



TIGER FAMILY

## DI-50E & DI-50T Programmable Meter Controllers Tiger 320 Series PMCs 5 Digit 0.56" LEDs in a 1/8 DIN Case

**A powerful, intelligent, 5-digit Programmable Meter Controller (PMC) with modular outputs, input signal conditioning and advanced software features for monitoring, measurement, control and communication applications.**

### General Features

- The Tiger 320 Operating System supports an easy to use PC based Configuration Utility Program, which can be downloaded FREE from the web, and programming from front panel buttons.
- The T Version supports custom macro programs that can be easily produced with the Tiger 320 Macro Development System (available FREE on the web). The Development System enables programs to be written in BASIC, which can utilize any combination of the hundreds of functions and thousands of registers embedded in the Tiger 320 Operating System.
- Red, green, or superbright red 7-segment, 0.56" high LEDs with full support for seven segment alphanumeric text.
- Brightness control of LED display from front panel buttons.
- Modular construction with more than 120 interchangeable input signal conditioners and more than 25 interchangeable I/O modules.
- Up to 4 input channels with cross channel math for multi-channel processing.
- For applications where sensor excitation is required, modules are provided with 5V, 10V or 24 V DC voltage outputs.
- On demand tare, calibration and compensation can be initiated by the front panel program button.
- Autozero maintenance for super stable zero reading is provided for use in weighing applications.
- Programmable input averaging and smart digital filtering for quick response to input signal changes.
- Display text editing. Customize display text for OEM applications.
- Scrolling display text messaging on T meters with macros.
- Auto-sensing high voltage or optional low voltage AC / DC power supply.
- Serial output options include RS-232, RS-485, ModBus, Ethernet, DeviceNet or direct meter-to-meter communications.
- Single or dual 16-bit Isolated Analog Outputs. Programmable 0-4 to 20mA or 0 to 10V for retransmission, 4-20mA loops to drive valve actuators, remote controllers & displays, multi-loop feedback and PID output. Scalable from 1 count to full scale.
- Dual independent totalizers to integrate input signals.
- 6 super smart, independently programmable setpoints with 8 selectable functions, including latching, deviation, hysteresis, register resetting, tracking and dual PID. Plus 7 programmable timer modes on all 6 setpoints.
- Setpoint tracking, setpoint latching and manual relay reset.
- Setpoints activated from any input, any register in the meter or from any digital input.
- Plug-in I/O modules include electromechanical or solid state relays, logic outputs or open collector outputs. 6 inputs & 16 outputs of opto-isolated I/O can be connected to an external DIN Rail terminal block module.
- Internal program safety lockout switch to prevent tampering.
- Peak & valley (max & min) with front panel recall and reset.
- Real time clock with 15 year Lithium battery backup.
- Data logging within the meter (up to 4000 samples with date/time stamp).
- Optional NEMA-4 front cover.

### Input Module Compatibility

**TIGER FAMILY:** More than 120 different Plug in I-Series Input Signal Conditioners are approved for the Tiger Family of meters.

See *I-Series Input Signal Conditioning Modules Guide (Z87)* for an up-to-date list.





### Table of Contents

PATHFINDER INSTRUMENTS

800-284-9698

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## Display

- Digital Display:** 7-segment, 0.56" (14.2 mm) LEDs.  
**Display Color:** Red (std). Green or Super-Bright Red (optional).  
**Digital Display Range:** -19999 to 99999  
**Update Rate:** 3 to 10 times per second  
**Display Dimming:** 8 brightness levels. Front Panel selectable  
**Scrolling Display Text Messaging:** Full alphanumeric, 7-segment text characters supported on T Version with macros.  
**Polarity:** Assumed positive. Displays - negative  
**Decimal Point:** Front panel, user selectable to five positions.  
**Annunciators:** 6 red LEDs on front panel; one per setpoint.  
**Overrange Indication:**   
**Underrange Indication:**   
**Front Panel Controls:** PROGRAM, UP and DOWN.

