H720, H904 & H934

Variable Frequency Drive Monitoring and Control

Also see H614.

H904

H720

H934

CURRENT SENSING
THE
ULTIMATE PROOF OF FLOW

Maximize Reliability
Minimize Installed Cost

Hawkeye™

U.S. Patent No. 5,705,989

Hawkeye 720, 904 and 934 current monitoring devices provide unique solutions for accurately monitoring status of motors controlled by variable frequency drives.

The microprocessor-based H904 and H934 store the sensed amperage values for normal operation at various frequency ranges in non-volatile memory. This information allows the device to distinguish between a reduced amp draw due to normal changes in the frequency and an abnormal amp drop due to belt loss or other mechanical failures. The relay on the H934 is isolated from the current switch, and all relay connections are externally accessible on the device.

The H720 analog output corresponds to current in the monitored conductor from 10 to 80 Hz.

Load side monitoring

Suitable for llad side monitoring of VFDs (H720)

Precise scaling

Adjustable zero and span for precise scaling (H720)

0.5% accuracy

Accurate to 0.5% of full scale (H720)

Automatically compensates

Automatically compensates for the effects of frequency and amperage changes in monitored conductor associated with VFDs (H901/934)
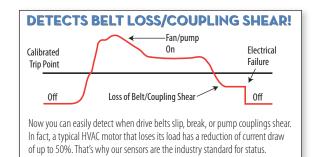
Nuisance reduction

Provides a secondary setpoint option of 50% of the originally measured current (H901/934)

Rapid troubleshooting

LED indicates normal and alarm conditions (H901/934)

APPLICATIONS

- Monitoring positive status on motors controlled by variable frequency drives

- Replacing pressure switches

- Measuring current and load trending

DETECTS BELT LOSS/COUPLING SHEAR!

Now you can easily detect when drive belts slip, break, or pump couplings shear. In fact, a typical HVAC motor that loses its load has a reduction of current draw of up to 50%. That's why our sensors are the industry standard for status.

SPECIFICATIONS

Sensor Power	H904/H934: Induced from monitored conductor; H720: 12 to 30 Vdc
Insulation Class	600 Vac RMS
Frequency Range: H720	10 to 80 Hz;
H904/H934	20 to 34 Hz for on/off status, 34 to 75 Hz for belt loss indication On/Off status for Variable Frequency Drive (VFD) outputs[1]
Temperature Range	-15 to 60 °C (5 to 140 °F)
Humidity Range	10 to 90% RH non-condensing
Off Delay (H904/H934)	0 sec to 2 min.
Accuracy (H720)	0.5% of 200 A (combined linearity, hysteresis, and repeatability)

Terminal Block Wire Size	24 to 14 AWG (0.2 to 2.1 mm^2)
Terminal Block Torque	3.5 to 4.4 in-lbs (0.4 to 0.5 N-m)
WARRANTY	
Limited Warranty	5 years
AGENCY APPROVALS	
Agency Approvals	UL 508 open device listing CAT III, Pollution Degree 2, basic insulation

c UL us
LISTED
E150462

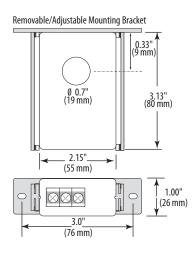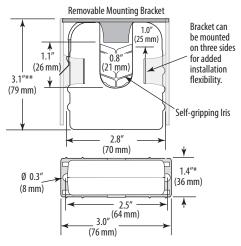Note: Do not use the LED status indicators as evidence of applied voltage.
1. VFD systems generate fields that can disrupt electrical devices. Ensure that these fields are minimized and are not affecting the sensor.

H720
Dimensional Drawing

Removable/Adjustable Mounting Bracket

0.33" (9 mm)

Ø 0.7" (19 mm)

3.13" (80 mm)

2.15" (55 mm)

1.00" (26 mm)

3.0" (76 mm)

H904/934
Dimensional Drawing

Removable Mounting Bracket

1.0" (25 mm)

1.1" (26 mm)

0.8" (21 mm)

3.1"** (79 mm)

Bracket can be mounted on three sides for added installation flexibility.

Self-gripping Iris

2.8" (70 mm)

Ø 0.3" (8 mm)

1.4"* (36 mm)

2.5" (64 mm)

3.0" (76 mm)
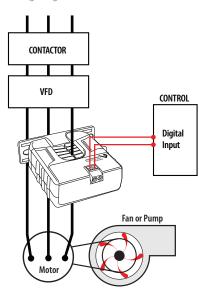
* Terminal block may extend up to 1/8" over the height dimensions shown.

MONITORING FAN /PUMP MOTORS FOR POSITIVE PROOF OF FLOW
Wiring Diagram

CONTACTOR

VFD

CONTROL

Digital Input
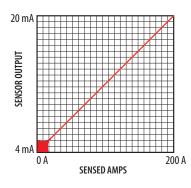
Fan or Pump

Motor

Note: The H904 is not intended for use in staged pump or variable inlet vane applications.

EXAMPLE LINEAR OUTPUT (H720)
Scale software as shown
Requires 12 to 30 Vdc for sensor power

20 mA

SENSOR OUTPUT

4 mA

0 A   SENSED AMPS   200 A

H934 Relay Contact Ratings		
Resistive - 5A @ 250 Vac, 30 Vdc		
Typical Coil Performance		
Voltage	AC	DC
24V	10 mA	10 mA

Voltage Output

CONTROLLER

Voltage input
250Ω = 1 to 5 Vdc
500Ω = 2 to 10 Vdc

ORDERING INFORMATION

MODEL	AMPERAGE RANGE	STATUS OUTPUT	MIN. TRIP POINT	RELAY TYPE	HOUSING	STATUS LED	RELAY POWER LED	UL
H720	Lower limit: 0 A Upper limit: 20 to 200 A	4 to 20mA	n/a	none	Solid-core	•	•	•
H904	3.5 to 135 A, 20 to 75 Hz	Max. N.O. 0.1 A @ 30 Vac/dc	3.5 A or less	none	Split-core	•	•	•
H934				SPST, N.O.		•	•	•

Note: For auto-calibrating model see H614.