



# INSTRUCTION MANUAL

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**BALDWIN**<sup>TM</sup> - Series  
**HEATED FILTER PROBES**

**CLASS I DIVISION 1 SERIES**

**Models 33XP & 34XP**

Version 1.09

# TABLE OF CONTENTS

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A: Specifications.....	3
B: Limited Warranty.....	4
C: Installation .....	5
D: Principle of Operation .....	7
E: Maintenance .....	8
F: Troubleshooting .....	9
G: Spare Parts .....	10
Appendix: .....	11

# A: SPECIFICATIONS

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## General Specifications

Probe	18" Stinger probe, 0.5" dia x .065" wall, 316L SS tubing
Calibration	Integral calibration port with check valve
Heater Jacket	Self-regulating 375F heater w/ K type T/C, 200 watts
Connections	1/4" male NPT (for flange) ; 1/2" Female NPT (Stinger)
Connectors	1/4" cal gas, 1/4" sample line, 1/4" blowback 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)
Electrical	115/230 VAC, 50/60 Hz, 200 watts

## Material Specifications

Enclosure Material	UL® Classified Class I Division 1 Groups B, C & D Aluminum
Heater Type	Silicone rubber blanket with snap closures
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

## 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.

This equipment is to be installed and operated by trained personnel, with sufficient command of the English language to clearly understand the instructions and safety warnings.

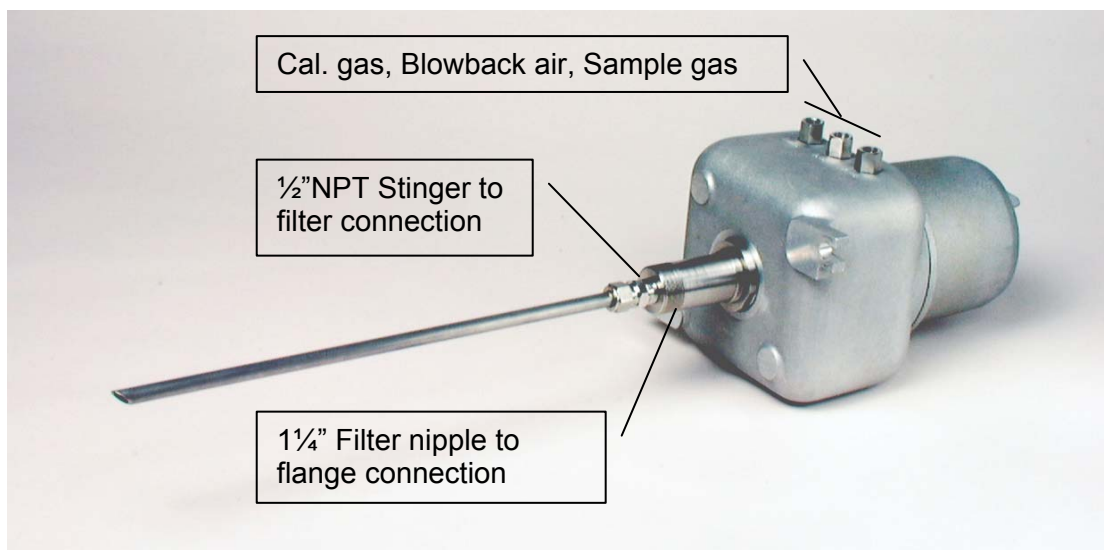
# C: INSTALLATION

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## Mounting

The 33XP & 34XP is designed to be mounted directly on a stack or duct with the included 1¼" Schedule 40 male pipe nipple. This pipe nipple can be screwed into a standard ASA flange, either flat or raised face, that has been modified with a 1¼" NPT hole in the center. These modified flanges are available from Perma Pure in kit form. The kit includes the flange of the desired size and the appropriate bolts and flange gasket.

