0.56" LEDs

0.8" LEDs

UM-Series

FUNCTION SPECIFIC METERS

UM-35

2V DC to 200V DC Meter 3 1/2 DIGIT with 0.56" or 0.8" LEDs in a Traditional NEMA Style Case

A low cost Utility Meter for General Purpose Single or Differential DC Voltage Measurement.

General Features

The UM-35 is a low-cost, utility, DC voltage measuring meter with two built-in ranges of 2V and 20V or optionally 2V and 200V. This meter is a very cost-effective solution to most DC voltage measuring applications since it may be used to measure single-ended as well as differential signals and is easily scaled to any desired process engineering unit.

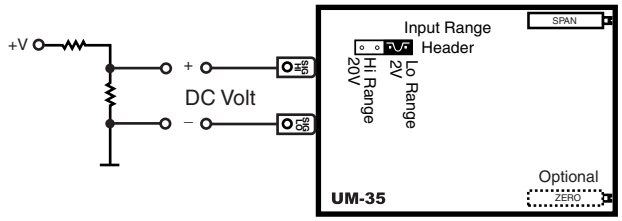
An economical option is the dummy (non-functional) right hand-side zero which allows the meter to display readings from –19990 to +19990 without going to the expense of a 4.5 digit meter. The apparent resolution with the dummy zero option would be 10 counts.

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 pre-configured Push-On screw terminal connectors. (see Push-On Screw Terminals and Ordering Information)

Typical Application Connections

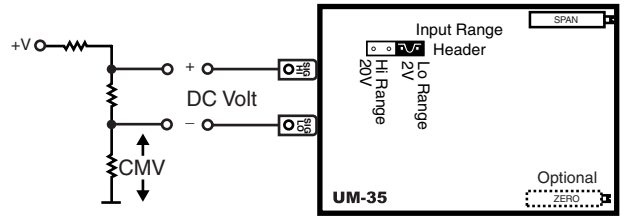
DC Volts Single-ended measurement with a Resolution of 100 milliVolt.

Factory installed Hi Range of 200V is also available



DC Volts Differential measurement with a Resolution of 100 milliVolt.

Factory installed Hi Range of 200V is also available



Max CMV (common mode voltage) = 50V*

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: .....Single-ended, however the isolated power supply enables differential measurements up to a maximum common mode of 50V.*
Provision for optional zero pot to offset the reading displayed. (See Ordering Information)

Full Scale Ranges: .....Two header selectable ranges of ±2V DC and ±20V DC or optionally (±2V/±200V)

Input Impedance:.....1MΩ minimum

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

Accuracy: .....±(0.05% of reading plus 2 counts)

Temperature Coefficient: 100ppm/°C (Typical)

Warm Up Time:.....2 minutes to specified accuracy

Conversion Rate: .....3 conversions per second (Typical)

Display:.....3 1/2 digit 0.56" Red LED display (std), (optn) Green or Super Bright Red, 0.8" Red or Green. Range 0 to 1999 counts.

Decimal Selection:.....Header under face plate, X•X•X•X•

Overrange Indication: .....1 (MSD) displayed with all other digits blank

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

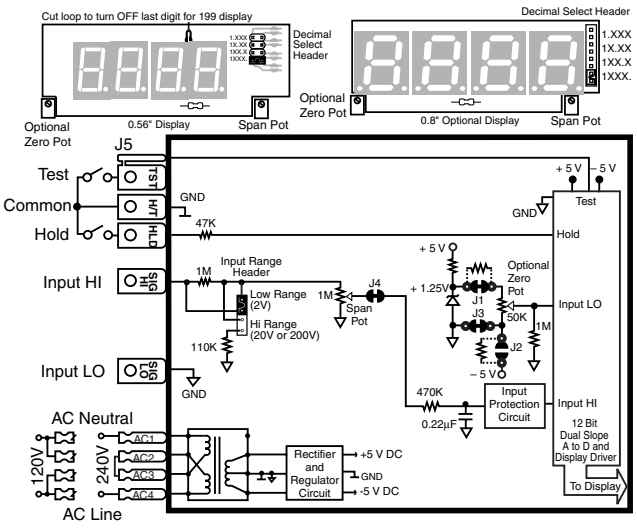
Case Dimensions: .....Bezel 4.06"Wx1.89"H (102.7Wx47.9Hmm) Depth behind bezel 3.64" (92.22 mm) Plus 0.5 to .9" (12.7 to 22.8mm) depending on connector used.

