

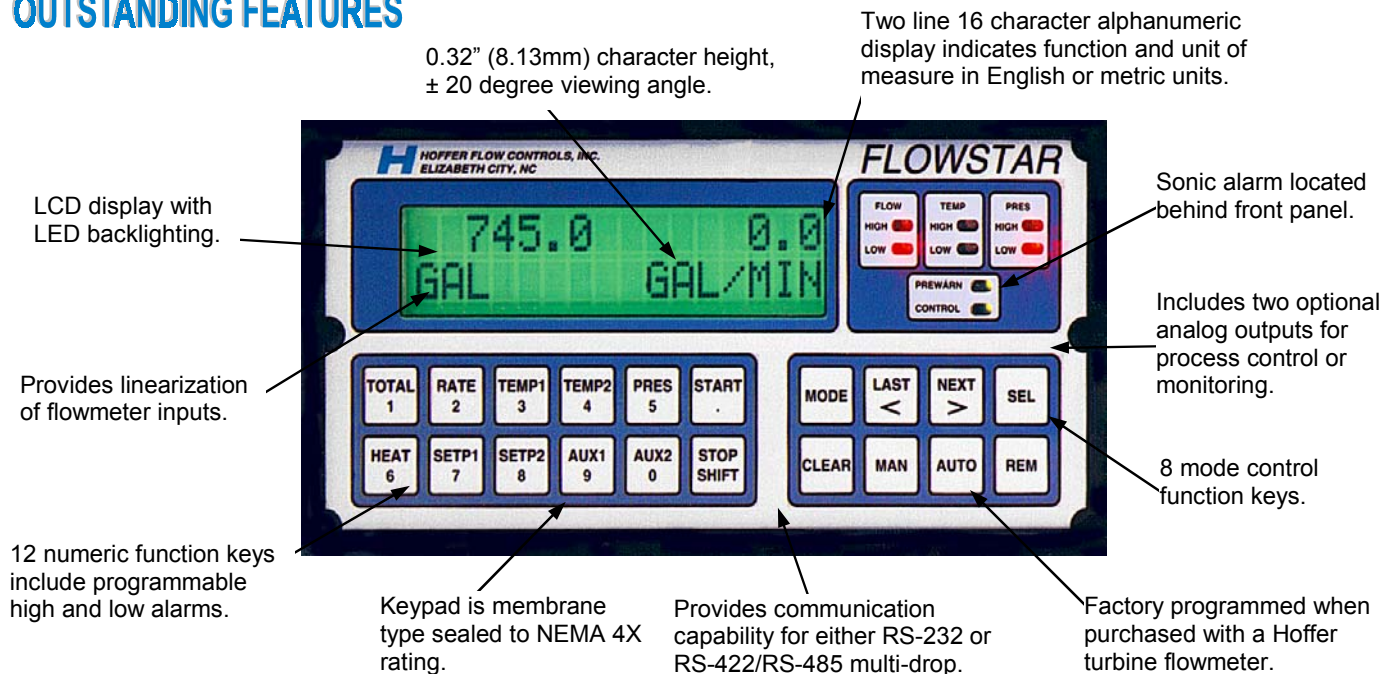
FLOW COMPUTERS BY HOFFER

The Turbine Flowmeter Company

Model 2005

Enhanced Mass Flow Rate
Indicator/Totalizer
for Liquids

OUTSTANDING FEATURES



GENERAL DESCRIPTION

The Model 2005 is a microprocessor based temperature compensated flow rate indicator/totalizer that provides local display and transmits flow data for control capability. The unit is part of a cost effective family of flow products designed to accept inputs from pulse producing or analog producing flowmeters.