1. Thread the flange onto the 1¼" filter nipple
2. Install the stinger pipe into the filter mounting nipple using Teflon tape or thread seal paste that is appropriate for the application.
3. Mount the assembly to the stack flange with the gas connections facing in the desired direction using the bolts and gasket provided.
4. Makeup the sample gas, calibration gas, and blowback air connections. Typical tightening for ¼" compression fittings is 1 ¼ turns past finger tight. Do not over-tighten.
5. The sample gas line that runs from the probe to the analyzer area may need to be heated to prevent condensation of water and acid vapors. Condensation in the sample line is likely to cause analyzer inaccuracy, unreliable measurements and maintenance problems and must be avoided.
6. Blowback air (if required) should be provided in a short burst at 50-90psig and should not be allowed to flow for more that a few seconds as cooling of the filter may occur.



## **Electrical**

Connection of the probe to the electrical must be performed by qualified personnel. Connect the system to an appropriate earth ground. Adhere to all electrical code requirements in effect at the installation site. This device is intended for Class 1, Div 1 Hazardous installations.

1. The inline power cable provided is configured to provide either 115VAC or 230VAC to the heater element and should not be altered. Refer to the nameplate on the probe enclosure for electrical rating information.
2. Refer to the power cable assembly drawings 3CDV-001 and 3CDV-002 in the appendix for power connection information.
3. The K type thermocouple can be used to monitor the temperature of the probe or provide a signal to an external temperature controller if desired.

# D: 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.



## 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.



# E: MAINTENANCE

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The 33XP and 34XP filter assemblies or heater jacket do not require routine maintenance.

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.



# F: TROUBLESHOOTING

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<i>Symptom</i>	<i>Check</i>	<i>Action</i>
115 VAC heater jacket is not heating	Check the resistance between the black and white wires (tied together) and the blue wire. A 200 watt heater @ 115 VAC will draw approximately 2 amps and the resistance will be approximately 61 ohms.	If the resistance measurement of the heater element shows that the circuit is open, the fusible link has blown and the jacket should be replaced.
230 VAC heater jacket is not heating	Check the resistance between the black and white power wires using an ohmmeter. A 200 watt heater @ 230 VAC will draw approximately 1 amp and the resistance will be approximately 245 ohms.	If the resistance measurement of the heater element shows that the circuit is open, the fusible link has blown and the jacket should be replaced.
Difficulty in removing the filter element holder from the filter housing.	Check "O" rings for damage  Check for build-up of dirt inside the filter housing	Replace "O" rings  Clean the "O" ring sealing surfaces with a clean towel prior to reassembly.  Reduce the time between change/check of the filter

