

# LOAD CELL, POTENTIOMETER, PROCESS AND TEMPERATURE DISPLAY

## DM4500U

- > Suitable For Load Cell, Temperature and Process Signals
- > Internal Power Supply For Loop and Load Cell Excitation
- > Tare Functions for Load Cell
- > Multi Colour Display
- > Relay, NPN/ PNP, Current / Voltage Output Options
- > RS485 Comms Option



## > INTRODUCTION

The DM4500U accepts various types of sensors including Load Cell, Pt100, Thermocouple, Potentiometer and Process current or voltage enabling the DM4500U to be used in a wide variety of applications. Output options are provided that include NPN / PNP, 2 or 4 relays, current / voltage and RS485 comms. The unit can be fully programmed from the front panel buttons or via the RS485 comms option.

All parameters can be entered by pressing combinations of the three sealed front panel keys through a series of menus in helpful mnemonics or via the optional communications port.

The display can be programmed to read in three different colours and two levels of brightness. Red, Green and Orange. Colours can be programmed in a variety of different ways. For example alarm, normal running or high scale can be displayed in different colours.

## > SPECIFICATIONS @ 20 °C

### INPUT SIGNAL

Configuration asymmetric differential

<b>Process input</b>	<b>Voltage</b>	<b>Current</b>	<b>Potentiometer input</b>	
Voltage	±10 V DC	±20 mA DC	Voltage	±10 V DC
Max. resolution	1 mV	1 µA	Input impedance	1 MΩ
Input impedance	1 MΩ	15 Ω	Display resolution	0.001%
			Max. error	± (0.1% of the reading +1 digit)
<b>Excitation</b>	24 V @ 60 mA, 5 V or 10 V @ 60 mA		Potentiometer min. value	200 Ω
Max. error	± (0.1% of the reading +1 digit)			
<b>Load cell input</b>			<b>Temperature input</b>	
Voltage	±15 mV ± 30mV ± 150mV		Cold junction compensation	(-10 to +60) °C
Max. resolution	1 µV		Cold junction	± 0.2 °C
Input impedance	100 MΩ		Drift	± 0.05 °C / °C
Excitation	5 V or 10 V @ 60 mA		Pt100 sensor excitation	< 1 mA DC
Max. error	± (0.1% of the reading +1 digit)		Max. Lead resistance (balanced)	40 Ω / cable

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Input	Range (res. 0.1 °)	Accuracy (res. 0.1°)	Range (res. 1°)	Accuracy (res. 1°)
TC J	(-50.0 to +800.0) °C	0.4% Rdg ±0.6 °C	(-50 to +800) °C	0.4% Rdg ±1 °C
	(-58.0 to +1472.0) °F	0.4% Rdg ±1 °F	(-58 to +1472) °F	0.4% Rdg ±2 °F
TC K	(-50.0 to +1200.0) °C	0.4% Rdg ±0.6 °C	(-50 to +1200) °C	0.4% Rdg ±1 °C
	(-58.0 to +2192.0) °F	0.4% Rdg ±1 °F	(-58 to +2192) °F	0.4% Rdg ±2 °F
TC T	(-150.0 to +400.0) °C	0.4% Rdg ±0.6 °C	(-150 to +400) °C	0.4% Rdg ±1 °C
	(-302.0 to +752.0) °F	0.4% Rdg ±1 °F	(-302 to +752) °F	0.4% Rdg ±2 °F
Pt100	(-100.0 to +800.0) °C	0.2% Rdg ±0.6 °C	(-100 +800) °C	0.2% Rdg ±1 °C
	(-148.0 to +1472.0) °F	0.2% Rdg ±1 °F	(-148 to +1472) °F	0.2% Rdg ±2 °F

