



# **INSTRUCTION MANUAL**

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**BALDWIN<sup>TM</sup> - Series**  
**HEATED FILTER PROBES**  
**CLASS I DIVISION 1 SERIES**  
**Models 33XP & 34XP**

Version 4.12

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# A: SPECIFICATIONS

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## General Specifications

Probe	18" Stinger probe, 0.5" dia x .065" wall, 316L SS tubing
Calibration	Integral calibration on both sides of filter element
Heater Jacket	External regulated
Connections	1/4" male pipe nipple mount; 1/2" male pipe thread adapter
Connectors	1/4" cal gas, 1/4" sample line, 1/4" compressed air
Thermocouple	Type K
O-rings	Viton®
Gaskets	Graphoil
Dimensions	7.5 x 7.5 x 10.6 in. HWD (w/o Stinger probe) 19 x 19 x 27 cm HWD
Weight	30 lbs 14 kg

## Operating Specifications

Calibration Gas	20 psig, 6-10 LPM
Probe Operating Temp	375°F (190°C)
Input Voltage	110 (220 optional) VAC, 50/60 Hz

## Material Specifications

Enclosure Material	UL® Classified Class I Division 1 Groups B, C & D Aluminum
Heater Type	Silicone rubber blanket with snap closures, 100W
Heater Insulation	1/4" thick silicone, medium density
Filter Chamber	316 stainless steel
Filter Element	10 micron sintered SS (standard) 5, 20 micron sintered SS 2 micron ceramic 2 micron SS screen mesh
Enclosure Material	UL® Classified Class I Division 1 Groups B, C & D Aluminum

## Blowback System Specifications (Model 34XP)

Blowback Solenoid (Mounted Internally)	Single direct; 2-way solenoid blowback / calibration valve
Blowback Tank (Mounted Externally)	16 ga. SS, 4" x 8", leak checked, pressure tested
Instrument Air for Blowback	Min 50 psig, Max 90 psig

# **B: LIMITED WARRANTY**

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## **PERMA PURE LLC. LIMITED WARRANTY**

Perma Pure LLC., hereafter referred to as PPI, warrants to the original purchaser that the material and workmanship of its supplied products shall be free of defects and will be manufactured with materials of construction chosen to provide maximum service life against corrosion. This expressed warranty is for a period of 9 months from date of installation by others, or 12 months from shipment from Perma Pure LLC, Toms River, NJ; whichever occurs first. If any part is returned by the purchaser, at his expense, to PPI and in the sole judgment of PPI, that part has failed due to material or workmanship, PPI will replace that part with a new and like part at no cost to the purchaser and the return shipping costs will be paid for by PPI.

In the case of OEM purchases, PPI expects the OEM to act as a first echelon service organization. This entails all customer contact, removal, shipment, and replacement of the defective product at the expense of the OEM. PPI will honor costs only to the extent listed in paragraph one above.

For major sub-assemblies not manufactured by Perma Pure but supplied by a vendor, PPI limits its warranty liability to written warranty extended by the vendor. Under no circumstances will PPI give an unlimited warranty to parts or assemblies subject by the application to gas or solids corrosion or excessive mechanical wear due to high temperature operation. PPI does not warranty consumable items such as filter elements, diaphragm pump internal parts (diaphragms, check valves, disks, etc), electrical fuses, thermal control elements, thermal heating elements, "O" Rings, seals, Air Dryer elements.

PPI cannot warranty against operator error resulting in damaged components or operator deficiencies resulting in gross System failure or catastrophic cessation of operation.

All warranty repairs will be conducted at Perma Pure's facility in Toms River, NJ; and on parts returned by the purchaser at his shipping expense. There will be no charge for labor or materials for warranty repair and/or replacement at PPI's facility. If the warranty repair is undertaken in the field at the request of the purchaser and the part or assembly is judged to have failed due to defects in material and/or workmanship, then the labor and portal to portal transportation cost will be chargeable to the purchaser at the current rates in effect at the time of the warranty repair. The replacement part will be at no charge for a PPI manufactured component, and at the limited warranty replacement policy noted above for any vendor supplied parts or assemblies.

