0.56" LEDs

0.8" LEDs

UM-Series

FUNCTION SPECIFIC METERS

UM-35J & UM-35K

Thermocouple Temperature Meters 3 1/2 Digit with 0.56" or 0.8" LEDs in a Traditional NEMA Style Case

Low cost utility, J or K thermocouple temperature meters with 1° resolution pre-calibrated in °F or °C.

General Features

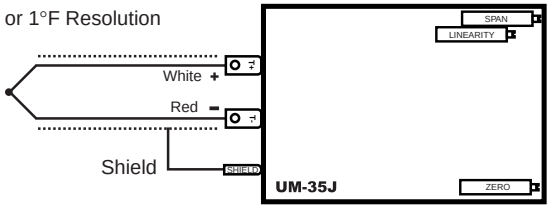
The UM-35J and UM-35K are economical thermocouple input temperature meters with a resolution of 1°. The meters are ordered factory calibrated for either a °F or °C indication. Automatic cold junction compensation, Thermocouple Break Detection, Display Hold and Display Test functions are provided as standard features.

The standard meter is provided with TB-KIT screw terminal blocks and insulated quick- disconnects. For the greatest convenience and ease of use, order the optional preconfigured Push-On screw terminal connectors. (see Push-On Screw Terminals and Ordering Information)

Typical Application Connections

Temperature Measurement with J Thermocouple

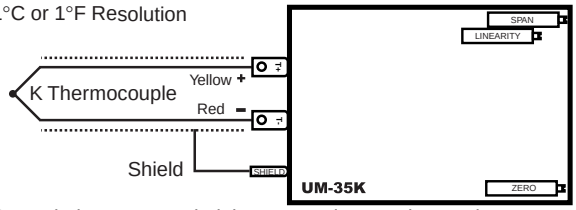
1°C or 1°F Resolution



Grounded or Ungrounded thermocouples may be used.

Temperature Measurement with K Thermocouple

1°C or 1°F Resolution



Grounded or Ungrounded thermocouples may be used.

Compatibility

The UM-Series NEMA case style is complementary to Texmate's Classic RP-Series. For economy, each UM model is dedicated to a specific application. UMs are ideal for upgrading or replacing the traditional USA NEMA case panel meters presently in use.

Traditional NEMA STYLE USA CASE

Specifications

Input Configuration: .....Differential

Full Scale Ranges:.....UM-35JC 0 to 760°C
UM-35JF 0 to 1400°F
UM-35KC 0 to 1260°C
UM-35KF 0 to 1999°F

Lead Resistance Effects: ..20µV per 10Ω of lead resistance

Cold Junction Compensation:.....Automatic ±0.1°C/°C (Cal.@25°C)

Input Protection: .....25V AC/DC

A/D Converter: .....12 Bit Dual Slope

Conformity Error (at 25°C):.....UM-35JC ±(2°C + 1 digit) typical
UM-35JF ±(4°F + 1 digit) maximum
UM-35KC ±(3°C + 1 digit) typical
UM-35KF ±(5°F + 1 digit) maximum

Temperature Coefficient: ..100ppm/° C (Typical)

Warm Up Time:.....Two minutes to specified accuracy

Conversion Rate: .....3 readings per second

Display:.....0.56" hi efficiency Red or optional Green LEDs. Display Hold & Display Test are provided.

Polarity:.....Bipolar. Assumed positive, displays negative

Overrange/ Open Thermocouple Indication:. Most significant "1" digit is displayed with all other digits blank

Power Supply (std): .....120/240V AC, 50/60/400 Hz. approx 1.5W.

(Optn) VO-DC/ISO .....Isolated Switcher 9 to 36V DC/12 to 24V AC
(Optn) VO-24V .....Isolated Transformer 24V AC ±10%
(Optn) VO-5V DC.....Non-isolated 5V DC ±10%

Operating Temperature: ..–10 to 50 °C

Storage Temperature:.....–20 to 70 °C.

