



**AW-LAKE COMPANY**

## **Sensor Options**

11.20.10

# HALL-EFFECT SENSORS

## DH-X Dual Hall Effect Pickup

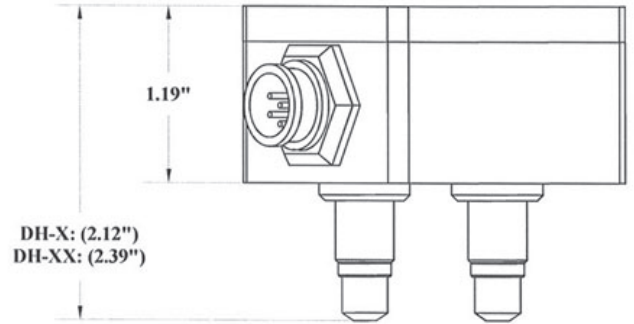
Used with JV-CG and JV-KG up to -30 size (excluding JVM-01CG)

The DH Dual Hall Effect Pickups are microprocessor-based sensors for use with the JV-CG and JV-KG series of positive displacement flow meters. The DH sensors can detect both uni- and bi-directional flow. The sensors' mode of operation is determined by an output selection switch located inside the housing. The DH detects the rotation of the flow meter's gears and emits a frequency signal proportional to flow. The output signal is a square wave pulse which has a duty cycle of approximately 50%.

DH signal outputs are protected with a self-resetting fuse. This fuse has a 50mA nominal trip point. When a trip occurs, turn off power to the sensor and remove output load to reset fuse. The sensor has two different output configurations: sinking output and sourcing output.

The DH sensor circuit board is equipped with a red and green LED. The red LED is a status LED which, when the sensor is operating properly, will flash once every 6 seconds, a fast flash will indicate a failure of one or both of the pick-ups. The green LED indicates the pulse of the input signal. Note that signals above 20Hz will look as solid green.

- DH-A:** sinking pulse output
- DH-B:** sourcing pulse output



## DH-XX Hall Effect Dual Pulse Pickup

Used with JVM-60CG, JVA-60KG, JVM-60KG, JVS-60KG

The DH is a Hall Effect Sensor which is compatible with JV-KG Series of flow meter. The outputsignal can be configured for either 2X pulse resolution in a single pulse train (default) or a quadrature signal which has a 90° phase shift. This signal can be used to determine flow direction. The output is a NPN, sourcing square wave pulse, which has a duty cycle of approximately 50%.

- DH-AA:** sinking pulse output
- DH-BB:** sourcing pulse output

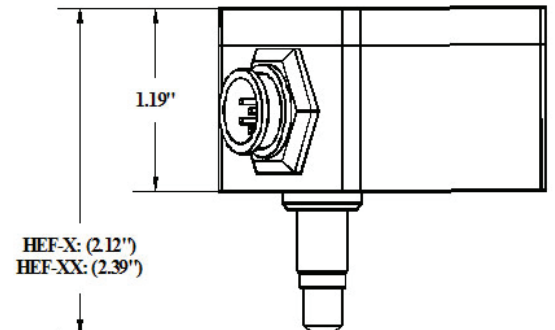


## HEF Sensor [HEF-xx]

Used with JV-CG and JV-KG meters (excluding JVM-01CG)

The HEF is a Hall Effect sensor which is compatible with the Aluminum, 303 Stainless Steel and 316 Stainless Steel body JV-CG and JV-KG series of flow meters. The sensor detects the rotation of the flow meter's gears and emits a frequency signal proportional to flow. The output signal is a square wave pulse which has a duty cycle of approximately 50%. HEF signal outputs are protected with a self-resetting fuse. This fuse has a 50mA nominal trip point. When a trip occurs, turn off power to the sensor and remove output load to reset fuse.

