



# MELT PRESSURE TRANSDUCERS AND TRANSMITTERS

GP:50 is an ISO9001 certified designer and manufacturer of a broad range of industrial grade MELT PRESSURE instrumentation for melted process materials, plastics, and polymer extrusion processing applications. All designs have been meticulously optimized for accuracy and survivability over the past 30 years. This careful attention to detail has resulted in a full portfolio of high-reliability melt pressure and temperature sensors. GP:50 Melt Pressure instrumentation is also fully interchangeable with other industry models, including dimensional footprints, mechanical specifications, and electrical connections, with no additional cabling or tooling requirements.

### **OUR MISSION:**

GP:50 Melt Pressure strives to manufacture high-reliability industrial grade pressure MELT PRESSURE and TEMPERATURE sensing instrumentation. As a global supplier, we strive for manufactured products that incorporate proven accuracy, repeatability, and high-quality components. As industry innovators, we apply both engineering ingenuity and continuous customer feedback to all R&D efforts. In doing so, GP:50 Melt Pressure can address evolving market needs via new and optimized sensor designs. We do so while carefully upholding the 100% commitment to quality and value that remains synonymous with the GP:50 brand.

#### SUPPORTED MELT APPLICATIONS:

- ♦ POLYMER EXTRUSION PROCESSING
  - **♦** EXTRUDER MANUFACTURERS
    - ♦ PUMPS/VISCOMETERS
      - ♦ RESIN AND FIBER

- ♦ PIPING, TUBING AND PROFILES
  - ♦ MEDICAL PRODUCTS
  - ♦ PHARMACEUTICAL
- ♦ FOOD/BEVERAGE PACKAGING

- ♦ FOOD/HYGIENE
- ♦ COMPOUNDING/ADDITIVES
- ♦ COATINGS/ADHESIVES
- ♦ PLASTICS INJECTION MOLDING

# THE GP:50 DIFFERENCE — OUR 100% COMMITMENT TO QUALITY:

- **♦ SUPERIOR QUALITY**
- ♦ CHOICE OF MECHANICAL AND ELECTRICAL CONNECTIONS
- PROVEN ACCURACY
- ◆ Full Interchangeablity
  - ♦ WORLDWIDE SALES & SUPPORT

- ♦ EXPEDITED SERVICE
- ♦ REPAIR DEPARTMENT



All GP:50 manufacturing processes conform to ISO9001 standards. Sensors are manufactured from raw materials instead of outsourced components. Each unit is fully tested prior to shipment to ensure its absolute conformance to rigorous quality and performance standards. Upon passing final inspection, each sensor is issued a quality test certificate, including a fully traceable unit model and serial number. Ongoing customer feedback is applied toward the continuous quality improvement of all products and processes.

#### **EXPERT CUSTOMER SERVICE AND TECHNICAL SUPPORT**

Needing extra help in addressing your melt pressure measurement challenges? We can help. Let the highly experienced GP:50 Melt Pressure customer service team identify the right transducers and transmitters for your application. We offer in-depth advisements on equivalent connections, fills, configurations and options. Our team is particularly adept at application problem-solving where complex process materials, temperature effects, or unique installation conditions may be of concern. Contact us today to ensure that your polymer extrusion processing instrumentation offers maximum performance and trouble-free service life, even in the most demanding of environments.

# **DESIGN ENGINEERING SERVICES**

Needing a solution that falls outside of the standard industry selections? No problem! With 30 years of hands-on experience, the GP:50 Melt Pressure engineering team is well-prepared to support virtually any customer requirement. Working in close collaboration with a customer's own in-house engineering team, the experts at GP:50 can design and develop custom solutions, proprietary configurations, or even support OEM private label and joint venture agreements. GP:50 Melt Pressure is committed to be responsive to the needs of the most challenging opportunities from initial design thru to delivery.

# THE GP:50 DIFFERENCE

# **DESIGNING FOR SENSOR ACCURACY**

A signature performance attribute of GP:50 Melt Pressure sensors is the capability to maintain full service life performance accuracy and repeatability. To ensure this, each transducer design incorporates a specialty tip diaphragm with a proprietary advanced matched system. This ensures that individual sensor components maintain structural integrity and maximum response over time. In addition, each GP:50 Melt Pressure sensor is manufactured from only the highest grade specialty metals. This approach ensures consistent sensor mechanical functionality with increased cycles. It also eliminates the unwanted effects of short-term hysteresis that are common to other industry models.



# CHOICE OF FILLS AND INDUSTRY APPROVALS

GP:50 Melt Pressure transducers and transmitters are offered in both mercury and environmentally friendly non-mercury (ASF or NaK) fills. For explosion-proof environments, FM approved non-mercury designs are available. FDA approved versions are also available to support medical, pharmaceutical, and food packaging applications. Additional certifications, including ATEX and CSA, may be available upon request, depending upon specified model. GP:50 Melt Pressure further prides itself on our continued commitment to the environment. Through the GP:50 GO-GREEN program, we offer to eco-friendly customers a transducer conversion incentive program to reduce and eliminate the use of hazardous materials in your facility. Please consult GP:50 Melt Pressure Customer Service for details.

# NEED IT FAST? ASK ABOUT OUR EXPEDITE SERVICE OPTION

The GP:50 Melt Pressure *Expedite Service Option* is expressly designed for customers in critical need of standard units\* with very short lead times. By selecting the *Expedite Service Option*, customers are guaranteed a minimum lead time of up to three business days before shipment. This program is further available in both five and ten-day maximum lead times, before shipment, depending upon customer requirements. Please ask a member of our sales team for details.



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<sup>\*</sup>Expedite Service Option is only available for Standard V-Series/S-Series/E-Series 100, 300, 900 models.



# V-Series

# PREMIUM ACCURACY MELT PRESSURE TRANSDUCER / TRANSMITTER Models V130, V131, V135 / V230, V231, V235 / V330, V331, V335

# Model V30, Rigid Stem Only 1/2-20 UNF-2A THREAD PTIH-10-6P STD 0.42 DIA 0.47 RE

incorporates a specialty tip diaphragm with a proprietary advanced matched system. This ensures that individual sensor components maintain structural integrity and maximum response. In addition, each GP:50 Melt Pressure sensor is manufactured from only the highest grade specialty metals. This approach ensures consistent sensor mechanical functionality with increased cycles. It also eliminates the unwanted effects of shortterm hysteresis that are common to other industry models.

