

TURBINE FLOWMETERS BY **HOFFER**

Perfecting Measurement™

HIT-4U

Rate Indicator & Dual Totalizer
with Modbus & Data Logging
Product Bulletin Hit-4U-100F

TECHNICAL DATA SHEET

The HIT-4U is a battery or loop-powered flow rate and total indicator, with data logger and Modbus Communications Protocol. The HIT-4U is configurable from the instrument front panel keypad or via Modbus communications.

OUTSTANDING FEATURES

- ◆ LCD display for Total and Rate
- ◆ Non-resettable Grand Total
- ◆ Full front panel operation with magnetic pointer through enclosure
- ◆ Up to 20-point Linearization to correct for flowmeter non-linearity
- ◆ 4-20mA analog output proportional to flow rate
- ◆ Optional Scaled Pulse or Raw Pulse Output representing an incremental total volume
- ◆ Alarm Output with dual set point configurable for Rate or Total
- ◆ Magnetically operated switch for Total reset
- ◆ Internal 3.6V C-Size battery backup
- ◆ Configuration and Totals stored in non-volatile memory. Totals saved when pressing ► button.
- ◆ Data Logging: Hourly Total, Daily Total, Event Logs
- ◆ Modbus Communications Protocol via RS485
- ◆ Real Time Clock

SPECIFICATIONS

DISPLAY:

LCD, updated every 1 second

TOTAL:

8 digits 3/8" high. Resettable using a magnet, a contact closure, front panel keypad or via Modbus communications.

Total Units:

GAL, LIT, FT3, ACF, ACFx1000, M3, BBL, KG, LB, NM3, SCF, SCFx1000

GRAND TOTAL:

8 digits 3/8" high, non-resettable. Grand Total is displayed for 7 seconds after pressing the ▲ button.

RATE:

6 digits 1/2" high

RATE UNITS:

/SEC/MIN/HR/DAY



Explosion-Proof Enclosure Style

K-FACTOR:

The pulses per unit of Total (e.g. pulses/gallon) are configurable in the range 0.001 to 9,999,999

LINEARIZATION:

2-20 points

DECIMAL POINTS:

Decimal point positions are configurable for 0, 0.0, 0.00, or 0.000 for rate, total and K-factor.

ACCURACY:

Total and Rate: +/-0.01% of reading,
+/- 1 count

MAGNETIC PICKUP INPUT:

Frequency Range: 0.2 Hz to 5000 Hz

Signal Level: 30mV_{p-p} to 30 V_{p-p}

PULSE INPUT:

Opto-Isolated

Frequency Range: 0 Hz to 3000 Hz

Internal pull-up 10KΩ to +DC

Signal Level: 0 to +DC

Low (Logic 0): <1 VDC

Min Pulse width: 0.1 msec

CONTACT CLOSURE INPUT:

Frequency Range: 0 Hz to 5000 Hz

Internal Pull-up: 220 kΩ to +3.3 VDC

RESET:

Signal Type: Contact closure

Min Time On: 25 msec

Internal Pull-up: 35 kΩ to +3.3 VDC

External Magnet: Activates internal switch

ANALOG OUTPUT:

Type: 4-20 mA follows rate

Accuracy: 0.02% Full Scale @ 20°C

Temperature Drift: 40 ppm/°C

Update Time: 0.125 seconds



Nema 4X Enclosure Style
shown with external USB

PULSE OUTPUT:

Type: 0-5V TTL, Open Collector (30 VDC, 100 mA max)
 Divider: 0.01, 0.1, 1, 10, 100
 Pulse Width: Adjustable 4ms to 300ms
 Max Frequency: 100 Hz

Enclosure Exd Ratings:

STYLE 3

CSA/FM: CLASS I, DIV.1, GR. ABCD; CLASS II, DIV.1, GR. EFG; CLASS III, TYPE 4X;
 CLASS I ZONE 1 AEx d IIC, IP66
ATEX/IECEX: II 2 G Ex d IIC Gb; IP66

STYLE 7

CSA: CLASS I, DIV.1, GR. BCD; CLASS II, DIV.1, GR. EFG; CLASS III, TYPE 4X, IP66;
 CLASS I ZONE 1 Ex d IIB+H2, IP66
ATEX/IECEX: II 2 G Ex d IIC Gb; IP66

