DM3410 TEMPERATURE INPUTS
DM3420 PROCESS INPUTS
TRANSMITTER EXCITATION
IP65 FRONT PANEL SEALING
PLUG & PLAY OPTION PODS
Modbus RS485 SERIAL COMMS
AUTO SCALING MODE

NEW

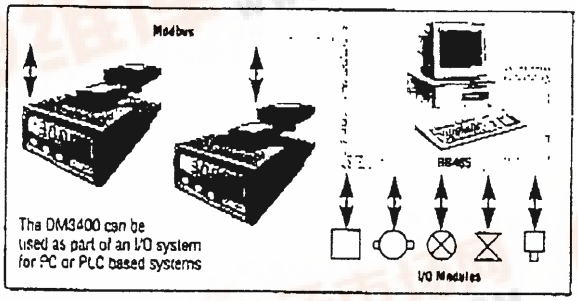
INDICATORS

INTELLIGENT DIGITAL INDICATORS
DM3400 SERIES

INTRODUCTION

The **DM3400** is a series of highly accurate and stable digital indicators. The **DM3410** and **DM3411** are for Temperature indication, and the **DM3420** and **DM3421** for Process.

Designed without compromise, the **DM3400 series** uses leading edge technology to accept all commonly used temperature or process inputs. Engineering units are displayed on a high efficiency Red (Green option) LED display that provides daylight readability. The indicators can easily be used 'stand alone' or, using the Modbus serial communications option pod, as part of a larger system.



The DM3400 can be used as part of an I/O system for PC or PLC based systems

The display can be set to show a fixed number of decimal places and to auto scale to show the maximum resolution.

The highly innovative case design enables option 'Pods' to be easily installed without the need for dismantling or re-calibration. A range of 'Plug and Play' Pods are available covering:-

Relay outputs
Isolated 4-20 mA re-transmission
Modbus RS485 serial comms.

The flexibility of plug-in option pods combined with the switch mode power supply results in reduced stock holdings and, in common with the other products from Status Instruments, a low 'cost of Ownership'.

The front panel is sealed to IP65 and the case has a moulded in rubber gasket enabling it to seal to the panel maintaining the IP65 rating, ideal for installing it in 'dusty' areas or where low pressure jets of water are used to clean down equipment.

Tension clamp*1 two part connectors are provided for 'fast wiring' enabling installation to be completed in typically half the time it would take using conventional screw terminals. These high quality connections are manufactured to IEC-947-1 and IEC947-7 standards and maintain the contact permanently under tension to also provide superior long-term performance in the presence of vibration.

*1 alternative clamping yoke screw terminal connectors are available to special order.

SET UP

Programming is via the front panel keys following a logical menu structure which can be set to 'Short' (default), whereby only the common usage features are presented to the operator, or 'Full' where the full range of programmable features is available. Alternatively via a PC by using the RS485 (Pod-3000-05) Modbus communication pod.

MENU MODE

Two front panel programming menus can be selected as follows with the option of password protection.

Feature	Short Menu	Full Menu
Temperature Indicators DM3410 DM3411	Sensor type. Resolution.	Sensor type. Resolution. °C/°F: Burnout condition: User offset: Filter time constant.
Process Indicators DM3420 DM3421	Input type. Resolution. lo:hi	Input type Resolution lo:hi Burnout condition Filter time constant
Dual Alarm Relay Pod-3000/02	Alarm type: Setpoint.	Alarm type: Setpoint. Hysterisis: Latch: Invert.
Isolated re-transmission Pod-3000/03	lo : hi.	lo : hi. Output Span.
Modbus Comms Pod-3000/05	Device No: Baud rate: Connections 2/4.	Device No: Baud rate: Connections 2/4.

