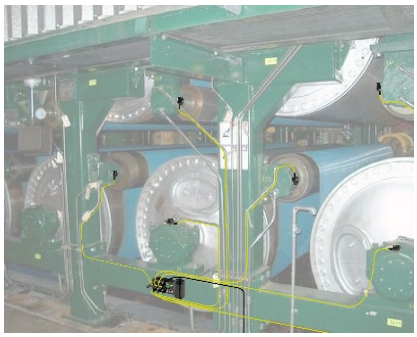
SMARTdiagnostics®

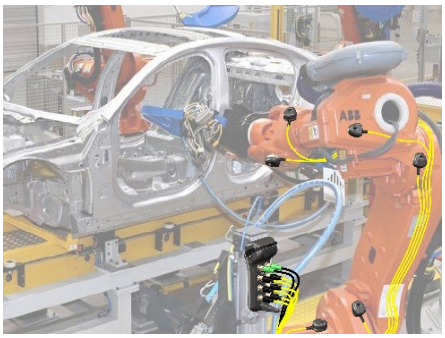
# IoT HUB - SD-HUB-1

Wired Accel - SD-WVS-1
Wired Analog Adapter - SD-WAA-1
Wired IEPE Adapter - SD-WIA-1

The SMARTdiagnostics IoT Hub is the next generation of full asset health solutions designed by KCF Technologies to handle the most complex asset monitoring needs, including triggered collections, multi-functional sensor ports and the ability to withstand higher temperatures with external power sourcing, including an optional wired power solution

- Multiple power options available
- Capable of triggered and simultaneous collections
- Compatible with multiple sensor types, including third party options





## HIGH TEMPERATURE

The IoT Hub can be positioned away from extreme environments while power is supplied to the sensors. This allows sensors to be placed on high temperature machines without compromising battery power or temperature limits

## TRIGGERED MACHINES

In triggered machines, such as robots, the IoT HUB can be configured to activate sensors in response to unique movement patterns. This allows for more focused data collection as opposed to continuous monitoring

## SHIELDED MACHINES

Assets in shielded areas, such as those covered by metal or screening, pose an issue where wireless sensors struggle to connect to the network. The IoT HUB provides a wired solution for monitoring these machines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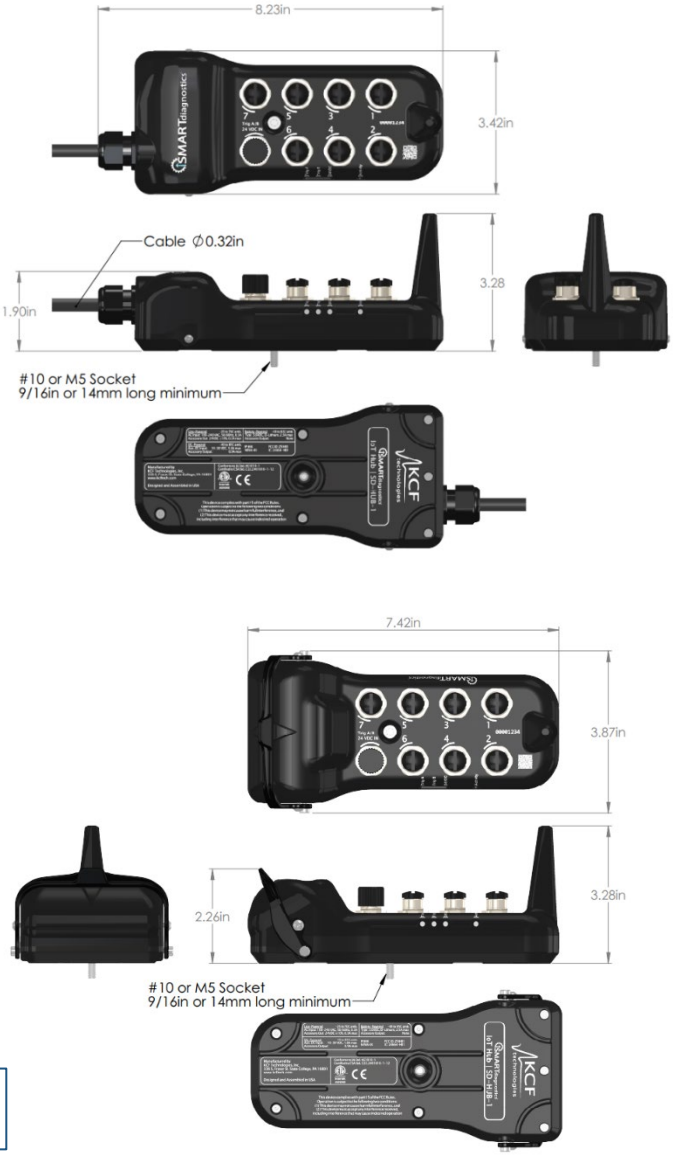
# IoT Hub Specifications (SD-HUB-1)

