Table of Contents

inSIGHT™ Data Monitoring

Asset Monitoring

Features and Benefits

inSIGHT™ Data Monitoring – Pin and Sleeve

Hubbell's Data Monitoring products predicts costly downtime on critical equipment before it happens by transmitting power utilization at point of use.

Hubbell's wireless monitor technology tracks performance indicators including:

- Current
- Voltage
- Power
- Internal device temperature
- Utility, billable grade metering
- Data trending

Intelligence is embedded into a standard Hubbell IEC Pin and Sleeve Device, not visible to users and compatible with any like rated IEC Pin and Sleeve. The wireless mesh network and gateway makes system commissioning and reconfiguration seamless by automatically recognizing new nodes without additional programming.

Technology
- Monitor power at point of use
- All technology is integrated within the device
- Additional nodes connect automatically to the closest node in the network

Communications
- Wireless protocol, self configuring, load balancing mesh network
- Adjacent networks operate independently without data crossing over
- System is easy to install and self configures once powered up

Existing Devices
- Mates to IEC 60309 devices with compatible rating
- UL witnessed IP69k and UL Type 4X and 12. Built to withstand wet and harsh environments

Housing Design
- Self-closing gasketed cover
- Super tough insulated non-metallic housing
- Sequential contact engagement to prevent a momentary over-voltage
- Multi contact spring provides and maintains high unit pressure on mating pins to minimize temperature rise

inSIGHT™ Data Monitoring Pin and Sleeve Devices

Amps	Poles/Wires	Configuration		AC Voltage	Device	Radio Zone 1	Radio Zone 2
60	3P/4W			3Ø 480V	Receptacle	HBL460R7WDMUS1	HBL460R7WDMUS2
					Connector	HBL460C7WDMUS1	HBL460C7WDMUS2
60	3P/4W			3Ø 250V	Receptacle	HBL460R9WDMUS1	HBL460R9WDMUS2
					Connector	HBL460C9WDMUS1	HBL460C9WDMUS2

Intelligent Wiring Solutions

Features and Benefits

inSIGHT™ Data Monitoring – Power Cables

Hubbell's Power monitoring cables provide quick plug and play monitoring directly at point of use. The pre-wired monitor transmits power usage directly to a central Gateway without the need for complicated system configuration. Power cables are available in standard amperage and voltage configurations, both single and 3 phase, typically utilized in most Industrial and Data Center facilities.

Power Monitor

- Pre-wired monitor allows for easy plug and play connection
- Monitor measures current and voltage directly at point of usage

Power Cables

- Available in "SG" single phase and "RG" three phase configurations
- Available in 20A, 30A/32A and 50A

Smart Power Cables

Description			Catalog Number
NEMA Smart Power Cable	Single Phase	20A, 120V AC	**HBLSG20L5L5**
		20A, 240V AC	**HBLSG20L6L6**
		30A, 240V AC	**HBLSG30L6L6**
	3 Phase	30A, 120/208V AC	**HBLRG302121**
Smart Power Cable	3 Phase	50A, 240V AC	**HBLRG508365**
IEC Smart Power Cable	3 Phase	32A, 240/415V AC	**HBLRG32532W**

## Features and Benefits

Data Monitoring Ethernet Gateways

Hubbell's Ethernet Gateways gather data from all inSIGHT™ data monitoring devices and are the connection point from the wireless to the wired. Data received from monitoring devices is transferred to the users front end dashboard for visual and historical analysis.

