



DU-Series



TEXMATE

DU-35HZ

AC Line Frequency
3 1/2 Digit with 0.56" LEDs
in a 1/8 DIN Case

An economical meter for 50Hz, 60Hz, or 400Hz AC line frequency measurement. Quick and easily installation make it the OEM's choice for switchboard upgrades.

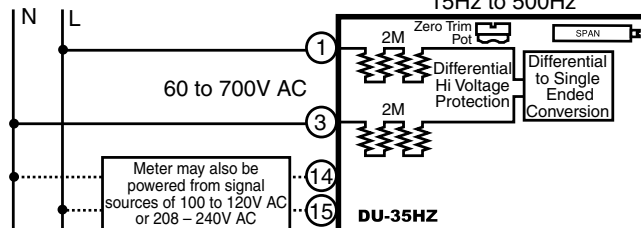
General Features

The DU-35HZ is a low-cost, AC line frequency measuring meter with a factory installed range of 15.0Hz to 199.9Hz or optionally 15Hz to 500Hz. The unique input structure allows safe phase to phase line frequency measurements in multi-phase systems. Display Hold and Display Test functions are also provided. The standard meters have a high efficiency red LED display and user selectable AC power inputs of 100V AC to 120V AC or 200V AC to 240V AC are provided. An Optional 24V AC or an auto sensing isolated AC/DC 24V switching power supply can be ordered. (See ordering information)

Typical Application Connections

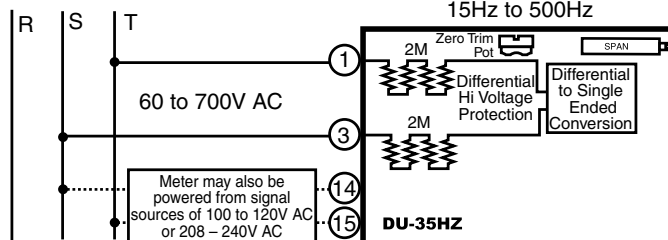
AC Line Frequency measurement in Single-phase Systems.

Two factory installed ranges of
 15.0Hz to 199.9Hz or
 15Hz to 500Hz



AC Phase to Phase Line Frequency measurement in Multi-phase Systems.

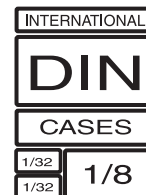
May be used with 3 Phase 3 Wire and 3 Phase 4 Wire Systems.
 Two factory installed ranges of
 15.0Hz to 199.9Hz or
 15Hz to 500Hz



The unique differential input allows safe phase to phase AC line frequency measurements.

Compatibility

The DU-Series have a matching DIN case style that is complementary to the Lynx, Leopard and Tiger family of meters. DU-Meters are the OEM's choice for economical switchboard and process indication. For economy, each model is dedicated to a specific application and designed for quick and easy installation.



Specifications

Input Configuration:Differential with Frequency to Voltage converter. Inputs resistively isolated to 1400V from the internal ground of meter by 1.94MΩ, so that phase to phase measurements up to 700V AC can be safely made.

Full Scale Ranges:Factory installed range of 15.0Hz to 199.9Hz or optionally 15Hz to 500Hz

Input Impedance:4MΩ

A/D Converter:12 Bit Dual Slope

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

Temperature Coefficient: 100 ppm/°C (Typical)

Warm Up Time:One minute 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/ISOIsolated Switcher 9 to 36V DC/12 to 24V AC
 (Optn) VO-24VIsolated Transformer 24V AC ±10%
 (Optn) VO-5V DCNon-isolated 5V DC ±10%

Operating Temperature:-10 to 50 °C

Storage Temperature:-20 to 70 °C

Relative Humidity:95% (non-condensing)

Case Dimensions:1/8 DIN, Bezel: 96x48mm (3.78"x1.89")
 Depth behind bezel 117 mm (4.61") plus 11.8mm (0.47") for Right-angled Connector or 20mm (0.79") for Straight-through Connectors.

