TURBINE FLOWMETERS BY
HOFFER
Perfecting Measurement ™

WE'VE GOT HART® FIELD COMMUNICATIONS PROTOCOL ABILITY

HRT1
Rate Indicator/Totalizer with HART® Communication Protocol

Product Bulletin HRT1-111L

TECHNICAL DATA SHEET

OUTSTANDING FEATURES

- *HART® Field Communication Protocol*
- *5 Digit Rate, 8 Digit Totalizer LCD display with configurable decimal point location*
- *8 Digit, Non-resettable Grand Total display*
- *Pulse Input supports turbine as well as many other pulse generating flowmeters*
- *4-20mA Analog Output*
- *Up to 20 Point Linearization*
- *Optional Scaled Pulse Output representing an increment of volume for each pulse*
- *Two Optional Alarm Outputs configurable for Rate and Total*
- *Magnetically operated switch for Total reset*
- *Internal battery backup*
- *Configuration and Grand Total stored in non-volatile memory; Grand Total saved once per minute*

GENERAL DESCRIPTION

Featuring 5 digits of rate and 8 digits of total, the HRT1 is a loop powered indicator capable of accepting magnetic pickup, DC pulse or switch closure inputs. The HRT1 uses the 4-20mA loop to provide power when this output is used and to provide the HART® communication link.

SPECIFICATIONS

GENERAL

TOTAL DISPLAY:

8 Digits 0.26" high. Resettable

Total Units: GAL, LIT, FT3, M3, BBL &"blank"

GRAND TOTAL:

8 Digits 0.26" high, Non-resettable. Value stored once per minute in non-volatile memory. Grand Total is displayed for 15 seconds after pressing the ⊠ button.

RATE DISPLAY:

5 Digits 0.5" High, Display updates once every two seconds

Rate Units: /SEC /MIN /HR /DAY

K-factor: The pulses per unit of Total (e.g. pulses/gallon) are configurable in the range 0.001 to 99,999,999

Linearization: Up to 20 points

Decimal Points: Configurable for 0, .0, .00 or .000 for rate and total

Accuracy: Total: ±1 count, Rate: ±0.01%

INPUTS

Magnetic Pickup:

Frequency Range: 0.2 Hz to 5000 Hz
Signal Level: 30 mV_{p-p} to 30V_{p-p}

Opto-Isolated DC Pulse:

Frequency Range: 0 Hz to 3000 Hz
Signal Type: DC Pulse
High (Logic 1): 4 to 30 VDC
Low (Logic 0): <1 VDC
Min Pulse Width: 0.1 msec

Contact Closure:

Frequency Range: 0 to 5000 Hz
Signal Type: Contact closure, Sig+ Terminal to DC common
Internal Pull-up: 220 KΩ to +3.3 VDC

Reset:

Signal Type: Contact closure, Reset Terminal to DC common
Min On: 25 msec
Internal Pull-Up: 100KΩ to +3.3 VDC
External Magnet: Activates internal magnetic switch

DC POWER/LOOP POWERED

Voltage: 8 to 30 VDC

Current: <24 mA

Loop Burden: 8 VDC maximum

Supply Backup: C-size Lithium battery or battery pack for Ex d certified system

Battery Life: 8 months w/no DC power

Protection: Reverse polarity protected

ANALOG OUTPUT

Scale: 4-20mA follows rate

Accuracy: 0.02% of Full Scale @ 20°C

Temperature drift: 40 ppm/°C

Update Time: 2.0 seconds

Connection: Two wire

PULSE OUTPUT

Type: 0-5 TTL, 0-Supply Voltage, open collector (30 VDC,100mA)

ALARM 1 AND ALARM 2

Type: 0-5V TTL, 0-Supply voltage, open collector (30 VDC, 100 mA)

Function: Rate or Total

PHYSICAL

Operating Temperature:

-40°F (-40°C) to + 158°F (70°C)

Humidity: 0 - 90% Non-condensing

Packaging: NEMA 4X, Panel mount or Aluminum casting

Dimensions for NEMA 4X enclosure:

4.33" (110 mm) wide x 4.33" (110 mm) long x 4.33" (110 mm) tall

HRT1 ORDERING INFORMATION

HRT1- A –B– C –D –E – F – G

A. Enclosure Style

(2) NEMA 4X

(3*) Aluminum casting powder coated enclosure (IP66)

(P) Panel mount (IP40)

(PD) Panel mount w/door and lock (IP40)

(4) NEMA 1 Enclosure for indoor/dry installation

(5) NEMA 4X Enclosure w/sunshade

(7*) Stainless steel enclosure (IP66)

***Options for 3 and 7**

(_M) M20 thread

(_S) Sunshade

B. Pulse Input

(M) Magnetic Coil

(R) Isolated pulse, RP, Hall Effect coils

C. Analog Output

(W) Wired 4-20mA Loop Powered

D. Pulse Output

(5) 0-5V TTL/CMOS

(OC) Open Collector

(V) 8-30 VDC with Pullup to VDC+

E. Alarms

(5) 0-5V TTL/CMOS

(OC) Open Collector

(V) 8-30 VDC with Pullup to VDC+

F. Mounting

(F) NEMA 4X style 2 enclosure mounted on turbine

(FHT) NEMA 4X style 2 enclosure w/8" long riser mounted on turbine

(FX) Style 3 or 7 enclosure mounted on turbine

(FXHT) Style 3 or 7 enclosure w/8" long riser mounted on turbine

(NP) NEMA 4X enclosure pipe mounting kit 2" pipe or smaller

G. Special Features

(CE) CE mark required for Europe

(X) None

Certified Mounting Options for Style 3 and 7 Enclosures:

(MX_) Meter mounted. Process temp –40°C to +70°C.

(MA_) Meter Mounted w/ ATEX riser. Process temp –40°C to +70°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

Ex d Ratings Certified Systems Style 3 & 7:

CSA/US Zones

Ex db IIB+H_2 T6: Gb; Ex tb IIIC T72°C Db; IP66

CLASS I, Zone 1, AEx db IIB+H2 T6: Gb: Zone 21, AEx tb IIIC T72°C Db; IP66.

ATEX/IECEx:

II 2 G Ex db IIB+H2 T6 Gb

II 2 D Ex tb IIIC to T72°C Db IP66

T1-T6= -40°C to °+70°C

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

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