Hubbell's wireless mesh network allows for easy installation and implementation. This self adaptive and self communicative technology ensures all data is effectively transmitted back to the gateway. No need to run and connect cables throughout your facility, gateway is hardwired.
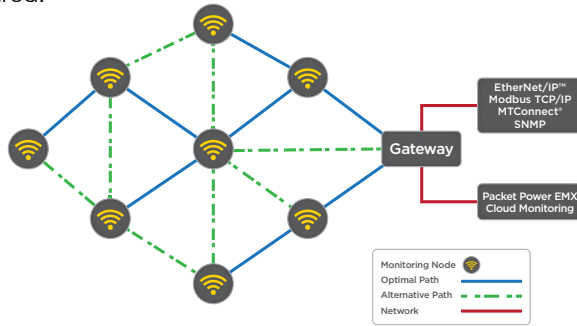
Technology
- LCD for status and configuration. LED for general device status
- Wireless firmware updates
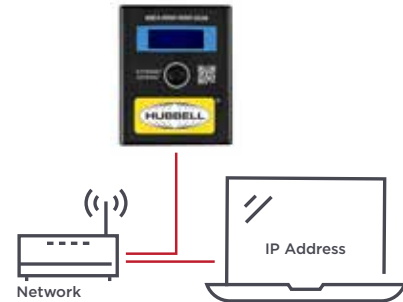- Numerous firmware versions available

Communications
- 860 to 930 MHz and 2.4 GHz. Frequency varies by region
- Typical transmission range, up to 30 meters between any 2 devices in mesh network
- Up to 150 monitoring units per gateway

Housing Design
- Compatible with all Hubbell monitoring units
- Fully enclosed antenna
- NEMA enclosure Type 1, indoor use

Ethernet Gateways

| Description	# of Nodes	Radio Zone 1	Radio Zone 2
EMX Gateway	30	HBLGW04000LUS1	HBLGW04000LUS2
	150	HBLGW04000EUS1	HBLGW04000EUS2
Modbus TCPIP Gateway	30	HBLGW0400MLUS1	HBLGW0400MLUS2
	150	HBLGW0400MEUS1	HBLGW0400MEUS2
SNMP Gateway	30	HBLGW0400SLUS1	HBLGW0400SLUS2
	150	HBLGW0400SEUS1	HBLGW0400SEUS2
Ethernet/IP Gateway	30	HBLGW0400ELUS1	HBLGW0400ELUS2
	150	HBLGW0400EEUS1	HBLGW0400EEUS2
MT Connect Gateway	30	HBLGW040MTLUS1	HBLGW040MTLUS2
	150	HBLGW040MTEUS1	HBLGW040MTEUS2

Intelligent Wiring Solutions

Features and Benefits

Data Monitoring Circuit Monitors

Hubbell's Circuit Monitors provide a means to monitor single and three phase circuits in pre-configured enclosure kits. These devices support 38 – 480 Amp applications and connect automatically to Hubbell's self configuring wireless mesh network. These systems allow for easy installation, with split core current transformers that can connect to existing circuits without the need to disconnect power. This real time monitor can help analyze power consumption, balanced loads, cost allocation, and history trends.
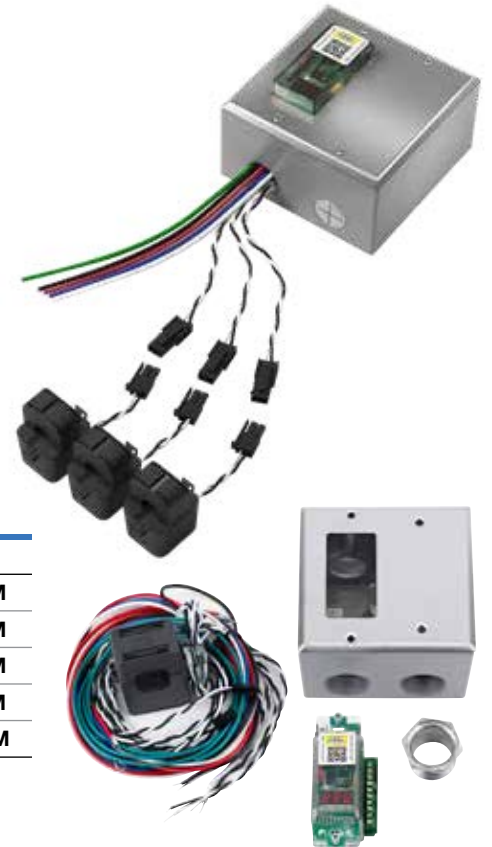
Circuit Monitors