# Model V31 Rigid Stem with COIL-FLEX™ Flexible Capillary

# **FEATURES**

A signature performance attribute of GP:50 Melt Pressure sens-

ing instrumentation is its capability to maintain full service life performance accuracy. To ensure this, each transducer design

- Completely Welded Stainless Construction
- Interchangeable with existing sensors
- ♦ High-quality, superior electronics
- Vibration Protected Housing
- ◆ Auto Zero calibration option (200 & 300 units)
- Advanced diaphragm for increased cycles

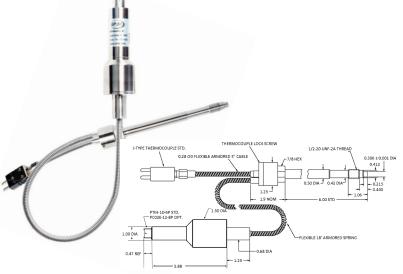
# PRESSURE RANGES

From 0-500 to 0-30,000 PSI (see ordering guide)

# ACCURACY

±0.25% Premium FSO





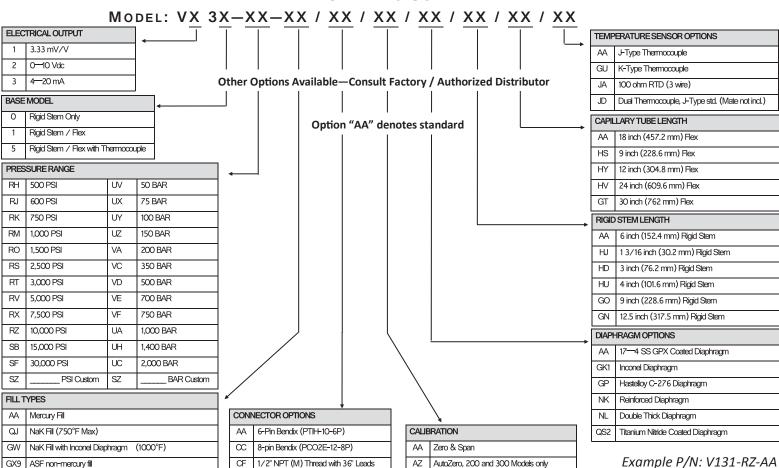
MADE IN THE U.S.A.

# Models V130, V131, V135 / V230, V231, V235 / V330, V331, V335

# **SPECIFICATIONS**

Full Scale Pressure Ranges	See ordering guide	g guide				
Accuracy	±0.25% FSO Accuracy,					
Material in Contact with Pressure Media	17-4 PH Stainless Steel diaphragm with GPX coating, optional diaphragm materials available					
Proof Pressure	2 times the full scale pressure range up to 35,000 PSI					
Temperature Limits	Diaphragm 750°F (400°C)	Strain Gauge Housing 176°F (80°C)				
Temperature Effects	From Diaphragm	From Strain Gauge Housing				
	Zero-15 PSI / 100°F	Zero / Span—Less than ±1.0% F	SO / 100°F (±2.0% FSO / 100°C)			
Electricals	(V100 Models-3.33 mV/V)	(V200 Models-0-10 Vdc)	(V300 Models-4-20 mA)			
Excitation Voltage	3.5—15 Vdc	14-36 Vdc	14-36 Vdc			
Output at 70°F	3.33 mV/V ±2.0% FSO	10.0 Vdc ±2.0% FSO	4-20 mA ±2.0% FSO			
Input Impedance	350 ohm, nominal					
Input Current		8 mA, nominal				
Output Current		2.0 mA maximum for less than 0.1% FSO attenuation				
Load Impedance	50,000 ohms minimum for less than 0.1% FSO attenuation		1350 ohms max, at 36 Vdc and 750 ohms 24 Vdc			
Zero Balance	0.0 mV/V ±5.0% FSO at 70°F	0.0 Vdc ±5.0% FSO at 70°F	4.0 mA ±5.0% FSO at 70°F			
Range Calibration Signal	80% ±5.0% FSO	80% ±5.0% FSO	80% ±5.0% FSO			
Connections	Pressure	Electrical				
	1/2" - 20—UNF—2A	PTIH—10—6P standard, 8-pin and other connectors available				
Enclosed Materials	316 Stainless Steel					
Mounting Torque	180-200 inch pounds, 500 inch pounds thread limitation					

# ORDERING GUIDE

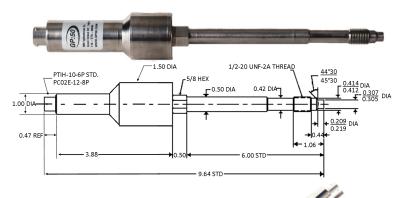


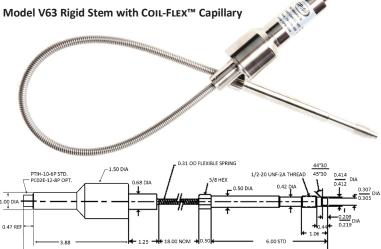


# V-SERIES

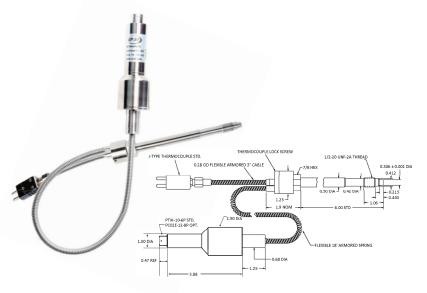
# STANDARD ACCURACY MELT PRESSURE TRANSDUCER / TRANSMITTER MODELS V162, V163, V164 / V262, V263, V264 / V362, V363, V364

### Model V62, Rigid Stem Only





**Model V64 Combination Temperature and Pressure** 



A signature performance attribute of GP:50 Melt Pressure sensing instrumentation is its capability to maintain full service life performance accuracy. To ensure this, each transducer design incorporates a specialty tip diaphragm with a proprietary advanced matched system. This ensures that individual sensor components maintain structural integrity and maximum response. In addition, each GP:50 Melt Pressure sensor is manufactured from only the highest grade specialty metals. This approach ensures consistent sensor mechanical functionality with increased cycles. It also eliminates the unwanted effects of short-term hysteresis that are common to other industry models.

# **FEATURES**

- Completely Welded Stainless Construction
- Interchangeable with existing sensors
- High-quality, superior electronics
- Vibration Protected Housing
- Auto Zero calibration option (200 & 300 units)
- Advanced diaphragm for increased cycles

# PRESSURE RANGES

From 0-500 to 0-30,000 PSI (see ordering guide)

# ACCURACY

±0.50% Standard FSO

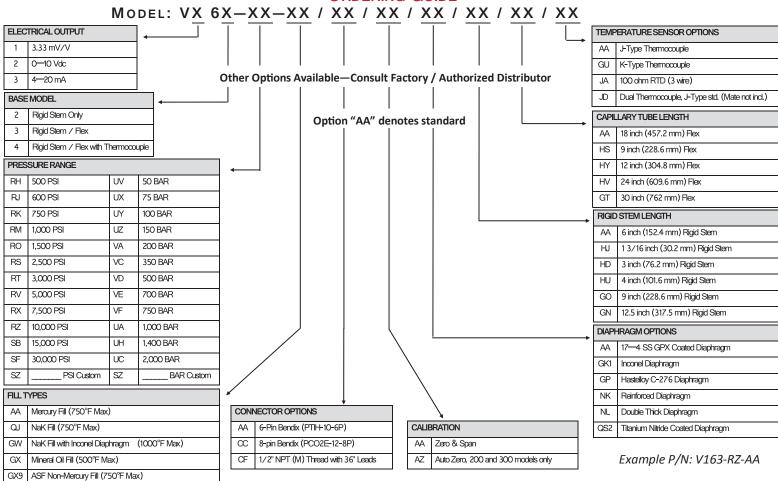
MADE IN THE U.S.A.