Weight:11oz., 14oz. when packed

DU-Series, the OEMs choice for switchboard and process indication

DU-35AC11/5AC amps, Scaled RMS. (1 or 5 Amp Internal shunt), 3.5 digit

DU-35ACIRMS1/5AC amps, True RMS. (1 or 5 Amp Internal shunt), 3.5 digit

DU-40AC11-5AC amps, Scaled RMS. (1 or 5 Amp Internal shunt), 4 digit

DU-35ACAC volts, Scaled RMS. 199.9/700V AC Header Selectable Ranges, 3.5 digit

DU-35ACRMSAC volts, True RMS 199.9/700V AC Header Selectable Ranges, 3.5 digit

DU-40ACAC volts, Scaled RMS. 700.0V AC full scale, 4 digit

DU-35HZ15.0Hz to 199.9Hz or 15/500Hz. Up to 700V AC input, 3.5 digit

DU-35DC volts ±2V/±20V/±200V Header Selectable Ranges, 3.5 digit

DU-35MVDC mV ±50mV, ±100mV, ±200mV Header Selectable Ranges, 3.5 digit

DU-45DC volts ±2V/±20V/±200V Header Selectable Ranges, 4.5 digit

DU-45MVDC mV ±50mV/±100mV/±200mV Header Selectable Ranges, 4.5 digit

DU-35CLProcess 4 to 20mA (100.0), easily user scalable, 3.5 digit

DU-35CLEProcess 4 to 20mA (100.0) with 24V DC excitation, scalable, 3.5 digit

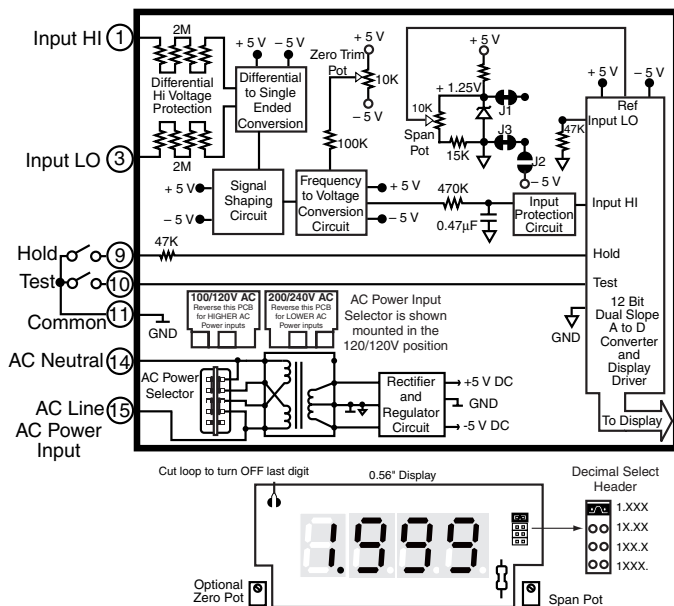
DU-45CLProcess 4 to 20mA (100.00), easily user scalable, 4.5 digit

DU-35PPressure, 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

DU-35J/KOrder J or K Thermocouple and °C or °F, 3.5 digit

DU-35RTD100Ω platinum RTD, 3 or 4 wire, order °C or °F and 0.1° or 1°, 3.5 digit

Functional Diagram

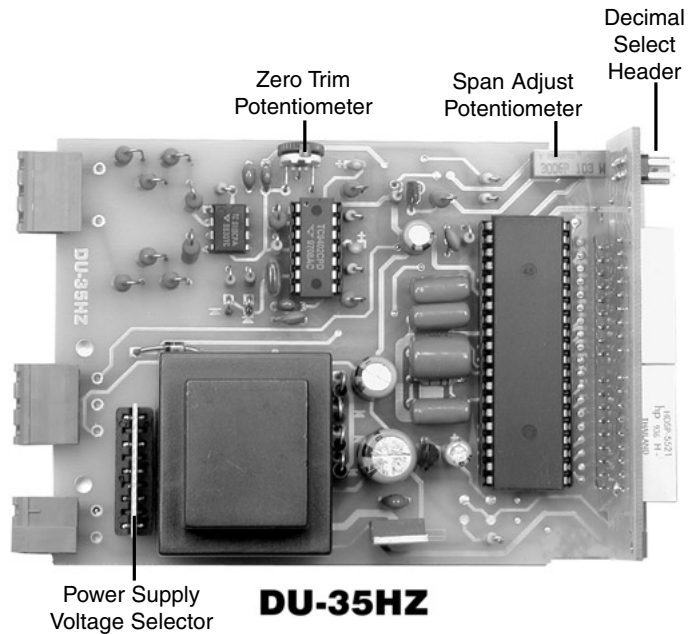


Pin 10 - Display Test: All numeric display segments will light up when this pin is connected to the Hold/Test Common Pin 11.

Pin 11 - Hold/Test Common: The Hold and Display Test Pins have to be connected to this pin to activate their respective functions.