The repair or replacement of defective components shall constitute the sole remedy of the purchaser and the sole liability of Perma Pure. There shall be no responsibility by PPI for loss of time of operation, consequential damages, fines or citations due to system down time, or the expense of replacing said components at the job site by personnel other than a PPI employee, or hired service representative.

This warranty is invalidated if the purchaser fails to pay for PPI products and sub-systems on a timely basis outside of PPI's Net Terms, or if the purchaser fails to maintain the components of the products to proper specifications. Proof of periodic maintenance requirements are demonstrated satisfactorily with daily Operator Check Sheets filled out from start up date to date of component failure.

Any unauthorized modifications to PPI products or components within a vendor-supplied system shall also invalidate this warranty.

## C: PRINCIPLE OF OPERATION

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The Baldwin™-Series Models 33XP & 34XP Class I Division 1 Heated Filter Probe is designed to be mounted on a stack or duct in low particulate applications. Its primary function is to provide a heated environment to maintain sample gas temperatures above dew point and remove particulate material from the gas sample. The 33XP & 34XP feature a standard 10 micron sintered stainless steel filter element, a self regulated heater jacket, an integral calibration gas port on both sides of the filter element, and a UL® Classified Class I, Division 1 Groups B, C & D enclosure.



### Mounting

The 33XP & 34XP is designed to be mounted directly on a stack or duct with a 1¼" Schedule 40 male pipe nipple. This pipe nipple can be screwed into a standard ASA flange, either flat or raised face. The probe boot can be heat shrunk to the sample line to eliminate cold spots.

### Calibration

To operate calibration gas to the probe, open the user supplied calibration gas control valve, adjust the cylinder pressure to >25 psig, and adjust the calibration gas flow rate to approximately 20% above the highest gas sample flow rate.



# D: MAINTENANCE

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The 33XP & 34XP does not require routine maintenance for the filter assembly or heater jacket.

The filter element requires periodic replacement, depending upon application and dust loading. See the attached spare parts list for replacement elements.

If the 33XP or 34XP is used in conjunction with the Baldwin™-Series Flow Control Drawer, monitoring the sample vacuum will warn the operator when to change the filter element. The operator should log the beginning sample vacuum when the system is first started up.

If the sample vacuum is consistently 25% higher than at start-up, the operator should replace the filter element with a new filter. Visual inspection will also confirm the condition of the filter element.

# E: TROUBLESHOOTING

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<i>Symptom</i>	<i>Check</i>	<i>Action</i>
120 VAC heater jacket is not heating	Check the resistance between the black and white wires (tied together) and the blue wire. Resistance should be between 100-130 ohms together or from 230-250 ohms for each leg.	If the measure is open for heater resistance the fusible link has blown and the jacket should be replaced.
220 VAC heater jacket is not heating	Check the resistance between the black and white power wires using an ohmmeter. Resistance should be between 460-480 ohms.	If the measure is open for heater resistance, the fusible link has blown and the jacket should be replaced.
Filter plug cannot be removed from filter housing	Check "O" rings for damage  High particulate loading	Replace "O" rings  Clean the "O" ring sealing surfaces with a clean towel prior to reassembly.