- HEF-A:** sinking pulse output for use up to size 30
- HEF-B:** sinking pulse output for use up to size 30
- HEF-AA:** sinking pulse output (for size 60 only)
- HEF-BB:** sourcing pulse output (for size 60 only)



## QUAD-4 Hall Effect Pickup

Used with JV-80 and -90KL meters only

**QUAD-4-Sourcing: Sourcing Output, 1X, 2X, 4X Resolution 90° Phase Shift**

The Quad-4 Hall Effect Pickup is a microprocessor-based sensors for use with the JV-80/-90KL series of positive displacement flow meters. The Quad-4 sensor can detect both uni- and bi-directional flow. The sensors' mode of operation is determined by an output selection switch located inside the housing. The Quad-4 detects the rotation of the flow meter gears and emits a frequency signal proportional to flow. The output signal is a square wave pulse which has a duty cycle of approximately 50%. The Quad-4 sensor circuit board is equipped with a red and green LED. The red LED is a status LED which, when the sensor is operating properly, will flash once every 4 seconds, a fast flash will indicate a failure of one or more of the pick-ups. The green LED indicates the pulse of the input signal. Note that signals above 20Hz will look as solid green.



## HUB-30-EX

Used with all JV-CG-Ex and JV-KG-Ex Meters

**Pulse output hall effect single sensor**

The sensor detects the rotation of the flow meter's gears and emits a frequency signal proportional to flow. The output signal is a square wave pulse which has a duty cycle of approximately 50%. MAG signal outputs are protected with a self-resetting fuse. This fuse has a 50mA nominal trip point. When a trip occurs, turn off power to the sensor and remove output load to reset fuse. Connection to the meters is via 3/8" NPT thread and the sensor is spring loaded to be resistant to vibration.



## MAG-Px Hall Effect Pickup (A and B)

Used with AW Gear Meters and SABRE Turbine meters

The sensor detects the rotation of the flow meter's gears and emits a frequency signal proportional to flow. The output signal is a square wave pulse which has a duty cycle of approximately 50%. MAG signal outputs are protected with a self-resetting fuse. This fuse has a 50mA nominal trip point. When a trip occurs, turn off power to the sensor and remove output load to reset fuse. The MAG sensor has two different output configurations:

**MAG-PA:** Sinking Pulse Output

**MAG-PB:** Sourcing Pulse Output



## MAG-Ex-Px

Used with all JV-KG, JVM-CG & SABRE flow meters

**Identical to MAG-Px but with EX junction box**

**MAG-EX-PA:** Sinking Pulse Output, junction box connection

**MAG-EX-PB:** Sourcing Pulse Output, junction box connection.



# CARRIER FREQUENCY SENSORS

## CAPM-2 and CAPM-2o Carrier Frequency Pickup Module [CAPM-xx]

**Used with KG and CG Meters (NOT FOR USE WITH ALUMINUM METERS)**  
**Sourcing Output, UL, cUL approved, CAPM-2o version IS safe**

The CAPM-2o is a UL & CUL approved, intrinsically safe pickup sensor for use in Class 1, Div. 1 locations. The output signal is a frequency proportional to flow in a square wave voltage form of approximate amplitude: Supply – 1.5V. The sensor must be installed with an intrinsic safety barrier in accordance with the guidelines detailed in document # CAP2902 – CAPM INSTALLATION IN HAZARDOUS AREA. Recommended barriers such as Pepperl & Fuchs Z787 (12-28V) are available from AW Gear Meters. The output is a sourcing open collector transistor (NPN Type). An NPN sinking type is available and is designated as CAPM-2i.