**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  
or your local representative

# G: SPARE PARTS

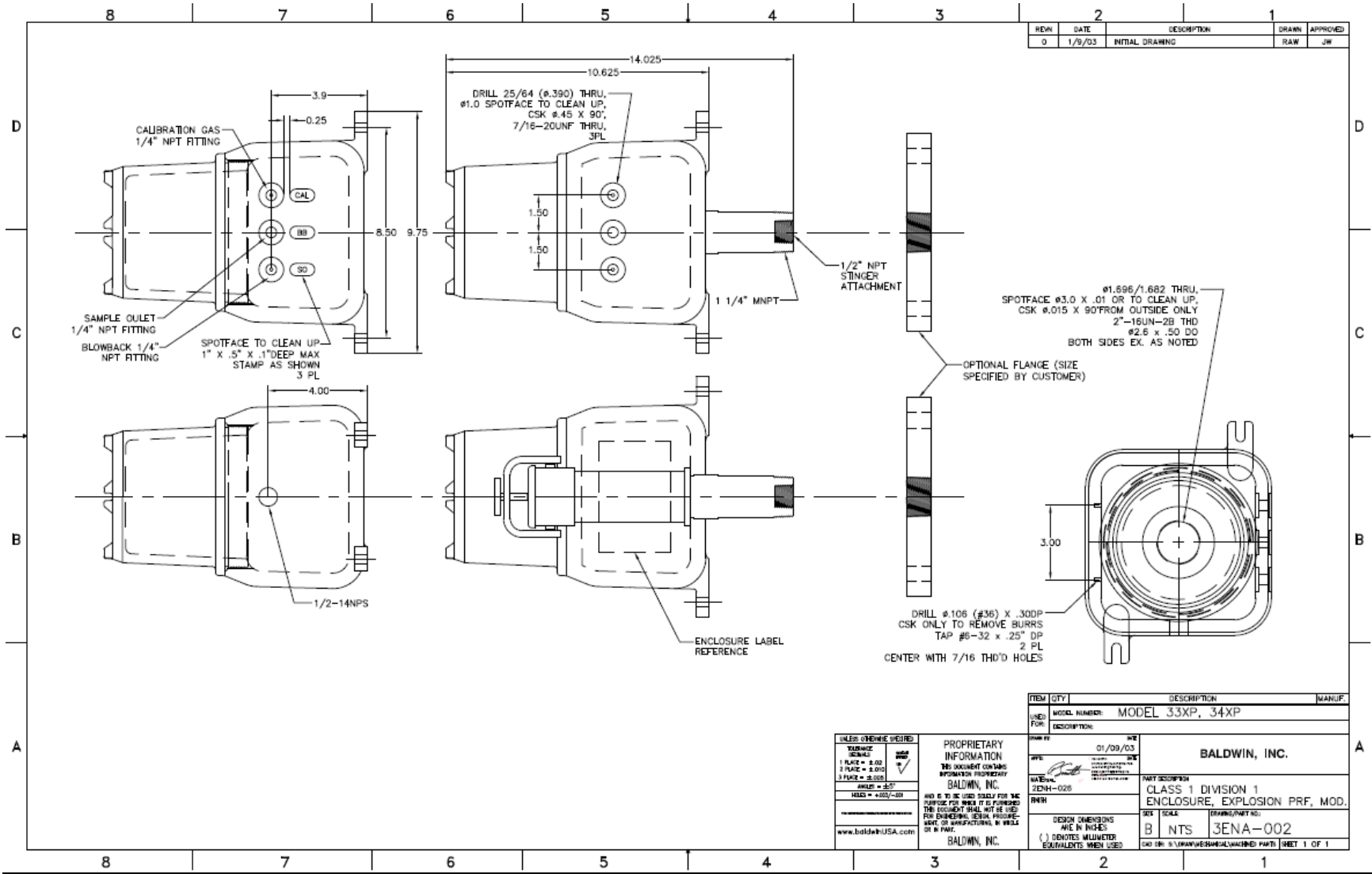
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## Models 33XP & 34XP (Part Number 4P-33XP and 4P-34XP)