## Operating System (Tiger 320)

- Processor:** 32 bit with floating point maths (18.4 MHz).  
**Flash Memory:** 64k, 4k for use by custom macros. **RAM:** 1.25k and FeRAM 4k.  
**EEPROM:** E Version 4k standard, T Version 32k standard. Memory upgrades available to 32k for LIN Tables and 1 MB for Data Logging and custom macros.  
**Registers:** 6144 registers comprised of 8, 16 or 32 bit signed, unsigned or floating point registers, implemented in a combination of RAM, FeRAM, Flash and EEPROM.  
**Internal communication BUS:** 32 bit <sup>2</sup>C BUS  
**Real Time Clock (option):** Year:Month:Date:Hour:Minute:Second with 15 yr Lithium battery backup.  
**Configuration:** Supports Front Panel Programming Codes and a PC-based Configuration Utility Program, which may be downloaded free from the web. T Version also supports custom macros.

## Development System for Custom Macros

The Tiger 320 Macro Development System, which may be downloaded free from the web, can be used to create powerful macro software that allows Tiger 320 T Versions to be easily customized to suit any proprietary OEM application (see page 11).

## Installed Application Software Includes

- Counter Functions:** Two built-in counters. UP counters, DOWN counters, UP/DOWN counters and high speed quadrature counters.  
**Data Logging:** Logging with a date/time stamp, initiated at timed intervals, by activation of a setpoint, or manually. Data stored in internal 1 MB EEPROM or in a removable 4 to 128M Flash Card Memory Module. Endless loop recording is supported.  
**Input Compensation:** Provides compensation to the primary input channel (CH1) via channels 2, 3 or 4.  
**Linearization:** 4 selectable 32 point or one 125 point flexible linearization tables are provided.  
**Logic I/O:** 28 Macro programmable I/O ports supported.  
**Manual Loader:** Front panel adjustable, 4 to 20mA or 0 to 10V isolated analog output.  
**Math Functions:** Cross channel math functions to calculate the sum, difference, ratio or the product of two inputs.  
**On Demand Functions:** Tare, compensation and calibration.  
**Peak and Valley:** The meter can retain peak and valley (min/max) information and recall this on the front panel.  
**Remote Setpoint Input:** Remote setpoint input via channel 2.  
**Serial Output Protocols:** Selectable communication modes include ASCII, Modbus (RTU), Master Mode (for meter to meter communication) and an Epson compatible printer driver. DeviceNet and Ethernet optional output carrier boards are also supported.  
**Setpoint Functions:** Six super smart setpoints with fully configurable hysteresis, on and off delays, one shot, pulse and repeat timers, latching, dual PID, setpoint tracking, resetting of registers, initiating of logging and printing.  
**Signal Conditioning Functions:** Averaging, smart filter, rounding, square root, auto zero maintenance.  
**Timer:** Timer functions supported in either time-up, time-down, or real-time clock modes.  
**Totalizer:** Two totalizers for running total and batch totals of a process signal that can be accumulated over time.

## Inputs

- Inputs Available:** More than 120 single, dual, triple and quad input signal conditioners available covering all types of analog, digital and mixed input signals (see page 49).  
**Accuracy:** Tiger 320 PMCs enable the user to establish any degree of system accuracy required. Built-in compensation and linearization functions enable system accuracies of the order of  $\pm 0.0001\%$  of reading for analog inputs. Stop -Start time resolution from  $\pm 1$ sec to  $\pm 0.7$ nsec. Digital input and pulse counts  $\pm 1$  count.  
**A/D Converters:** A Dual Slope, bipolar 17 bit A/D is provided as standard on the main board. SMART modules can have 24 bit or 16 bit Delta-Sigma A/D converters that utilize the internal <sup>2</sup>C BUS.  
**Temperature Coefficient:** Typically 30ppm/<sup>o</sup>C. Compensation can be utilized to achieve system temperature coefficients of 1ppm.  
**Warm Up Time:** Up to 10 minutes, depending on input module.  
**Conversion Rate:** Typically 10 samples per second. However, SMART input modules are available that can convert at 60, 240, 480 or 960 samples per second.  
**Control Output Rate:** Can be selected for 100msec or 10msec. Some SMART modules have SSR outputs that react within 1.2msec.  
**Excitation Voltage:** Depends on input module selected. Typically, 5V, 10V or 24VDC is provided.

## Outputs (See pages 46-47 for pinouts and details of modular construction)

**Three Optional Plug-in Carrier Boards:** Provide four different serial outputs or no serial output, support single or dual analog outputs, and accept any one of seven different plug-in I/O modules.