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

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

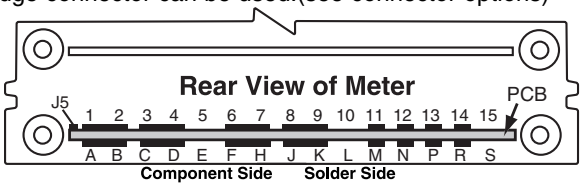
UM-35ACI1/5 AC amps, Scaled RMS, (**1 or 5 Amp** internal shunt), 3.5 digit
UM-35AC.....AC volts, Scaled RMS. **199.9V AC**/500V AC Header Selectable Ranges, 3.5 digit
UM-40AC .....AC volts, Scaled RMS. **500.0V AC** full scale, high resolution 4 digit
UM-35HZ .....**15Hz** to **199.9Hz** or optionally 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

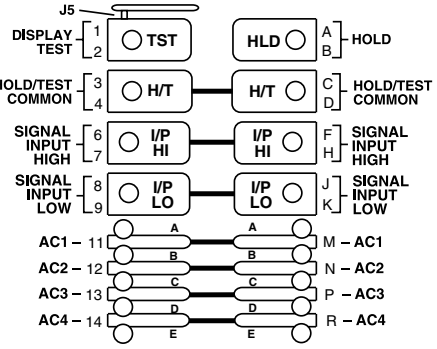
Functional Diagram



Connector Pinouts

UM-Series are connectable using the TB-KIT screw terminal blocks provided with the meter. For greatest convenience, order a Texmate Push-On screw terminal connector. 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.

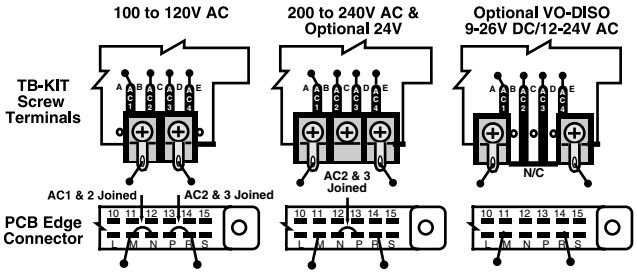
Pins A & B - Hold Reading: When this pin is connected to the H/T Common pin, A/D conversions will continue, but the display will not be updated until Pins A and B are disconnected from the H/T Common pin. When using a Texmate TB-KIT Screw Terminal, J5 has to be opened to disconnect the Test function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

Pins 6, 7, F & H - Signal High Input: Signal high input for the meter. Full-scale ranges of 2V or 20V can be selected on the Range Select Header. (Optional range of **2V**/200V is also available)

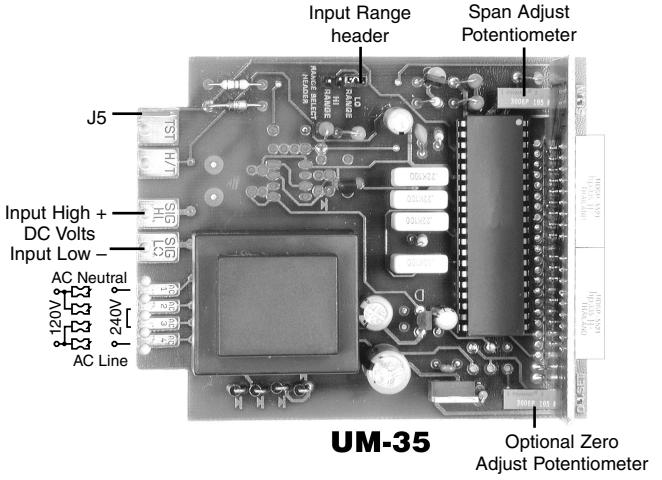
Pins 8, 9, J & K - Signal Low Input: Signal low input of the A/D Converter.

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:

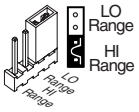
See below for connections



Component Layout

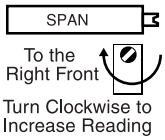


Signal Conditioning Components



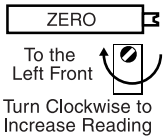
INPUT RANGE Header

Range values are marked on the PCB. Two positions are provided. After selecting a new range with the single jumper clip, recalibration is required.



SPAN Potentiometer (Pot)

The 15 turn SPAN pot is always on the right side (as viewed from the front of the meter). Typical adjustment is 100% of the input signal range.



ZERO Potentiometer (Pot)

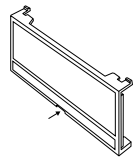
The Optional ZERO pot when installed is always to the left of the SPAN pot (as viewed from the front of the meter). Typically it enables the displayed reading to be offset ±1000 counts.