Relative Humidity: .....95% (non condensing)

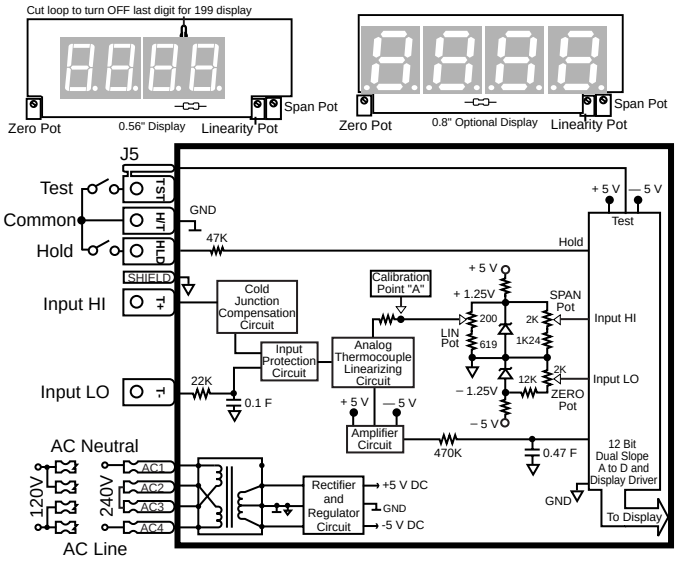
Case Dimensions: .....Bezel 4.06"Wx1.89"H (102.7Wx47.9Hmm) Depth behind bezel 3.64" (92.22 mm) Plus 0.5 to .9" (12.7 to 22.8mm) depending on connector used.

Weight:.....10 oz., 13 oz when packed.

UM-Series low cost utility meters for switchboard and process indication

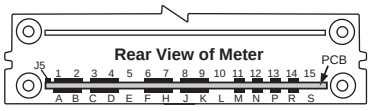
UM-35ACI1/5 AC amps, Scaled RMS, (**1 or 5 Amp** internal shunt), 3.5 digit
UM-35AC.....AC volts, Scaled RMS. **199.9V AC/**500V AC Header Selectable Ranges, 3.5 digit
UM-40AC .....AC volts, Scaled RMS. **500.0V AC** full scale, high resolution 4 digit
UM-35HZ .....**15Hz** to **199.9Hz** or optionally 40Hz to 500Hz up to 500V AC input, 3.5 digit
UM-35.....DC Volts **±2/**20V DC Header selectable or optionally ±2/200V DC, 3.5 digit
UM-35MV .....DC mV **±50mV** and ±100mV select inputs to suit DC current shunts, 3.5 digit
UM-45 .....DC Volts **±2V/**±20V/±200V DC Header selectable ranges 4.5 digit
UM-45MV .....DC mV **±50 mV**, ±100mV, or ±200mV selectable inputs to suit DC current shunts, 4.5 digit
UM-35CL .....Process 4 to 20mA **(100.0)**, easily user scalable, 3.5 digit
UM-35CLE .....Process 4 to 20mA **(100.0)** with 24V DC excitation, easily user scalable in engineering units anywhere from –1999 to +1999. 3.5 digit
UM-45CL .....Process 4 to 20mA **(100.00)**, easily user scalable, 4.5 digit
UM-35P.....Pressure, strain gage and load cell, 4 and 6 wire, 5V DC excitation, Header Selectable Sensitivity 2mV/V, 5mV/V, 10mV/V, **20mV/V**, 3.5 digit
UM-35J/K.....**J** or **K** thermocouple input, 1° resolution, order **°C** or **°F**, 3.5 digit
UM-35RTD.....100Ω platinum RTD, 3 or 4 wire, order **°C** or **°F** and **0.1°** or **1°**, 3.5 digit

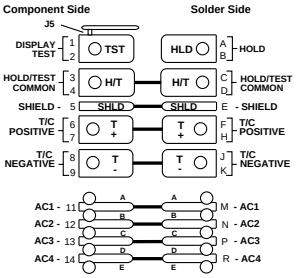
Functional Diagram



Connector Pinouts

The UM-35JK can be connected, except for the shield Pins 5-E, using the TB-KIT screw terminal blocks provided with the meter. For greatest convenience, order a Push-On screw terminal connector that provides a shield output (see Push-On Screw Terminals). Alternatively, a pcb edge connector can be used.(see connector options)





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.