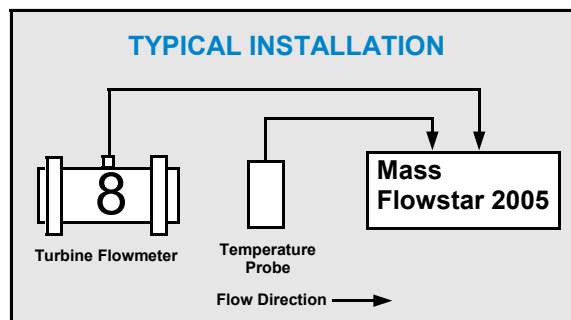
The FLOWSTAR™ series offers software packages to support the following functions:

- Model 2000 Volumetric Flow Rate Indicator/Totalizer for Liquids and Gases
- **Model 2005 Temperature/Pressure Compensated Mass Flow Computer for Liquids**
- Model 2007 Temperature/Pressure Compensated Mass/Volumetric Batch Controller for Liquids with Intelligent Batching

The unit is factory programmed to display in either English or Metric units when purchased with a Hoffer turbine flowmeter. This feature should save the user numerous hours of set up time that is associated with other microprocessor based units

available in the marketplace. Programming is done through the front panel keyboard, as well as through the two way RS-232 or RS-422/RS-485 multi-drop communications port.

The FLOWSTAR™ 2005 flow computer combined with Hoffer turbine flowmeter provides the user with a cost effect means for extremely accurate mass flow measurement. The standard linearization feature improves the flowmeter linearity to $\pm 0.1\%$ of reading over 20:1 to 100:1 turndown ranges.



SPECIFICATIONS

Display	Two line 16 character alphanumeric. Type LCD with LED backlighting. (Totalizer 12 digit/Rate indicator 7 digit). Character height 0.32" (8.13 mm). Supertwist ± 20 degree viewing angle.	
Analog Outputs (Select any combination of two)	0 - 5 VDC 0 - 10 VDC 4 - 20 mA	Response Time: 1.5 seconds for 10 to 90% Compliance Voltage: 7 Volts
Communication Port (Select one)	RS-232 RS-422/RS-485 (Half duplex)	
Digital Outputs (There can be a total of (4) outputs selected from the Digital Outputs and Alarms sections.)	Open Collector: Type 2N6660 Vmax 60 VDC, absolute maximum Imax 1.2 Amps DC, absolute maximum	Max Count Speed: 125 counts/sec PW = 4 Milliseconds
	TTL/CMOS: Logic 1 = 5.0 VDC, Logic 0 = 0 VDC Dry Contact: 100 VDC / 130 VAC @ 0.5 A	
Pulse Inputs	Magnetic coil RF coil (Radio frequency coil or modulated carrier coil) Redi-Pulse Coil Magnetic or RF Dry Contact (Switch Closure)	
Temperature Compensation (Analog Input)	4 to 20 mA Input	
Power Input	115 or 220 VAC, 50-60 Hz., $\pm 10\%$ 10.5 to 24 VDC	
Alarm Limits	Low alarm High alarm Combination high/low alarm Low Dry Contact High Dry Contact Combination High/Low Dry Contact	
Linearization	20 points (For pulse input channel only).	
24 Hour Real Time Clock		
Auxiliary Voltage Output	20 VDC @ 200 mA (max) unregulated on AC powered units. On DC powered units the voltage applied (10.5 to 24 VDC) will be the auxiliary voltage output supplied.	
Password Protection		
Environmental	Operating 0 to +70 degrees C Storage -20 to +80 degrees C Humidity 10 to 90% non-condensing	
Enclosure (panel mount)	1/2 DIN Standard, flame retardant, extruded aluminum Anodized with a black powder coating Approximate weight 4 lbs. (1.8 kg)	
Optional Enclosure	NEMA 3, 4X, 12 (Fiberglass case suitable for wall mount or integral mounting on flowmeter).	

Capabilities and Related Products

In addition to the FLOWSTAR™ Series of microprocessor based flow products, Hoffer manufactures a complete line of turbine flowmeters for cryogenic, liquid and gas service.

We also design and manufacture a full line of electronic packages ranging from signal conditioners/converters to comprehensive flow computers. Please request a copy of our "Engineering Guide" for a complete overview of our flowmeters. Our "Product Catalog CD-Rom" provides

information on all products available including both our flowmeters and electronics.

