FINE CONTROLS (UK) LTD

Fine Controls have been supplying process controls & instrumentation equipment since 1994, & now serves an ever expanding customer base, both in the UK & globally.

We offer a full range of valve & instrumentation products & services, with our product rangerepresenting leading technologies & brands:

Flow: Flow Meters & Transmitters, Flow Switches, Flow Control Valves & Batch Control Systems

Temperature: Temperature Probes & Thermowells, Temperature ransmitters,Temperature Regulators & Temperature Displays

Level: Level Transmitters & Switches

Pressure: Pressure Gauges &Transmitters, Precision & High Pressure Regulators & I-P Converters, Volume boosters.

Precision Pneumatics: Pressure Regulators, I-P Converters, Volume Boosters, Vacuum Regulators

Valves: Solenoid & Pneumatic Valves, Control Valves & Positioners, Actuated Ball, Globe or Diaphragm Valves & Isolation Valves

Services: Repair, Calibration, Panel Build, System Design & Commissioning

A rotork Brand FAIRCHILD

bürkert

SIEMENS

alcon SOLENOID VALVES

A rotork Brand

MIDLAND-ACS

A rotork Brand

Honeywell

Bourdon Baumer Group

SOLDO CONTROLS

A rotork Brand

Fine Controls (UK) LTD, Bassendale Road, Croft Business Park,
Bromborough, Wirral, CH62 3QL UK
Tel: 0151 343 9966
Email: sales@finecontrols.com

INTELLIGENT DIGITAL INDICATORS

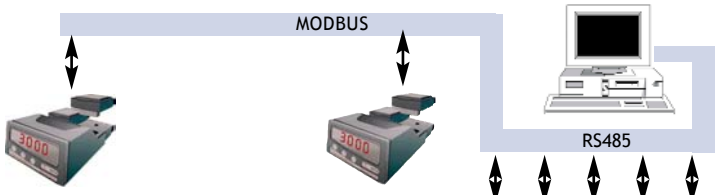
DM3400 SERIES

- DM3410 TEMPERATURE INPUTS
- DM3420 PROCESS INPUTS
- TRANSMITTER EXCITATION
- IP65 FRONT PANEL SEALING
- PLUG & PLAY POD OPTIONS
- MODBUS RS485 SERIAL COMMS
- AUTO ROUNDING MODE
- UL APPROVED
- 5 YEAR WARRANTY

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.

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 or 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 re-transmission ((0 to 10) mA, (0 to 20) mA, (4 to 20) mA)
- Modbus RS485 serial comms.

The flexibility of plug-in option pods combined with the switch mode power supply results in reduced stock holdings and 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 IEC-947-7 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.

Fine Controls (UK) Ltd
Bassendale Road, Croft Business Park
Bromborough
Wirral, CH62 3QL

Tel: 0151 3439966
Fax: 0151 3430062
Email: sales@finecontrols.com
Website: www.finecontrols.co.uk

FINE CONTROLS (UK) LTD

INTELLIGENT DIGITAL INDICATORS

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: Set point.	Alarm type: Set point. 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.

DM3410 UNIVERSAL TEMP. INDICATOR

SPECIFICATION @ 20 °C

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

RTD (Pt100)

Sensor Range		(-200 to 850) °C, (18 to 390) Ω
Linearisation	Standard	BS EN 60751 (IEC-751) BS 1904 (DIN 43760), JISC 1604
	Custom	[X]*1
Basic Measurement Accuracy		0.1 °C ± 0.05 % rdg
Thermal Drift	Zero	0.008 °C/°C
	Span	0.01 %/°C
Excitation Current		(300 to 550) µA
Lead Resistance Effect		0.002 °C/Ω
Maximum Lead Resistance		50 Ω/leg

THERMOCOUPLE

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	0.1 µV/°C
	Span	0.01 %/°C

*NOTE:
1. Custom characterisation is available pre-programmed at the factory at extra cost. Please contact your nearest Sales Office for further information.

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 to 1) V (1 to 5) V (0 to 10) V
Accuracy		0.05 % FS
Thermal Drift	Zero	0.1 µV/°C
	Span	0.01 %/°C
Current	Range	(0 to 20) mA (4 to 20) mA (0 to 10) mA
Input Impedance		47 Ω (current) 1 MΩ (voltage)
Accuracy		0.05 % FS
Thermal Drift		0.01 %/°C
Excitation		24 V ± 5 % @ 50 mA

GENERAL SPECIFICATION @20 °C

Input/Output Isolation		500 VAC rms (Galvanically Isolated)
Update Time		250 ms maximum
Time Constant (Filter off)		< 1 s (to 63 % of final value)
Filter Factor Programmable		Off, 2 s, 10 s or Adaptive
Warm-up Time		120 s to full accuracy
Display Range		-999 to 9999
Power Supply	S1	(90 to 253) VAC, (50 to 60) Hz
	S2	(20 to 35) VDC
Power Consumption		6 VA maximum (options fitted)

DISPLAY

4 Digit RED LED Standard	14.2 mm high/high intensity
4 Digit GREEN LED Option	14.2 mm high/high intensity
4 Alarm RED LED Indicators	2.5 mm high numeric

ENVIRONMENTAL

Sealing	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 Approved

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

*NOTE:
2. Alternative 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 re- calibration.

POD-3000/02 DUAL RELAY ALARM
Two independent mains rated relay outputs (common connection).