Pins 1 & 2 - Display Test: All numeric display segments will light up when this pin is connected to the H/T Common Pin. A Texmate TB-KIT Screw Terminal Clip can be used to access the Display Test function.

Pins 3, 4, C & D - H/T Common Pin: The Hold and Display Test pins have to be connected to this pin to activate their respective functions.

Pins A & B - Hold Reading: When these pins are connected to the H/T Common pin, A/D conversions will continue, but the display will hold and not be updated until Pins A & B are disconnected. When using a Texmate TB-KIT Screw Terminal, J5 has to be opened to disconnect the Test function and enable the Hold function. If both hold and test functions need to be accessed, a Push-On Screw Terminal can be used.

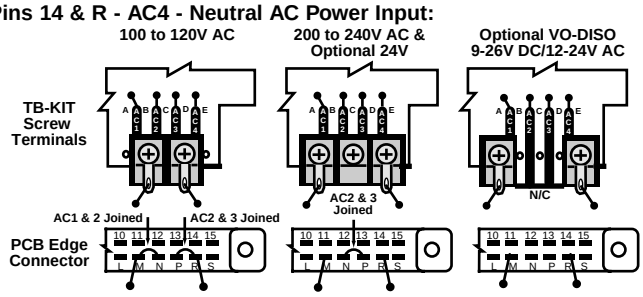
Pin 5 - Shield: This pin is internally connected to the ground of the internal power supply.

Pins 6, 7, F & H - Thermocouple Positive Input: The thermocouple positive output is applied to these pins. Maximum overvoltage protection is 25V AC/DC.

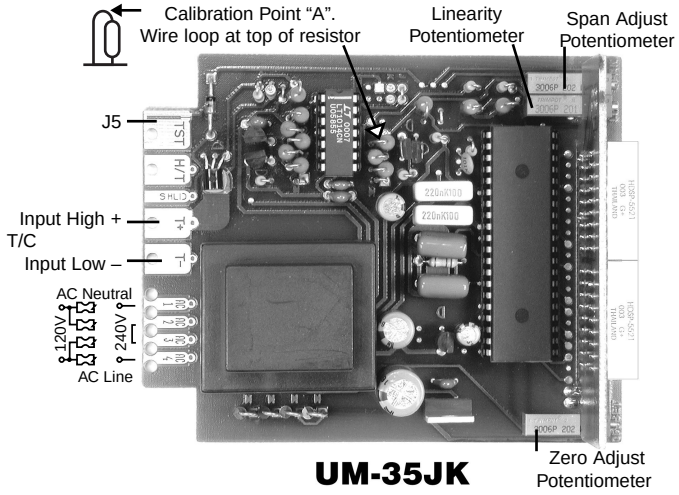
Pins 8, 9, J & K - Thermocouple Negative Input: The thermocouple negative output is applied to these pins. Maximum overvoltage protection is 25V AC/DC.

Pins 11 & M - AC1 - Live AC Power Input:
Pins 12 & N - AC2 - 110/220V AC Power Select:
Pins 13 & P - AC3 - 110/220V AC Power Select:
Pins 14 & R - AC4 - Neutral AC Power Input:

See below for connections



Component Layout



UM-35JK

Signal Conditioning Components

SPAN

SPAN Potentiometer (Pot)

To the Right Front

Turn Clockwise to Increase Reading

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

ZERO

ZERO Potentiometer (Pot)

To the Left Front

Turn Clockwise to Increase Reading

The ZERO pot is to the left of the SPAN pot (as viewed from the front of the meter). Typically it enables the input signal to be offset ±5% of full scale.

LINEARITY

LINEARITY Potentiometer (Pot)

To the Right Front

Use to set voltage at Calibration Point " A"

The Linearity pot is used to set the voltage at the calibration Point "A". The Linearity Pot is adjusted at the factory and does not normally need to be re-adjusted by the user.