1. **Standard Carrier Board:** Is available without a serial output, or with either an isolated RS-232 or an isolated RS-485 (RJ-6 socket).
2. **DeviceNet Carrier Board:** 5 pin 3.5mm screw terminal.
3. **Ethernet Carrier Board:** 10/100Base-T Ethernet (RJ-45 socket).

**Two Isolated Analog Output Options:** Mounted on any carrier board.

1. **Single Analog Output:** Fully scalable from 4 to 20mA or 0 to 20mA (or reverse) and selectable for 0 to 10VDC (or reverse).
2. **Dual Analog Output:** Fully scalable from 0 to 10VDC (or reverse).

**Analog Output Specifications:** Accuracy: 0.02% FS. Resolution: 16-bit Delta-Sigma D/A provides 0.4 $\mu$ A on current scaling, 250 $\mu$ V on voltage scaling. Compliance: 500mA maximum for current output. 500mA minimum for voltage output. Update Rate: Typical 7 per second. Step Response: Typical 6msec to a display change. Scalable: From 1 count to full scale.

**Seven I/O Modules:** Plug into any carrier board from rear.

1. **Four Relay Module:** Available in six combinations from one relay up to a total of two 10A Form C Relays\* and two 5A Form A Relays\*\*.
2. **Four Relay Module:** Available with one to four 5A Form A Relays\*\*.
3. **Six Relay Module:** Available with five or six 5A Form A Relays\*\*.  
\***Form C Relay Specifications:** 10A 240VAC-1/2 HP, 8A 24VDC. Isolation 3000V. UL and CSA listed.  
\*\***Form A Relay Specifications:** 5A 240VAC, 4A 24VDC. Isolation 3000V. UL and CSA listed.
4. **Four Solid State Relay (SSR) Module:** Available with one to four independent (210mA DC only) or (140mA AC/DC) SSRs (400V max).
5. **Six Output 5VDC / TTL or Open Collector:** Available with 0 to 5V or 0 to V+ (40VDC max).
6. **Opto Isolated I/O Module:** Available in either 6 Outputs & 6 Inputs, or 16 Outputs and 6 Inputs. For connection to an external breakout box.
7. **Flash Card Memory Module:** Available with 8 or 16 MB memory.

## Power Supplies

- Auto sensing AC/DC (DC to 400Hz) hi volts std, low volts optional.  
**PS1 (standard):** 85-265VAC / 95-370VDC @ 4W max 5W.  
**PS2 (optional):** 14-48VAC / 10-72 VDC @ 4W max 5W.

## Environmental (See Rear page for IP-65 & NEMA-4 options)

- Operating Temperature:** 0 to 50 <sup>o</sup>C (32 <sup>o</sup>F to 122 <sup>o</sup>F). **Storage Temperature:** -20 <sup>o</sup>C to 70 <sup>o</sup>C (-4 <sup>o</sup>F to 158 <sup>o</sup>F). **Relative Humidity:** 95% (non-condensing) at 40 <sup>o</sup>C (104 <sup>o</sup>F).

## Mechanical (See Rear page for more details)

- Case Dimensions:** 1/8 DIN, 96x48mm (3.78" x 1.89")  
**Case Material:** 94V-0 UL rated self-extinguishing polycarbonate.  
**Weight:** 11.5 oz (0.79 lbs), 14 oz (0.96 lbs) when packed.

## Approvals

- CE:** As per EN-61000-3/4/6 and EN-61010-1.

# I-SERIES INPUT SIGNAL CONDITIONING MODULES

Over 120 plug-in signal conditioning modules are available to suit almost any input signal, control, or data output. Modules can be easily inserted through the rear of the meter without disassembly of the case or removal from the panel. Many modules are exclusively designed for the Tiger 320 Series, and some can also be used with the Leopard and Lynx Family panel meters and bargraphs.