# MODELS V162, V163, V164 / V262, V263, V264 / V362, V363, V364

# **SPECIFICATIONS**

Full Scale Pressure Ranges	See ordering guide				
Accuracy	±0.50% FSO Accuracy,				
Material in Contact with Pressure Media	I in Contact with Pressure Media 17-4 PH Stainless Steel diaphragm with GPX coating, optional diaphragm materials available				
Proof Pressure	2 times the full scale pressure range up to 35,000 PSI				
Temperature Limits	Diaphragm	Strain Gauge Housing			
	750°F (400°C)	176°F (80°C)			
Temperature Effects	From Diaphragm	From Strain Gauge Housing			
	Zero-15 PSI / 100°F	Zero / Span—Less than ±1.0% F	SO / 100°F (±2.0% FSO / 100°C)		
Electricals	(V100 Models-3.33 mV/V)	(V200 Models-0-10 Vdc)	(V300 Models-4-20 mA)		
Excitation Voltage	3.5—15 Vdc	14-36 Vdc	14-36 Vdc		
Output at 70°F	3.33 mV/V ±2.0% FSO	10.0 Vdc ±2.0% FSO	4-20 mA ±2.0% FSO		
Input Impedance	350 ohm, nominal				
Input Current		8 mA, nominal			
Output Current		2.0 mA maximum for less than 0.1% FSO attenuation			
Load Impedance	50,000 ohms minimum for less than 0.1% FSO attenuation		1350 ohms max, at 36 Vdc and 750 ohms 24 Vdc		
Zero Balance	0.0 mV/V ±5.0% FSO at 70°F	0.0 Vdc ±5.0% FSO at 70°F	4.0 mA ±5.0% FSO at 70°F		
Range Calibration Signal	80% ±5.0% FSO	80% ±5.0% FSO	80% ±5.0% FSO		
Connections	Pressure 1/2" - 20—UNF—2A, other connections available	Electrical PTIH—10—6P standard, 8-pin and other connectors available			
Enclosed Materials	316 Stainless Steel	Steel			
Mounting Torque 180-200 inch pounds, 500 inch pounds thread limitation					

# **ORDERING GUIDE**





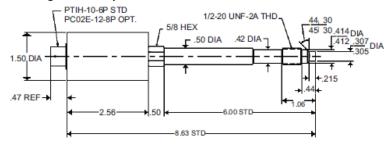
# E-SERIES

# 1% ACCURACY MELT PRESSURE TRANSDUCER / TRANSMITTER MODELS 190, 191, 195, 290, 291, 295, 390, 391, 395

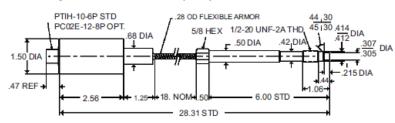


The E-Series melt pressure transducers are designed for general melt pressure measurement, offering typical installation and reliability. It is the value choice acceptable by OEMs and users around the globe. The GP:50 E-Series transducers incorporate industry standard 3.33 mV/V electrical output compatible with melt pressure indicators. Integrated thermocouple is available for melt temperature. The GP:50 E-series include a ½ - 20 UNF thread for installation in standard mounting holes and offer a range of electrical connections for most applications.

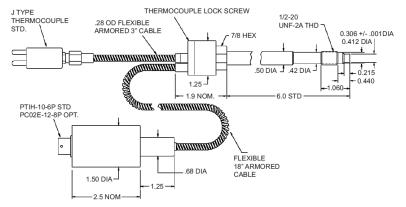
# Model 90 Rigid Stem Only



# Model 91 Rigid Stem with Flexible Capillary



### **Model 95 Combination Temperature and Pressure**



# **FEATURES**

- Meets the Needs for General Measurement
- Abrasion Resistant GPX Coating
- Standard Electrical Output
- Completely Welded Stainless Construction
- **◆** Economical
- 2 Year Warranty

# PRESSURE RANGES

From 0-3,000 to 0-10,000 PSI (see ordering guide)

# ACCURACY

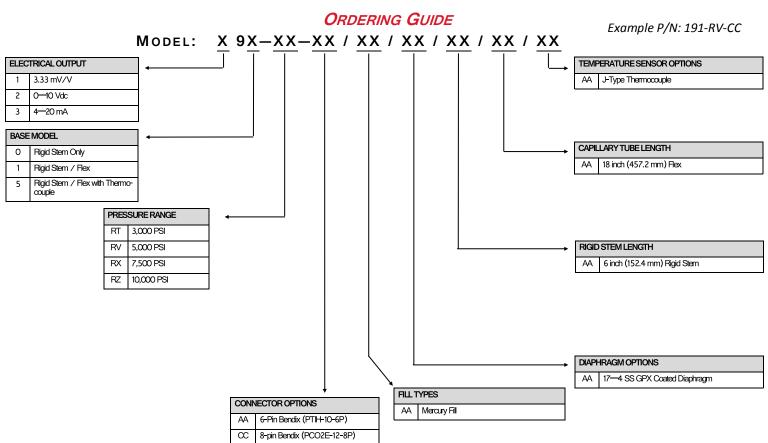
±1.0% Standard FSO

# 100% MADE IN THE U.S.A.

GP:50 reserves the right to make product improvements and amendments to the product specification stated throughout this brochure without prior notification.

