

- UNIVERSAL INPUT
- FLOW TOTALIZER FUNCTIONS
- 6 DIGIT DISPLAY
- RELAY & ANALOG OUTPUTS
- RS485 SERIAL MODBUS COMMS
- NEMA-4 SEALED FRONT
- BATCH CONTROL FUNCTIONS
- TFML + OPC COMPLIANT



INDICATORS

## INTELLIGENT DIGITAL INDICATOR, WITH TFML... DM3600

### INTRODUCTION

The DM3600 is an intelligent digital panel meter that can accept inputs from a wide variety of sensors. The DM3600 is available in two models. The DM3600U is a universal input panel indicator and the DM3600A, a universal panel indicator with totalizer functions. Alarm relays and 4-20 mA outputs can be added by means of plug in "Pods".

The use of TFML gives the user the ability to customize the DM3600 to his specific requirements. Many standard programs are available from our website. Custom programs can be written quickly and inexpensively.

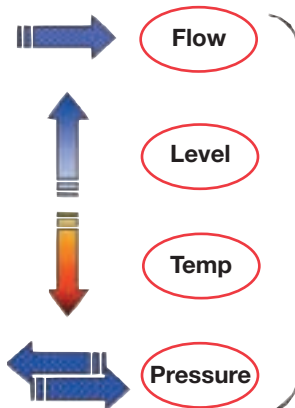
All functions are programmable from the front panel keys or via the optional RS485 serial port using our M-Config software. The program is easy to use and intuitive having pull-down menus and dialog boxes.

The DM3600A totalizer function enables non-volatile storage of the integrated total to be maintained within the unit, even after loss of power. Output options (4-20 mA and alarm relays) can be selected to operate on either Process Variable (rate) or Total.

### Transfer Function Module Library (TFML)

TFML offers the user enhanced power and flexibility, allowing each unit to be customized to a customer's exact requirements.

The Common Macros listed are available from our web site. They are simply down-loaded into the DM3600 unit.



- ✓ mA
- ✓ Volts
- ✓ RTD
- ✓ Thermocouple

### Transfer Function Module Library programs include:

- ✓ PID control
- ✓ Rate of change limiter
- ✓ Peak Hold
- ✓ Valley Hold
- ✓ 3-Step control
- ✓ Pump lift station control
- ✓ Level with density compensation
- ...and many more



- ✓ Linearized 4-20mA
- ✓ Up to 4 Volt free contacts



Please contact the Sales Office for details of other and custom macros. New ones are being added all the time.



## STATUS INSTRUMENTS INC.

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DM3600PDF 6.03

## SPECIFICATION @ 68°F

## UNIVERSAL INPUT TYPES

Sensor	Range and Linearization
mA	4-20, $\pm 20$ , $\pm 10$
RTD	Pt100, Ni120, Custom *1
T/C	K, J, T, R, S, B, N, L, E, Custom *1
Volts	$\pm 100\text{mV}$ , $\pm 1\text{V}$ , $\pm 5\text{V}$ , $\pm 10\text{V}$ , 1-5V

Minimum Span Any span within the range can be selected, but the recommended span is  $>10\%$  of range

## Current input

Base accuracy 0.05% FS  $\pm$  0.05% of reading \*2  
 Thermal drift 100ppm/°F  
 Input impedance 20 $\Omega$   
 Linearity Linear,  $X^{1/2}$ ,  $X^{3/2}$ ,  $X^{5/2}$ , Custom\*1

A 19V @ 25 mA isolated power supply is available to power the current loop.