## CAPM-3 and CAPM-3o Carrier Frequency Pickup Module

**Used with HPM-SLG and JVS-SLG Style Meters**  
**Sourcing Output, UL, cUL approved, CAPM-3o version IS safe flush mount**

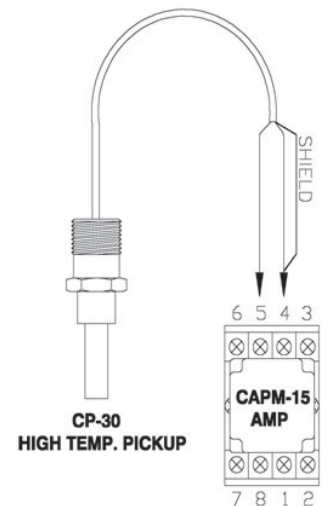
The CAPM-3 is a Carrier Frequency sensor which means there is no permanent magnet in the pickup, and any magnetic drag on the flowmeter is avoided. The CAPM-3 requires a supply voltage between 10 VDC to 30 VDC. A diode in the supply input prevents damage to the module in case the polarity of the supply voltage is wrong. The output signal is a square wave, voltage pulse of approximate amplitude (supply - 1.5 V). The frequency is proportional to the flow rate. The output is a sourcing open collector transistor( PNP Type). An NPN, sinking type is available and is designated as CAPM-3N.



## CAPM-15 High Temperature Pickup System

**Used with JV-KG and JV-CG Meters**  
**(NOT FOR USE WITH TRG TURBINES OR ALUMINUM BODY METERS)**  
**High Temp Sensor to 400° F, external amplifier included**

The CAPM-15 High Temperature Pickup System consists of a CAPM-15/AMP signal amplifier module and the CP-30 high temperature carrier frequency pickup. The CAPM-15/AMP will work on a supply voltage between 10 Volt DC and 30 Volt DC. The module is protected against reversed polarity on the voltage supply. The length of wire between the CP-30 and the CAPM-15/AMP module should not be extended over 20 feet. The CP-30 is supplied with a 7 foot cable only.



## VTEx/P Sensors

**Used with ZHM, HM, and SRZ Series Flow Meters**  
**Carrier Frequency Sensor for 120°C fluid temp**

- VTER/P:** for ZHM-01 and SRZ or JV series
- VTES/P:** (up to 150 deg C) for ZHM-01 and SRZ or JV series
- VTEK/P:** (up to 120 deg C ) for ZHM-02 to ZHM 04 or HM series
- VTEL/P:** (up to 150 deg C) for ZHM-02 to 07 or JV and HM series



## OTHER OPTIONS

### FIP [FIP-xxx] Analog Output Sensor

Used with all JV-CG-Ex and JV-KG-Ex Meters  
(NOT FOR USE ON TURBINES)

*Meter mounted current or voltage signal output sensor*

FIP converts frequency to an analog output (includes MAG-PB sensor)

- FIP-5HS:** 0 to 5 VDC output
- FIP-4HS:** 4 to 20 mA output
- FIP-4TS:** 4 to 20 mA output for TW turbines
- FIP-10HS:** 0 to 10 VDC output
- FIP-XXX-HT:** high temperature (400 deg F) meter mounted current or voltage signal



### FOP-20 Fiber Optic Sensor

Used with KG and CG Meters (NOT FOR USE WITH ALUMINUM METERS)

The system consists of a FOP 20 Reluctance Pickup with a Fiber Optic Transmitter, Fiber Optic Cable and OPTV-20 Fiber Optic Receiver. The FOP-20 is in an Explosion Proof Housing for use with HPM, JVM, or JVS series flow meters.

- FOP-20/S/30:** FOP System 30 Ft. Cable
- FOP-20/S/45:** FOP System 45 Ft. Cable
- FOP-20/S/60:** FOP System 60 Ft. Cable
- FOP-20/S/100:** FOP System 100 Ft. Cable

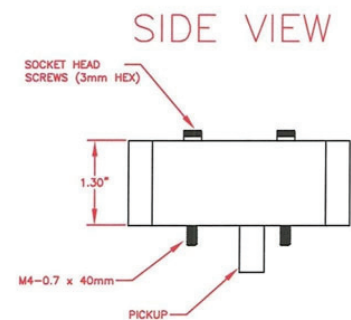


### FOP-30 Fiber Optic Sensor

Used with HPM-SLG and JVS-SLG Style Meters

The system consists of a FOP-30 Reluctance Pickup with a Fiber Optic Transmitter, Fiber Optic Cable and OPTV-20 Fiber Optic Receiver. The FOP-30 is an intrinsically safe housing for use with HPM-SLG or JVS-SLG series.