Whether your requirement is for a portable, self-contained system, mobile mounted and powered system, or conventional instrumentation, Hoffer is the source.

FLOWSTAR™ MODEL 2005

Mass Flow Rate Indicator/Totalizer for Liquids (Includes Temperature and/or Pressure Compensation)

HOW TO ORDER: This unit is provided with a 12 digit LCD totalizer and and 7 digit LCD rate indicator. Review the model number breakdown below and select one option in each category. **Insert an (X) in any option not selected.**

MODEL 2005- A -

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Analog Output/Select Up to Two

- (3) 0-5 VDC (Standard)
- (D3) DUAL 0-5 VDC
- (4) 0-10 VDC
- (D4) DUAL 0-10 VDC
- (7) 4-20 mA
- (D7) DUAL 4-20 mA
- (D3/4) ONE 0-5 VDC AND ONE 0-10 VDC
- (D3/7) ONE 0-5 VDC AND ONE 4-20 MA
- (D4/7) ONE 0-10 VDC AND ONE 4-20 MA

Communication Port/Select One

- (R2) RS-232
- (R4) RS-422/RS-485 Half Duplex

*Scaled Digital Outputs/ Select Two / Includes Alarm Options

- (1) Open Collector (Standard)
- (2) TTL/CMOS
- (3) Dry Contact

Single Channel Only (See Nova-Flow for multiple channels)

- (1) Single Channel

Flowmeter Inputs

- (M) Magnetic Coil (Standard pulse)
- (MC3PA) RF Coil
- (RPM) Magnetic Redi-Pulse Coil
- (RPR) RF Redi-Pulse Coil
- (DMX) Magnetic Redi-Pulse I.S. Coil
- (DRX) RF Redi-Pulse I.S. Coil
- (DC) Dry Contact

Analog Input & Temperature / Pressure Compensation

- (7) 4-20mA
- (2/7) Dual 4-20mA- Required if both T & P required.

Temperature Compensation/Pressure Compensation/One Fluid

- (T) Temperature-Requires RTD with Transmitter
- (TP) Temperature and Pressure-Requires RTD
- (UVC) Viscosity Compensation (Table) (Must be used with option (T) or (TP). Specify fluid, temperature and pressure when required.)

Power Input

- (1) 115 VAC 50/60 Hz
- (2) 220 VAC 50/60 Hz
- () 10.5 to 24 VDC (Insert actual voltage)
For analog output 4 - 20mA & 0 - 10VDC, the DC voltage required is 18 - 24VDC.

*Alarms

- (HI/LO) High/Low Open Collector (**Requires 2 of 4 digital pulse outputs**)
- (L) Low Solid State 24-240 VAC @ 3 amps SPST N/O
- (H) High Solid State 24-240 VAC @ 3 amps SPST N/O
- (H/L) High/Low Solid State 24-240 VAC @ 3 amps SPST N/O (**Requires 2 of 4 digital pulse outputs**)
- (L3) Low Dry Contact
- (H3) High Dry Contact
- (H/L3) High/Low Dry Contact

Enclosure Style

- (P) Panel Mount - Compliances: Keypad is sealed to NEMA 4X
- (ND) Flowstar mounted on door (sealed with keypad accessible) - Compliances: NEMA 3, 4X, 12 Fiberglass. Supplied standard with three entrance holes. If more or less are required, user must specify.

Accessories / Options

- (F) Mounted on flowmeter option (ND) only
- (H) Heaters for (ND) Enclosure only
- (MS) Connectors for (ND) Enclosure, includes mating connectors