Calibration Procedure

1. Connect a J or K Thermocouple Simulator to the input of the appropriate model and calibrate according to the Calibration Table. If your simulator does not output the specific values shown in the Table, then set the simulator to the next nearest value and make the calibration adjustments to that value instead of the values in the Table.
2. LINEARITY. The LINEARITY Pot is calibrated at the factory and does not normally need to be re-calibrated by the user. If Linearity must be re-calibrated, connect a voltmeter between the shield and calibration Point "A" (shown on the component layout), then follow step 3.

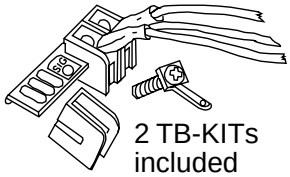
Calibration Table

UM - model no.	**UM-35JF**	**UM-35JC**	**UM-35KF**	**UM-35KC**
Thermocouple Type Can not be changed	J	J	K	K
Temperature Scale Re-calibrate to change °F/°C	°F	°C	°F	°C
3. Adjust Linearity Pot until the voltage at calibration Point "A" is exactly 1.000V with the simulator output set to:	1400°F	760°C	1990°F	1260°C
4. Adjust Zero Pot so display matches TC simulator with output set to:	0°F	0°C	0°F	0°C
5. Adjust Span Pot so display matches TC simulator with output set to:	1400°F	760°C	1990°F	1260°C

6. The J meter is now calibrated and ready for use.

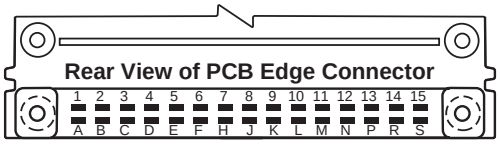
TB-Kit Screw Connectors

Six Screw Terminals included Free with each UM Series meter



A TB-KIT consists of 3 insulated Quick Connects and 3 of Texmate's patented individual screw terminal blocks which attach directly to PCB inputs. These provide a Quick Connect tab and screw clamp termination. When using the TB-KIT screw terminal blocks, it is possible to select between 120V AC and 240V AC power, the optional low voltage switching power supply or the 24V AC power supply by connecting the screw terminals as shown in the diagrams below.

Optional PCB Edge Connector

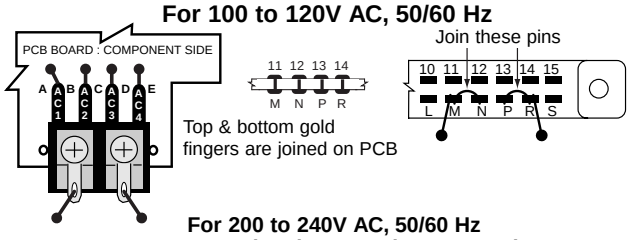


A standard 30 pin edge connector (two rows of 15 pins on 0.156" centers) may also be used to connect the UM-Series. Order part no. CN-L15. For different power supply voltage connection details, see pin connections below.

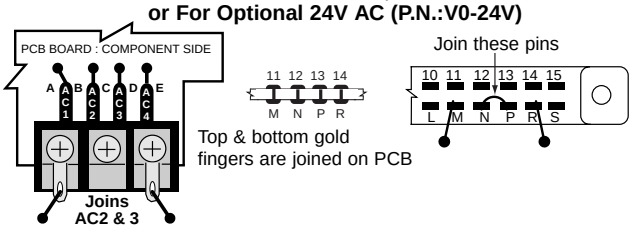
Selecting Power Supply Voltages

With TB-KIT Screw Terminals | **With Optional PCB Edge Connector**

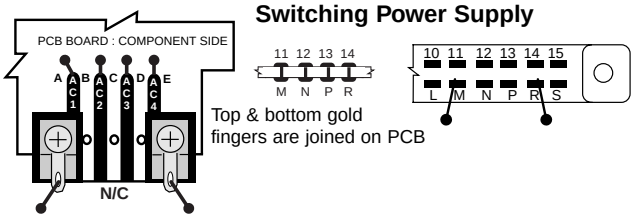
For 100 to 120V AC, 50/60 Hz



For 200 to 240V AC, 50/60 Hz or For Optional 24V AC (P.N.:V0-24V)



