

# TURBINE FLOWMETERS BY **HOFFER**

Perfecting Measurement™

# HIT-4L

Temperature & Pressure  
Flow Computer for LIQUIDS  
Product Bulletin Hit-4L-120D

## TECHNICAL DATA SHEET

The **HIT-4L** is a **compact Digital Flow Computer for Liquids** with temperature, pressure, and viscosity compensation. The HIT-4L is configurable from the instrument front panel keypad or via Modbus communications.

### OUTSTANDING FEATURES

- ◆ **Temperature, Pressure, and Viscosity Compensation**
- ◆ **LCD display for Total, Rate, Temperature and Pressure**
- ◆ **Up to 20-point Linearization**
- ◆ **CSA/ATEX/IECEX hazardous location certifications available**
- ◆ Internal battery backup
- ◆ Data Logging: Hourly Total, Daily Total, Event Logs
- ◆ Non-resettable Grand Total
- ◆ Full front panel operation with magnetic pointer through enclosure
- ◆ 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
- ◆ Configuration and Totals stored in non-volatile memory. Totals saved when pressing ► button.
- ◆ 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, M3, BBL, KG, LB

#### GRAND TOTAL, TEMPERATURE, PRESSURE:

8 digits 3/8" high

Display by pressing the ▲ button.

#### RATE:

6 digits 1/2" high

#### RATE UNITS:

/SEC, /MIN, /HR, /DAY



Turbine flow meter sold separately

#### K-FACTOR:

The pulses per unit of Total (e.g. pulses/GAL) 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<sub>pp</sub> to 30 V<sub>pp</sub>

#### MCP/RF PICKUP INPUT

##### PULSE INPUT:

Opto-Isolated

Frequency Range: 2 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

##### DENSITY/VISCOSITY COMPENSATION:

2-20 points table

## HIT-4L ORDERING INFORMATION

### TEMPERATURE INPUT:

Type: \*4-20 mA, 100Ω RTD  
DIN385

### PRESSURE INPUT:

Type: \*4-20 mA  
\*4-20 inputs not available with  
battery or loop power.

### 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

### 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

### 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	

**HIT-4L- 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 \*\*  
(PD) Panel mount w/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  
\*\*Panel mount options not available with AC power option

**B. Input Power**

(B) Battery Powered  
**Note: Mag only, no analog, pulse, or alarm**  
(L) 4-20 MA Loop Power  
**Note: Mag only, no pulse or alarm**  
(D) 12 to 30 VDC External Power  
**Note: 4-20 mA analog out included**  
(AC\_) Universal 100-240vac @ 0.15A 50/60 HZ  
**Note: Not Available for Ex d certified systems 4-20 mA analog out included**  
\*\* AC power not available with Panel options

**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  
**Note: Not available with (B) or (L) power inputs**

**E. Alarm**

(5) 0-5V TTL/CMOS  
(OC) Open Collector  
**Note: Not available with (B) or (L) power inputs**

**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

**G. Mounting**

(X) Remote Mounting  
(FX) Style 3 or 7 enclosure mounted on turbine  
(FXHT) Style 3 or 7 enclosure w/8" riser mounted on turbine  
(F) NEMA 4X mounted on turbine  
(FHT) NEMA 4X w/8" 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  
(TP1\_) Temperature and pressure transmitter inputs (4-20mA)  
(TP2\_) 100 OHM RTD/Pressure transmitter (4-20mA)  
(-UVC) Universal Viscosity Curve Correction (add to TP1 or TP2 options)

**Note: Compensation (TP) not available with (B) or (L) power inputs**

### 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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Hoffer Flow Controls Quality Management System

