Large display option
0.8" red or green LED

LYNX FAMILY

DX-35 LYNX
3 1/2 DIGIT
0.56" or 0.8" LED
in a 1/8 DIN CASE

A versatile digital panel meter with standard or large display, for monitoring and measurement applications

General Features

- External transmitters or signal conditioners can be eliminated by directly connecting the sensor to more than 33 **I-Series** Plug-in Input Signal Conditioners that include:

  – AC Current
  – AC Voltage
  – DC Current
  – DC Voltage
  – Load Cell
  – Pressure
  – Process
  – Prototype
  – Resistance
  – Strain-gage
  –Temperature
  – 4 to 20 mA

- Pre-calibrated **I-Series** Input Signal Conditioning modules, that have span or zero potentiometers, can be interchanged between any **I-Series** compatible meter, without recalibration, because all of the analog scaling and reference circuitry is self-contained within the module.
- 24 V DC excitation is available to power external transmitters and 5 or 10 V DC excitation is available for strain-gages, load cells and resistance bridge type sensors.
- Auto-sensing AC/DC power supply. For voltages between **85-265 V AC / 95-370 V DC (PS1)** or 15-48 V AC / 10-72 V DC (PS2).
- Standard red or optional green or super bright red 3 1/2-digit 0.56" LED with display range –1999 to 1999 (4000 counts).
- Red or green 0.8" LED large display option.
- Display brightness may be externally controlled.
- 1/8 DIN (96 x 48mm) case easly mounts in thin or thick panels (up to 2'). May be ordered with optional extra fire resistant metal case.
- Optional NEMA-4X, IP-65 hinged, lockable, water and dust proof cover.

Input Module Compatibility

☑ **LYNX FAMILY**: More than 33 different Plug-in **I-Series** Input Signal Conditioners are approved for Texmate's Lynx Family of meters. As shown on pages 3 to 5.

LYNX

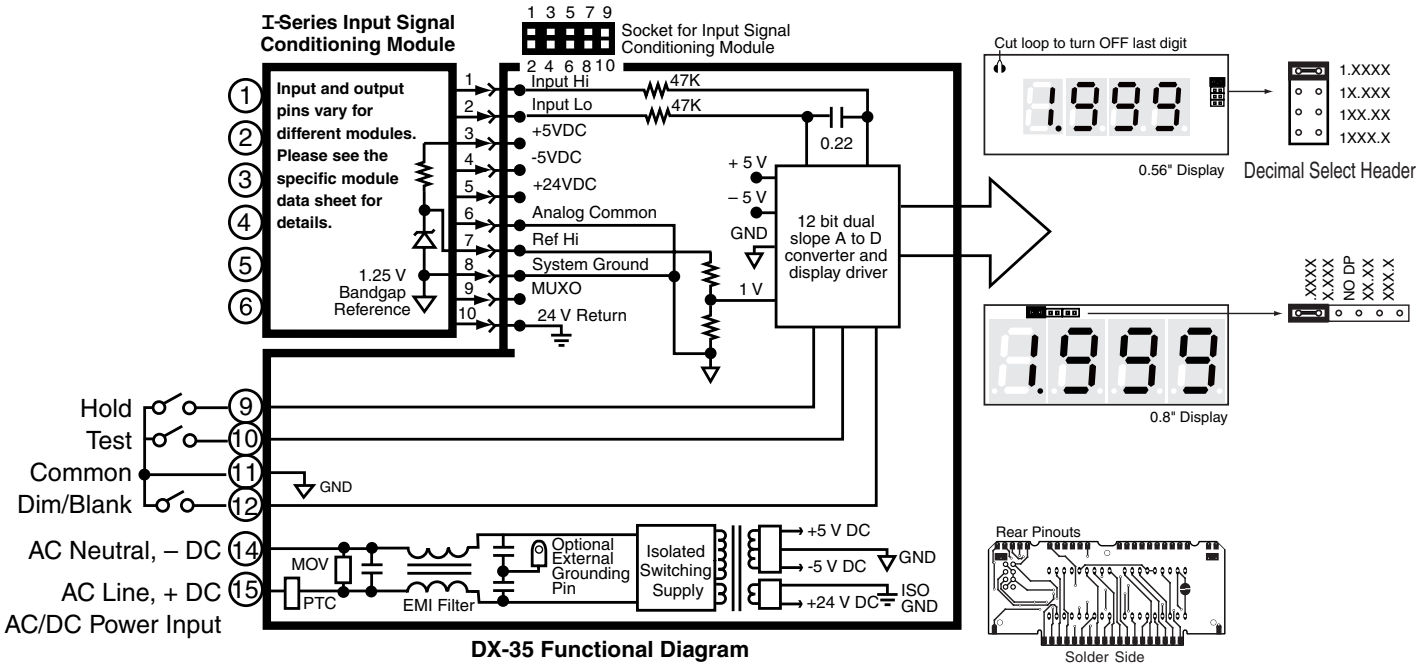
See www.texmate.com for an up to date listing.