# **SPECIFICATIONS**

Full Scale Pressure Ranges	See ordering guide				
Accuracy	±1.0% FSO Accuracy,				
Material in Contact with Pressure Media	15-5 PH Stainless Steel diaphragm with GPX coa	ating			
Proof Pressure	2 times the full scale pressure range up to 20,00	00 PSI			
Temperature Limits	Diaphragm	Strain Gauge Housing			
	750°F (400°C)	176°F (80°C)			
Temperature Effects	From Diaphragm	From Strain Gauge Housing			
	Zero-15 PSI / 100°F	Zero / Span—Less than ±1.0% FSO / 100°F (±	2.0% FSO / 100°C)		
Electricals	(100 Models-3.33 mV/V)	(200 Models-0-10 Vdc)	(300 Models-4-20 mA)		
Excitation Voltage	3.5—15 Vdc	14.5—34 Vdc	14-36 Vdc		
Output at 70°F	3.33 mV/V ±2.0% FSO	10.0 Vdc ±2.0% FSO	4-20 mA ±2.0% FSO		
Input Impedance	350 ohm, nominal				
Input Current		8 mA, nominal			
Output Current		2.0 mA maximum for less than 0.1% FSO attenuation			
Load Impedance	50,000 ohms minimum for less than 0.1% FSO attenuation,	FSO 1350 ohms maximum, at 36 Vdc and 750 ohms 24 Vdc			
Zero Balance	0.0 mV/V ±5.0% FSO at 70°F	0.0 Vdc ±5.0% FSO at 70°F	4.0 mA ±5.0% FSO at 70°F		
Range Calibration Signal	80% ±5.0% FSO	80% ±5.0% FSO			
Connections	Pressure	Electrical			
	1/2" - 20—UNF—2A	PTIH—10—6P standard, 8-pin connector available			
Enclosed Materials	316 Stainless Steel				
Mounting Torque	que 180-200 inch pounds, 500 inch pounds thread limitation				



Option "AA" denotes standard



# SMART RANGEABLE MELT PRESSURE TRANSMITTER

MODELS 430, 431 / 430X, 431X, / 430P, 431P

A signature performance attribute of GP:50 Melt Pressure sensing instrumentation is its capability to maintain full service life performance accuracy. To ensure this, each transducer design incorporates a specialty tip diaphragm with a proprietary advanced matched system. This ensures that individual sensor components maintain structural integrity and maximum response. In addition, each GP:50 Melt Pressure sensor is manufactured from only the highest grade specialty metals. This approach ensures consistent sensor mechanical functionality with increased cycles. It also eliminates the unwanted effects of short-term hysteresis that are common to other industry models.



# **FEATURES**

- Completely Welded Stainless Steel Construction
- ◆ HART® Communication
- ◆ FM Explosion Proof available
   (Class I, II, II, Div. I, Groups A -G)

# PRESSURE RANGES

From 0-500 to 0-30,000 PSI

**ACCURACY** 

±0.15% FSO







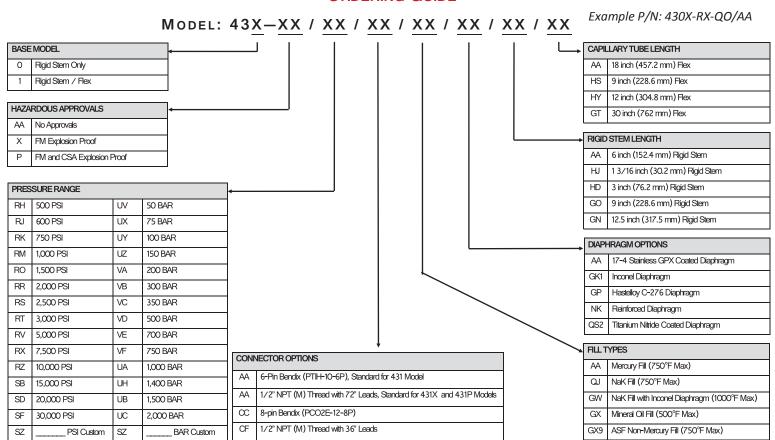
Consult Factory for hazardous location approval availability.

MADE IN THE U.S.A.

# **SPECIFICATIONS**

Accuracy	Static Error Band (Non-linearity, Hysteresis, Non-Repeatability, includes temperature effects) ±0.25% FSO (RSS) 500 through 3,000 psi ±0.15% FSO (RSS) 5,000 through 30,000 psi		
Ranging	3:1 (500 through 2,500 psi) 5:1 (3,000 through 30,000 psi)		
Operating Temperature Range (Compensated)			
	77°F to 575°F (25°C to 300°C), optiona 77°F to 176°F (25° C to 80° C)	al to 660°F (350°C)	
Temperature Effects from Electronics	Less than ±0.15% FSO / 100°F		
Electricals	Excitation Voltage	Output at 70°F	
(Model 430, 431, 430X, 431X)	12-36 Vdc	4-20 mA ± 0.1% FSO	
Load Impedance	250 ohms minimum (for HART® Communication) @ 17 Vdc; 1200 ohms at 36 Vdc		
Output Current	4-20 mA ±0.1% FSO at 70°F		
Connections	Pressure	Electrical	
	1/2" - 20—UNF—2A	430, 431: PTIH—10—6P standard (Mate not included) 430X, 431X: 1/2" NPT (M) Thread with 72" Leads	
Enclosed Materials	316 Stainless Steel		
Mounting Torque	180-200 inch pounds, 500 inch pounds	thread limitation	
Identification	Laser etched		

# **ORDERING GUIDE**



Other Options Available—Consult Factory / Authorized Distributor

Option "AA" denotes standard

TIP DETAILS, SHOWN WITH M10 (10 mm ) TIP

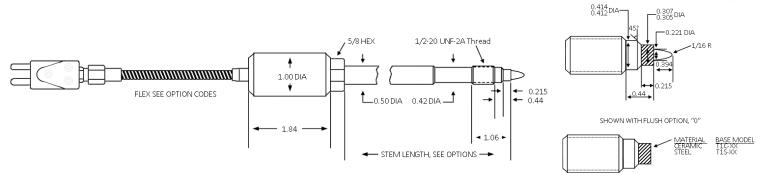


# PRECISION ACCURACY MELT TEMPERATURE SENSOR

# MODEL T1

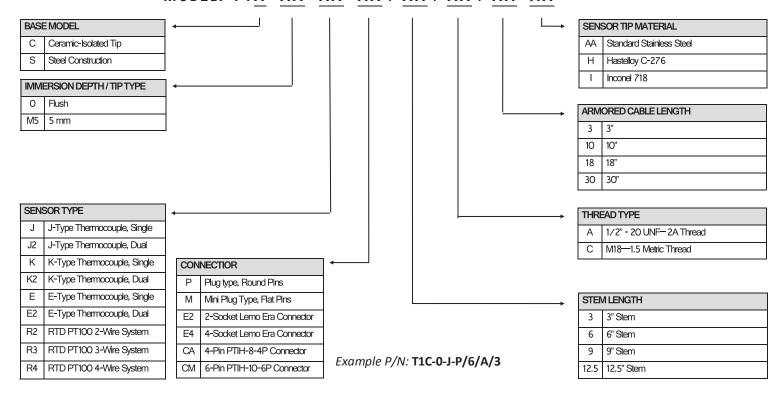
# **FEATURES**

- High-Temperature Construction with advanced Ceramic Insulated sleeve
- ♦ Measures Temperatures up to 750°F