Description				Catalog Number
Split Core Circuit Monitor	10MM	Single Phase	38A, 240V AC	**HBLPG003S00010MM**
			63A, 240V AC	**HBLPG006S00010MM**
	16MM	3 Phase Delta	120A, 240V AC	**HBLPG010D00016MM**
	24MM	3 Phase Wye	240A, 120/208V-240/415V AC	**HBLPG020Y00024MM**
	36MM	3 Phase Delta	480A, 240V AC	**HBLPG040D00036MM**

Data Monitoring Environmental Monitors

Hubbell's Environmental Monitors can accommodate up to six external temperature probes up to 4 meters in length. Relative humidity sensing, internal to the device, is also available in this Hubbell model. These monitors are part of the same wireless mesh network that other power meters are part of, and communicate directly with the Hubbell Gateway. Each gateway can accept data from up to 150 nodes.

Technology
- LCD for status and configuration. Internal relative humidity sensing
- Wireless firmware updates
- Wireless network protocol - Self configuring, load balancing mesh network

Housing Design
- Local LCD display on HBLE306 models
- Fully enclosed, fixed configuration
- NEMA enclosure Type 1, indoor use

Environmental Monitors

Description		Catalog Number
Environmental Monitor		**HBLE306H000**
Temperature Probe	1 meter	**HBLTPP3001M**
	2 meters	**HBLTPP3002M**
	3 meters	**HBLTPP3003M**
	4 meters	**HBLTPP3004M**

Software packages are available upon request, or any customer supplied BMS or DCIM software can be used. Full SNMP and Modbus TCPIP communication is provided by the gateway. Cloud-based service or local software options are available. Programmable data thresholds can be preconfigured to alert users when outputs fall outside of range parameters. Text or email alerts can be sent directly to the responsible party.
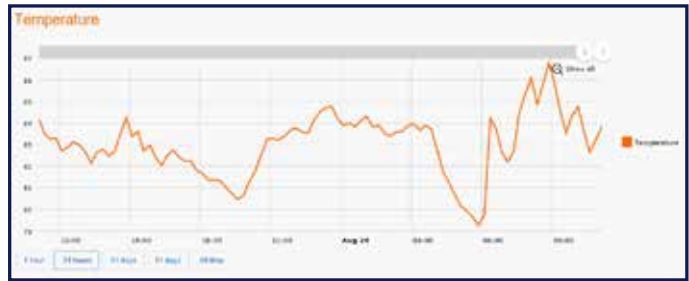
Historical data is stored in the software and can be viewed by varying time intervals, such as by month, day or hour. This gives the customer insight to what the power demand, temperature and current have been, and if they have changed over time.

Dashboard displays data sent by the device through the gateway. This example shows one phase of the connector heating up.

Pin and Sleeve - Technical Specifications

Communications		Measurement	
Operating frequency	860 to 930 MHz and 2.4 GHz. Frequency varies by region	Measurements	V, A, W, PF, Temp
Wireless protocol	Self configuring, load balancing mesh network	Accuracy	+/- 1.0%
Wired network protocol	Ethernet with various protocols available	Voltage	250 - 480V AC
Firmware updates	Wireless	Current range	Up to 60A
Typical transmission range	Up to 30 meters between any 2 devices in mesh network	Circuit types	Three phase
Antenna	Fully enclosed		
Monitoring unit to gateway ratio	Up to 150 monitoring units per gateway		
Gateways per site	Unlimited		
Multi-site support	Yes		
Encryption	AES 128-bit		
Compatible devices	All Hubbell monitoring units		

Technical Information

Ethernet Gateways - Technical Specifications

Communications

Operating frequency	860 to 930 MHz and 2.4 GHz. Frequency varies by region
Wireless protocol	Self configuring, load balancing mesh network
Wired network protocol	Ethernet with various protocols available
Firmware updates	Wireless
Typical transmission range	Up to 30 meters between any 2 devices in mesh network
Antenna	Fully enclosed
Monitoring unit to gateway ratio	Up to 150 monitoring units per gateway
Gateways per site	Unlimited
Multi-site support	Yes
Encryption	AES 128-bit
Compatible devices	All Hubbell monitoring units
Local display	LCD for status and configuration. LED for general device status