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INDICATORS

SPECIFICATION @ 20°C

DM3410 UNIVERSAL TEMPERATURE INDICATOR

The **DM3410** accepts all common thermocouple and RTD types and displays the temperature digitally

RTD (Pt-100)

Sensor Range		-200 to +850°C [18-390ohm]
Linearisation	**Standard**	BS EN 60751 (IEC-751) BS 1904 (DIN43760) JISC 1604
	Custom	[X]*1
Basic measurement accuracy		0.1°C ±0.05% Rdg
Thermal Drift	**Zero**	0.008°C/°C
	Span	100 ppm/°C
Excitation current		300µA to 550µA
Lead Resistance effect		0.002°C/ohm
Maximum lead resistance		50 ohms/leg

THERMOCOUPLE

TYPE	RANGE
Type **K**	-200 to 1370°C
Type **J**	-200 to 1200°C
Type **T**	-210 to 400°C
Type **R**	-10 to 1760°C
Type **S**	-10 to 1760°C
Type **E**	-200 to 1000°C
Type **F** (L)	-100 to 600°C
Type **N**	-180 to 1300°C
Custom [X]*1	-999 to 9999

Basic Measurement Accuracy		±0.04% FRI ±0.04% Rdg or 0.5°C (whichever is greater) FRI = Full Range Input
Linearisation	**Standard**	BS EN 60584-1 (IEC 584-1)
	Custom	[X]*1
Cold Junction Error		±0.5°C
Cold Junction Tracking		0.05°C/°C
Cold Junction Range		-30 to +60°C
Thermal drift	**Zero**	0.1µV/°C
	Span	100 ppm/°C

Note*1 Custom characterisation is available pre programmed at the factory at extra cost. Contact your nearest Sales Office.

DM3420 PROCESS INDICATOR

The **DM3420** accepts all common process signals, current or voltage, and displays the signal digitally in engineering units. An internal power supply provides excitation for field transmitters.

PROCESS

Voltage	**Range**	0-1 volts 1-5 volts 0-10 volts
Accuracy		0.05% FS
Thermal Drift	**zero**	0.1µV/°C
	span	100 ppm/°C
Current	**Range**	0-20 mA 4-20 mA 0-10 mA
Input Impedance		47 ohm (current) 1 Mohm (voltage)
Accuracy		0.05% FS
Thermal Drift		100 ppm/°C
Excitation		24V ±5% @ 50 mA

GENERAL SPECIFICATION @ 20°C

Update time		250 mS maximum
Time constant (Filter off)		<1 second (to 63% of final value)
Filter Factor Programmable:		Off, 2 seconds, 10 seconds or Adaptive
Warm-up time		2 minutes to full accuracy
Display range		-999 to 9999
Power Supply	**S1**	90-253 V AC 50/60 Hz
	S2	20-35 V DC
Power Consumption		6VA Max. (options fitted)

DISPLAY

4 Digit RED LED standard	14.2mm high / high intensity
4 Digit GREEN LED option	14.2mm high / high intensity
4 Alarm RED LED indicators	2.5mm high numeric

ENVIRONMENTAL

Sealing to PANEL	IP65
Ambient operating range	-30 to +60 °C
Ambient storage temperature	-50 to +85 °C
Ambient humidity range	10 to 90% RH non condensing

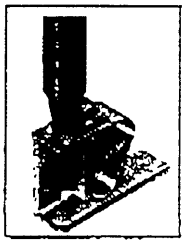
APPROVALS

EMC	Emissions	BS EN50081-1
	Susceptibility	BS EN50082-2
ELECTRICAL SAFETY		BS EN61010-1 UL pending

Connection Method **Tension Clamp*2 Two Part**

The tension clamp pulls the conductor firmly against the copper current bar which is coated with a tin lead compound

- zero-maintenance connection
- gas-tight clamping point
- constant contact force
- wire size 0.5 to 1.5 mm²



Connection Environmental Approvals

Low Temperature	IEC 68-2-1
Dry Heat	IEC 512-6-9
Damp Heat	IEC 512 -6-3
Damp Heat cyclical	IEC 68-2-30
Salt Spray	IEC 512-6-6
Sulphur Dioxide	IEC 68-2-46
Hydrogen Sulphide	IEC 68-2-16
Gas Tightness	IEC 512-Pr.11n

*2alternative clamping yoke screw terminal connections are available to special order.