# **ORDERING GUIDE**

# MODEL: T1X-XX-XX-XX / XX / XX / XX XX



# **EXTRUSION MELT PRESSURE GAUGES**



**MODEL A30, A31** 

# **FEATURES**

- ♦ No Electrical Power required
- **♦ All Stainless Steel Construction**
- ♦ Large 4" Display can be rotated 300° for easy reading
- **♦ Totally Maintenance free**
- ♦ Full Two-Year Manufacturer's Warranty



# **SPECIFICATIONS**

Pressure Ranges	0-5,000 PSI or 0-10,000 PSI, dual scale PSI and BAR
Mounting	1/2-20 UNF thread, standard (M18 x 1.5 available)
Mounting Torque	180-200 inch pounds, 500 inch pounds maximum
Diaphragm	15-5 PH Stainless Steel
Overload Capacity	1.5 times full scale
Temperature Rating	Diaphragm 750°F
Accuracy	1.5% Full Scale
Zero Adjust	10% Full Scale
Needle Sweep	270°
Dial	Large 4" dial with safety glass
Stem Length	6", standard
Capillary Tube Length	30", standard (Model A31)

# ORDERING GUIDE

Example P/N: A30-RZ-AA

	MIODEL: $A3\underline{\lambda} - \underline{\lambda} - \underline{\lambda}\underline{\lambda}$						
BASE MODEL		+		1	L	ОРТЮ	NS
0	Rigid Stem Only					AA	None
1	Rigid Stem w/18" Flex Capillary					HQ	J-Type Thermocouple, A31 only
PRE	SSURE RANGE					CF	K-Type Thermocouple, A31 only
RV	0-5,000 PSI, 0-350 BAR (Dual Scale)	•				FB	M18 X 1.5 Thread
RZ	0-10,000 PSI, 0-700 BAR (Dual Scale)					SU	Stem-Up Configuration
RIG	D STEM LENGTH	•					

Other Options Available—Consult Factory/ Authorized Distributor

AA 6" Rigid Stem (1542.4 MM) GN 12.5" Rigid Stem (317.5 mm)



# RUPTURE DISKS (BURST PLUGS) / MELT PLUGS (SOLID PLUGS)

# MODEL RDEB AND MP30



Unit is mounted directly into the extruder equipment through a pressure port or mechanical connection, where critical pressures occur. Utilizing reliable rupture discs (also known as burst plugs/extruder barrels) provides protection for extrusion machinery and ensures operator safety.

# **FEATURES**

- Assembly consists of a threaded tubular body with a rupture disk soldered onto the process end
- ◆ One piece construction
- 300 series SS body material, other materials available
- ♦ Burst Rating 750 to 15, 000 PSIG
- ♦ Burst Tolerance: ±10%
- Certified

# **ORDERING GUIDE**

Model: XXXX-XXX-XX / XX / XX

/IODEL		<b>ॊ</b> ——		
RDEB	Rupture Disk (Over-Pressure Protection)			
MP30	Solid Plug (No Pressure Relief)			
ENGTH.	AND CONFIGURATION	<b>-</b>		
1SL	1" Rupture Disk with Slotted Head			
2SL	2" Rupture Disk with Slotted Head			
3H	3" Rupture Disk with Hex Head*	7	Ex	ar
4H	4" Rupture Disk with Hex Head*	7	RI	DF
6H	6" Rupture Disk with Hex Head*	7		_
7H	7" Rupture Disk with Hex Head*	7		
9H	9" Rupture Disk with Hex Head*	7		
12H	12" Rupture Disk with Hex Head*	7		

OPTIONS	
AA	None
1/4 NPT	1/4" NPT Discharge Connections
1/2 NPT	1/2" NPT Discharge Connections

THREAD TYPE				
AA	1/2-20 UNF 2A			
5/8	5/8X11 NC (RD4H, RD6H, RD9H only)			
3/4	3/4x16 UNF 2A Full Thread			
3/4S	3/4x16 UNF 2A Short Thread			

PRESSURE RANGE						
1.5M	1,500 PSI	7.5M	7,500 PSI			
2.5M	2,500 PSI	8.5M	8,500 PSI			
3.5M	3,500 PSI	9M	9,000 PSI			
4.5M	4,500 PSI	9.5M	9,500 PSI			
5M	5,000 PSI	10M	10,000 PSI			
5.5M	5,500 PSI	12.5M	12,500 PSI			
6.5M	6,500 PSI	15M	15,000 PSI			

<sup>\*</sup> Length Defined as the Length <u>under</u> the Hex head

# **MELT PRESSURE ACCESSORIES**

Maintenance Accessories for the prolonged life of GP:50 Transducers and Transmitters.

For more information or product availability, please contact your factory authorized Distributor/Rep.

# HOLE MACHINING TOOL KIT



The Hole Machining Tool Kit contains all of the necessary drills and taps to prepare a standard 1/2 - 20 UNF transducer mounting hole. The kit contains the special pilot drill required to machine the 45 degree seat. All tools included in this kit are made of premium grade, high strength tool steel. Care should be taken in the use of proper speeds and feeds, lubricants, and a method to assure continual alignment of each progressing tool.

# HOLE CLEANING TOOL KIT



The Cleaning Tool Kit removes unwanted plastic residue from mounting holes before transducer installation. A major cause of damage during installation practices is a transducer installed in a plugged or dirty mounting hole. The Cleaning Tool Kit will give a thorough cleaning of the mounting hole, while also checking the stability of the hole itself. Cleaning tools are available for 1/2-20 mounting holes and M18 X 1.5 mounting holes.

# TRANSDUCER SIMULATOR / TESTER



The TST-MV/V simulates the output of any melt pressure transducer, (3.33 mV/V output), adjustment settings for various pressure levels when testing output for existing melt pressure transducers. The simulator is available with standard 6-pin connector or 8-pin (with adaptor cable).

### MELT SENSOR TORQUE WRENCH



Precision Melt Pressure Torque Wrench for the recommended torque of melt pressure transducers and temperature sensors. This unit is designed to improve transducer accuracy and life expectancy by avoiding unaccountable additional torque to the threads and seat of ½-20 UNF transducers, while eliminating the possibility of side force trauma to the transducer tip diaphragm area.

# **ADDITIONAL ACCESSORIES**

GP:50 also offers transducer mounting brackets, replacement thermocouples, adaptor cables and a variety of installation items to make your installation complete.