| | |
|---|---|
| **General** | |
| Weight | 672g (Battery/DC Power Model)<br>621g (AC/DC Power Model) |
| Enclosure Material | Polycarbonate Alloy |
| Mounting | #10 or M5 Socket Head, temporary magnet |
| Certifications | UL and CE, others (see Product Guide) |
| **Environmental** | |
| Operating Temp. | -25°C to 65°C (-13°F to 149°F) |
| IP Rating | AC/DC Model: IP66 (IEC60529)<br>Battery/DC Model: IP64 (IEC60529) |
| Use Case | Indoor & outdoor use<br>Suitable for wet locations<br>Pollution Degree 4 |
| Exposure | Resistant to UV, petroleum products, mild acids and bases, cleaning products, most industrial fluids, most processing fluids |
| **Wireless Radio** | |
| Radio | KCF DART™ Wireless 2.4GHz ISM band |
| Antenna | Internal dipole antenna |
| FCC ID | Z5IHB1 |
| IC | 24664-HB1 |
| **Power** | |
| Power Source Options | AC Model: 100-240VAC, 50/60Hz<br>Battery Model: 3.6VDC Lithium D-Size (Saft LSH-20 non-rechargeable only)<br>All Models:<br>10-30VDC Wired via 4-pin M12 Male Port |
| **Inputs** | |
| Collection Mode | Timed Interval<br>Triggered |
| Input Types | 24 VDC rising edge trigger (optional)<br>7 Sensor Ports |
| Sensor Input Types | KCF Wired Vibration Sensor (SD-WVS-1)<br>KCF Analog/IEPE Adapter (SD-WAA/WIA-1) |




For full product information see the
IoT Hub Product Line Guide & Installation Manual

## SD-HUB-1-[magnet][power]-[country]

| Magnet Options | | Power Options | | Country Options | |
|---|---|---|---|---|---|
| **M** | Magnet | **B** | Battery & 24VDC | **NA** | US/CAN/MEX |
| **X** | No Magnet | **A** | 100-240VAC & 24VDC | **EU** | Europe |
| | | | | **UK** | United Kingdom |
| | | | | **BR** | Brazil |
| | | | | **SA** | South Africa |

| | |
|---|---|
| HUB w/ magnets, battery & DC power: | **SD-HUB-1-MB** |
| HUB w/ out magnets, AC & DC power, for North America: | **SD-HUB-1-XA-NA** |