Calibration Procedure

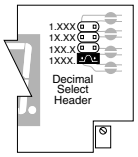
1. Select the required full scale voltage range by repositioning the jumper clip on the Range Select Header. A range of 2/20V DC or optionally 2/200V DC full scale may be selected.
2. Apply an input of 0 volts. The meter will autozero and display 0000. If the zero needs to be offset use the optional Zero Offset pot.
3. Apply a known high input signal that is within the full scale voltage range selected.
4. Adjust the Span Pot until the meter displays the required reading for the signal being applied.
5. The UM-35 is now calibrated and ready for use.

   (Whenever you select a new range, you must re-calibrate to meet the specified accuracy.)

Decimal Point Selection



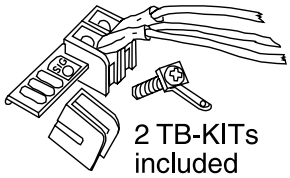
Remove faceplate by inserting a screwdriver blade in the slot at the bottom center of the faceplate. Press blade in to release catch and gently pry face plate outward from the bottom. (see also Case Dimension drawing)



Decimal selection is made on the front of the display board by moving the jumper clip to the desired position on the header.

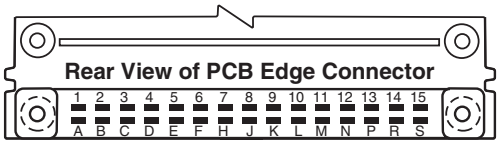
TB-Kit Screw Connectors

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

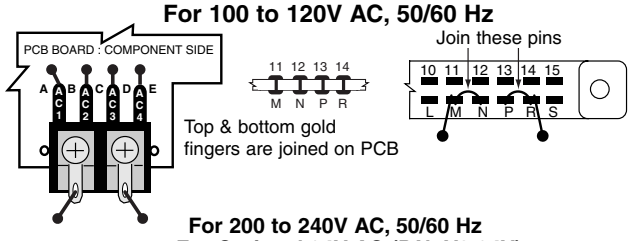


A standard 30 pin edge connector (two rows of 15 pins on 0.156" centers) may also be used to connect the UM-Series. Order part no. CN-L15. For different power supply voltage connection details, see pin connections below.

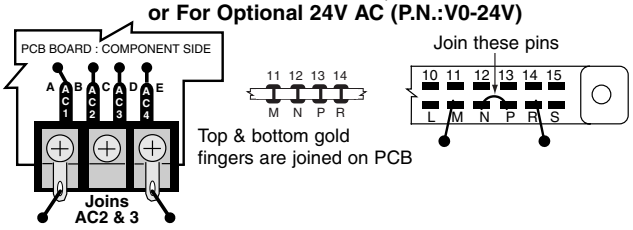
Selecting Power Supply Voltages

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

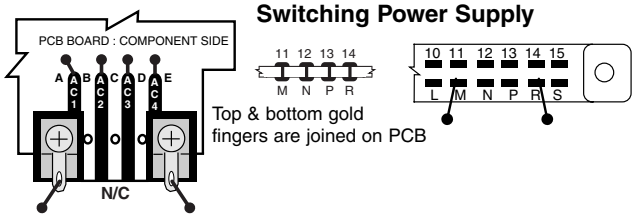
For 100 to 120V AC, 50/60 Hz



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



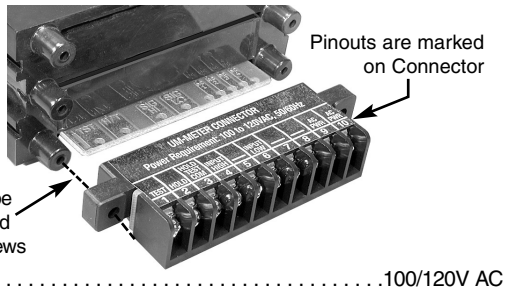
For Isolated 9-36V DC/12-24V AC, 50/60 Hz Switching Power Supply



Push-On Screw Terminals

They provide the greatest convenience and ease of use

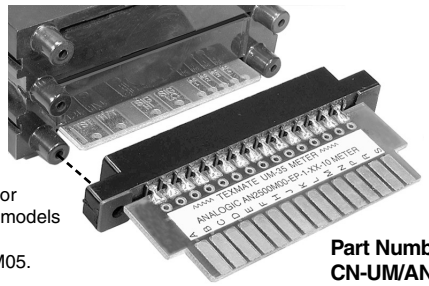
Texmate's exclusive optional Push-On Connectors combine an edge card connector and a 10 position screw terminal block. Push-On Connectors are ordered preconfigured for each specific power supply voltage and each optional power supply available for the UM-Series.