# **GPR700/770 1/4 DIN**

# MELT PRESSURE INDICATOR/CONTROLLER

# **FEATURES**

- ♦ Universal + strain gauge inputs
- Three fast-acting alarms to protect against overpressure
- ♦ High visibility three color LED display
- ♦ High reliability and quality
- ◆ Three year warranty
- Optional secondary input for differential pressure/temperature display or control
- ◆ Analog retransmission
- ♦ Easy, effective auto-tune
- ♦ Direct replacement for UPR700/770 models



# TECHNICAL DATA

Power Require-	Main Power Supply Pwr. Sup. Var. Pwr. Consumption Optional Power Sup. Pwr. Sup. Var.	100 to 230V ac 50/60 Hz 100 to 230V ac 50/60 Hz ± 15% Max 22VA at 50Hz; Max 27VA at 60Hz 24V ac/dc From 14 to 30V ac From 14 to 32V dc Max 18VA at 24V ac 50/60 Hz;	Communications	Protocol:  Transmission Standard	Modbus RTU slave
ments	Pwr. Consumption  Electromagnetic	Max 12W at 24Vdc  Compliant with the European Directive 2004/108/CE		Strain Gauge Input:	From 340 to $5000\Omega$ bridge
	Compatibility	according to Product Standard EN 61326-1		Sensitivity:	1-4 mV/V
	Approvals	CE, cUL, RoHS 2		Connection:	4 or 5 wire (5 uses internal shunt)
	Temperature Limits	<b>Operation:</b> 0 to 50°C (32 to 122°F) <b>Storage:</b> -20 to 70°C (-4 to 158°F)		Excitation:	10 V± 7%
Environmental	Altitude	<6500 ft.		Calibration Accuracy	± 0.1% FSO ± digit@25°C± 1°C
Performance	Humidity Limits	0 to 95% RH non-condensing	Process Variable Input (Main Input)	Input span:	-25/125% of full scale (approx. 10/50mV)
	Panel Sealing	IP55		Linear Input:	0-5 Vdc, 0-10 V, 0-20 mA, 4-20 mA
	Panel mounting	1/4 DIN		Sample rate:	50 ms (typical)
Physical	Dimensions:	96W x 96H x 128Dmm (Panel cut-out 92Wx92H)		Resolution:	4000 counts/12 bits
	Weight	1.43 lb (650 g.)		Zero balance:	± 25% of full scale (approximately ± 10 mV
	Туре	LED (visible from 20ft.)		Drift with temperature	<300 ppm/K of full span for current, voltage and strain gauge input
	Main PV Display	5 digits, green, 13.3mm high		Common mode rejection:	>120dB @ 50/60Hz
Operator	Secondary Display	5 digits, amber, 10.7mm high		Series mode rejection:	
Interface	Bar Graph	35 segments, green with 3% resolution			. CO ID O FO/COLL
	Status Beacons	4 engineering units, 3 alarms, 18 active status beacons, including engineering units and alarms			>60dB @ 50/60Hz

# DIGITAL PRESSURE INDICATORS/CONTROLLERS

# TECHNICAL DATA

The GPR700 is a fully programmable indicator with a single input configured for melt pressure measurement and the choice of wiring either strain gauge or amplified transducers to the unit. An optional second input provides an additional facility for differential pressure measurement if required.

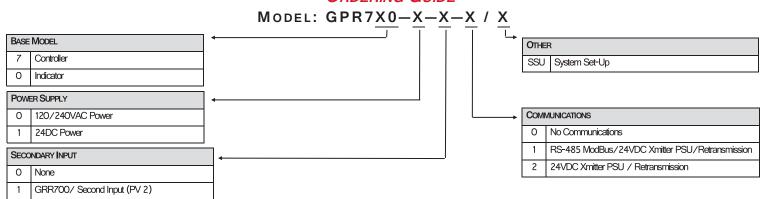
The update time for each channel is 50ms to respond to very fast processes. To provide full process measurement, the second input can be configured for either thermocouple or RTD temperature measurement.

Three pre-configured and ready to use alarms are associated to the process to detect high and low pressure conditions. A flexible alarm strategy enables shutdown of the extruder at dangerous pressure levels.

	Strain gauge input:	For differential pressure calculation	
	Input features:	See main input features above	
	Linear input: GPR770 only	For differential pressure or remote set point see main input (above)	
Secondary Process	Input features:	See main input (above)	
Variable	Thermocouple: GPR 700 only	J,K,L,N,T,E	
Input	RTD Resistance: GPR 700 only	3-wire Pt 100, Pt 500	
	Input impedance:	$\begin{array}{l} >1 M\Omega \text{ for thermocouple input} \\ <10 \Omega \text{ for linear current input} \\ >165 k\Omega \text{ for linear voltage input} \end{array}$	
	Sample rate temp. input:	100, 200, 500 or 1000ms	
Software Features	Control Number of loops: Control loop update: Control types: Modes: Autotune:	1 50ms (typical) PI/PID Auto, manual, forced manual Tune algorithm from manual mode. Adaptive algorithm in auto mode	
	Transducer calibration Calibration types: Shunt resistor:	With or without shunt resistor Programmable from 40 to 100%, default 80%	
	Alarms Number: Type:	3 Absolute high & low, deviation high, Low or band Low masked on start up Auto / Manual reset	
	Other Features: Peak monitor: Automatic stand-by:	Stores high or low values Avoids overshoot caused by temporary process interruptions	

	Function: GPR700	PV retransmission
Main Analogue Output	Rating:	Control Output $ \begin{tabular}{ll} Configurable between: \\ 0/10 VDC, min. load 5k\Omega \\ -10/+10 VDC, min. load 5k\Omega \\ 0/5 VDC min. load 5k\Omega \\ 0/20 mA, max. load 500\Omega \\ 4/20 mA, max. load 500\Omega \\ \end{tabular} $
	Accuracy:	0.1% in manual mode, 0.03% in automatic mode
	Resolution:	0.1% of output span
	Isolation:	From input / output
	Output filter: Selectable: OFF, 0.4,1, 2, 3, 4, 5s	
Secondary Analogue	Function: GPR700 GPR770	Configured as pressure or temp. input retransmission  Acts as pressure input retransmission
Output		See main analogue output (above)
Relay Output	Alarm 1-2 Type: Rating: Functions:  Alarm 3 Type: Rating: Functions:	Form C (changeover) 2A max @ 240V ac resistive load Process alarm  Form A (normally open) 2A max @ 240V ac resistive load Process alarm
Digital Input	Reset/Cal (GPR 700/770 Isolation: Functions:  1-2-3-4 (GPR770) Isolation: Functions:	None from PV Configurable as: Alarm reset Peak reset Alarm and peak reset Zero calibration of the primary input: Zero calibration of the primary input, alarm and Peak reset  Opto-isolated from input/output Dig In 1: Automatic/manual control Dig In 2: Control output value increase Dig In 3: Control output value decrease Dig In 4: Automatic to manual mode setting to zero the control output