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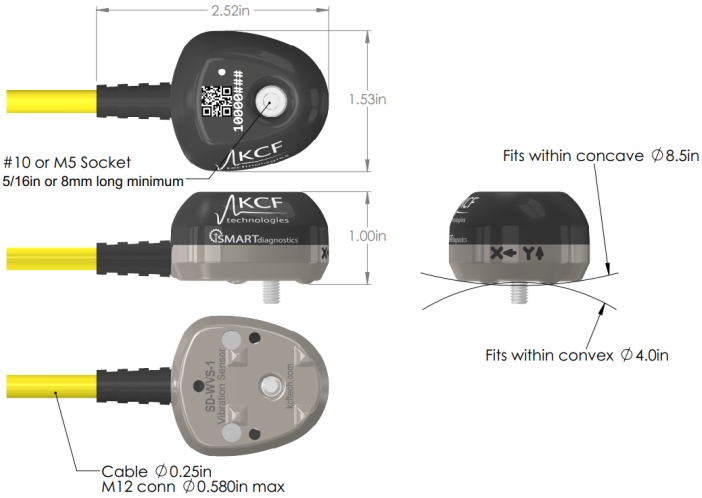
# Wired Vibration Sensor Specifications (SD-WVS-1)

| | |
|---|---|
| **General** | |
| Weight | 100g |
| Enclosure Material | Polycarbonate Alloy and 303 Stainless Steel |
| Mounting | #10 or M5 Socket Head, temporary magnet |
| **Operating Temperature** | |
| Sensor and cable, fixed install | -30°C to 105°C (-22°F to 221°F) |
| Sensor and cable, flexible install | -5°C to 105°C (23°F to 221°F) |
| M12 connector | -25°C to 90°C (-13°F to 194°F) |
| **Environmental** | |
| IP Rating | IP66 (in progress) |
| Exposure | Resistant to UV, petroleum products, mild acids and bases, cleaning products, most industrial fluids, most processing fluids |
| **Inputs** | |
| Collection Mode | Timed Interval<br>Triggered |
| **Acceleration** | |
| Range | ±19 g typical, ±16 g nominal |
| Resolution | 0.866 mg nominal |
| Noise Floor | 1.5 mg RMS @ 64 Hz<br>13.0 mg RMS @ 8192 Hz |
| Transverse Sensitivity | 10% typical |
| Frequency Response | ±5% 0-2700 Hz<br>±3% 2700-4000 Hz |
| Samples per Acquisition | 4096 |
| Spectral Lines | 2048 |
| Sampling Frequency | 64 Hz – 8192 Hz configurable |
| **Temperature Sensor** | |
| Range | -30°C to 105°C (-22°F to 221°F) |
| Resolution | ±0.5°C (±1°F) |

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## SD-WVS-1-[cable][magnet][location]-[temperature][foot][connector]

| Cable | | Magnet | | Location | | Temperature | | Foot Type | | Connector | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **00** | 0.5 meter | **M** | Magnet | **R** | Ordinary Location | **T** | Standard | **A** | Pointed Feet | **C** | Standard M12 male 8-pin |
| **05** | 5 meter | **X** | No Magnet | | | | | **B** | Flat Feet | | |
| **10** | 10 meter | | | | | | | | | | |

| | |
|---|---|
| 5m cable, magnet, industrial temp, pointed feet, M12 connector: | **SD-WVS-1-05MR-TAC** |
| 10m cable, w/out magnet, industrial temp, flat feet, M12 connector: | **SD-WVS-1-10XR-TBC** |

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## Wired Analog Adapter Specifications (SD-WAA-1)

| General | |
|---|---|
| Weight | ~50g |
| Enclosure Material | Polycarbonate Alloy |
| Mounting | Inline w/ cable |

| Operating Temperature | |
|---|---|
| Adapter & cable, fixed install | -30°C to 80°C (-22°F to 176°F) |
| Adapter & cable, flexible install | -5°C to 80°C (23°F to 176°F) |
| M12 connector | -25°C to 90°C (-13°F to 194°F) |

| Environmental | |
|---|---|
| IP Rating | IP66 (in progress) |
| Exposure | Resistant to UV, petroleum products, mild acids and bases, cleaning products, most industrial fluids, most processing fluids |