Specifications

Input Specs:.....Depends on input signal conditioner
A/D Converter: .....12 bit dual slope
Accuracy: .....±(0.05% of reading + 2 counts)
Temp. Coeff.: .....100 ppm/°C (Typical)
Warm up time: .....2 minutes
Conversion Rate: .....3 conversions per second (Typical)
Display:.....**3 1/2 digit 0.56" Red LED display (std)**, 0.56" or 0.8" Green or Super Bright Red (optn). Range –1999 to 1999 counts.
Polarity: .....Assumed positive. Displays – negative
Decimal Selection:....Header under face plate, X•X•X•X
Positive Overrange:..1 (MSD) is displayed with all other digits blank.
Negative Overrange: 1 (MSD) and – sign are displayed with all other digits blank.
Power Supply: .....AC/DC Auto sensing wide range supply
PS1 (std) .....**85-265 VAC / 95-370 VDC @ 2.5W**
PS2 .....15-48 VAC / 10-72 VDC @ 2.5W
Operating Temp.: .....0 to 60 °C
Storage Temp: .....–20 °C to 70 °C.
Relative Humidity: ....95% (non condensing)
Case Dimensions: ....1/8 DIN (Bezel 96Wx48H mm)
Depth behind bezel (4.61") 117 mm
Plus (0.5") 12.7mm for connectors
Weight: .....8 oz., 11 oz when packed.

Index

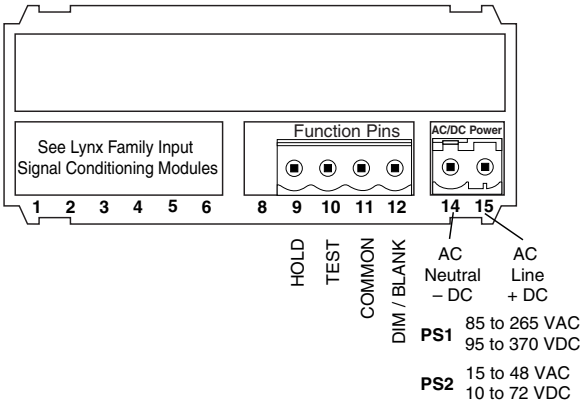
Functional Diagram



DX-35 Functional Diagram

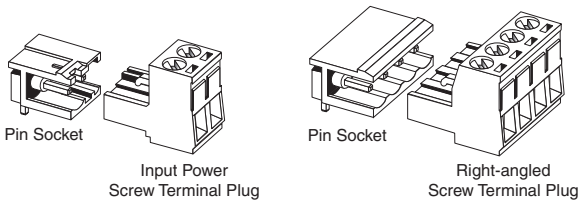
Connector Pinouts

This meter uses plug-in type screw terminal connectors for all connections.



Connectors

This meter uses plug-in type screw terminal connectors for all input and output connections. The power supply connections (pins 14 and 15) have a unique plug and socket outline to prevent cross connection. The main board uses standard right-angled connectors.



WARNING: AC and DC input signals and power supply voltages can be hazardous. Do Not connect live wires to screw terminal plugs, and do not insert, remove or handle screw terminal plugs with live wires connected.

Pin Descriptions

Pins 1 to 6 - Input Module: See the individual pin out of the input signal conditioning module selected. Usually Pin 1 is the Signal Input High pin and Pin 3 is the Signal Input Low pin. All calibration and scaling functions are performed on the individual input signal conditioner module. See pages 6 and 7.

Pin 9 - Hold: If this pin is left unconnected the meter will operate in a free running mode. When this pin is connected to the Common Pin 11, the meter display will be latched. A/D conversions will continue, but the display will not be updated until Pin 9 is disconnected from Pin 11.

Pin 10 - Display Test: When this pin is connected to the Common Pin 11, all segments of the display light up and 1888 is displayed. This is used to detect any missing segments in the display.

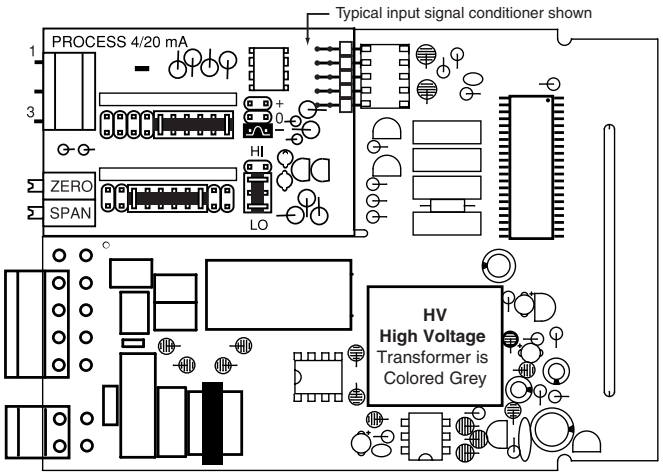
Pin 11 - Common: To Hold, Test or Dim the display, the respective pins have to be connected to this Common Pin.

Pin 12 - Dim/Blank: When this pin is connected to the Common Pin 11 the display is blanked out. If it is connected through an external 1KΩ pot, the display may be dimmed.