Environmental & Mechanical

Operating temperature	32 to 104F (0 to 40C)
Operating humidity	10 to 90% non-condensing
Environmental rating	NEMA enclosure type 1, indoor use
Mounting options	Din rail, screw, cable tie
External power supply	100 to 240V AC input, 50/60 Hz (5V DC) output
Plug types	C14, NEMA 5-15
Power consumption	3W
PoE (Power over Ethernet)	Requires an external PoE splitter
Certifications	FCC, IC, CE

Power Cables - Technical Specifications

Communications		**Measurement**	
Operating frequency	860 to 930 MHz and 2.4 GHz. Frequency varies by region	Measurements	V, A, W, Wh, VA, Hz, PF
Wireless protocol	Self configuring, load balancing mesh network	Accuracy	+/- 1.0%
Wired network protocol	Ethernet with various protocols available	Voltage	100 - 480V AC
Firmware updates	Wireless	Current range	Up to 100A
Typical transmission range	Up to 30 meters between any 2 devices in mesh network	Circuit types	Single and three phase
Antenna	Fully enclosed		
Monitoring unit to gateway ratio	Up to 150 monitoring units per gateway		
Gateways per site	Unlimited		
Multi-site support	Yes		
Encryption	AES 128-bit		
Compatible devices	All Hubbell monitoring units		
Local display	LCD for status and configuration. LED for general device status		

Environmental & Mechanical

Operating temperature	20 to 167F (7 to 75C)
Operating humidity	5 to 95% non-condensing
Environmental rating	Not rated
Power consumption	.6W
Certifications	FCC, IC, CE

Circuit and Environmental Monitors - Technical Specifications

Communications

Operating frequency	860 to 930 MHz and 2.4 GHz. Frequency varies by region
Wireless network protocol	Self configuring, load balancing mesh network
Data output (Gateway)	SNMP and Modbus TCPIP protocols with one IP address needed per Gateway.
Firmware updates	Wireless
Typical transmission range	Up to 30 meters between any 2 devices in mesh network
Antenna	Fully enclosed, fixed configuration
Monitoring unit to gateway ratio	Up to 150 monitoring units per gateway
Multi-site support	Yes
Encryption	AES 128-bit
System Status	Local LCD display on HBLE306 models
Radio certifications	FCC, Industry Canada and CE/IEC

Environmental & Mechanical

Operating temperature	Monitoring unit: 32F to 122F (0 to 50C) Temperature probe: -40 to 194F (-40 to 90C)
Operating humidity	10 to 90% non-condensing
Environmental rating	NEMA enclosure type 1, indoor use
External power supply	100 to 240V AC input, 50/60 Hz (5V DC) output; .5W power consumption
Temperature probes length	1 to 4 meters

Features and Benefits

Securely Manage and Control Assets with Ease

Asset Monitoring - RFID Enabled Wiring Devices

Hubbell's RFID enabled wiring devices allows quick and easy scannig of an entire container without having to handle Individual cable sets.

The unique RFID technology is incredibly powerful and accurate. As well, it is integral to the wiring device so it can't easily fall off, get damaged, or be removed.

Combined with a Hubbell recommended middleware solution, integration into inventory management systems is seamless.

Housing Design
- Industrial duty, molded-in RFID tags
- Retrofitable to existing wiring devices
- Tags are virtually hidden inside the device

Existing Devices
- Tags are over molded into strain reliefs that can easily be added to existing devices

RFID Technology
- Tag is powerful enough to read through full baskets of cable
- Works with fixed or portable reader options
- Tags cannot fall off or be easily removed

Tracking Software
- Recommended middleware package available
- Track specific attributes, i.e. color and cable length per asset
- Edit asset conditions and other attributes
- Send alerts when asset leaves inventory location

Cord Clamp Kits
- Kits will include cord clamps, screws and inserts where applicable

Series 16 RFID Enabled
- Available as complete devices or replacement bodies

Asset Monitoring - RFID Enabled Wiring Devices

RFID Tags are available as a cord clamp kit for Straight Blade, Twist-Lock® and Pin and Sleeve devices. Series 16 Single Pole devices have the RFID tag molded into the body.