**For further service assistance, contact:**

Perma Pure LLC  
P.O. Box 2105  
8 Executive Dr  
Toms River, NJ 08754  
Tel: 800-337-3762 (toll free U.S.)  
Tel: 732-244-0010  
Fax: 732-244-8140  
Email: [info@permapure.com](mailto:info@permapure.com)  
or your local representative

# F: SPARE PARTS

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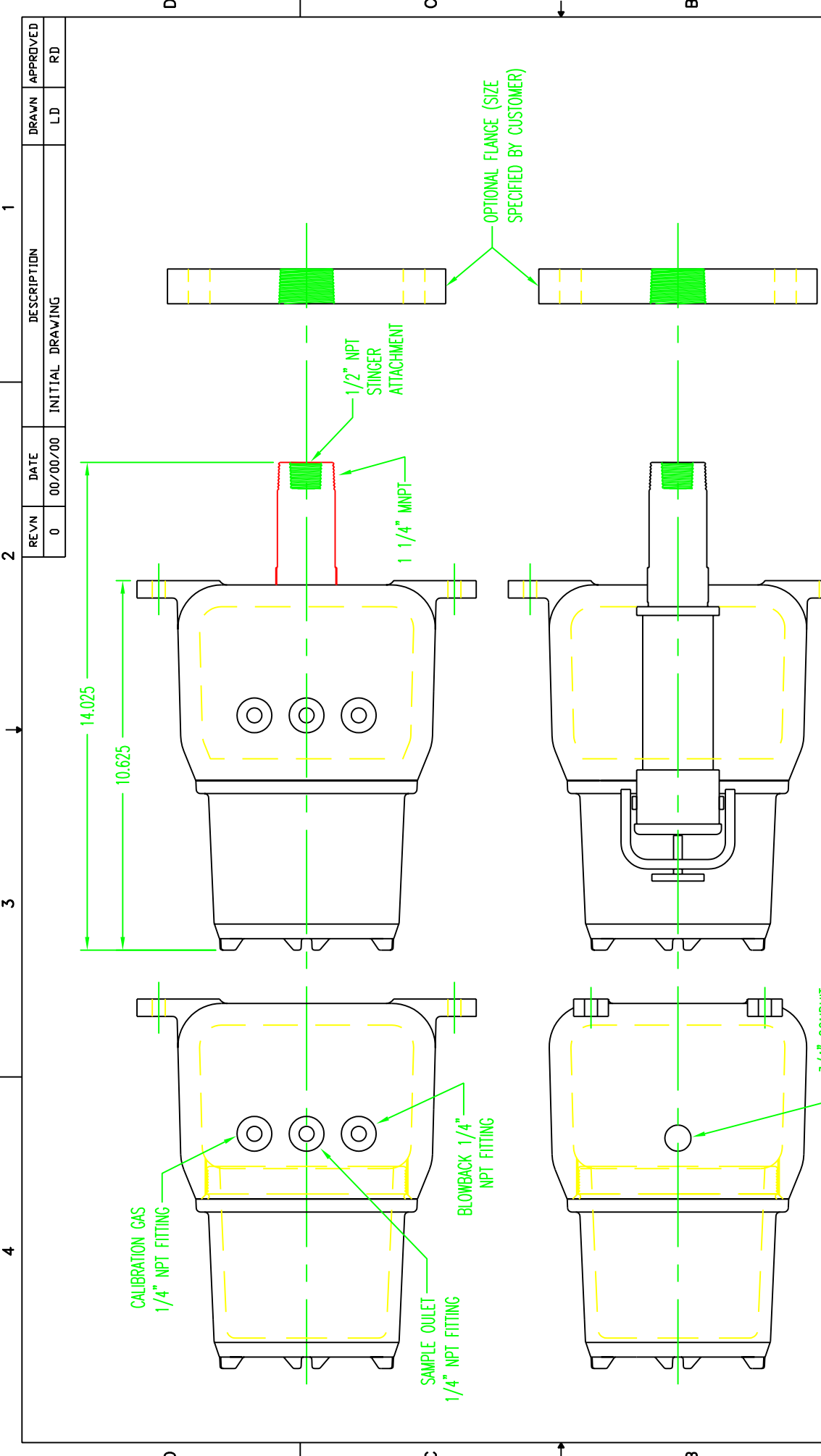
## Models 33XP & 34XP (Part Number 4P-33XP and 4P-34XP)