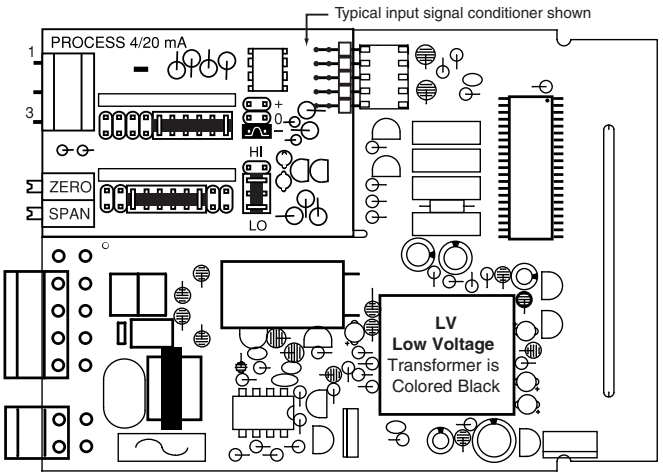
Pin 14 & 15 - AC/DC Power Input: These pins are the power pins of the meter and they only accept a special polarized screw terminal plug that can not be inserted into any other input socket. The standard meter has a auto sensing AC/DC power supply that operates from 85-265 VAC/95-370 VDC (PS1 Std). An optional isolated low voltage power supply that operates from 15-48 VAC/10-72 VDC (PS2) is also available.

Component Layout

DX-35-XX-PS1 (High Voltage)



DX-35-XX-PS2 (Low Voltage)



I-Series Input Signal Conditioning Modules

Many additional input modules are available and others are constantly being developed. Check with your local distributor or www.texmate.com for updated information.

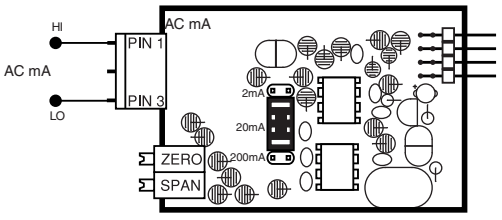
Precalibrated **I-Series** input modules, that have span or zero potentiometers, can be interchanged between any **I-Series** compatible meter, without recalibration, because all of the analog scaling and reference circuitry is self-contained within the module. Where appropriate, all the standard ranges shown are designed to be header selectable by the user, and Texmate's unique SPAN ADJUST Header facilitates scaling to almost any required engineering unit. See Input Module Component Glossary and Calibration on pages 6 and 8.

Unless otherwise specified Texmate will ship all modules precalibrated with factory preselected ranges and/or scalings as shown in **BOLD** type. Other precalibrated standard ranges or custom ranges may be ordered. Factory installed custom scaling and other custom options are also available (see Ordering Information, Special Options on last page).

Symbols Indicate Module Compatibility Within Meter Families		
TIGER Family	TIGER Family	TIGER Family
LEOPARD Family	LEOPARD Family	LEOPARD Family
LYNX Family	LYNX Family	LYNX Family
ALL MODELS	SOME MODELS	MODEL SPECIFIC

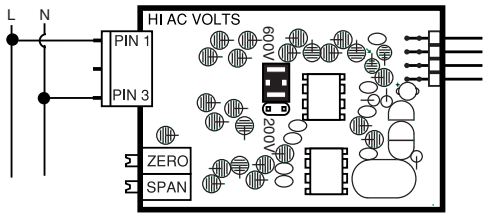
IA03: AC-mA Scaled RMS, 2/**20**/200mA AC

TIGER
LEOPARD
LYNX



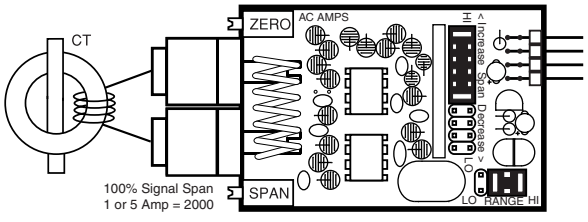
IA01: AC-Volts Scaled RMS, 200/**600V** AC

TIGER
LEOPARD
LYNX



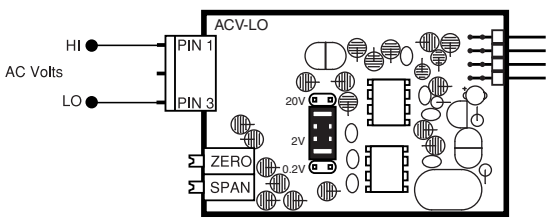
IA04 AC-Amps Scaled RMS, **0-1 Amp AC (0-100.0)**
IA05 AC-Amps Scaled RMS, **0-5 Amp AC (0-100.0)**

TIGER
LEOPARD
LYNX



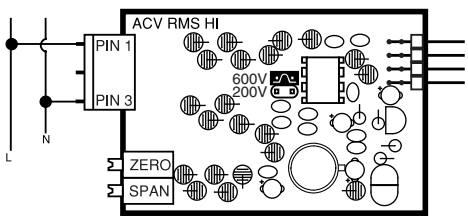
IA02: AC-Volts Scaled RMS, 200mV/**2V**/20V AC