- Series 16 Single Pole inline devices (complete device)
- Series 16 replacement bodies
- 15A Insulgrip Straight Blade or Twist-Lock® (cord clamp kit)
- 20A, 30A and 50A Insulgrip® Twist-Lock® (cord clamp kit)
- 60A Pin & Sleeve (cord clamp kit)
- 100A Pin & Sleeve (cord clamp kit)

Colored Cord Clamps available for visible phase and cable length identification

*Other colors available upon request

Insulgrip® Twist-Lock® Kits

Description	Color	Catalog Number
15A & 20A Straight Blade 15A Twist-Lock®	Natural	**HBLRFKIT1**
3 Wire Twist-Lock®	Natural	**HBLRFKIT2**
	Blue	**HBLRFKIT2BL**
	Green	**HBLRFKIT2GN**
	Brown	**HBLRFKIT2BN**
4 & 5 Wire Twist-Lock®	Natural	**HBLRFKIT3**
	Blue	**HBLRFKIT3BL**
	Green	**HBLRFKIT3GN**
	Brown	**HBLRFKIT3BN**
	Orange	**HBLRFKIT3O**
50 Amp Cord Clamp	Natural	**CSRFKIT**

Pin and Sleeve Kits

Description	Catalog Number
60A	**HBL60RFKIT**
100A	**HBL100RFKIT**

Note: Kits will include cord clamps, screws and inserts where applicable.

Series 16 RFID Enabled Single Pole Devices

Description	Color	Male	Female
300A	Black	**HBLRF300MBK**	**HBLRF300FBK**
	White	**HBLRF300MW**	**HBLRF300FW**
	Green	**HBLRF300MGN**	**HBLRF300FGN**
	Blue	**HBLRF300MBL**	**HBLRF300FBL**
	Red	**HBLRF300MR**	**HBLRF300FR**
	Brown	**HBLRF300MBN**	**HBLRF300FBN**
	Orange	**HBLRF300MO**	**HBLRF300FO**
	Yellow	**HBLRF300MY**	**HBLRF300FY**
400A	Black	**HBLRF400MBK**	**HBLRF400FBK**
	White	**HBLRF400MW**	**HBLRF400FW**
	Green	**HBLRF400MGN**	**HBLRF400FGN**
	Blue	**HBLRF400MBL**	**HBLRF400FBL**
	Red	**HBLRF400MR**	**HBLRF400FR**
	Brown	**HBLRF400MBN**	**HBLRF400FBN**
	Orange	**HBLRF400MO**	**HBLRF400FO**
	Yellow	**HBLRF400MY**	**HBLRF400FY**

Series 16 Replacement Bodies

Description	Color	Male	Female
300A or 400A	Black	**HBLRFMBBK**	**HBLRFFBBK**
	White	**HBLRFMBW**	**HBLRFFBW**
	Green	**HBLRFMBGN**	**HBLRFFBGN**
	Blue	**HBLRFMBBL**	**HBLRFFBBL**
	Red	**HBLRFMBR**	**HBLRFFBR**
	Brown	**HBLRFMBBN**	**HBLRFFBBN**
	Orange	**HBLRFMBO**	**HBLRFFBO**
	Yellow	**HBLRFMBY**	**HBLRFFBY**

Asset Monitoring - Additional Information

Fixed or Portable Reader Options

- Fixed antenna can scan through full baskets of cable sets

- Handheld reader allows for individual or bulk scanning

- Pre-programmed screens allow easy data collection

  - Receive items into inventory

  - Check out items for specific jobs or rental locations

  - Check in items to ensure all assets are accounted for

  - Change status and condition of each asset

- Upload asset information to existing inventory management systems

Note: Reader hardware and software are not sold by Hubbell, but can be purchased by a third party. Please contact a Hubbell representative for more information.

RFID Tags

Hubbell utilizes an industrial grade, passive RFID tag. Passive RFID tags do not require a battery. Radio waves from the reader activate the RFID tag, thus inducing a current in the RFID's antenna. Typical read range can go up to 4 feet from a handheld, to 10 feet from a fixed antenna.