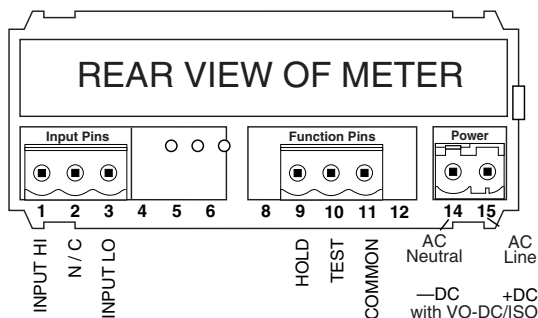
Pins 14 & 15 - AC Power Input: These pins are the Power Input pins for the meter. All DU-Series meters sold in North America are preconfigured at the factory for 100/120V AC operation. To reconfigure for 200/240V AC operation, simply pull out the AC Power Voltage Selector located directly behind the transformer, turn it around and reinsert it into the socket so that "200/240V AC" is visible. Various other AC/DC power options are available. See Ordering Information for details.

Component Layout



Connector Pinouts

This meter is supplied with plug-in type screw terminal connectors. The power supply pins (14 & 15) have a unique plug and socket outline to prevent cross connection. (see DU 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.

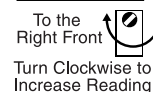
Pin 1 - Signal Input High: AC voltages from 60 to 700V can be applied this pin which is resistively isolated to 1400V from the internal ground of meter by 1.94MΩ, so that phase to phase measurements up to 700V AC can be safely made.

Pin 3 - Signal Input Low: AC voltages from 60 to 700V can be applied this pin which is resistively isolated to 1400V from the internal ground of meter by 1.94MΩ, so that phase to phase measurements up to 700V AC can be safely made.

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

Signal Conditioning Components

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 20% of the input signal range.



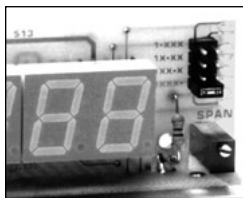
Zero trim potentiometer

The single turn Zero Trim Pot is accessed by removing the meter from the case. It is adjusted at the factory and usually does not need to be readjusted.

Calibration Procedure

1. Apply a zero input by shorting the inputs to the meter. Adjust the zero trim pot until the meter reads 000.
2. Apply an AC voltage from 60V to 500V AC, of a known frequency.
3. Adjust the Span Pot until the meter displays the frequency being applied.
4. The DU-35HZ is now calibrated and ready for use.

Decimal Point Selection



Decimal selection is made on the front of the display board by moving the jumper to the indicated position on the header for the decimal required.

Rear Selection of Decimal Points

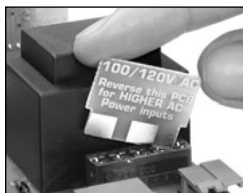
An optional output board is available that provides access to all decimal points via a rear PCB edge connector.

Opening Back Panel



To open back panel, insert a flat screwdriver or similar instrument in both slots on the top of the case and pry open. The DU-Series meters slide out from the rear of the case as a complete assembly.

Selecting Power Supply Voltage

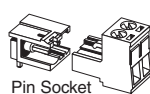


This unique voltage selector PCB displays the operating voltage selected. To change the voltage, disconnect power to the meter. Remove the selector, reverse the selector and fully re-insert it in the socket. This selector is not required for optional power supplies.

DU-Series Connector Options

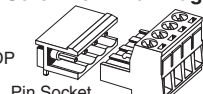
Plug-in Screw Terminal Connectors are Provided

Input Power
Screw Terminal Plug



Pin Socket

Right-angled
Screw Terminal Plug

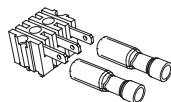


Pin Socket

Part Number:
93-PLUG2P-DP

Part Numbers:
93-PLUG2P-DR.....2 pins
93-PLUG3P-DR.....3 pins
93-PLUG4P-DR.....4 pins
93-PLUG5P-DR.....5 pins
93-PLUG6P-DR.....6 pins

Spade Lug pinouts and insulated quick disconnects may still be ordered as an option. P/N.:CN-SPADE.

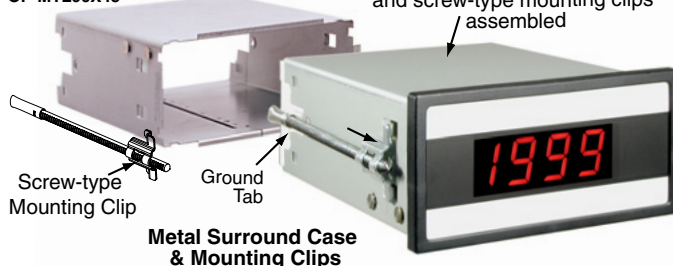


Metal Surround Case Option

The meter's plastic case is made from fire retardant polycarbonate. A metal surround case can be ordered to enhance the meter's fire retardant capabilities and also provide shielding against electromagnetic interference (EMI). The metal case slides over the polycarbonate case and is held firmly in place by spring-type non-return clips. The Metal Surround Case must be factory installed on the polycarbonate case and once installed, it cannot be removed in the field.

