

# TURBINE FLOWMETERS BY HOFFER

Perfecting Measurement™

# HIT-4U

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

## 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 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

#### LINEARIZATION:

2-20 points



Aluminum Casting Powder Coated 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

#### 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<sub>p-p</sub> to 30 V<sub>p-p</sub>

#### MCP PICKUP INPUT

##### 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

##### 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



Nema 4X Enclosure Style shown with external USB

## HIT-4U ORDERING INFORMATION

### HIT-4U- A - B - C - D - E - F - G - H - I

#### A. Enclosure Style

- (2) NEMA 4X
- (3\*) Aluminum casting powder coated enclosure (IP66)
- (7\*) Stainless steel enclosure (IP66)
- (P) Panel mount (IP40)
- (PD) Panel mount w/clear door and lock (IP40)
- (PF) Panel mount w/clear flexible PVC cover (IP65 front only)

#### \*Options for 3 and 7

- (M) M20 thread
- (S) Sunshade

#### B. Input Power

- (B) Battery Powered
- (L) 4-20 MA Loop Power
- (D) 12 to 30 VDC External Power
- (AC\_) Universal 100-240vac @ 0.15A 50/60 Hz

#### C. Pulse Input

- (M) Magnetic Coil
- (R) Isolated pulse, RP, Hall
- (RF) Modulated Carrier Coil

#### D. Pulse Output

- (5) 0-5V TTL/CMOS
- (OC) Open Collector

#### E. Alarm

- (5) 0-5V TTL/CMOS
- (OC) Open Collector

#### I. Special Features

- (CE) CE mark required for Europe (pending)
- (X) None

#### H. Communication Port

- (T) Internal terminal block
- (U) External USB for Nema 4X
- (X) None

#### G. Mounting

- (X) Remote Mounting
- (FX) Style 3 or 7 enclosure mounted on turbine
- (FXHT) Style 3 or 7 enclosure w/8" long riser mounted on turbine
- (F) NEMA 4X Style 2 mounted on turbine
- (FHT) NEMA 4X w/8" long riser mounted on turbine
- (NP) NEMA 4X enclosure pipe mounting kit 2" pipe & smaller

#### Certified Mounting Options for Style 3 and 7 Enclosures:

- (MX\_) Meter mounted. Process temp -40°C to +78°C.
  - (MA\_) Meter Mounted w/ ATEX riser. Process temp -40°C to +78°C.
  - (RX\_) Remote mounted. Includes E2 junction box and 1"x3/4" SS adapter.
  - (RA\_) Remote mounted w/ ATEX riser. Includes E2 junction box.
- Union Options:
- (U1) 1" Ex-proof union for MX or RX
  - (U2) 3/4" Ex-proof union for MA or RA

#### F. Compensation Method

- (X) No compensation

### 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: C-size 3.6V Lithium battery or battery pack for Ex d certified system.

Protection: Reverse polarity, overvoltage

### AC POWER INPUT UNIVERSAL:

Voltage: 100-240VAC @ 0.15A 50/60 Hz

### BATTERY POWERED:

Two (2) C-size 3.6V Lithium batteries

Battery Life: 2 years typical

Ex system - battery pack (4xAA)

Battery life 1 year 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, Aluminum

(Approx. 5"x5"x5", 3 Lbs.)

Data Logging	
Hourly Total Log:	768
Daily Total Log:	378
Event Log:	345
<b>Accessing Logs:</b>	
Via Modbus communication	
Up to 100 latest flow logs are viewable on the front panel	

#### Enclosure Ex d Ratings: Certified Systems for Style 3 & 7

**CSA/FM:** CLASS I, DIV.1, GR. C,D; CLASS II, DIV.1, GR. E,F,G; CLASS III, T6; Type 4X; CLASS I ZONE 1 AEx db IIB, T6 Gb IP66  
 ZONE 21 AEx tb IIIC T80°C Db IP66  
 Ex db IIB T6 Gb; Ex tb IIIC T80°C Db; IP66

#### **ATEX/IECEx:**

II 2 G Ex db IIB T6 Gb; IP66  
 II 2 D Ex tb IIIC T80°C Db; IP66

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