OUTPUT OPTIONS

Plug and Play Option Pods

Simple plug in pre-calibrated units, no dismantling or recalibration

Pod-3000/02 Dual relay Alarm

Two independent mains rated relay outputs (common connection)

		AC	DC
Contacts		2 x Changeover relays common wiper	
Ratings		AC	DC
Maximum Load		7A@250V	7A@30V
Maximum Power		1750VA	210W
Maximum Switching		253 Volts	125 Volts
Electrical Life		10^5 operations at rated load	
Mechanical Life		50 million operations	
Termination	standard	5 way tension clamp connector	
		Optional screw terminals	

Pod-3000/03 Isolated re-transmission

Ranges		0-10mA (Active or Passive) 0-20 mA (Active or Passive) 4-20 mA (Active or Passive)
Minimum current output		0 mA
Maximum current output		23 mA
Accuracy		0.07% F.S.
Max. Output load	Active	1 K ohm
	Passive	[(Vsupply-2)/20] K ohms
Max. External Supply Voltage		30V (Passive mode)
Voltage effect		0.2 µA/V
Ripple current		<3µA
Isolation		500V AC
Stability		1µA/°C
Termination	standard	5 way tension clamp connector
		Optional screw terminals

COMMUNICATIONS

Pod-3000/05 RS 485 Modbus Comms.

PC communication for configuration and monitoring.

Physical Layer		4 wire or 2 wire half duplex RS485
Baud Rate software selectable		19,200 or 9,600
Protocol		Modbus RTU format
Isolation		500V AC
Maximum Fan out		32 units
Termination	standard	5 way tension clamp connector
	optional	screw terminals
	optional ribbon	cable - RC

ORDER CODE

Series DM34 [ ] [ ] / [ ]

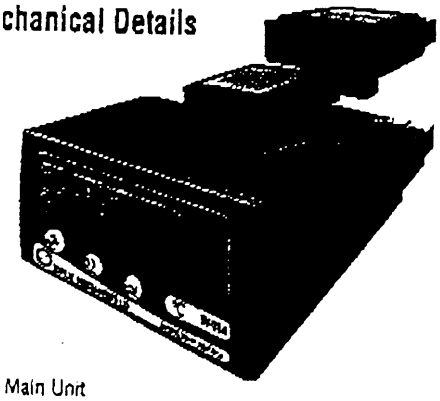
Universal Temperature	1
Universal Process	2

RED LED version	0
GREEN LED version	1

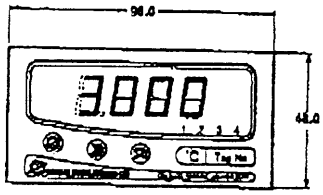
Power supply 90-253V AC 50/60Hz	S1*
Power supply 20-35V DC	S2

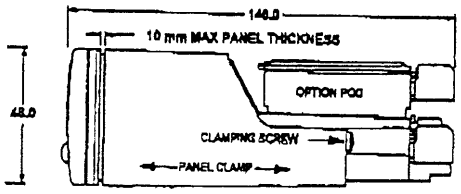
*Note - Supplied as standard unless otherwise specified

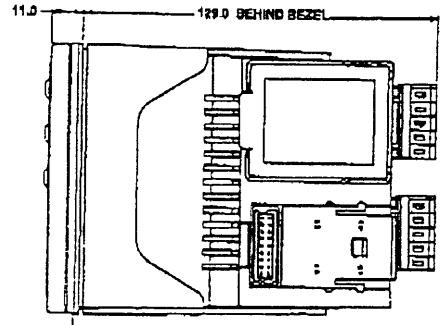
Mechanical Details



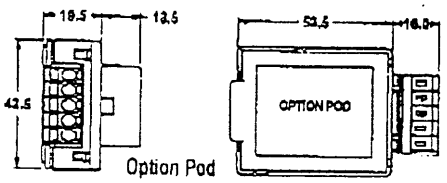
Main Unit







Weight 230gms. Panel cut out 92 x 45mm



Option Pod

Dimensions in mm

Material ABS/PC
Flammability IEC707 FV0
UL 94V0

OPTIONS

Pod-3000/02	Dual Relay Output (2 per unit maximum)
Pod-3000/03	Isolated 4-20mA re-transmission (1per unit maximum)
Pod-3000/05	Isolated Modbus RS485 (1per unit maximum)
Pod 3000/05-RC	Ribbon cable option
ACC001	Pack of 10 5 way optional screw terminals