With the metal case in place, the meter's standard ratchet-type mounting clips can not be used. Instead a pair of screw-type DIN standard mounting clips are provided, which clip into holes on the side of the metal case and tighten against the rear of the panel. A ground tab on the metal case enables the metal case to be easily connected to the panel ground.

Part No.
OP-MTL96X48



Face Plate Descriptors

AC	Ω	kV	kVAR	m ³ /hr	Hz	RPM
V	mV	min	PF	°F	°C	Cos θ
DC	x10kN	μ A	PSIG	mS	kg/cm ²	psi
kW	W	kWH	pH	%	K	kPa
A	mbar	mA	MW	kA	RPS	MWH
mWs	μ m	kW/s	I	l/sec	ml	cm
ORP	mm/s	1/min	mm	kg/sec	lbs	kg/hr
FT	bars	min ⁻¹	m/min	Mvars	μ V	dB

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

Custom Face Plates



Texmate Produces Thousands of Custom OEM Face Plates

Have Texmate Design and Build a Custom Face Plate to Suit your Next project!

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

Optional Display Styles



DU Series Above-Center Display Option



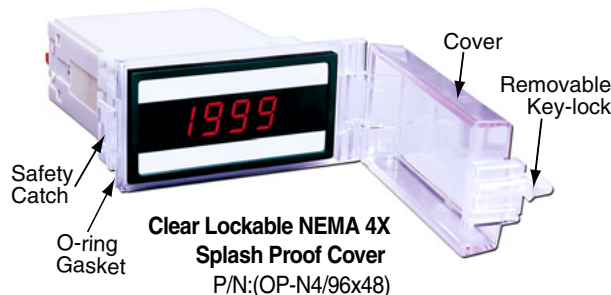
0.8" LED Options available in Lynx Family

To match all display styles, DU-Meters have an optional display and faceplate with the digits positioned above center. (see Display Options)

For 0.8" LEDs in 1/8 DIN cases order Lynx family DX-35 and DX-40 w/ LR or LG displays and input modules that match DU-Series inputs.