Function	Module	Function	Module Page	Function	Module Page
<b>AC</b>				<b>SMART MODULES</b>	
• AC Am ps. Scaled RMS	IA04	• Process Loop, 4 to 20mA w/24V DC Exc. and AutoCal	IP06	• Dual Smart Pressure/Load Cell, 16 bit	ISS5*
• AC Am ps. Scaled RMS	IA05	• Process Loop, 4 to 20mA with 24V DC Exc	IP02	• Dual Smart Pressure/Load Cell, 16 bit	ISS6**
• AC Am ps. True RM S	IA09	• Quad 4 to 20mA	IP01	• Smart DC Volts, 16 bit, 1 to 800 Hz update rates	ISD1*
• AC Am ps. True RM S	IA11	• Smart Dual Input, Load Cell and Process (4-20mA)	IP03	• Smart DC Volts, 16 bit, 1 to 960 Hz update rates	ISD2**
• AC Milliamps, Scaled RMS	IA03	• Triple 4 to 20mA	ITP1	• Smart DC Volts, 16 bit, 1 to 800 Hz w/dual SSRs	ISD3*
• AC Milliamps, True RM S	IA08	• Triple - T/C, 4 to 20mA and 4 to 20mA	ITP1	• Smart DC Volts, 16 bit, 1 to 960 Hz w/dual SSRs	ISD4**
• AC Milliamps, Scaled RMS	IA10	• Triple - T/C, 4 to 20mA and Counter	ITP1	• Smart DC Volts, High Res & Acc, 24 bit 1-400Hz	ISD5*
• AC Milliamps, True RM S	IA12	• Triple - T/C, 4 to 20mA and DC mV	ITP1	• Smart DC Volts, High Res & Acc, 24 bit 1-480Hz	ISD6**
• AC Volts, Scaled RMS	IA01	• Triple - T/C, 4 to 20mA and DC Volts	ITP1	• Smart DC V, High Res & Acc, 1-400Hz w/dual SSRs	ISD7*
• AC Volts, Scaled RMS	IA02	• Triple - T/C, T/C and 4 to 20mA	ITP1	• Smart DC V, High Res & Acc, 1-480Hz w/dual SSRs	ISD8**
• AC Volts, True RM S	IA06			• Smart Dual 3-wire Potentiometer (50 Hz)	ISR3*
• AC Volts, True RM S	IA07			• Smart Dual 3-wire Potentiometer (60 Hz)	ISR4**
<b>COUNTER</b>		<b>FREQUENCY / RPM</b>		• Smart Dual Photo Diode Input	ISSE
• Dual - UP/DOWN Counter	IDC1	• Dual - Strain Gage and Frequency	ISL1*	• Smart Single 3-wire Potentiometer (50 Hz)	ISR1*
• Quadrature Counter	IC02	• Dual Frequency	ISL1*	• Smart Single 3-wire Potentiometer (60 Hz)	ISR2**
• Quadrature Counter w/dual SSRs	IC03	• Line Frequency	ISL1*	• Smart Dual Input, Load Cell and Process (4-20mA)	ISS9
• Smart Triple Input, Pressure Direct & Dual Counter	ISP1	• Triple RTD / RTD / Frequency	ISL1*	• Smart Dual Input, Load Cell and RTD	ISB*
• Triple - T/C, 4 to 20mA and Counter	ITTF	• Triple - T/C, Volts and Frequency	ISL1*	• Smart Dual Input DC Volts, 16 bit, 1-20Hz update	ISDA*
• Universal Freq./RPM / Up Down Counter	IF10	• Triple - T/C, Volts and Frequency	ISL1*	• Smart Dual Input DC Volts, 16 bit, 1-20Hz update	ISDB**
<b>DC</b>		<b>LVDT</b>		• Smart Dual Input DC Volts, 16 bit, 1-20Hz update	ISD9**
• DC Amns	ID04	• Smart Dual LVDT (50 Hz)	IH01	• Smart Dual LVDT (60 Hz)	IH02
• DC Amps	ID09	• Smart Dual LVDT (60 Hz)	IH02	<b>OXIDATION REDUCTION POTENTIAL</b>	
• DC Milliamps	ID03	<b>OXIDATION REDUCTION POTENTIAL</b>		• Oxidation Reduction Potential (ORP)	IR03
• DC Milliamps with Offset and 24V Exc	ID07	<b>pH</b>		• pH	IS3
• DC MilliVolts	ID02	• pH with Automatic Temperature Compensation	IS3	<b>POTENTIOMETER</b>	
• DC Volts	ID01	<b>POTENTIOMETER</b>		• Linear Potentiometer 1 Km in	IGYY