CN-PUSH/UM . . . . . .100/120V AC
CN-PUSH/UM01 . . . . . 200/240V AC
CN-PUSH/UM02 . . . . . .Switch Selectable 120/240V AC
CN-PUSH/UM03 . . . . . .24V AC
CN-PUSH/UM04 . . . . . .9-36V DC/12-24V AC
CN-PUSH/UM05 . . . . . .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.

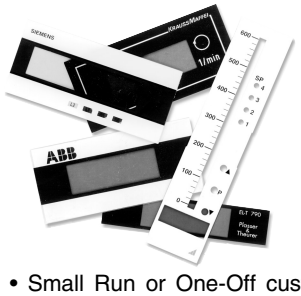
Part Number CN-UM/ANLGC

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	m^3/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.

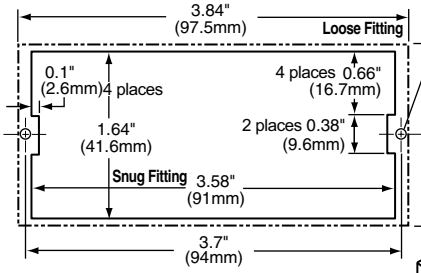
• Small Run or One-Off custom face plates incur an installation charge, and are generally printed on a special plastic film, which is then laminated to custom faceplate blanks as required.

• 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

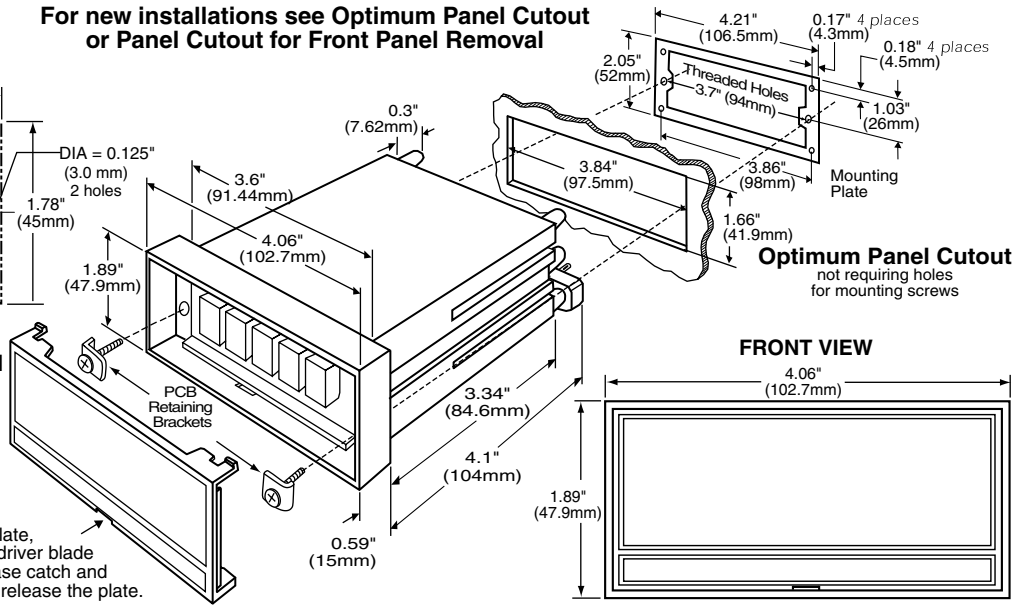
This NEMA Case will fit any existing cutout with dimensions that are between the Snug and Loose Fitting dimensions shown below.



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***

▶ **BASIC MODEL NUMBER** Includes 2 TB-KITs, standard display and standard power supply unless optional versions are ordered.
UM-35 . . . . . .DPM, **±2**/20V DC Header selectable or optionally ±2/200V DC

▶ **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
V0-5V DC .....Non-isolated 5V DC only

▶ **SPECIAL OPTIONS (Specify Inputs or Outputs & Req. Reading)**

HD-CHANGE .....Range change from the standard input as shown in **BOLD** type
V0-50K.....Zero offset Potentiometer 50K
CB-FS35 .....Non-Std Range and Scale changes for UM-35 meters
VRC-DPM .....Input Range Header Change to 2V/200V from (2V/20V)

Special Options and Accessories

Part Number ***Description***

▶ **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/UM02 . Connector: Push-on Terminal Block,120/240V AC select
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: xtra 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.

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.

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