| Input and Acquisition | |
|---|---|
| Collection Mode | Timed Interval, Triggered |
| Input Type | Voltage or Current (Software Selectable) |
| Voltage Input Mode: | Measurement Range: -11 to +11 V min<br>Input Impedance: 100 kΩ min<br>Max Input Voltage: ±20V |
| Current Input Mode: | Measurement Range: -22 to +22 mA min<br>Input Impedance (burden): 100 Ω<br>Max Input Current: ±40 mA |
| Frequency Response: | DC – 3 kHz @ –3 dB (Voltage or Current Mode) |
| Sampling Frequency: | 64 Hz – 8192 Hz configurable |
| Transducer Power Options: | +24VDC from External DC (0.8 A. max. / Hub)<br>AC-Powered Hub (+24V, 0.2 A max. / Hub) |
| Supported Sensor Types: | 0–10 V<br>–10 V to +10V<br>4-20mA |

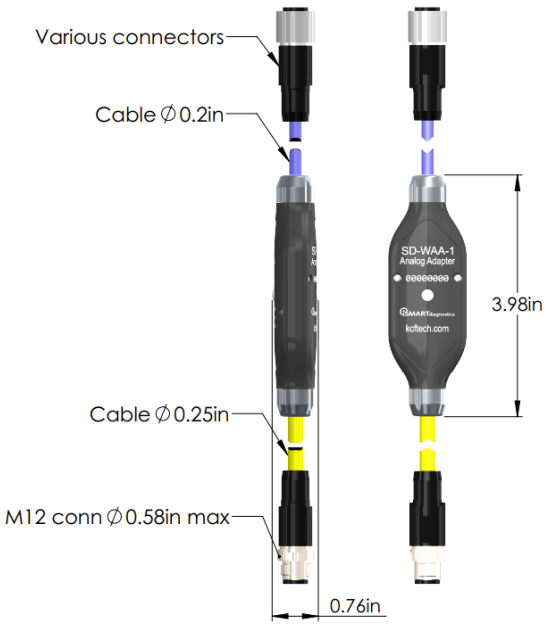
## Wired IEPE Adapter Specifications (SD-WIA-1)

| General | |
|---|---|
| Weight | ~50g |
| Enclosure Material | Polycarbonate Alloy |
| Mounting | Inline w/ cable |

| Operating Temperature | |
|---|---|
| Adapter & cable, fixed install | -30°C to 80°C (-22°F to 176°F) |
| Adapter & cable, flexible install | -5°C to 80°C (23°F to 176°F) |
| M12 connector | -25°C to 90°C (-13°F to 194°F) |

| Environmental | |
|---|---|
| IP Rating | IP66 (in progress) |
| Exposure | Resistant to UV, petroleum products, mild acids and bases, cleaning products, most industrial fluids, most processing fluids |

| Input and Acquisition | |
|---|---|
| Collection Mode | Timed Interval, Triggered |
| Input Type | AC-coupled voltage-reading with integrated constant current bias |
| Frequency Response: | 2 Hz – 5.8 kHz @ –3 dB |
| Sampling Frequency: | 62.5 Hz – 16 kHz configurable |
| IEPE Bias Current: | 4 mA ±5% fixed (+24V External or AC-Powered Hub required for operation) |
| Compatible IEPE Sensor Types: | Accelerometer<br>Dynamic pressure sensor |




For full product information see the
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### SD-WAA-1-[location][input connector]

| Location | | Analog Connector | |
|---|---|---|---|
| **R** | Ordinary Location | **C** | Standard M12 female 4-pin |

| | |
|---|---|
| Analog adapter, 0.5m cable, ordinary location, standard connector: | **SD-WAA-1-RC** |

### SD-WIA-1-[location][input connector]

| Location | | Analog Connector | |
|---|---|---|---|
| **R** | Ordinary Location | **C** | Standard Flying Leads |

| | |
|---|---|
| Analog adapter, 0.5m cable, ordinary location, standard connector: | **SD-WIA-1-RC** |

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