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-Color 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 colors and two levels of brightness. Red, Green and Orange. Colors can be programmed in a variety of different ways. For example alarm, normal running or high scale can be displayed in different colors.

SPECIFICATIONS @ 68°F

INPUT SIGNAL

Configuration	asymmetric differential

Process input	**Voltage**	**Current**
Voltage	±10VDC	±20mADC
Max. resolution	1mV	1µA
Input impedance	1 MΩ	15Ω
Excitation	24VDC @ 60mADC, 5VDC or 10VDC @ 60 mADC	
Max. error	± (0.1% of the reading +1 digit)	

Load cell input	
Voltage	±15mV ± 30mV ± 150mV
Max. resolution	1µV
Input impedance	100MΩ
Excitation	5VDC or 10VDC @ 60mA
Max. error	± (0.1% of the reading +1 digit)

Potentiometer input	
Voltage	±10VDC
Input impedance	1MΩ
Display resolution	0.001%
Max. error	± (0.1% of the reading +1 digit)
Potentiometer min. value	200Ω

Temperature input	
Cold junction compensation	-10 to +60°C
Cold junction	± 0.2°C
Drift	± 0.05 °C / °C
Pt100 sensor excitation	< 1mADC
Max. Lead resistance (balanced)	40Ω / cable

STATUS INSTRUMENTS

LOAD CELL, POTENTIOMETER, PROCESS AND TEMPERATURE DISPLAY

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	±22mA
Process V	±11V
Load cell	
±15 mV	±16.5mV
±30 mV	±33mV
±150 mV	±165mV

MAX. continuous overload V and mV inputs	50V
MAX. continuous overload mA inputs	50mA

DISPLAY

Principal	-19,999 / 19,999 5 digits tri-color 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 265VAC, 100 to 300VDC
DM4500/S2	22 to 53VAC, 10.5 to 70VDC

EXTERNAL FUSES (DIN 41661)

DM4500/S1	115 to 230VAC	F 0.2 A / 250V
DM4500/S2	24 to 48VAC	F 2 A / 250V

FILTERS

Filter P	
Cut-off frequency	4 Hz to 0.05Hz
Slope	20dB / 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	2,000 meters

Relay Option

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

NPN / PNP Option

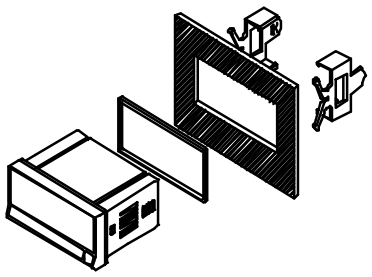
CHARACTERISTICS	
MAX VOLTAGE	50VDC
MAX CURRENT	50mA
LEAKAGE CURRENT	100µA (max.)
SWITCHING TIME	1ms (max.)

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	50ms	50ms
THERMAL DRIFT	0.5µA/°C	0.2mV/°C
MAXIMUM LOAD	<= 500Ω	>=10KΩ

MECHANICAL DETAILS

Dimensions	96x48x60mm (DIN 43700)
Panel cut out	92x45mm
Weight	200g
Case material	Polycarbonate (UL 94 V-0)
Sealed front panel	IP65



STATUS INSTRUMENTS

ORDER CODE

DM4500U / ☐ / ☐ / ☐ / ☐

POWER SUPPLY

85 to 265VAC (50 to 60) Hz or 100 to 300VDC	S1
22 to 53VAC (50 to 60) Hz or 10.5 to 70VDC	S2

ANALOG OUTPUT

4 to 20mA	A
0 to 10VDC	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 265VAC (50 to 60) Hz or 100 to 300VDC Supply, 4 to 20mA Output, 4 x Relays Output without Comms.

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