## RTD

Sensor range -328 to 1560°F  
 (18 to 390 $\Omega$ )  
 Linearization BSEN 60751/ JISC 1604/ Custom\*1  
 Basic accuracy 0.2°F  $\pm$  0.05% of reading\*2  
 Thermal drift (zero)  $\pm 0.008\Omega / ^\circ\text{F}$   
 Thermal drift (span) 100ppm / ° F  
 Excitation current 1 mA  
 Lead resistance effect 0.004 °F/ $\Omega$   
 Max lead resistance 50 $\Omega$ /leg

## Thermocouple

Type	Range (°F)
K	-328 to 2498°F
J	-328 to 2192°F
T	-346 to 752°F
R *3	-14 to 3200°F
B *4	32 to 3092°F
S *3	-14 to 3200°F
E	-328 to 1832°F
L	-148 to 1112°F
N	-292 to 2392°F
Custom	-199999 to 999999

Accuracy  $\pm 0.04\%$  FS  $\pm$  0.04% reading or  $\pm 1.0^\circ\text{F}$ , whichever is greater\*2  
 Linearization BS4937 / IEC 584-3 / Custom\*1  
 Cold junction error  $\pm 1.0^\circ\text{F}$   
 Cold junction tracking 0.05°F/°F  
 Cold junction range -4 to 140°F  
 Thermal drift (zero) 5 $\mu\text{V}/^\circ\text{F}$   
 Thermal drift (span) 100ppm/°F

## Voltage input

Basic accuracy 0.04% FS  $\pm$  0.04% of reading\*2  
 Thermal drift 50ppm/°F  
 Input impedance 1M $\Omega$   
 Linearity Linear,  $X^{1/2}$ ,  $X^{3/2}$ ,  $X^{5/2}$ , Custom\*1  
 Range  $\pm 100\text{mV}$ ,  $\pm 1\text{V}$ ,  $\pm 5\text{V}$ ,  $\pm 10\text{V}$ , 1-5V

## UNIVERSAL INPUT TYPES CONTINUED...

## Remote Digitals Option

Two isolated digital inputs are available to reset latched alarms, reset peak, and valley memories, reset total or for customized use with TFML.

## Notes:

- \*1. Custom can be up to 60 co-ordinate pairs or up to 7 segments of 15th order polynomial.  
 \*2. Full accuracy for any span  $>10\%$  of range  
 \*3. Accuracy true for 930°F to 3200°F  
 \*4. Accuracy true for 750°F to 3000°F

## 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

Contacts	2 x Changeover relays with common wiper
Ratings	AC DC
Maximum Load	5A@250V 5A@30V
Maximum Power	1250VA 150W
Maximum Switching	253V 125V
Electrical Life	10 <sup>5</sup> 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	0-10 mA (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.
Resolution	1 part in 30,000
Max. Output Load	Active 1 K ohm Passive [(Vsupply-2)/20] K ohms
Max. Ext. Supply Voltage	30V (Passive mode)
Voltage effect	0.2 $\mu\text{A}/\text{V}$
Ripple current	$<3\mu\text{A}$
Isolation	500V AC
Stability	0.5 $\mu\text{A}/^\circ\text{F}$
Termination	Standard 5 way tension clamp connector Optional Screw terminals

## Voltage Outputs

Voltage may be obtained by connecting an external resistor across the current output terminals selecting the appropriate current range, as shown in the table below.

Resistor	Current Range	Output
1K $\Omega$	0-10 mA	0-10V
250 $\Omega$	0-20 mA	0-5V
250 $\Omega$	4-20 mA	1-5V

## SPECIFICATION @ 68°F

### GENERAL

Filter (Secs)	None, Programmable (fixed), Adaptive
Power Supply S1	90-253V AC 50/60 Hz
S2	20-35V DC
Power Consumption	10VA (worst case)
Isolation (Tested to)	I/O Ports 500V Supply to I/O 3750V

### Environmental

Sealing to Panel	NEMA-4
Ambient operating range	-22 to 140°F
Ambient storage	-58 to 185°F
Ambient humidity	10 to 90% RH
EMC: Emissions & Immunity	BS EN61326
Safety	BS EN61010-1

### SET UP

Configuration can be set up either from the integral front panel keys or via the optional serial Modbus communications Interface. The front panel keys and display give access to a user menu. The menu type can be set to "Short", whereby only the most common menu items are presented, or "Full", where all menu items are presented.