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	Filter Element Gasket: Grafoil 1.25" (10 pack)
3PAM-031PK	O-Ring: Pack, Viton, "C" series probes only, 5 ea 1 7/8" OD, 2 1/4" OD
3PHH-003XP	Heater Jacket, w/ 375F Thermostat & Over-Temperature Thermal Fuse and Type K Thermocouple
4P-STG4	Stinger, Replacement: 18", 316L SS, 1/2" sch 40
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#	DATE	DESCRIPTION	DRAWN	APPROVED
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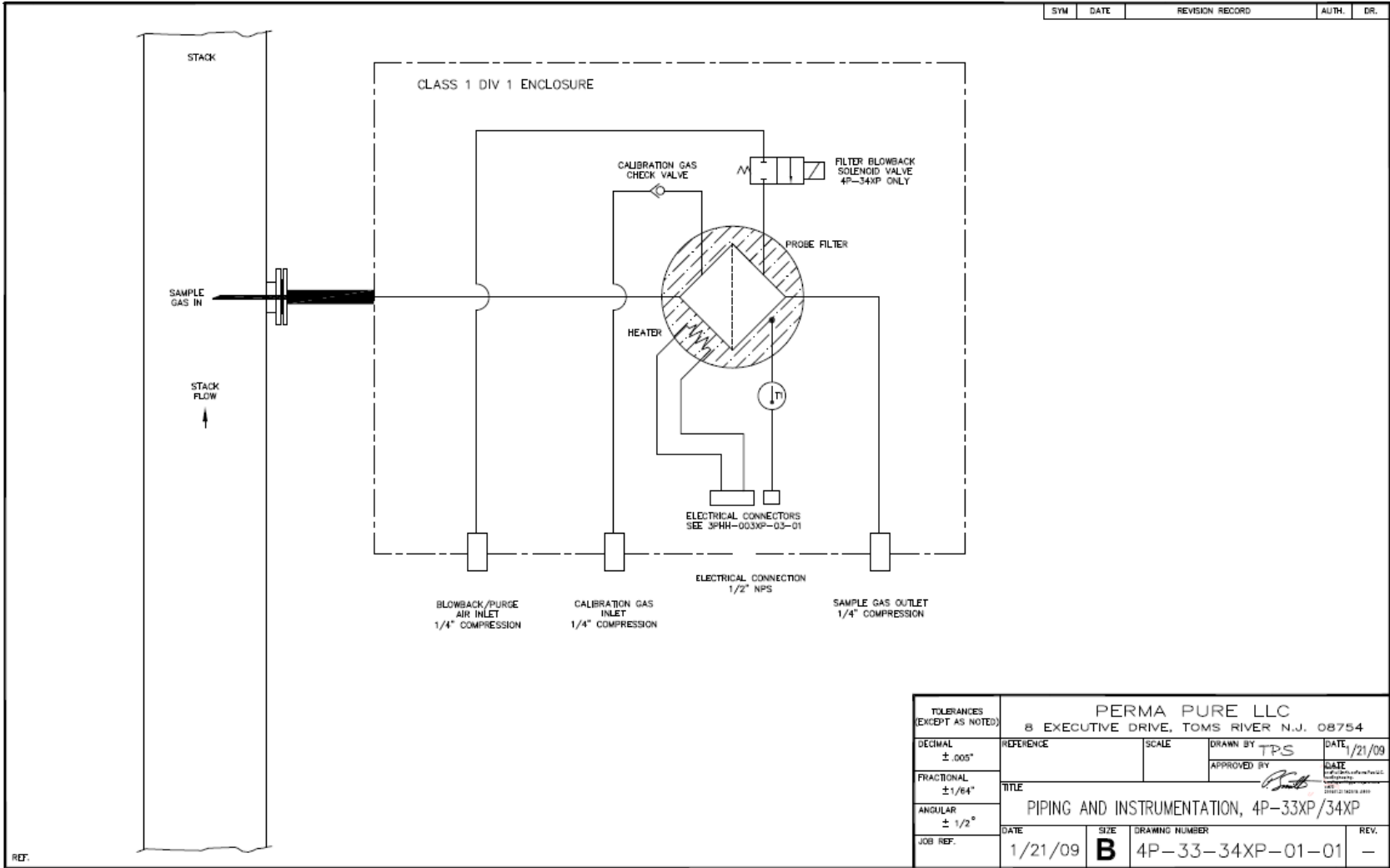
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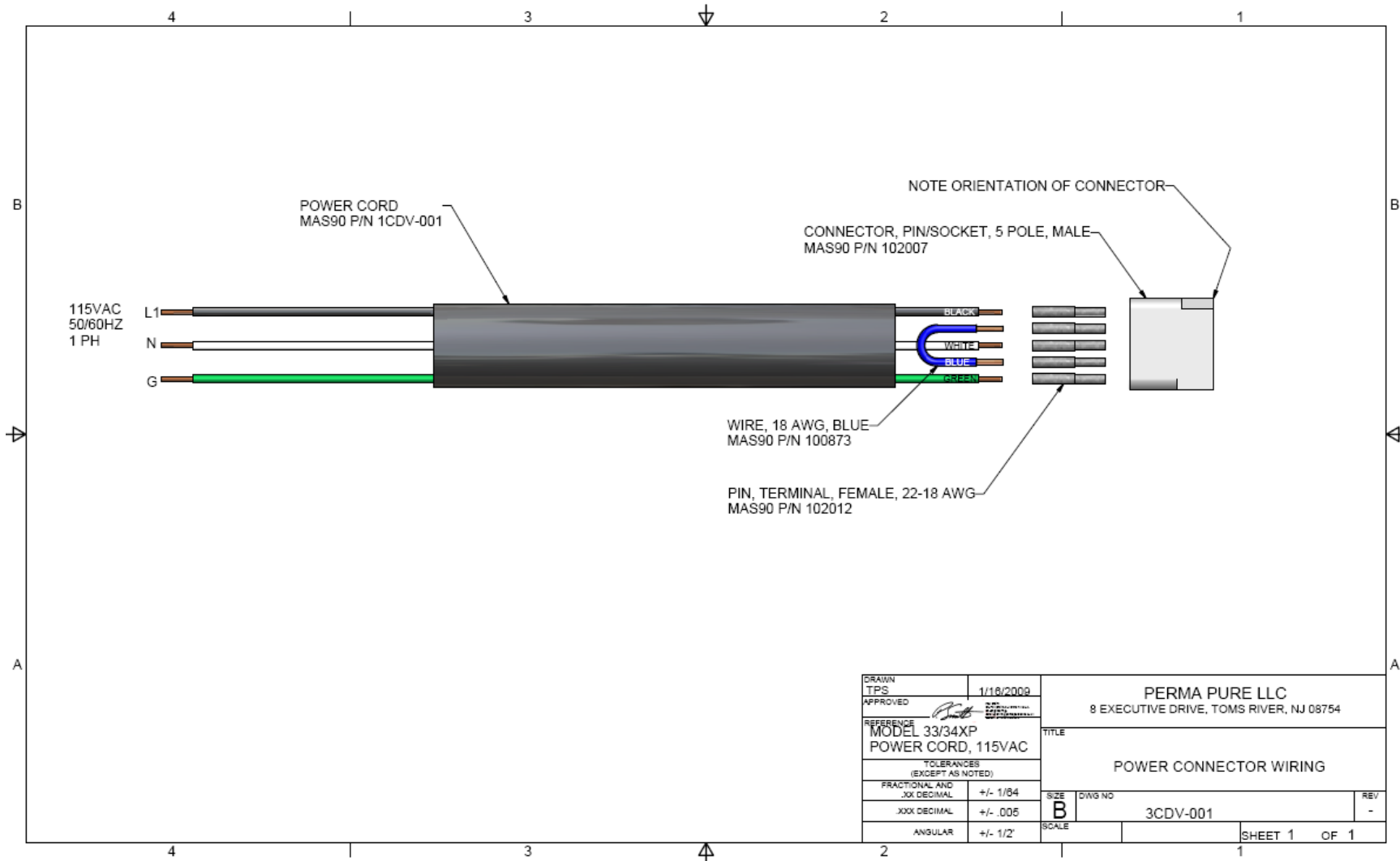
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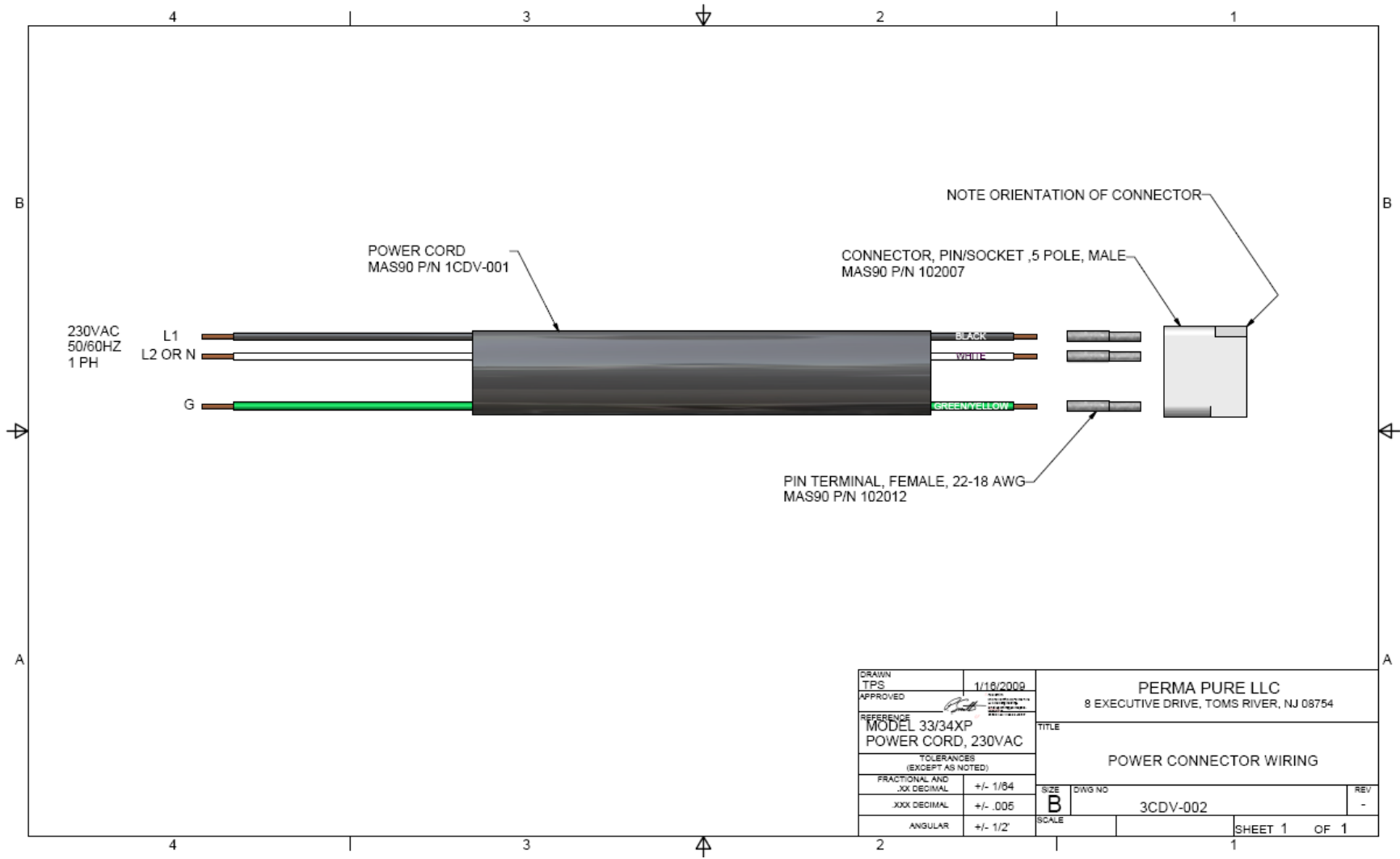
**PROPRIETARY INFORMATION**  
 THIS DOCUMENT CONTAINS  
 INFORMATION PROPRIETARY  
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 PURPOSE FOR WHICH IT IS PROVIDED.  
 THIS EQUIPMENT SHALL NOT BE USED  
 FOR EXERCISING, REPAIR, MAINTENANCE,  
 REPAIR, OR MANUFACTURING, IN WHOLE  
 OR IN PART.  
**BALDWIN, INC.**