## MAX input signal applicable

Process mA ±22 mA

Process V ±11 V

## Load cell

±15 mV ±16.5 mV

±30 mV ±33 mV

±150 mV ±165 mV

MAX. continuous overload V and mV inputs 50 V

MAX. continuous overload mA inputs 50 mA

## DISPLAY

Principal -19999 / 19999,  
5 digits tricolour 14 mm

Decimal point programmable  
LEDs 4 for functions and 4 for outputs

## Display update rate

Process/ Load cell 20 / s

Pt100 4 / s

Thermocouple 10 / s

Input over range *-ouer,ouer*

## CONVERSION

Technique Sigma/ Delta

Resolution (±15 bit)

Rate 20/s

temperature coefficient 100 ppm/ °C

Warm-up time 15 minutes

## POWER SUPPLY

DM4500/S1 (85 to 265) VAC, (100 to 300) VDC

DM4500/S2 (22 to 53) VAC, (10.5 to 70) VDC

## EXTERNAL FUSES (DIN 41661)

DM4500/S1 (115 to 230) V AC F 0.2 A / 250 V

DM4500/S2 (24 to 48) V AC F 2 A / 250 V

## FILTERS

### Filter P

Cut-off frequency 4 Hz to 0.05 Hz

Slope 20 dB / decade

## ENVIRONMENTAL

### Indoor use

Operating temperature (-10 °C to +60) °C

Storage temperature (-25 °C to +85) °C

Relative humidity (non-condensing) <95 %

Max. altitude 2000 meters

## Relay Option

CHARACTERISTICS	OPT4500/2RLY	OPT4500/4RLY
MAX.CURRENT (RESISTIVE LOAD)	8 A	5 A
MAX.POWER	2000 VA / 192 W	1250 VA / 150 W
MAX.VOLTAGE	250 VAC / 150 VDC	277 VAC / 125 VDC
CONTACT RESISTANCE	Max. 3 mΩ	Max. 30 mΩ
SWITCHING TIME	Max. 10 ms	Max. 10 ms

## NPN / PNP Option

CHARACTERISTICS	
MAX VOLTAGE	50 VDC
MAX CURRENT	50 mA
LEAKAGE CURRENT	100 µA (max.)
SWITCHING TIME	1 ms (max.)

## mA / V Option

CHARACTERISTICS	OPT4500/mA OUTPUT	OPT4500/V OUTPUT
RESOLUTION	13 BITS	13 BITS
ACCURACY	0.1% F.S. ±1BIT	0.1% F.S. ±1BIT
RESPONSE TIME	50 ms	50 ms
THERMAL DRIFT	0.5 µA/°C	0.2 mV/°C
MAXIMUM LOAD	<= 500 Ω	>=10 KΩ

## MECHANICAL DETAILS

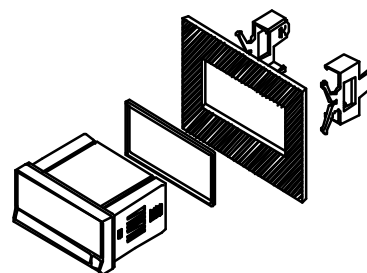
Dimensions (96x48x60) mm (DIN 43700)

Panel cut out (92x45) mm

Weight 200 g

Case material Polycarbonate (UL 94 V-0)

Sealed front panel IP65



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## ORDER CODE

DM4500U	/	<input type="text"/>	/	<input type="text"/>	/	<input type="text"/>	/	<input type="text"/>
<b>POWER SUPPLY</b>								
(85 to 265) V AC (50 to 60) Hz or (100 to 300) V DC		S1						
(22 to 53) V AC (50 to 60) Hz or (10.5 to 70) V DC		S2						
<b>ANALOGUE OUTPUT</b>								
(4 to 20) mA								A
(0 to 10) V								V
None								0
<b>RELAYS &amp; OPTO OUTPUT</b>								
2 x Relays SPDT 8 A								2
4 x Relays SPST 5 A								4
4 x NPN								N
4 x PNP								P
None								0
<b>COMMUNICATION OUTPUT</b>								
Serial 485								C
None								0

Example: DM4500U/S1/A/4/0 = DM4500 Universal Display with the (85 to 265) V AC (50 to 60) Hz or (100 to 300) V DC Supply, (4 to 20) mA Output, 4 x Relays Output without Comms.