### Other Software Features

- Start up alarm delay
- Peak and Valley Memories<sup>5</sup>
- Password Protection
- Set Baud Rate
- Set Device Address
- Set 2 or 4 wire Comms

Feature	Short Menu	Full Menu
DM3600U Universal Indicator	Sensor Type Range Linearity User Linearization Decimal Point Engineering Lo Engineering Hi Autoscale	Units Burnout Filter
DM3600A Indicator with flow totalization	Sensor Type Range Linearity User Linearization Decimal Point Display Rate/Total Engineering Lo Engineering Hi Autoscale	Units Burnout Filter Total Reset Value Divider Factor Time Base
Dual Alarm Relay <sup>6</sup> Pod-3000/02	Setpoint Alarm Action	Hysteresis Delay Latch Invert - NO/NC Lo:Hi
Isolated Current re-transmission <sup>5</sup> Pod-3000/03	Retransmission type Span	Preset level

The following functions are available via the front panel while the unit is in operation:

- Clear: latched alarms
- Total
- peak/valley
- Edit Setpoint Shortcut
- Show Peak Reading<sup>5</sup>
- Show Valley Reading<sup>5</sup>
- Show Secondary Variable<sup>7</sup>
- Show Electrical Value<sup>7</sup>
- Show Upper 6 Digits of Total<sup>7</sup>

**Notes:**

- <sup>5</sup>. "U" Version only
- <sup>6</sup>. Can be applied to either Rate or Total for "A" versions
- <sup>7</sup>. "A" Version only

### Connections

Input	5 way tension Clamp connector (2 Part)
Comms + Digitals	8 way RJ45 connector (Supplied with matching plug and 1M Cable)

### COMMUNICATIONS OPTION

#### RS485 Modbus Communications

DM3600 is available with RS485 serial communications using MODBUS RTU protocol, and is supplied with OPC Client Server software, compatible with the vast majority of software platforms used in the process control industry.

Physical Layer	4 wire or 2 wire half duplex
RS485	RS485
Protocol	Modbus RTU format
Isolation	500V AC
Maximum Fan Out	32 units (can be increased with repeaters)
Termination Standard	RS485



### M-CONFIG

Using the RS485 Modbus serial communications option, remote programming and interrogation can be performed from a PC. Status Instruments has written a comprehensive, easy to use, configuration software program called M-Config, which is available **free of charge** from our web site. This program is also used with our MEDACS series signal conditioners.

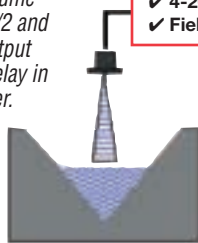
### OPC server

OPC Client Server software is optionally available. This allows the DM3600 to be quickly, easily and seamlessly integrated into any client software package that is OPC compliant.

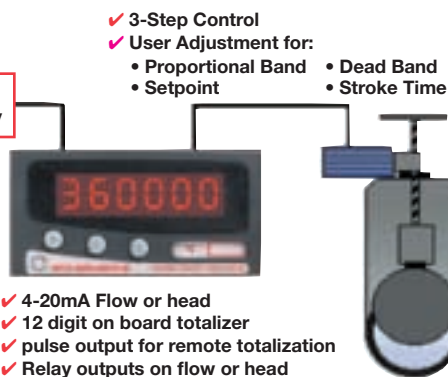
### Application:

DM3600 can be used with almost any level sensor to measure "head" upstream of a flume or weir. Standard software allows power 3/2 and 5/2 flow linearization, giving a 4-20 mA output proportional to flow, as well as pulsing a relay in multiples of flow rate to an external totalizer. A standard TFML module can provide 3-step valve control based on flow.