• DC Volts with External Decimal Select	ID06	• Smart Dual 3-wire Potentiometer (50 Hz)	IGYY	• Smart Dual 3-wire Potentiometer (60 Hz)	ISD2**
• DC Volts with External LIN Table Select	ID08	• Smart Quad Potentiometer/Resistance	ISD5*	• Smart Quad Potentiometer/Resistance	ISD6**
• DC Volts with Offset and 24V Exc	ID05	• Smart Single 3-wire Potentiometer (50 Hz)	IS07	• Smart Single 3-wire Potentiometer (60 Hz)	IS04
• DC-Watts, 10V/50mV DC	IW03	<b>PRESSURE</b>		• Direct Pressure with 2 Digital Inputs	IS3
• Dual - 3-wire RTD and DC V	IDT3	• Dual Direct Pressure (Absolute or Differential/Gage)	IS3	• Dual Direct Pressure (Absolute or Differential/Gage)	ISS1*
• Dual DC Milliamps	IDD3	• Dual Pressure Input	IS2**	• Dual Pressure Input	IS2**
• Dual DC MilliVolts	IDD2	• Dual Smart Pressure/Load Cell, 16 bit	IS4**	• Dual Smart Pressure/Load Cell, 16 bit	IS4**
• Dual - DC mV and 4 to 20mA	IDD6	• Dual Smart Pressure/Load Cell, 16 bit	IS7*	• Pressure/Load Cell Ext Exc. High Impedance	IS8**
• Dual - DC V and 4 to 20mA	IDD5	• Pressure/Load Cell Ext Exc., 4/6-wire	IS1	• Pressure/Load Cell Ext Exc., 4/6-wire	IS1
• Dual - DC V and DC mV	IDD4	• Pressure/Load Cell Ext Exc., 20/20mV/V, 4-wire	IGYZ	• Pressure/Load Cell with AutoCal, 4-wire	IP03
• Dual DC Volts	IDD1	• Pressure/Load Cell, 4/6-wire	IP03	• Pressure/Load Cell, 20/2mV/V, 5/10V Exc 4-wire	IDP1
• Dual - Thermocouple and DC mV	IDT5	• Smart Pressure/Load Cell, Standard Res 16 bit	IP01	• Smart Pressure/Load Cell, Standard Res 16 bit	IP01
• Dual - Thermocouple and DC V	IDT4	• Smart Pressure/Load Cell, Standard Res 16 bit	IP09	• Smart Pressure/Load Cell, High Res & Acc 24 bit	IP06
• Process Input with Offset and 24V Exc (1-5VDC)	IP03	• Smart Pressure/Load Cell, High Res & Acc 24 bit	IP02	• Smart Quad Pressure/Load Cell (50 Hz)	IQP1
• Process + 3 Digital Inputs	IP10	• Smart Quad Pressure/Load Cell (60 Hz)	IQT2	• Smart Triple Input, Pressure Direct & Dual Counter	IQT2
• Quad DC mV	IDQ2	• Universal Direct Pressure	IQT2	<b>PROCESS INPUT</b>	
• Quad DC Volts	IDQ1	<b>PROCESS INPUT</b>		• Process Input with Offset and 24V Exc (1-5VDC)	IGYY
• Smart DC Volts, 16 bit, 1 to 800 Hz update rates	ISD1*	<b>PROCESS LOOP</b>		• Dual Process Loop	IDS2
• Smart DC Volts, 16 bit, 1 to 960 Hz update rates	ISD2**	• Process Loop, 4 to 20mA	IP01	• Process Loop, 4 to 20mA (0-100.00) w/ Ext. Lin Table	IDR1
• Smart DC Volts, 16 bit, 1 to 800 Hz w/dual SSRs	ISD3*	• Process Loop, 4 to 20mA (0-100.00) w/ Ext. Lin Table	IR01	• Process Loop, 4 to 20mA w/24V DC Exc. and AutoCal	ISSA
• Smart DC Volts, 16 bit, 1 to 960 Hz w/dual SSRs	ISD4**	• Process Loop, 4 to 20mA with 24V DC Exc	IDP2	<b>QUAD INPUTS</b>	
• Smart DC Volts, High Res & Acc, 24 bit 1-400Hz	ISD5*	• Quad 4 to 20mA	IDT2	• Quad 4 to 20mA	IQT2
• Smart DC Volts, High Res & Acc, 24 bit 1-480Hz	ISD6**	• Quad DC mV	IQT4	• Quad DC Volts	IT02
• Smart DC V, High Res & Acc, 1-400Hz w/dual SSRs	ISD7*	• Quad RTD Platinum 2 wire connection	IT03	• Quad RTD Platinum 2 wire connection	IT04