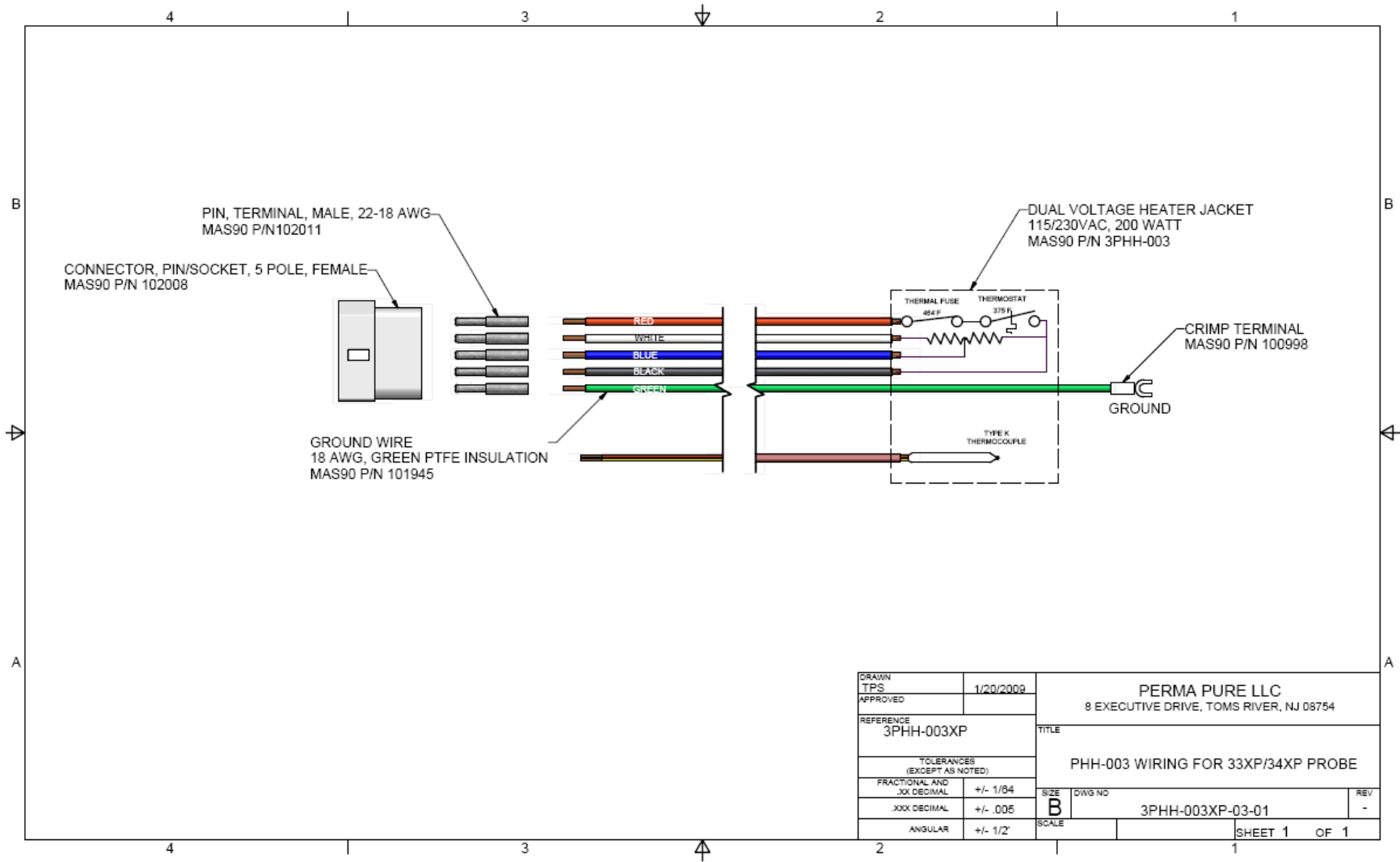
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<b>BALDWIN, INC.</b>
<b>CLASS 1 DIVISION 1</b>
<b>ENCLOSURE, EXPLOSION PRF. MOD.</b>
REV: SCALE: DRAWING/NET NO.:
<b>B NTS 3ENA-002</b>
DATE: 01/09/03 MANUFACTURED PARTS: <b>SHEET 1 OF 1</b>









DRAWN TPS	1/20/2009	PERMA PURE LLC 8 EXECUTIVE DRIVE, TOMS RIVER, NJ 08754	
APPROVED		REFERENCE 3PHH-003XP	TITLE PHH-003 WIRING FOR 33XP/34XP PROBE
TOLERANCES (EXCEPT AS NOTED)		FRACTIONAL AND .XX DECIMAL	±/- 1/64
		XXX DECIMAL	±/- .006
		ANGULAR	±/- 1/2
SIZE <b>B</b>	DIWG NO 3PHH-003XP-03-01	SCALE	REV -
		SHEET 1 OF 1	