLUID: Sulfur Vapor

Fluid Velocity: 94.77 ft / sec

Density : 0.056 lb / ft³

Viscosity : 0.019 cp

Sensor Type : Resistance Temperature Detector PT 100 (- 50 – 350 °C)

Calibration : Single element 3 wire, Class A IEC 751

Material : 316 SS Sheathed

Sensor outer diameter: Manufacturer Standard

Transmitter Mounting : Integral mounting

Range : Adj. range , over range protection

Process Connection : 3/4 " NPT

Process Data:

Over range Protection: 1.5 x Max Range

Operating Temperature (Degree F)

Minimum: 200 Deg F , Normal : 283 Deg F, Maximum : 650 Deg F

Design Temperature (Degree F).

Minimum: -- Deg F, Maximum : 750 Deg F,

Thermowell .

Type : Well (U) 14" Drilled Bar Stock

Construction: Tapered

Thermowell Connections: 3/4" NPT,

Instrument Connections: 1/2" NPTF

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Thermowell Material : 316 SS

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(P-2/2)

Process connection (size, Type & Rating) : 3/4" NPT 3000 #

Notes:

For Each transmitter, vendor shall provide the following:

Transmitters shall be provided with LCD meter.
A permanently attached 316 SS Identification tag plate.
2" Pipe mounting kit.
Material & Calibration certificate.

Temperature Transmitters should be designed for Sour Service as per NACE-MR-0175 (Latest Edition).

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