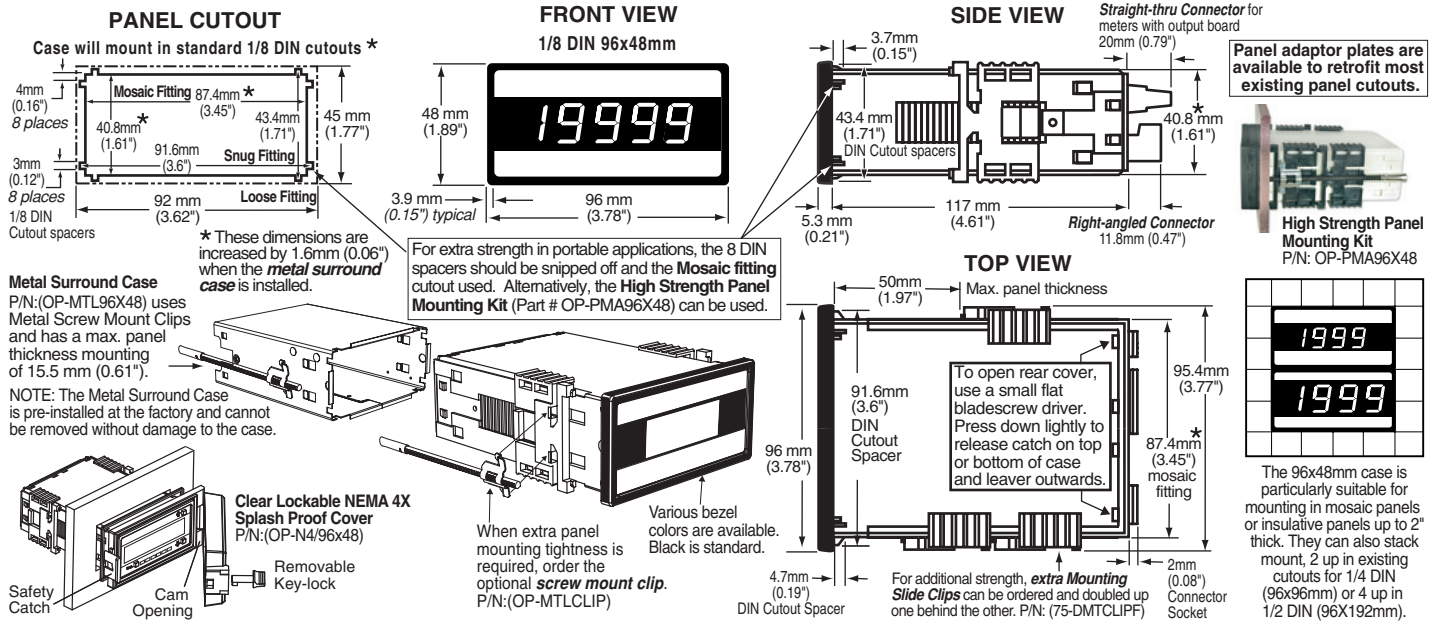
Clear Lockable Water-proof Cover

The clear lockable cover is designed to be dust and water proof to NEMA-4X, IP65 standards. The assembly consists of a base and cover with a cam hinge and key-lock fastening mechanism. An O-ring, or neoprene gasket forms a seal between the base and the panel. The cam hinge prevents the cover from closing when opened until pushed closed. The cover has a tapered recess that, when closed, forms a seal with a tapered spigot on the base. A key-lock employs a cam locking device to force the spigot into the recess, ensuring seal integrity. A safety catch keeps the cover closed even when the key is removed, and the keyhole can be used to attach a safety seal clip, preventing unauthorized opening.



Clear Lockable NEMA 4X
Splash Proof Cover
P/N:(OP-N4/96x48)

DU Case Dimensions and Panel Cutouts



Ordering Information

Standard Options for this Model Number

Part Number	Description
► BASIC MODEL NUMBER	Includes plug in type screw terminals, standard display and standard power supply unless optional versions are ordered.

DU-35HZDPM, 15.0Hz to 199.9Hz or 15/500Hz. Up to 700V AC input

► DISPLAY

STANDARDRed LEDs, 0.56 inch high

DU-BRIGHTSuper bright Red LEDs, 0.56 inch high

DU-GREENGreen LEDs, 0.56 inch high

DU-GREEN 4.5D ... Dummy Zero Display Option w/ Green LEDs

DU-RED4.5DDummy Zero Display Option w/ Green LEDs

DU-35HI/BRTAbove center position, .56 inch, Bright Red LED

DU-35HI/GRNAbove center position, .56 inch, Green LED

DU-35HI/REDAbove center position, .56 inch, Red LED

► POWER SUPPLY

STANDARD100/120 or 200/240VAC User selectable

V0-DC/ISOIsolated auto-sensing AC/DC 9 to 36 VDC/12 to 24 VAC

V0-24VIsolated transformer 12 VAC or 24 VAC user selectable

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

HD-CHANGERange change from the standard input as shown in **BOLD** type

V0-50KZero offset potentiometer 50k

CB-FS35Non-Std Range and Scale Changes for all DU-35 series

Special Options and Accessories

Part Number Description

► ACCESSORIES (Specify Serial # for Custom Artwork Installation)

75-DBBZ9648F	... Black Bezel for 96x48mm Case
75-DMTCLIPF	... Side Slide Brackets (2 pc) - extra set, extra strength
76-DU35G	... Replacement DU Series grey lens for Green LEDs
76-DU35R	... Replacement DU Series red lens for Red LEDs
76-DUPP/N	... Anti-glare protective front lens plate for DU Series
93-PLUG2P-DP	... Extra Screw Terminal Conn., 2 Pin Power Plug
93-PLUG3P-DR	... Extra Screw Terminal Conn., 3 Pin Plug
CN-SPADE	... Spade Lug pinouts and Insulated quick disconnects
DN-CAS96X48A	... Complete 96x48mm Case with bezel
OP-DUXTDP	... Option for External Decimal Point
OP-MCLP96X48	... Screw Mounting Clips (2 pc) to screw tighten slide brackets
OP-MTL96X48	... Metal Surround Case includes metal mounting clips
OP-N4X/96X48	... Clear Lockable Water-proof cover, Nema 4X, IP65
QD-KIT-1	... Replacement Crimp-on Quick Disconnects (7 per Set)
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-FL-001	... Custom Faceplate, 250 piece Min. - 1 color
ART-FL-002	... Custom Faceplate, 250 piece Min. - 2 color
ART-FL-003	... Custom Faceplate, 250 piece Min. - 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.

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