TIGER
LEOPARD
LYNX

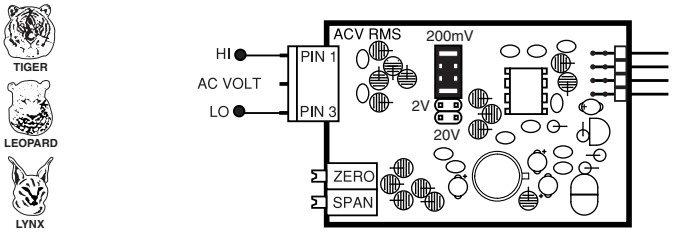


IA06: AC-Volts True RMS, 200/**600**V AC

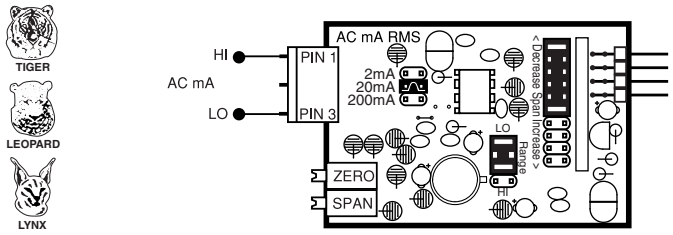
TIGER
LEOPARD
LYNX



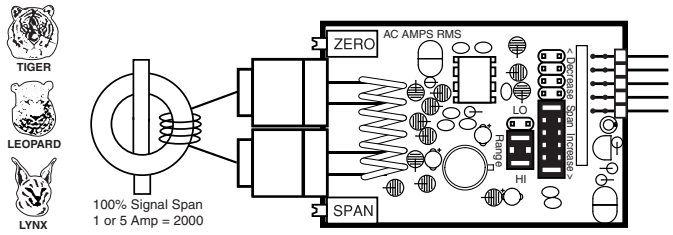
IA07: AC-Volts True RMS, 200mV/**2V**/20V AC



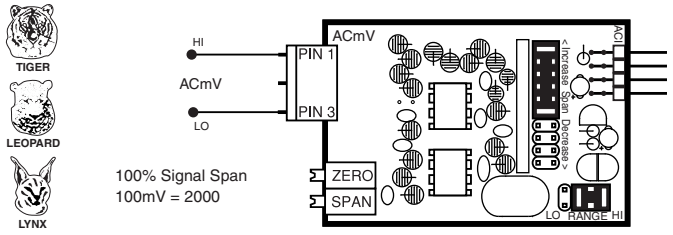
IA08: AC-mA True RMS, 2/**20**/200mA AC



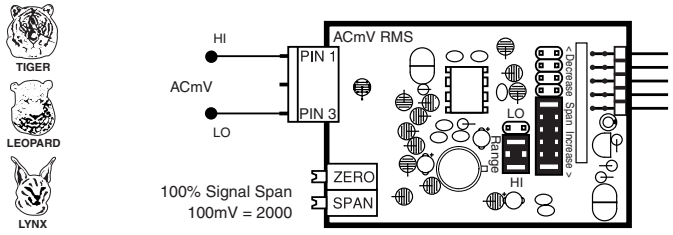
IA09: AC-Amps True RMS, **0-1 Amp AC (0-100.0)**
IA11: AC-Amps True RMS, **0-5 Amp AC (0-100.0)**



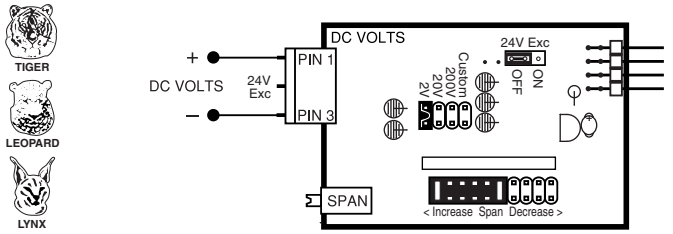
IA10 AC-Millivolt, Scaled RMS, **100mV AC**



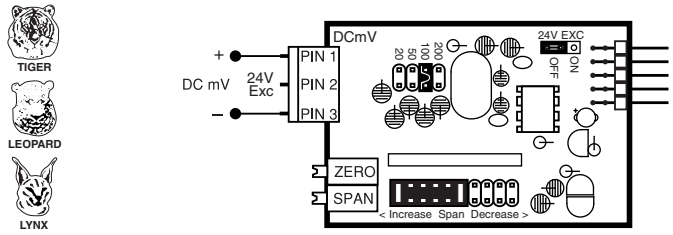
IA12: AC-Millivolt, True RMS, **100mV AC**



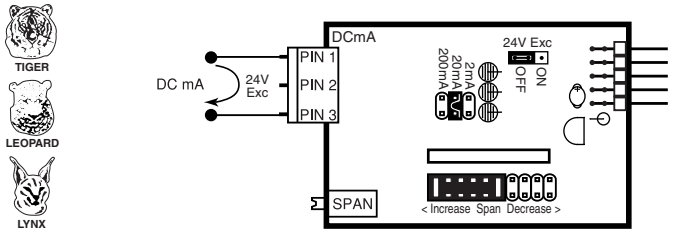
ID01: DC-Volts, **2**/20/200V/Custom w/24V DC Exc