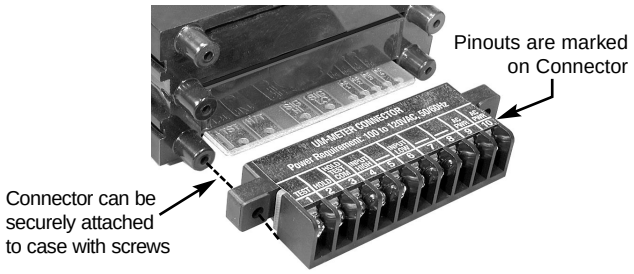
For Isolated 9-36V DC/12-24V AC, 50/60 Hz Switching Power Supply



Push-On Screw Terminals

They provide the greatest convenience and ease of use

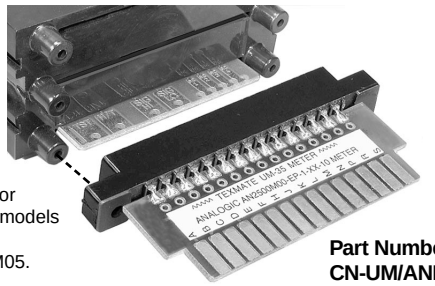
Texmate's exclusive optional Push-On Connectors combine an edge card connector and a 10 position screw terminal block. Push-On Connectors are ordered preconfigured for each specific power supply voltage and each optional power supply available for the UM-Series.



CN-PUSH/JK . . . . . .100/120V AC
CN-PUSH/JK01 . . . . . 200/240V AC
CN-PUSH/JK03 . . . . . .24V AC
CN-PUSH/JK04 . . . . . .9-36V DC/12-24V AC
CN-PUSH/JK05 . . . . . .5V DC

Pinout Change-Over Connectors

To replace DPMs in existing panels where matching pinouts are required, Texmate can provide custom pinout Change-over Connectors, either with PCB gold finger terminations, (shown below) or customized versions of Push-On Screw Terminals. (shown above)



Change-over Connector shown is for Analogic models AN25M02,AN25M03, AN25M04 and AN25M05.

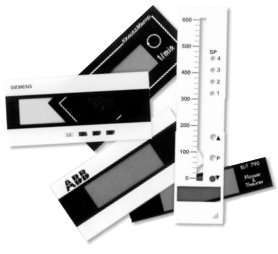
Part Number CN-UM/ANLGC

Face Plate Descriptors

Volts AC	Volts DC	Hz	RPM
Amps AC	Amps DC		DCµA
Milliamps AC	Milliamps DC		°C
Millivolts AC	Millivolts DC		°F
Kilowatts	Watts	%	pH Ω
kg/cm ²	Kilovolts AC		psi
kWH	kVAR	Power Factor	
kΩ	CosØ	M/min	m³/hr

To customize the face plate, each UM-meter is supplied with a white printed clear adhesive label containing various popular descriptors. Choose the descriptor, peel off the adhesive backing and align the descriptor in the lower right corner of the standard face plate.

Custom Face Plates



Texmate Produces Thousands of Custom OEM Face Plates

Have Texmate Design and produce a Custom Face Plate for your next project!

• Custom face plates have a non-recurring artwork charge. A serial number is then assigned to each artwork to facilitate reordering.

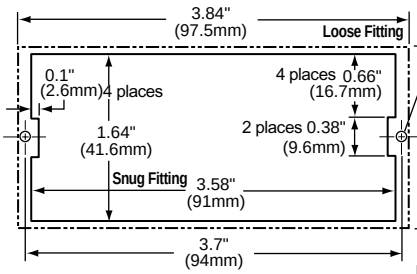
• Small Run or One-Off custom face plates incur an installation charge, and are generally printed on a special plastic film, which is then laminated to custom faceplate blanks as required.

• Large Run (250 pieces min): custom face plates are production silk screened, issued a part number, and held in stock for free installation as required by customer orders.

• OEMs may also order Custom Meter Labels, Box Labels, Custom Data Sheets and Instruction Manuals.