- ✓ 3/2 Flow laws
- ✓ 5/2 Flow laws
- ✓ Square root
- ✓ Up to 60 coordinate pairs
- ✓ 15<sup>th</sup> order polynomial

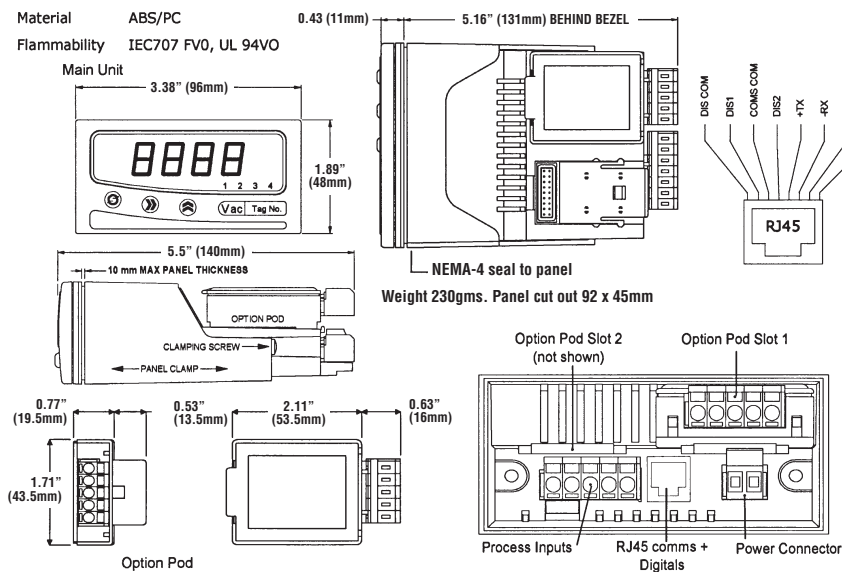


- ✓ 4-20mA, 0-10V etc
- ✓ Field power supply

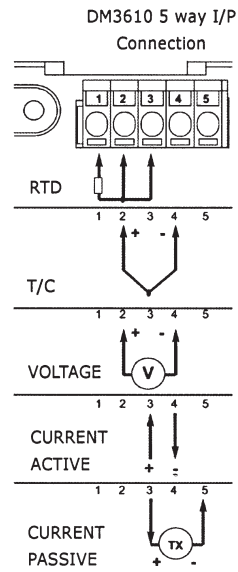


- ✓ 3-Step Control
- ✓ User Adjustment for:
  - Proportional Band
  - Setpoint
  - Dead Band
  - Stroke Time
- ✓ 4-20mA Flow or head
- ✓ 12 digit on board totalizer
- ✓ pulse output for remote totalization
- ✓ Relay outputs on flow or head
- ✓ Modbus communication

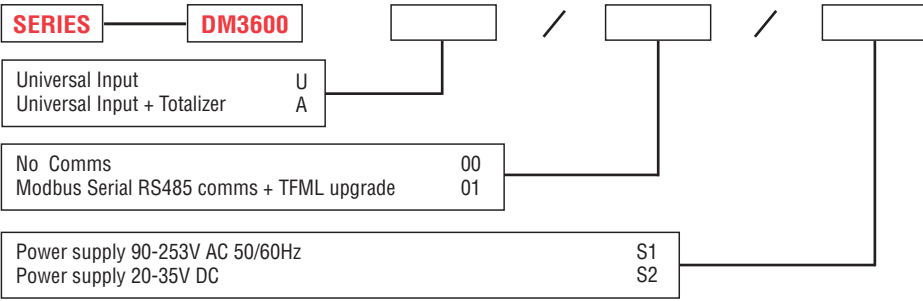
### Mechanical Details Dimensions in inches (mm)



### Connection Details



### ORDER CODE



### Optional Accessories

- OPT-3600-02/01 DIN Rail mounted Break-out board to connect RJ45 to SCREW TERMINALS
- OPT-3600-02/02 DIN Rail mounted Break-out board to connect RJ45 to 9-WAY D-TYPE
- Pod-3000/02 Dual Relay Output (2 per unit maximum)
- Pod-3000/03 Isolated 4-20mA re-transmission (1 per unit maximum)
- RMK3000 DIN Rail Kit
- M-Config Configuration tool. This package is also available as a free download from our website
- M-OPC Full functionality OPC server.

### LOCAL REPRESENTATION



Every effort has been taken to ensure the accuracy of this specification, however we do not accept responsibility for damage, injury, loss or expense resulting from errors and omissions, and we reserve the right of amendment without notice.