

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

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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 to +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
programmable
Decimal point 4 for functions and 4 for outputs
LEDs

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

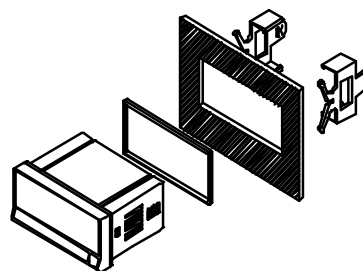
CHARACTERISTICS	
MAX VOLTAGE	50 VDC
MAX CURRENT	50 mA
LEAKAGE CURRENT	100 µA (max.)
SWITCHING TIME	1 ms (max.)

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"/>
POWER SUPPLY								
(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						
ANALOGUE OUTPUT								
(4 to 20) mA		A						
(0 to 10) V		V						
None		0						
RELAYS & OPTO OUTPUT								
2 x Relays SPDT 8 A						2		
4 x Relays SPST 5 A						4		
4 x NPN						N		
4 x PNP						P		
None						0		
COMMUNICATION OUTPUT								
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.