• Smart DC V, High Res & Acc, 1-480Hz w/dual SSRs	ISD8**	• Quad RTD Platinum 4 wire connection	IT04	• Quad - Thermocouple / DC V / DC V / Frequency	IT14
• Smart Dual Input DC Volts, 16 bit, 1-20Hz update	ISDA*	• Quad - Thermocouple / DC V / DC V / Frequency	IT14	• Smart Quad Potentiometer/Resistance	IT13
• Smart Dual Input DC Volts, 16 bit, 1-20Hz update	ISDB**	• Smart Quad Pressure/Load Cell (50 Hz)	IT12	• Smart Quad Pressure/Load Cell (60 Hz)	ISSB
• Triple DC mV, 50mV DC	ITD2	• Smart Quad Thermocouple (50 Hz)	IST5*	• Smart Quad Thermocouple (60 Hz)	IST5*
• Triple DC Volts, 2V DC	ITD1	• Smart Triple Input, Load Cell and Two Digital Inputs	ISST*	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSC
• Triple - T/C, DC mV and DC mV	ITT6	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSC	• Smart Triple Input, Pressure Direct & Dual Counter	ISP1
• Triple - T/C, DC Volts and DC mV	ITT9	• Triple 4 to 20mA	ITP1	• Triple - DC mV, 2V DC	ITD2
• Triple - T/C, DC Volts and DC Volts	ITT7	• Triple - DC Volts, 2V DC	ITD1	• Triple RTD Platinum 100 RTD 4-wire connection	ITT2
• Triple - T/C, T/C and DC mV	ITT5	• Triple RTD Platinum 100 RTD 2-wire connection	ITT2	• Triple - RTD / RTD / Frequency	ITTE
• Triple - T/C, T/C and DC V	ITT3	• Triple - T/C, 4 to 20mA and 4 to 20mA	ITT8	• Triple - T/C, 4 to 20mA and Counter	ITTF
• Universal Process Input	IP07	• Triple - T/C, 4 to 20mA and DC mV	ITTB	• Triple - T/C, 4 to 20mA and DC Volts	ITTB
• Universal Process Input with AutoCal	IP08	• Triple - T/C, DC mV and DC mV	ITT6	• Triple - T/C, DC Volts and DC Volts	ITT7
<b>DUAL INPUTS</b>		• Triple - T/C, DC Volts and DC Volts	ITT7	• Triple - T/C, T/C and 4 to 20mA	ITT4
• Dual - 3-wire RTD and DC V	IDT3	• Triple - T/C, T/C and DC mV	ITT5	• Triple - T/C, T/C and DC V	ITT3
• Dual - 3-Wire RTD and 4 to 20mA	IDP2	• Triple - T/C, Volts and Frequency	ITTG	• Triple Thermocouple	ITT1
• Dual DC Milliamps	IDD3	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSC*	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSD**
• Dual DC MilliVolts	IDD2	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSC	• Smart Triple Input, Pressure Direct & Dual Counter	ISP1
• Dual - DC mV and 4 to 20mA	IDD6	• Triple 4 to 20mA	ITP1	• Triple - DC mV, 2V DC	ITD2
• Dual - DC V and 4 to 20mA	IDD5	• Triple - DC Volts, 2V DC	ITD1	• Triple RTD Platinum 100 RTD 4-wire connection	ITT2
• Dual - DC V and DC mV	IDD4	• Triple RTD Platinum 100 RTD 2-wire connection	ITT2	• Triple - RTD / RTD / Frequency	ITTE
• Dual DC Volts	IDD1	• Triple - T/C, 4 to 20mA and 4 to 20mA	ITT8	• Triple - T/C, 4 to 20mA and Counter	ITTF
• Dual Direct Pressure (Absolute or Differential/Gage)	IGYY	• Triple - T/C, 4 to 20mA and DC mV	ITTA	• Triple - T/C, 4 to 20mA and DC Volts	ITTB
• Dual Frequency	IDF2	• Triple - T/C, DC mV and DC mV	ITT6	• Triple - T/C, DC Volts and DC Volts	ITT7
• Dual Pressure Input	IDS2	• Triple - T/C, DC Volts and DC Volts	ITT9	• Triple - T/C, T/C and 4 to 20mA	ITT4