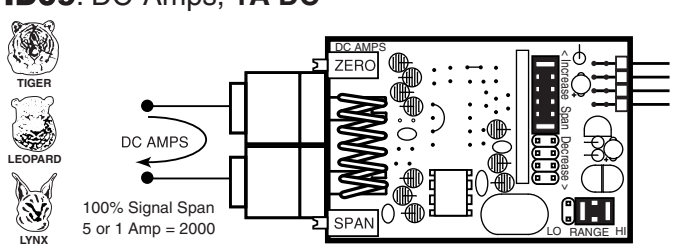
ID02: DC-Millivolt, 20/50/**100**/200mV DC w/24V DC Exc



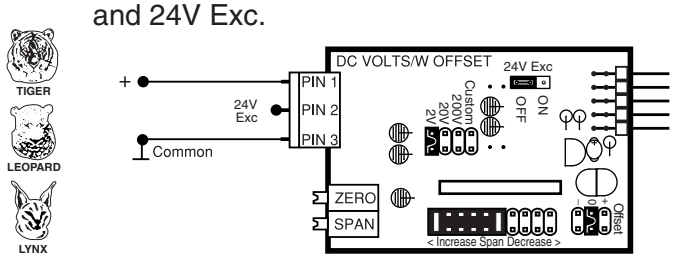
ID03: DC-Milliamp, 2/**20**/200mA DC w/24V DC Exc



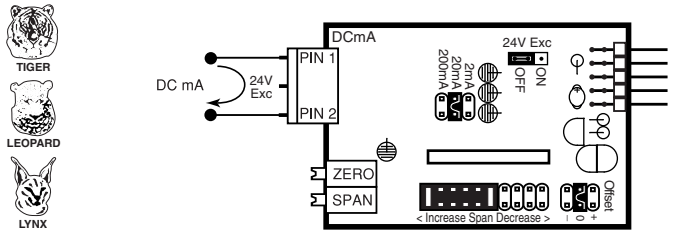
ID04: DC-Amps, **5A DC**
ID09: DC-Amps, **1A DC**



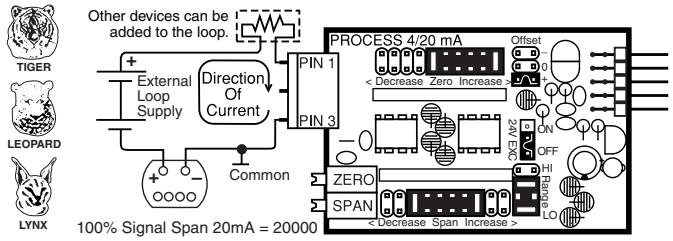
ID05: DC-Volts **2**/20/200/Custom V DC with Offset and 24V Exc.



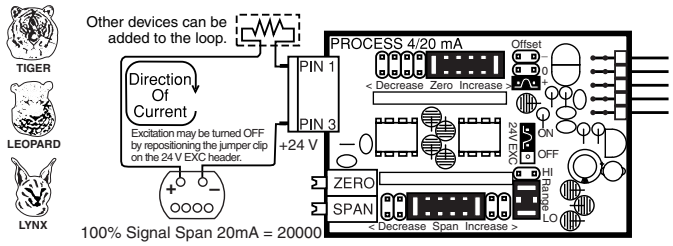
ID07: DC-Milliamp, 2/**20**/200mA DC with Offset and 24V Exc



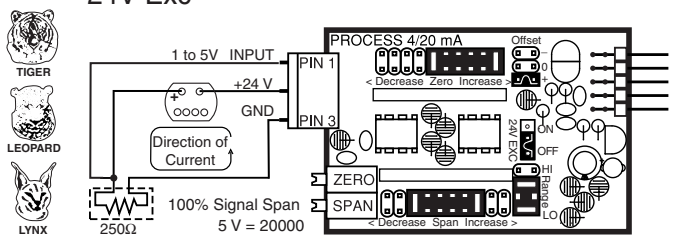
IP01: Process Loop, **4-20mA (0-100.00)**



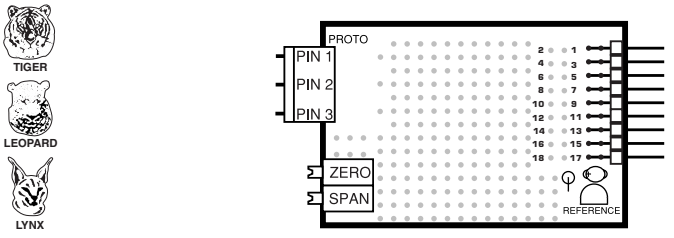
IP02: Process Loop, **4-20mA (0-100.00)** with 24VDC Exc



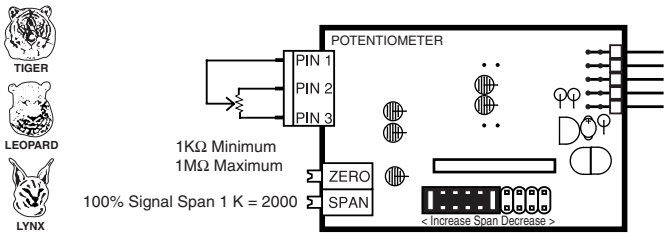
IP03: Process Input, **1-5V DC (0-100.00)** with Offset, 24V Exc