UM Case Dimensions and Panel Cutouts

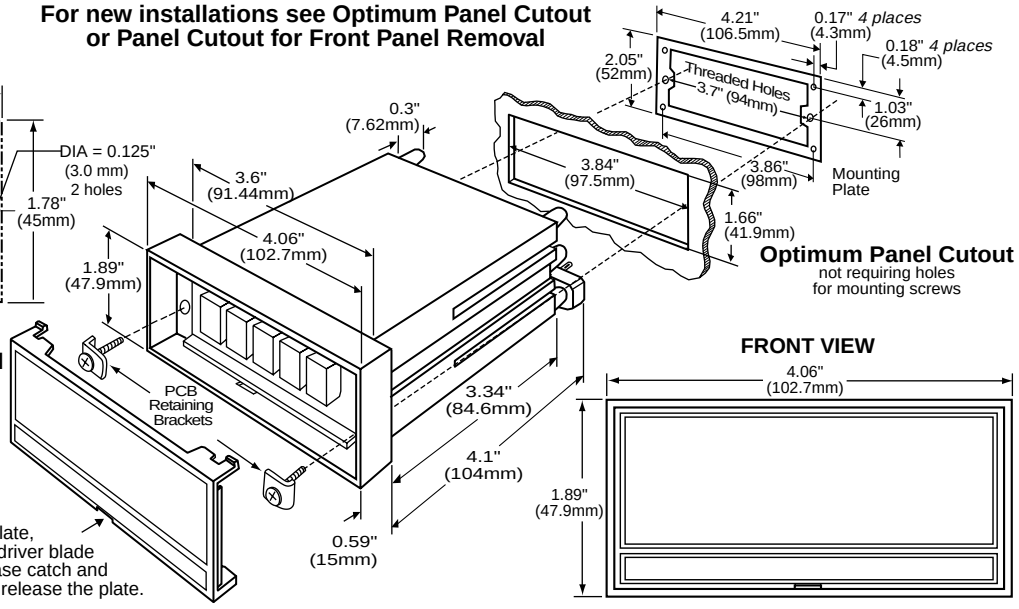
This NEMA Case will fit any existing cutout with dimensions that are between the Snug and Loose Fitting dimensions shown below.



Panel Cutout for Front Panel Removal

To enable removal of the panel meter from a mounting panel without requiring rear access, make the panel cutout as shown above, using the mounting plate supplied with the meter as a template. The mounting holes should then be tapped to match the mounting screws.

For new installations see Optimum Panel Cutout or Panel Cutout for Front Panel Removal



Optimum Panel Cutout
not requiring holes
for mounting screws

To remove the face plate, carefully insert screwdriver blade at bottom slot to release catch and gently pry outward to release the plate.

FRONT VIEW

Ordering Information

Standard Options for this Model Number

Part Number	Description	List
▶ **BASIC MODEL NUMBER** Includes 2 TB-KITs, standard display and standard power supply unless optional versions are ordered.		
UM-35JF	DPM, J thermocouple in °F	
UM-35JC	DPM, J thermocouple in °C	
UM-35KF	DPM, K thermocouple in °F	
UM-35KC	DPM, K thermocouple in °C	
▶ **DISPLAY**		
STANDARD ....0.56" Red LEDs		
UM-BRIGHT	Super bright Red LEDs, 0.56 inch high	
UM-GREEN	Green LEDs, 0.56 inch high	
UM-GREEN4.5	Green LEDs, 0.56 inch high Dummy Zero Option for UM-35s	
UM-LARGE/GRN	Green LEDs, 0.8 inch high for UM-35 Series	
UM-LARGE/RED	Red LEDs, 0.8 inch high for UM-35 Series	
UM-RED4.5	Red LEDs, 0.56 inch high Dummy Zero Option for UM-35s	
▶ **POWER SUPPLY**		
STANDARD ....100/120 or 200/240VAC User selectable		
V0-DC/ISO	Isolated auto-sensing AC/DC 9 to 36V DC/12 to 24V AC	
V0-24V	Isolated transformer 12V AC or 24V AC user selectable	
VO-5V DC	Non-isolated 5V DC only	
▶ **SPECIAL OPTIONS (Specify Inputs or Outputs & Req. Reading)**		
CB-FS35	Non-Std Range and Scale changes for UM-35 meters	