Part No.	Description
3FES-015PK	Filter Element Seals: Silicone, Used w/ Screen Mesh 3FES-010 (10 pack)
3FES-010	Filter Element: 316L SS Screen Mesh, 2.0 Micron
3FES-004	Filter Element: 316L SS, 1.25" x 2.975", 10 Micron
3FES-003	Filter Element: 316L SS, 1.25" x 2.975", 20 Micron
3FES-005	Filter Element: 316L SS, 1.25" x 2.975", 5 Micron
3FEC-002	Filter Element: Ceramic 2 Micron
3FEG-001	Filter Element: Glass, 0.1 Micron
3FEG-003	Filter Element: Glass/TFE Coated, 0.7 Micron
4P-FLANGE2	Flange: 2", 150# with Gasket & Bolts
4P-FLANGE3	Flange: 3", 150# with Gasket & Bolts
4P-FLANGE4	Flange: 4", 150# with Gasket & Bolts
4P-FLANGE6	Flange: 6", 150# with Gasket & Bolts
4P-GCS-212	Gas Cooling Spool Piece: w/ 2" Flanges & 12" Spool
4P-GCS-312	Gas Cooling Spool Piece: w/ 3" Flanges & 12" Spool
4P-GCS-412	Gas Cooling Spool Piece: w/ 4" Flanges & 12" Spool
3PAM-006PK	Gasket: Graphoil 1.25" (10 pack)
3PAM-031PK	O-Ring: Pack, Viton, "C" series probes only, 5 ea 1 $\frac{7}{8}$ " OD, 2 $\frac{1}{4}$ " OD
3PHH-003	Heat Jacket, Wire-Wound w/ Thermostat & Thermal Fuse ("C" series only)
4P-STNG-STD	Stinger, Replacement: 18", 316L SS, $\frac{1}{2}$ " x 0.065"w
2VS2-007	Valve: Solenoid, 2 Way, 120VAC/60Hz, 100 psig, Hi Temp
2VS2-006	Valve: Solenoid, 2 Way, 220VAC/50Hz, 100 psig, Hi Temp