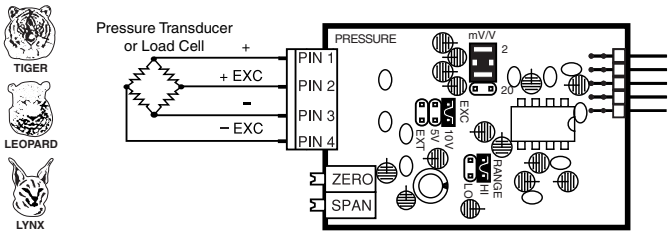
IPT1: Prototype Board for Custom Design



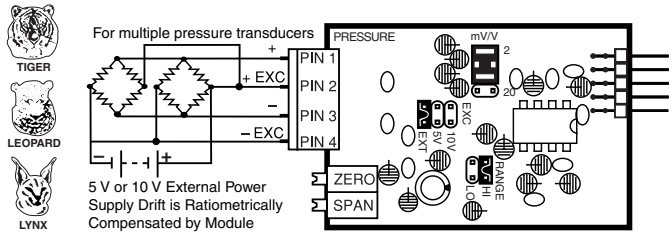
IR02: 3 wire Potentiometer **1KΩ min (0-100.0)**



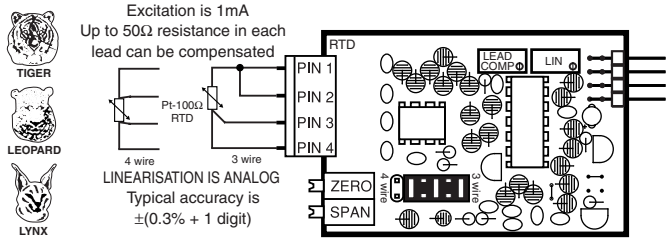
IS05: Pressure/Load Cell 20/**2mV/V**, 5/**10V** Exc 4-wire



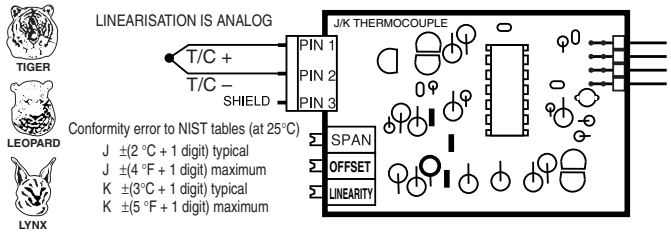
IS06: Pressure/Load Cell Ext Exc., 20/**2mV/V**, 4-wire



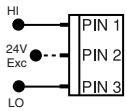
IT03: RTD, 100Ω Pt. 2/**3**/4-wire (-200 to 800°C)
IT04: RTD, 100Ω Pt. 2/**3**/4-wire (-200 to 1470°F)
IT05: RTD, 100Ω Pt. 2/**3**/4-wire (-190.0 to 199.0°F)



IT06: Thermocouple, J Type (0-1400 °F)
IT07: Thermocouple, K Type (0-1999 °F)
IT08: Thermocouple, J Type (0-760 °C)
IT09: Thermocouple, K Type (0-1260 °C)

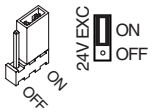


Input Module Component Glossary



Input and Output Pins

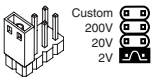
On most modules Pin 1 is the Signal High input and Pin 3 is the Signal Low input. Typically Pin 2 is used for Excitation Voltage output.



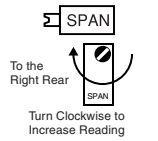
24V DC Output Header

On some modules this header enables a 24V DC 25mA (max) Excitation/Auxiliary output to be connected to Pin 2.

INPUT RANGE Header

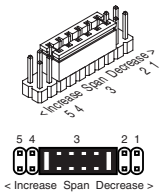


Range values are marked on the PCB. Typically two to four positions are provided, which are selected with either a single or multiple jumper clip. When provided, a custom range position is only functional when the option has been factory installed.



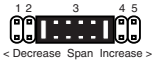
SPAN Potentiometer (Pot)

If provided, the 15 turn SPAN pot is always on the right side (as viewed from the rear of the meter). Typical adjustment is 20% of the input signal range.

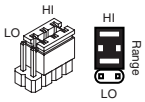


SPAN ADJUST Header

This unique five-position header expands the adjustment range of the SPAN pot into five equal 20% steps, across 100% of the input Signal Span. Any input Signal Span can then be precisely scaled down to provide any required Digital Display span from 1999 counts to 001 (one count).

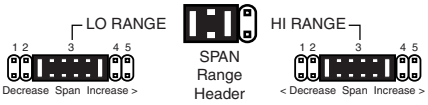


SPAN Adjust Header position	1	2	3	4	5
SPAN Pot %	20%	20%	20%	20%	20%
Signal Span %	20%	40%	60%	80%	100%

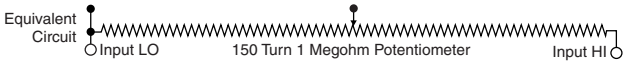


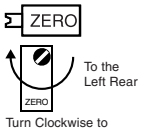
SPAN RANGE Header

When this header is provided it works in conjunction with the SPAN ADJUST Header by spliting its adjustment range into a Hi and a Lo range. This has the effect of dividing the adjustment range of the SPAN pot into ten equal 10% steps across 100% of the input Signal Span.