Special Options and Accessories

Part Number	Description	List
▶ **ACCESSORIES (Specify Serial # for Custom Artwork Installation)**		
75-RPCLEAR	Replacement Clear Lens for meter	
75-RPFILTER	Replacement Red Lens for meter	
CN-L15	Connector: Dual Row, 30 Pin Edge Conn., 0.156" ctr	
CN-PUSH/UM	Connector: Push-on Terminal Block, 120V AC Pwr	
CN-PUSH/UM01	Connector: Push-on Terminal Block, 200-240V AC Pwr	
CN-PUSH/UM03	Connector: Push-on Terminal Block, 24V AC pwr	
CN-PUSH/UM04	Connector: Push-on Terminal Block, 9 to 36V DC/12 to 24V AC	
CN-PUSH/UM05	Connector: Push-on Terminal Block, 5V DC	
CN-UM/ANLGC	Connector: Pinout Changer to match Analogic AN20M02 etc	
OP-N4SEAL/UM	NEMA 4 lens cover for UM Series meters	
RP•CASE	Case: Replacement with Mounting Hardware	
TB-KIT	Connector: Extra Screw Terminal Blocks (3 sets=1 kit)	
ART-FS-S/D	NRC for Artwork & set-up Custom Faceplate and or Descriptor	
ART-FS-S/D/C	NRC for Artwork & set-up Custom Faceplate and Custom Logo.	
ART-FS-001	Produce & Install Custom Faceplate per meter - 1 color no-min	
ART-FS-002	Produce & Install Custom Faceplate per meter - 2 color no-min	
ART-FS-003	Produce & Install Custom Faceplate per meter - 3 color no-min	
ART-FUM-001	Custom Faceplate, 100 piece Min. ($3.00 each) - 1 color	
ART-FUM-002	Custom Faceplate, 100 piece Min. ($4.20 each) - 2 color	
ART-FUM-003	Custom Faceplate, 100 piece Min. ($5.40 each) - 3 color	

Many other options and accessories are available. See full price list for more details.
Prices subject to change without notice.

WARRANTY

Texmate warrants that its products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment. Texmate's obligations under this warranty are limited to replacement or repair, at its option, at its factory, of any of the products which shall, within the applicable period after shipment, be returned to Texmate's facility, transportation charges pre-paid, and which are, after examination, disclosed to the satisfaction of Texmate to be thus defective. The warranty shall not apply to any equipment which shall have been repaired or altered, except by Texmate, or which shall have been subjected to misuse, negligence, or accident. In no case shall Texmate's liability exceed the original purchase price. The aforementioned provisions do not extend the original warranty period of any product which has been either repaired or replaced by Texmate.

USER'S RESPONSIBILITY

We are pleased to offer suggestions on the use of our various products either by way of printed matter or through direct contact with our sales/application engineering staff. However, since we have no control over the use of our products once they are shipped, NO WARRANTY WHETHER OF MERCHANTABILITY, FITNESS FOR PURPOSE, OR OTHERWISE is made beyond the repair, replacement, or refund of purchase price at the sole discretion of Texmate. Users shall determine the suitability of the product for the intended application before using, and the users assume all risk and liability whatsoever in connection therewith, regardless of any of our suggestions or statements as to application or construction. In no event shall Texmate's liability, in law or otherwise, be in excess of the purchase price of the product.

Texmate cannot assume responsibility for any circuitry described. No circuit patent or software licenses are implied. Texmate reserves the right to change circuitry, operating software, specifications, and prices without notice at any time.

TEXMATE INC
995 Park Center Drive • Vista, CA 92081-8397
Tel: 1-760-598-9899 • USA 1-800-839-6283 • That's 1-800-TEXMATE
Fax: 1-760-598-9828 • Email: sales@texmate.com • Web: www.texmate.com

Texmate has facilities in Japan, New Zealand, Taiwan, and Thailand. We also have authorized distributors throughout the USA and in 28 other countries.

For product details visit www.texmate.com
Local Distributor Address