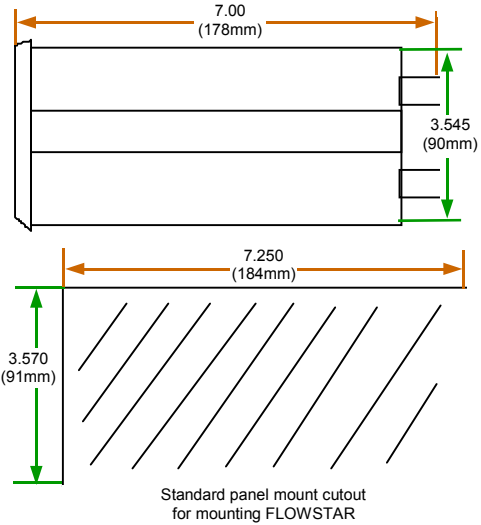
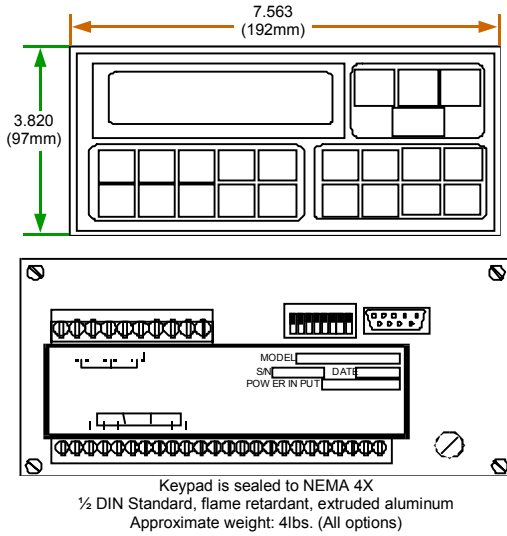
Special Features

- (SP) Any special features that are not covered in the model number, use a written description of the -SP.

* There can only be a **total of (4)** outputs selected from the Scaled Digital Outputs and Alarms sections.

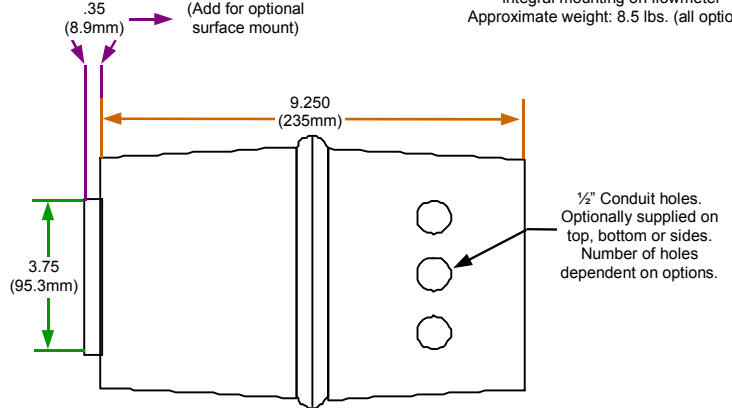
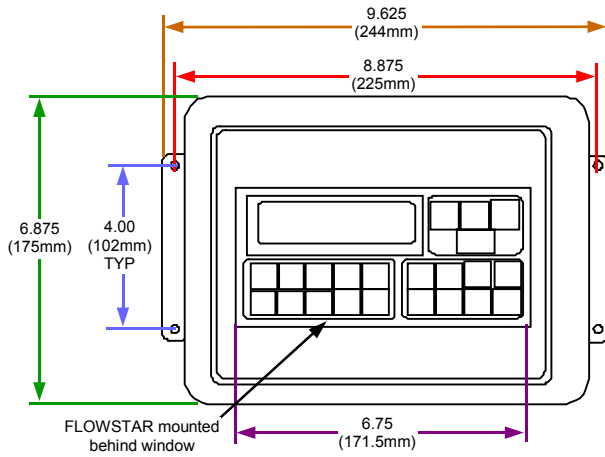
FLOWSTAR™ Enclosure Styles

(P) Panel Mount, Standard



All dimensions are in inches unless otherwise indicated.

(N) NEMA Enclosure, Optional



Meets NEMA 3, 4X and 12 fiberglass
Suitable for wall mount or
integral mounting on flowmeter
Approximate weight: 8.5 lbs. (all options)

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The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.



The quality system covering the design, manufacture and testing of our products is certified to International Standard ISO 9001.