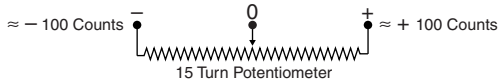
SPAN Adjust Header position	1	2	3	4	5	1	2	3	4	5
SPAN Pot %	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Signal Span %	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%



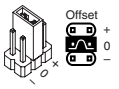


ZERO Potentiometer (Pot)

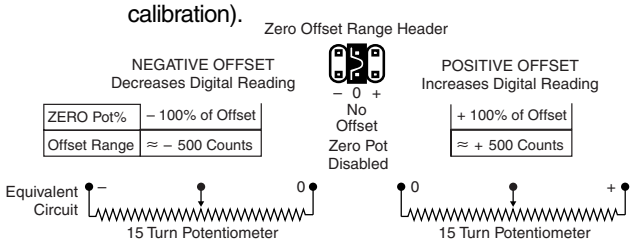
If provided, the ZERO pot is always to the left of the SPAN pot (as viewed from the rear of the meter). Typically it enables the input signal to be offset ±5% of full scale (-100 to +100 counts).



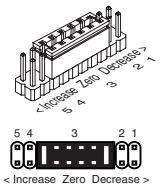
ZERO OFFSET RANGE Header



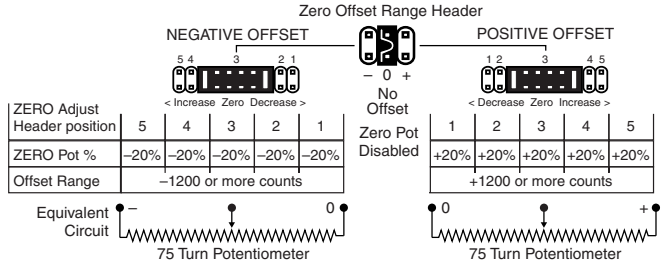
When provided, this three position header increases the ZERO pot's capability to offset the input signal, to ±25% of the digital display span. For example a Negative offset enables a 1 to 5V input to display 0 to full scale. The user can select negative offset, positive offset, or no offset (ZERO pot disabled for two step non-interactive span and offset calibration).



ZERO ADJUST Header



When this header is provided, it works in conjunction with the ZERO OFFSET RANGE Header, and expands the ZERO pot's offset capability into five equal negative steps or five equal positive steps. This enables virtually any degree of input signal offset required to display any desired engineering unit of measure.



Input Module Calibration

WARNING: AC and DC input signals and power supply voltages can be hazardous. Do Not insert, remove or handle modules with live wires connected to any terminal plugs.

Basic standard range calibration of direct reading modules that utilize either Auto Zero or a ZERO pot, an INPUT RANGE Header and or a SPAN pot.

1 If the module has an INPUT RANGE Header, reposition the jumper clip to select the desired input signal range.

2. Apply a zero input or short the input pins. The display will auto zero, or if the module has a ZERO pot, it should be adjusted until the display reads zero.

3 Apply a known input signal that is at least 20% of the full scale input range and adjust the SPAN pot until the display reads the exact input value.

4 Decimal Points. The selection or positioning of decimal points has no effect on the calibration of the modules

Wide range scaling, in engineering units not requiring offsets, with modules that utilize auto-zero or a ZERO pot, a SPAN RANGE Header and or a SPAN ADJUST Header.

Texmate's unique SPAN ADJUST and SPAN RANGE Headers provide the circuit equivalent of an ultra-precision one megohm 75 or 150 turn potentiometer that can infinitely scale down any Input Signal SPAN to provide any full scale Digital Display Span from 1999 (counts) to 001 (one count).

Input Module Calibration Procedures Continued

If the module has an INPUT RANGE Header, and the required full scale Digital Display Span (counts) is to be larger than the directly measured value of the input Signal Span, then the next lower range on the INPUT RANGE Header should be selected. The resulting over range Signal Span is then scaled down, by selecting the position of the SPAN RANGE Header and or the SPAN ADJUST Header, which will reduce the input Signal Span to a percentage, that the required Digital Display Span can be reached by calibration with the SPAN pot.

Example A: 0 to 10 V to read 0 to 1800 gallons.
Signal Span = 10V, Digital Display Span = 1800 counts

1 Select the 2 V INPUT RANGE Header position. This will provide a digital display of 1800 counts with an input of only 1.8 V which is (1.8÷10)=18% of the examples 10 V Signal Span.
2 To scale down the Signal Span to 18% select the 20% Signal Span position on the SPAN ADJUST Header (position 1) or if the module has a SPAN RANGE Header, select (LO Range) and 20% Signal Span position on the SPAN ADJUST Header (position 2).
3 Apply a zero input or short the input pins. The display will auto zero, or if the module has a ZERO pot, it should be adjusted until the display reads zero.
4 Apply 10 V and adjust the SPAN pot until the display reads 1800.

Large offset scaling and calibration of process signal inputs with modules that utilize ZERO ADJUST Headers and or ZERO OFFSET RANGE Headers.