- FOP-30/S/30:** FOP System 30 Ft. Cable
- FOP-30/S/45:** FOP System 45 Ft. Cable
- FOP-30/S/60:** FOP System 60 Ft. Cable
- FOP-30/S/100:** FOP System 100 Ft. Cable



### RT-Ex10 Meter Mounted Flow Monitor

See Below for usage

Rate and Total Display (no EX rating)

*Battery operated display, NEMA 8 enclosure (out door use)*

- RT-Ex10A:** for use with JV and TRG meters
- RT-Ex10C:** add 4 to 20 mA output
- RT-Ex10J:** for use with EX meters
- RT-Ex10J-HP:** for use with JVHS high pressure meters
- RT-Ex10N:** same as J with 4 to 20 mA output
- RT-Ex10R:** for use with TW or TR turbines
- RT-Ex10T:** same as 10R with 4 to 20 mA output



## RT-Ex15 Meter Mounted Flow Monitor

See Below for usage  
Rate and Total Display

- 24 VDC powered
- 4 to 20 mA output
- 2 limit switch outputs
- NEMA 8 enclosure
- HART Communication Protocol: optional (EX rating available)

**RT-Ex15A:** for use with JV And TRG meters (non EX)

**RT-Ex15C:** High-Temperature Pick-up - use with stainless steel meters only (non EX)

**RT-Ex15D:** for use with TW and TR turbines

**RT-Ex15S:** transmitter and single access enclosure (no sensor)

**RT-Ex15-EX-HAZ:** for use with EX meters class I, DIV 1 rated

**RT-Ex15-EX-HAZ with swivel:** for use with EX meters class I, DIV 1 rated (with swivel hub)



## IR-PX Dual Hall Effect Sensor

Used with JVK-60

**IR-PA:** Optical, sinking pulse output sensor for JVK meter series

**IR-PB:** Optical, sourcing pulse output sensor for JVK meter series

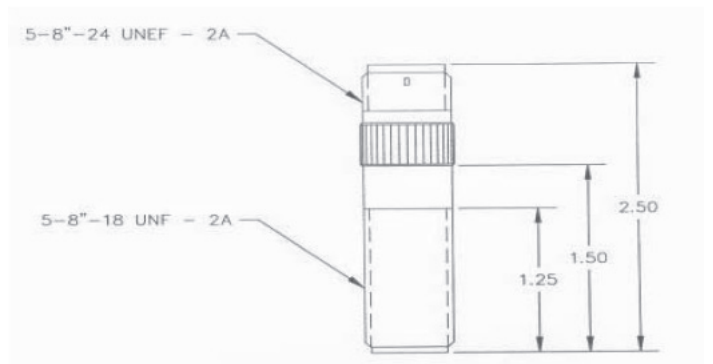
## MG-300 and MG-450 Sensors

Used with TW Series Turbine Meters

Inductive sensor with 30mV p-p output.  
Interchangeable with NuFlo or Blancett sensors.

**MG-300:** up to 300°F

**MG-450:** up to 450°F



## **OBSOLETE:** HEF-1 Hall Effect Pickup Module

Used with Aluminum Body KL Meters

The HEF-1 is a Hall Effect sensor which is compatible with the JVM and HPM series of flow meters. The sensor detects the rotation of the flow meter's gears and emits a frequency signal proportional to flow. The output signal is an NPN, sourcing square wave pulse which has a duty cycle of approximately 50%.







**AW-LAKE COMPANY**

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8809 Industrial Drive  
Franksville, WI 53126

800-850-6110  
[www.aw-lake.com](http://www.aw-lake.com)