H720, H904 & H934
Variable Frequency Drive Monitoring and Control

Also see H614.

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.

**SPECIFICATIONS**

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

**APPLICATIONS**

- Monitoring positive status on motors controlled by variable frequency drives
- Replacing pressure switches
- Measuring current and load trending

**Load side monitoring**

Suitable for load side monitoring of VFDs (H720)

**Automatically compensates**

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

**Precise scaling**

Adjustable zero and span for precise scaling (H720)

**Nuisance reduction**

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

**0.5% accuracy**

Accurate to 0.5% of full scale (H720)

**Rapid troubleshooting**

LED indicates normal and alarm conditions (H901/934)

**DETECTS BELT LOSS/COPUING 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.

**TERMINAL BLOCK WIRE SIZE**

- 24 to 14 AWG (0.2 to 2.1 mm²)
- 3.5 to 4.4 in-lbs (0.4 to 0.5 N-m)

**WARRANTY**

- Limited Warranty: 5 years

**AGENCY APPROVALS**

- UL 508 open device listing CAT III, Pollution Degree 2, basic insulation

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

H904 Relay Contact Ratings
Resistive - 5A @ 250 Vac, 30 Vdc

Typical Coil Performance
<table>
<thead>
<tr>
<th>Voltage</th>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>24V</td>
<td>10 mA</td>
<td>10 mA</td>
</tr>
</tbody>
</table>

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>AMPERAGE RANGE</th>
<th>STATUS OUTPUT</th>
<th>MIN. TRIP POINT</th>
<th>RELAY TYPE</th>
<th>HOUSING</th>
<th>STATUS LED</th>
<th>RELAY POWER LED</th>
<th>UL</th>
</tr>
</thead>
</table>
| 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 | SPST, N.O. | • | • | • |
| H934  | 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 | • | • | • |

Note: For auto-calibrating model see H614.