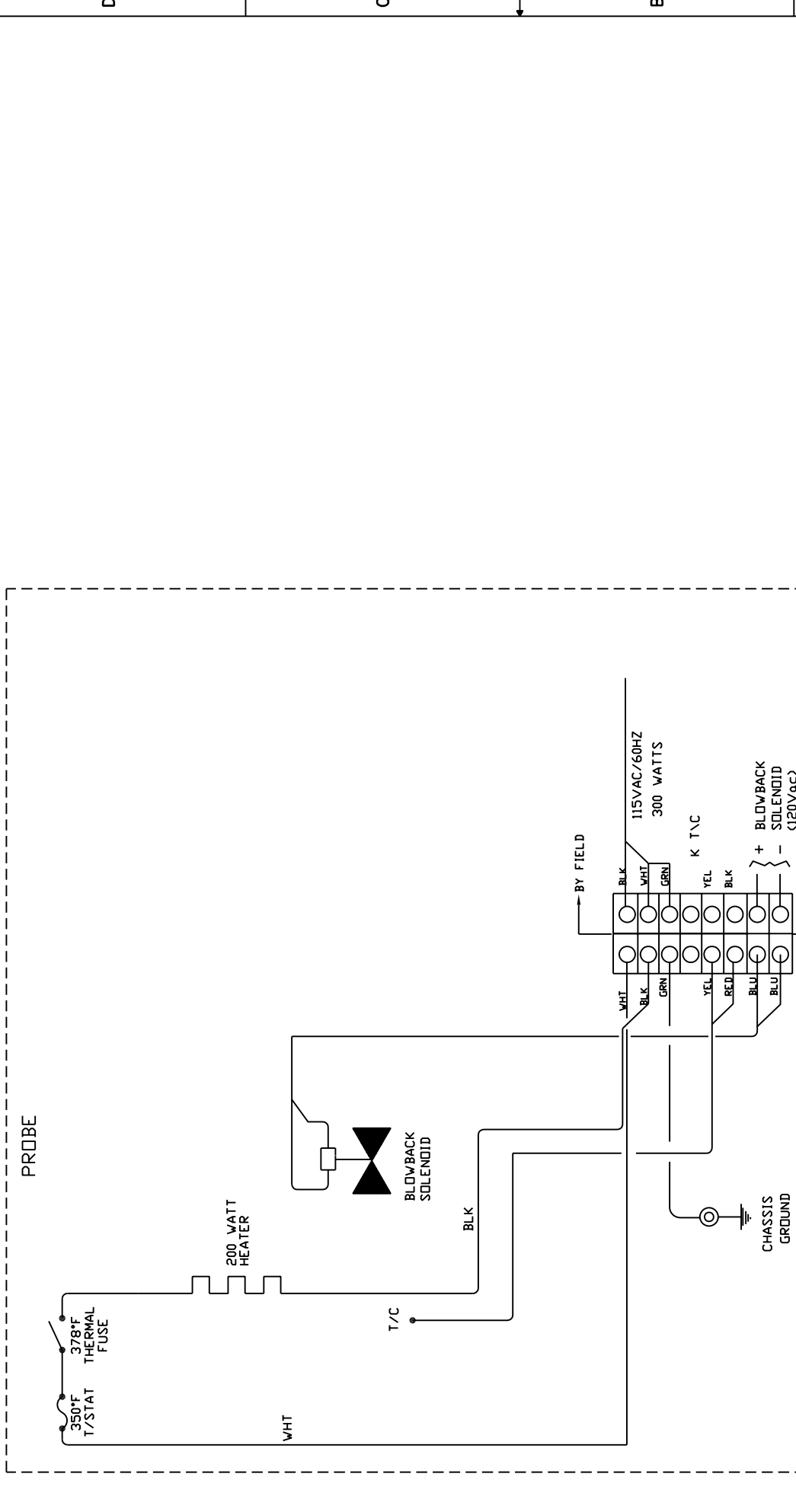
# APPENDIX:

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REV#N		DATE	DESCRIPTION		DRAWN	APPROVED
0		00/00/00	INITIAL DRAWING		LD	RD
ITEM QTY		DESCRIPTION		MANUF.		
USED FOR:		MODEL NUMBER:				
DRAWN BY:		DATE:				
APP'D:		01/09/03				
MATERIAL:		PART DESCRIPTION:		BALDWIN, INC.		
FINISH:		CLASS 1 DIVISION 1		HEATED FILTER PROBE		
DESIGN DIMENSIONS ARE IN INCHES		SIZE:		DRAWING/PART NO.:		
() DENOTES MILLIMETER EQUIVALENTS WHEN USED		A 1/1		MODEL 33/34XP		
UNLESS OTHERWISE SPECIFIED		TOLERANCE DECIMALS		CAD DIR: S:\DRAW		
1 PLACE = ±.02		2 PLACE = ±.02		SHEET 1 OF 1		
3 PLACE = ±.010		ANGLES = ± 5°				
HOLES = +.002/- .001		FINISH				
BALDWIN		www.baldwinUSA.com				
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AND IS TO BE USED SOLELY FOR THE PURPOSE FOR WHICH IT IS FURNISHED		THIS DOCUMENT SHALL NOT BE USED FOR ENGINEERING, DESIGN, PROCUREMENT, OR MANUFACTURING, IN WHOLE OR IN PART.				
BALDWIN, INC.		BALDWIN, INC.				