• Dual Process Loop	IDP1	• Triple - T/C, T/C and DC mV	ITT5	• Triple - T/C, T/C and DC V	ITT3
• Dual Resistance Input	IDR1	• Triple - T/C, Volts and Frequency	ITTG	• Triple Thermocouple	ITT1
• Dual RTD Input	IDT2	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSC*	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSD**
• Dual Smart Pressure/Load Cell, 16 bit	ISS5*	• Smart Triple Input, Load Cell and Two Digital Inputs	ISSC	• Smart Triple Input, Pressure Direct & Dual Counter	ISP1
• Dual Smart Pressure/Load Cell, 16 bit	ISS6**	• Triple 4 to 20mA	ITP1	• Triple - DC mV, 2V DC	ITD2
• Dual Strain Gage Input	ISD1	• Triple - DC Volts, 2V DC	ITD1	• Triple RTD Platinum 100 RTD 4-wire connection	ITT2
• Dual - Strain Gage and Frequency	ISD3	• Triple RTD Platinum 100 RTD 2-wire connection	ITT2	• Triple - RTD / RTD / Frequency	ITTE
• Dual Thermocouple	IDT1	• Triple - T/C, 4 to 20mA and 4 to 20mA	ITT8	• Triple - T/C, 4 to 20mA and Counter	ITTF
• Dual - Thermocouple and 4 to 20mA	IDP3	• Triple - T/C, 4 to 20mA and DC mV	ITTA	• Triple - T/C, 4 to 20mA and DC Volts	ITTB
• Dual - Thermocouple and DC mV	IDT5	• Triple - T/C, DC mV and DC mV	ITT6	• Triple - T/C, DC mV and DC mV	ITT6
• Dual - Thermocouple and DC V	IDT4	• Triple - T/C, DC Volts and DC Volts	ITT9	• Triple - T/C, DC Volts and DC Volts	ITT7
• Dual - Thermocouple and Load Cell	IDT6	• Triple - T/C, T/C and 4 to 20mA	ITT4	• Triple - T/C, T/C and DC mV	ITT5
• Dual UP/DOWN Counter	IDC1	• Triple - T/C, T/C and DC mV	ITT5	• Triple - T/C, T/C and DC V	ITT3
• Smart Dual 3-wire Potentiometer	ISR3	• Triple - T/C, Volts and Frequency	ITTG	• Triple Thermocouple	ITT1
• Smart Dual Input, Load Cell and Process (4-20mA)	ISS9	• Triple Thermocouple	ITT1	<b>RESISTANCE</b>	
• Smart Dual Input, Load Cell and RTD	ISB*	• Dual Resistance Input	ITD2	• Resistance, 2/3/4-Wire	ITTE
• Smart Dual Input DC Volts, 16 bit, 1-20Hz update	ISDA*	• Smart Quad Potentiometer/Resistance	IW01	• Smart Quad Potentiometer/Resistance	IW01
• Smart Dual Input DC Volts, 16 bit, 1-20Hz update	ISDB**	• Dual - 3-wire RTD and DC V	IW02	• Dual - 3-Wire RTD and 4 to 20mA	IW04
• Smart Dual LVDT (50 Hz)	ISL1*	• Dual - DC mV and 4 to 20mA	IW04	• Dual - DC V and 4 to 20mA	IDD5
• Smart Dual LVDT (60 Hz)	ISL2**	• Dual Process Loop	IDP1	• Dual Thermocouple and 4 to 20mA	IDP3
• Smart Dual Photo Diode Input	ISSE	• Dual - Thermocouple and DC V	IDT4	• Process Loop, 4 to 20mA	IP01
• Smart Dual RTD (50 Hz)	IST5*	• Process Loop, 4 to 20mA (0-100.00) w/ Ext. Lin Table	IP09	• Process Loop, 4 to 20mA (0-100.00) w/ Ext. Lin Table	IP09
• Smart Dual RTD (60 Hz)	IST6**				
<b>4 TO 20mA</b>					
• Dual - 3-Wire RTD and 4 to 20mA	IDP2				
• Dual - DC mV and 4 to 20mA	IDD6				
• Dual - DC V and 4 to 20mA	IDD5				
• Dual Process Loop	IDP1				
• Dual - Thermocouple and 4 to 20mA	IDP3				
• Process Loop, 4 to 20mA	IP01				
• Process Loop, 4 to 20mA (0-100.00) w/ Ext. Lin Table	IP09				