# **ORDERING GUIDE**



GPR770 / Second Input (remote SP and PV 2)



# **NOZZLE PRESSURE TRANSDUCER**

MODEL V163-IB, V263-IB, V363-IB

# **APPLICATIONS**

♦ INJECTION MOLDING

# **FEATURES**

- **♦ FULLY WELDED STAINLESS STEEL CONSTRUCTION**
- **♦ INTERCHANGEABLE WITH EXISTING SYSTEMS**
- ♦ HIGH-QUALITY, RELIABLE ELECTRONICS
- **♦ VIBRATION PROTECTION**
- **♦ AVAILABLE OPTIONS FOR ALL MELT APPLICATIONS**
- ♦ IMPROVED DIAPHRAGM FOR INCREASED CYCLES
  AND REPEATABLE ACCURACY

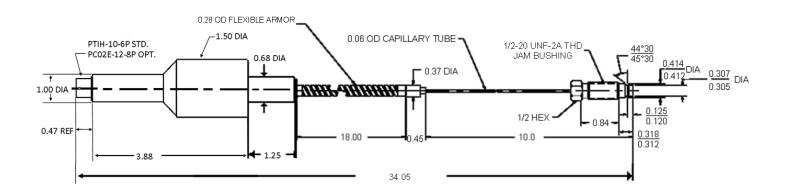
# PRESSURE RANGES

♦ FROM 0-500 THROUGH 0-30,000 PSIG

# **ACCURACY**

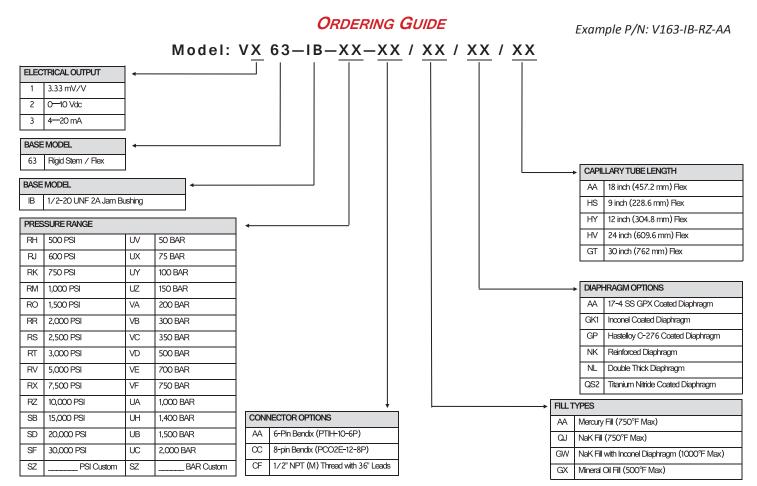
♦ ±0.50% FSO, 5,000-30,000 PSI





# **SPECIFICATIONS**

FULL SCALE PRESSURE RANGES	SEE ORDERING GUIDE			
ACCURACY	(Non-linearity, Hysteresis, Non-Repeatability)			
STATIC ERROR BAND	±0.50% FSO, 5,000-30,000 PSI			
MATERIAL IN CONTACT WITH PRESSURE MEDIA	17-4 PH STAINLESS STEEL DIAPHRAGM WITH GPX COATING, OPTIONAL DIAPHRAGM MATERIALS AVAILABLE			
PROOF PRESSURE	2 TIMES THE FULL SCALE PRESSURE RANGE UP TO 35,000 PSI			
TEMPERATURE LIMITS	DIAPHRAGM 750°F (400°C)	STRAIN GAUGE HOUSING 176°F (80°C)		
TEMPERATURE EFFECTS	FROM DIAPHRAGM	From Strain Gauge Housing		
	ZERO-15 PSI / 100°F	ZERO / SPAN—LESS THAN ±1.0% FSO / 100°F (±2.0% FSO / 100°C)		
ELECTRICALS	(V163-IB, 3.33 MV/V)	(MODEL V263-IB, 0-10 VDC)	(MODEL V363-IB, 4-20 MA)	
EXCITATION VOLTAGE	3.5—15 VDC	14-36 VDC	14-36 VDC	
Оитрит ат 70°F	3.33 MV/V ±2.0% FSO	10.0 Vpc ±2.0% FSO	4-20 MA ±2.0% FSO	
IMPUT IMPEDANCE	350 OHM, NOMINAL			
IMPUT CURRENT		8 mA, nominal		
OUTPUT CURRENT		2.0 mA maximum for ≤ 0.1% FSO ATTENUATION		
LOAD IMPEDANCE	50,000 OHMS MINIMUM FOR ≤ 0.1% FSO ATTENUATION		1350 OHMS MAXIMUM, AT 36 VDC AND 750 OHMS 24 VDC	
ZERO BALANCE	0.0 MV/V ±5.0% FSO AT 70°F	0.0 VDC ±5.0% FSO AT 70°F	4.0 MA ±5.0% FSO AT 70°F	
RANGE CALIBRATION SIGNAL	80% ±5.0% FSO	80% ±5.0% FSO		
CONNECTIONS	PRESSURE 1/2" - 20—UNF—2A	ELECTRICAL PTIH—10—6P STANDARD, 8-PIN AND OTHER CONNECTORS AVAILABLE		
ENCLOSED MATERIALS	316 STAINLESS STEEL			
MOUNTING TORQUE	180-200 INCH POUNDS, 500 INCH POUNDS THREAD LIMITATION			





# **IMH Series Pressure Transmitter**

MODELS M, V, AND C

# **APPLICATIONS**

- **♦ INJECTION MOLDING**
- ♦ HYDRAULIC
- ◆ PNEUMATIC

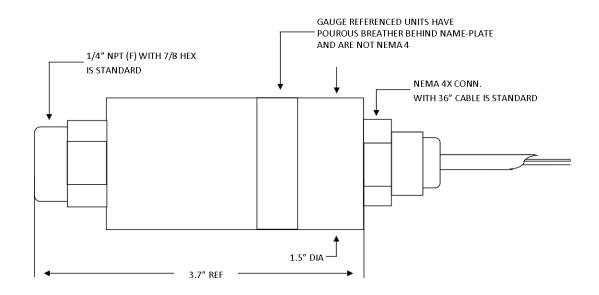
# **FEATURES**

- **CHOICE OF ELECTRICAL OUTPUTS**
- ◆ AVAILABLE ELECTRICAL CONNECTIONS: 6-PIN, HIRSCHMAN, AND LEADS
- ♦ SMALL SIZE (1.5" OD x 3.75" LONG)