ALARM OUT WITH DUAL

SET POINT:

Type: 0-5V TTL, Open Collector (30 VDC, 100 mA)
 Function: Rate or Total

DC POWER/LOOP

POWERED:

Voltage: 8 to 30 VDC
 Current: <24 mA
 Loop Burden: 8 VDC
 Supply Backup: One (1) C-size 3.6V Lithium battery
 Battery Life: 4 years typical
 Protection: Reverse polarity, overvoltage

BATTERY POWERED:

Two (2) C-size 3.6V Lithium batteries
 Battery Life: 3 years typical

SERIAL PORT RS485:

Protocol: Modbus RTU
 Function: Data Logging, Configuration, Process Monitor

PHYSICAL:

Op. Temperature: -40°F(-40°C) to 176°F (80°C)
 Humidity: 0-90% Non-Condensing
 Enclosure: NEMA, Explosion-proof
 (Approx. 5"x5"x5", 3 Lbs.)

Data Logging	
Hourly Total Log:	768
Daily Total Log:	378
Event Log:	345

Accessing Logs:
 Via Modbus communication
 Up to 100 latest flow logs are viewable on the front panel

Note: Two batteries are required for battery powered units. One battery is required for all other power options to retain total display and real time clock if power fails.

ORDERING INFORMATION

Model Number HIT-4U - (A) - (B) - (C) - (D) - (E) - (F) - (G) - (H)

A. Enclosure Style:

- (2)* NEMA 4X Enclosure (HIT-4U mounted behind enclosure)
 - (3)* Explosion-Proof Enclosure
 - (7)* Stainless Steel Explosion Proof Enclosure
 - (P) Panel Mount Enclosure (IP40)
 - (PD) Panel Mount Enclosure with Clear Door and Lock (IP40)
 - (PF) Panel Mount Enclosure with Clear Flexible PVC Cover (IP65 front only)
- *Options for Enclosure Style 2,3 and 7**
- (_M) M20 Conduit Thread for Style 3 and 7 (not available for use in Canada)
 - (_S) Sunshade

B. Input Power:

- (B) Battery Powered
- (L) 4-20 mA Loop Powered 8-30 VDC, with battery backup
- (D) DC Powered 8-30 VDC, with battery backup (No Analog Output)

C. Pulse Input:

- (M) Magnetic Coil, Dry Contact
- (R) Isolated Pulse, RPM, RPR, Hall Effect Coils

D. Pulse Output:

- (5*) 0-5V TTL/CMOS
 - (OC*) Open Collector
- * Insert (R) for raw frequency pulse output**
 Note: DC power required

E. Alarms:

- (5) 0-5V TTL/CMOS
 - (OC) Open Collector
- Note: DC power required

F. Mounting:

- (FX) Explosion-proof style 3 enclosure mounted on turbine. Must be used with "X" riser turbine option.
- (FXHT) 8" long temperature riser for explosion-proof style 3 enclosure mounted on turbine. Required when temperatures exceeds 140 deg. F. Must be used with "X" riser turbine option.
- (F) NEMA 4X style 2 enclosure mounted on turbine. Must be used with "X" riser turbine option.
- (FHT) 8" long temperature riser for Nema 4X style 2 enclosure mounted on turbine. Required when fluid temperatures exceeds 140 deg. F. Must be used with "X" riser turbine option.
- (NP) NEMA 4X enclosure pipe mounting kit 2" pipe or smaller. Specify if pipe is vertical or horizontal.

G. Communication Port:

- (U)* External USB style, RS485/Modbus for data logging/configuration (NEMA enclosure only)
 - (T)* Cable Strain Relief, Internal Terminal Block, RS485/Modbus for data logging/configuration, permanent installations (NEMA enclosure only)
 - (UT)* External USB style and cable strain relief, internal terminal block, RS485/Modbus for data logging/configuration (NEMA Enclosure Only)
 - (X) None
- *Cable not supplied. Communications kit optional. Internal terminal block included in all enclosures.

H. Special Features:

- (CE) CE Mark required for Europe
- (SP) Any special features that are not covered in the model number use a written description
- (X) No special features

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