Texmate's unique ZERO OFFSET RANGE Header enables the use of a simple two step scaling and calibration procedure for those process signals that require large offsets. This eliminates the back and forth interaction, between zero and span settings, that is often required to calibrate less finely engineered products.

The first step is to set the ZERO OFFSET RANGE Header to the center position (No Offset) and scale down the Input Signal Span to a percentage that will enable calibration with the SPAN pot to reach the required Digital Display Span.

The second step is to set the ZERO ADJUST and or ZERO OFFSET RANGE Header to provide a positive or negative offset of sufficient counts that calibration with the ZERO pot will offset the Digital Display Span to produce the required digital reading.

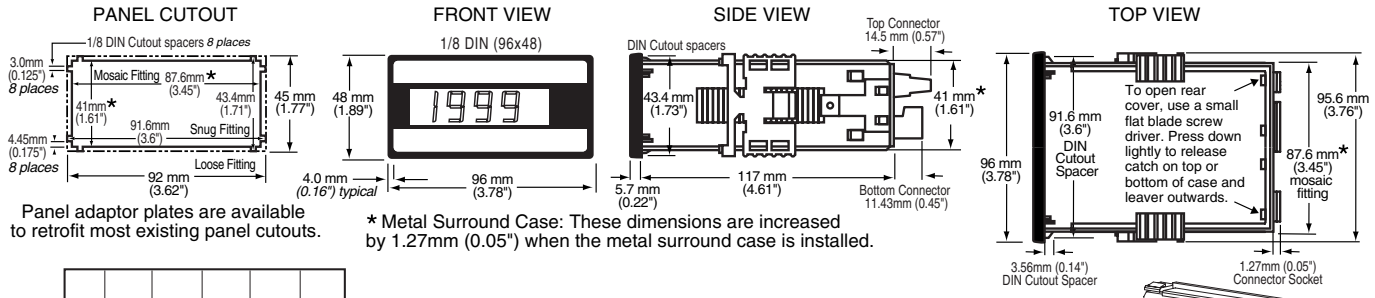
Example B: 1 to 5 V to read –100 to 1500 °C.
Signal Span = 4V, Digital Display Span = 1600 counts

1 If the module has an INPUT RANGE Header the 2 V position should be selected. This will provide a digital display of 1600 counts for an input of 1.6 V which is (1.6 ÷ 4) = 40% of the examples 4 V signal span. To scale down the Signal Span to 40% select the 40% Signal Span position on the SPAN ADJUST Header (position 2).
2 If the module is a Process Input 1-5 V DC type, select the (Hi Range) position on the SPAN RANGE Header and the 100% Signal Span position on the SPAN ADJUST Header (position 5, max increase). This will provide a digital display of 1600 counts for an input of 4V which is 100% of the examples 4V Signal Span.
3 Set the ZERO OFFSET RANGE Header to the center position (no offset). Apply 1 V and adjust the SPAN pot until the display reads 400 . A 4V input would then read 1600 counts.
4 Set the ZERO OFFSET RANGE Header to the negative offset position. If the module has a ZERO ADJUST Header select the position that will provide a negative offset of ≈ –500 counts. Apply 1 V and adjust the ZERO pot until the display reads –100. Apply 5 V and check that the display reads 1500.

Example C: 4 to 20 mA to read 00.0 to +100.0%
Signal Span = 16 mA, Digital Display Span = 1000 counts.

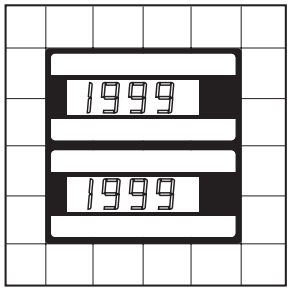
1 The full scale Signal Span of the Process Input 4-20 mA modules is 0 to 20 mA for a full scale Digital Display Span of 0 to 2000 counts. This will provide a digital display of 1000 counts with an input of only 10 mA which is (10÷16)=62.5% of the examples 16 mA signal span.
2 To scale down the Signal Span to 62.5% select the (Hi Range) Position on the Span Range Header and the 70% Signal Span position on the SPAN ADJUST Header (position 2).
3 Set the ZERO OFFSET RANGE Header to the center position (no offset). Apply 4 mA and adjust the SPAN pot until the display reads 250 . A 16 mA input would then read 1000 counts.
4 Set the ZERO OFFSET RANGE Header to the positive offset position. If the module has a ZERO ADJUST Header select the position that will provide a negative offset of ≈ –250 counts. Apply 4 mA and adjust the ZERO pot until the display reads 000. Apply 20 mA and check that the display reads 1000. Select decimal point 1XX•X to display 00.0 to 100.0.

Case Dimensions



Panel adaptor plates are available to retrofit most existing panel cutouts.

* Metal Surround Case: These dimensions are increased by 1.27mm (0.05") when the metal surround case is installed.



Texmate's 96x48mm case is particularly suitable for mounting in mosaic panels or insulative panels up to 2" thick. They can also stack mount, 2 up in existing cutouts for 1/4 DIN (96x96mm) or 4 up in 1/2 DIN (96X192mm).