REVN	DATE	DESCRIPTION	DRAWN	APPROVED
0	00/00/00	INITIAL DRAWING	RAW	RAW



ITEM	QTY	DESCRIPTION	MANUF.
USED FOR:	MODEL NUMBER:	DESCRIPTION:	
		MODEL 34	
DRAWN BY:	DATE		
RAW	05/12/03		
APP'D			
MATERIAL			
FINISH			
PART DESCRIPTION		BALDWIN, INC.	
XP PROBE WIRING SCHEMATIC			
SIZE	SCALE	DRAWING/PART NO:	
A	NTS	3PHS-200 ELECT.	
DESIGN DIMENSIONS ARE IN INCHES		CAD DIR: S:\DRAW	
(<) DENOTES MILLIMETER EQUIVALENTS WHEN USED		SHEET 1 OF 1	

UNLESS OTHERWISE SPECIFIED

TOLERANCE DECIMALS	1 PLACE = ±.02
2 PLACE = ±.02	
3 PLACE = ±.010	

ANGLES = ±5°  
HOLES = +.003/-001

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## Outlet Boxes for Use in Hazardous Locations

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AKRON ELECTRIC INC  
1025 EAGON ST  
BARBERTON, OH 44203 USA

E94590

#### **Class I, Groups A, B, C and D; Class II, Groups E, F and G.**

**Outlet boxes threaded for rigid conduit connection**, Cat. No. AXC followed by C, L, T or X, may be followed by B, may be followed by additional letters and numbers, conduit size 3/4 in.

#### **Class I, Groups B, C and D; Class II, Groups E, F and G.**

**Outlet boxes threaded for rigid conduit connection**, Cat. Nos. AXJ-664, -684, -685, -884, -4164, -6104, -6115, -6124, -6135, -6164, -7104, -7185, -8104, -8124, -9115, -10104, -10144, -12124, -12184, -12205, -12244, -12364, -14144, -16164, -18184, conduit sizes 1/2 to 3 in. max incl.

Cat. Nos. AXJ-686, -886, -888, -6126, -6186, -7106, -8106, -8108, -8126, -8128, -10106, -10108, -10146, -10148, -12126, -12126LW, -12128, -12186, -12188, -12246, -12248, -12306, -12366, -12368, -12468, -14146, -14148, -14286, -16166, -16168, -16246, -16248, -18186, -18188, -18246, -18248, -18308, -18368, -183610, -24248, -24308, -24368, -122410, -162410, -164610, -182410, -242410, -243610, -38388, conduit sizes 1/2 to 4 in. max incl.

#### **Class I, Groups C and D; Class II, Groups E, F and G.**

**Outlet boxes threaded for rigid conduit connection**, Cat. No. AXI followed by 333, 363, 373, 393, 3113, 3153, 3183, 6104, 6174, 6244, 6304, may be followed by additional numbers and letters, conduit size 1/2 in. to 2 in. max incl.

Cat. No. EXI-684, conduit size 1/2 in. to 2 in. max incl.

Cat Nos. EXI-886, -7104, -8126, 12126, conduit size 1/2 to 3 in. max incl.

Cat. No. EXI-8148, conduit size 1/2 in. to 4 in. max incl.

Cat. Nos. EXJ-6124, -10104, conduit size 1/2 in. to 2 in. max incl.

Cat. Nos. EXJ-6184, -8106, -10146, conduit size 1/2 in. to 3 in. max incl.

Cat. Nos. EXJ-12128, -12188, -12248, -14148, -16168, -18188, -183610, -242410, conduit size 1/2 in. to 4 in. max incl.

Cat. Nos. GRE, GRC, GRL, GRT, GRX, GRB, GREZ, GRCZ, GRZL, GRTZ, GRXZ followed by four numbers, in sizes 1/2 to 2 in.

Cat. No. XJAT-2, -3, -4 or -12 followed by D4, D8 or D12, conduit size 1/2 in. to 4 in. max incl.

Cat. No. XJAT-5, -6 or -7 followed by D4, D12 or D20, conduit size 1/2 in. to 4 in. max incl.

Cat. No. XJAT-8, -9 or -11 followed by D6, D12 or D20, conduit size 1/2 in. to 4 in. max incl.

Cat. No. XJATS followed by 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12, conduit size 1/2 in. to 4 in. max incl.

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