# **PRESSURE RANGES**

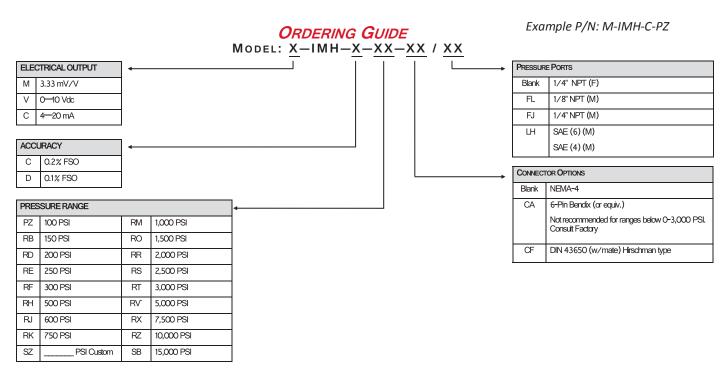
♦ FROM 0-100 THROUGH 0-15,000 PSIG





# **SPECIFICATIONS**

Output Span Tolerance	±1.0% FSO at 70°F			
Pressure Type (Standard)	Gauge/Non-Hermetic Seal (0-300 PSI and above)			
	Gauge/Direct/Cable Vented (Below 0-300 PSI)			
Zero Balance	±1.0% FSO at 70°F			
Wetted Material	316 and 15-5 PH Stainless Steel			
Accuracy	0.2% (Includes hysteresis, non-linearity, and repeatability)			
Temperature Limits				
Compensated	0°F to +180°F			
Operating	-20° to +190°F			
Storage	-20° to +250°F			
Electricals	M-Spike	V-Spike	C-Spike	
Excitation Voltage	3.5-15 Vdc	9-40 Vdc (14.5-32 for 0-10V)	9-40 Vdc	
Output at 70°F	3.0 mV/V	O-5 Vdc	4-20 mA	
Input Impedance	5,000 ohms nominal, full bridge			
Input Current		8 mA nominal		
Load Impedance	50,000 ohms min., for ≤ 0.1% FSO Attenuation		1,200 ohms max., 37 Vdc and 600 ohms	
			Max. at 24 Vdc	
Output Current		2.0 mA max. for ≤ 0.1% FSO attenuation		
Calibration Signal	Resistance value provided on calibration card for 100% FSO			
Mechanicals				
Proof Pressure	3x full scale pressure range or 22,500 PSI, whichev	ver is less		
Burst Pressure	5x full scale pressure range or 23,500 PSI, whichever is less			
Weight	10 oz. nominal			
Connections	Pressure	Electrical		
	1/4" NPT (F) Standard	3' Polyurethane-jacketed, conductor cable (24	AWG Std)	
Enclosed Materials	316 Stainless Steel			





# PLASTIC MELT PRESSURE TRANSDUCER/TRANSMITTER KITS

GP:50 Melt-Kits come with everything you need for efficient and reliable extrusion pressure measurement.

Melt Kits include Transducer, Cable, Indicator and more.

KITS AVAILABLE

# STARTER MELT KIT:

To start your electronic pressure measurement

Model V162 Pressure Transducer

**GPR700 Digital Indicator** 

Connecting Cable, 20'

Mounting Hole Machining Tool Kit

Anti-Seize Compound

**Getting Started Guide** 

Promo Item

# **CLASSIC MELT KIT:**

Ideal for processors currently measuring pressure

Model V162 or V163 Pressure Transducer

**GPR700 Digital Indicator** 

Connecting Cable, 20'

Anti-Seize Compound

**Getting Started Guide** 

Promo Item

# **TEMPERATURE/PRESSURE MELT KIT:**

Ideal for processors with temperature and pressure measurement requirements

Model V164 Temperature/Pressure Transducer

**GPR700** Digital Indicator

Connecting Cable, 20'

Mating Thermocouple Connector

Anti-Seize Compound

**Getting Started Guide** 

Promo Item

# **DIFFERENTIAL MELT KIT:**

Ideal for processors who measure and control differential pressure

Two V163 Pressure Transducers

1235 Process Controller

Two Connecting Cable, 20'

Anti-Seize Compound

**Getting Started Guide** 

Promo Item

Starter Melt-Kit MODEL 1310	Classic Melt-Kit MODEL 1311	Temperature/ Pressure Melt-Kit MODEL 1312	Differential Melt-Kit MODEL 1313
Ex: 1310-V162-RX-AA	Ex: 1311-V162-RX-AA	Ex: 1312-V164-RX-AA	Ex: 1313-V163-RX-AA
<u>Transducer</u>	<u>Transducer</u>	<u>Transducer</u>	<u>Transducer</u>
V162 3.33 mV/V	V162 3.33 mV/V V163 3.33 mV/V	V164 3.33 mV/V	V163 3.33 mV/V

Pressure Ranges (PSI)	
RH—500	
RK—750	
RM- 1000	
RO—1500	
RT—3000	
RV-5000	
RX—7500	
RZ—10000	



Interchangeable with other competitive brands, the GP:50 Melt Pressure ASF non-mercury melt pressure transducers offer high accuracy, advanced quality construction, and available FM-Approved for hazardous environments and FDA approved for food packaging, and medical applications.

The ASF filled melt pressure transducers are available in a variety of melt pressure sensor configurations including choices of mechanical connections, electrical outputs, HART capability, and Smart temperature compensation.

Noted characteristics of the GP:50 ASF non-mercury sensors include superior thermal properties, and excellent response.

Industry fill-medium options have been introduced, but proven to offer shorter life duration, degradation, and some considered combustible or flammable.

Additional GP:50 sensor improvements are a proprietary matched membrane system to promote longer tip diaphragm life eliminating diaphragm hysteresis, known to promote diaphragm failures.

# **Advanced Safe Fill**

# Quality Construction and Reliability Non-Mercury, Green and Safe for the Environment! FM Approved for Hazardous Environments

Specifically regarding melt pressure measurement sensors, a common request for reliable instruments that incorporate superior accuracy and reliability, yet are non-mercury, has become a higher priority.

GP:50 Melt Pressure has incorporated the ASF fill-medium which provides a non-toxic pressure sensor providing long life, totally safe, and non-flammable.

GP:50 Melt Pressure dedicated years of development of the ASF fill-medium offering superior and repeatable performance of mercury, without the health and environmental issues that come along with it.





Superior Coilflex
Vibration Protection
HART Communication
Premium Temp
Compensation
Multi-Ranging

Fill-Medium Materials: ASF is defined as safe substance (GRAS), meets requirements for RoHS Directive, IMERC (Interstate Mercury Education and Reduction Clearinghouse) initiatives, and Factory Mutual compliance.



# GP:50 MELT PRESSURE 300 INDUSTRIAL DRIVE GRAND ISLAND, NY 14072 TEL: 716-775-8830 FAX: 716-775-8020 WWW.GP50MELTPRESSURE.COM MELTSALES@GP50.COM