Contacts		2 x Changeover relays common wiper	
Ratings		AC	DC
Maximum Load		7 A @ 250 V	7 A @ 30 V
Maximum Power		1750 VA	210 W
Maximum Switching		253 V	125 V
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 to 10) mA (Active or Passive) (0 to 20) mA (Active or Passive) (4 to 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 KΩ
	Passive	[(Vsupply-2)/20] KΩ
Max. External Supply Voltage		30 V (Passive mode)
Voltage Effect		0.2 µA/V
Ripple Current		< 3 µA
Breakdown Isolation		500 VAC
Stability		1 µA/°C
Termination	Standard	5 way tension clamp connector
	Optional	Screw terminals

COMMUNICATIONS

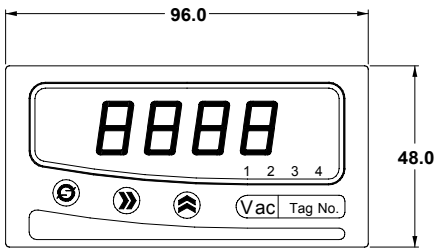
POD-3000/05 RS 485 MODBUS COMMS.
PC communication for configuration and monitoring.

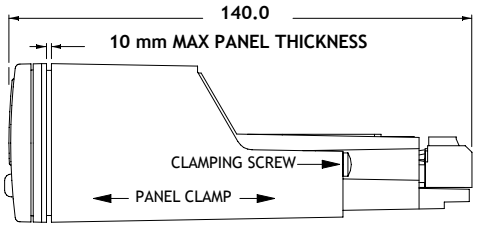
Physical Layer		4 wire or 2 wire half duplex RS485
Baud Rate Software Selectable		19,200 or 9,600
Protocol		Modbus RTU format
Breakdown Isolation		500 VAC
Maximum Fan out		32 units
Termination	Standard	5 way tension clamp connector
	Optional	Screw terminals
Optional Ribbon		Cable - RC

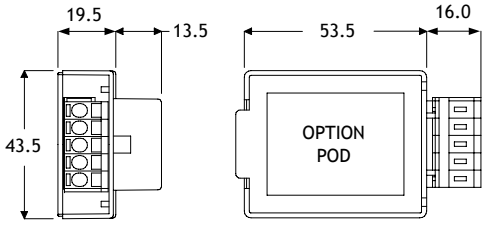
MECHANICAL DETAILS

Material	ABS/PC
Flammability	IEC707 FV0 UL 94VO
Weight	230 gms
Panel cut out	(92 x 45) mm

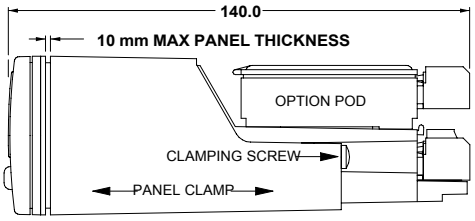
MAIN UNIT (All dimensions in mm)

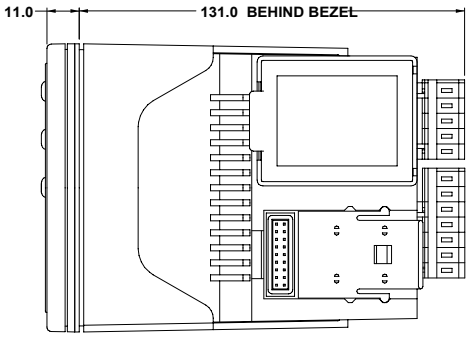






INTELLIGENT DIGITAL INDICATORS





ASSOCIATED PRODUCTS:

SEM104	The SEM104 is a low cost (4 to 20) mA transmitter for use with standard Pt100 platinum resistance sensors in the size of a standard DIN terminal block.
SEM205P	SEM205P is a second generation "Smart" Head Mount temperature transmitter which accepts Pt100 temperature sensors and generates an industry standard (4 to 20) mA transmission signal.
SEM210	SEM210 is a second generation "Smart" Head Mount temperature transmitter which accepts most commonly used temperature sensors (also slide-wire sensors or mV inputs) and generates an industry standard (4 to 20) mA transmission signal.
SEM1000	Analogue signal Isolator
SEM1020	Loop Booster
SEM1100	Line powered process isolator
SEM1200	Signal Splitter
SEM1300	Power supply unit
SEM1400	Loop powered trip amplifiers
SEM1503/1504	Pt100 transmitters
SEM1500TC	Isolating TC transmitter
DM400 & DM420	Loop, field and panel indicators. Connected in series with the (4 to 20) mA loop current they display the process variable digitally in engineering units.
SENSORS	A complete range of sensors and accessories are available:

- Platinum resistance temperature detectors
- Thermocouples
- Thermistors

ORDER CODE

SERIES DM34 [ ] [ ] / [ ]

Universal Temperature	**1**
Universal Process	**2**

RED LED Version	**0**
GREEN LED Version	**1**

Power Supply (90 to 253) VAC (50 to 60) Hz	**S1***
Power Supply (20 to 35) VDC	**S2**

*NOTE: Supplied as standard unless otherwise specified.

OPTIONS

POD-3000/02	Dual Relay Output (2 per unit max)
POD-3000/03	Isolated (4 to 20) mA re-transmission (1 per unit max)
POD-3000/05	Isolated Modbus RS485 (1 per unit max)
POD-3000/05-RC	Ribbon Cable Option
ACC001	Pack of 10, 5 way optional screw terminals.

Fine Controls (UK) Ltd
Bassendale Road, Croft Business Park
Bromborough
Wirral, CH62 3QL

Tel: 0151 3439966
Fax: 0151 3430062
Email: sales@finecontrols.com
Website: www.finecontrols.co.uk

FINE CONTROLS (UK) LTD