



Real-Time Monitoring
For Peak Efficiency







Power Monitoring You Can Rely On.

For nearly 30 years, Starline Track Busway has provided facilities with the most flexible, reliable and customizable power distribution systems on the market today. Now, because of the market's growing need for energy efficiency, energy monitoring systems are more important than ever. The Starline Critical Power Monitor (CPM) offers an enhanced monitoring package that will allow you to monitor, integrate and display more critical power information easily and reliably.

The Starline CPM offers:

- Revenue grade metering functionality
- Monitors multi-circuit configurations
- End feed and branch circuit models
- Display and non-display versions available
- Wired Ethernet and serial communications are standard, optional 802.11n Wi-Fi connectivity
- Ability to use both serial Modbus and Ethernet-based protocols simultaneously
- SNMP, Modbus TCP/IP, BACnet TCP/IP, HTTP(S), Telnet, and SSH are all standard Ethernet protocols
- Daisy-chain Ethernet available
- Retrofit and upgrade options available
- Optional temperature monitoring
- Both Vac and DC versions available

STARLINE
CRITICAL POWER MONITOR



M40 CPM

The M40 CPM is a revenue grade electrical meter that can be either integrated into Starline Track Busway or Plug-In Raceway end feeds, or utilized in applications as a standalone meter to monitor electrical panels or unique devices. The meter has a full color, front mounted display which allows for convenient access. Also, the device has control capability on its face to facilitate scrolling through the various display screens, and some provisioning capabilities.

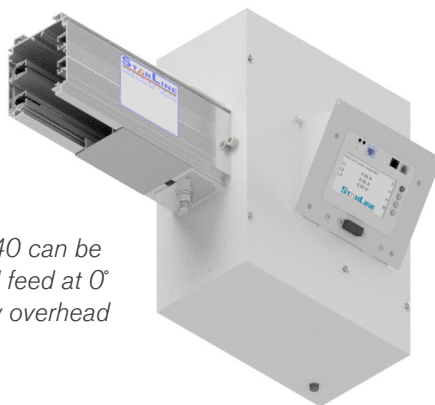
The M40 CPM has two Modbus serial ports and an Ethernet port on the exterior of the unit for easy connectivity. Standard 802.11n Wi-Fi is available as well. For standalone metering applications the M40 CPM can be configured in either a three-phase, for both Delta and WYE scenarios, or split-phase configurations.

FEATURES & BENEFITS

Most cost effective power monitoring solution offered by Starline

Easily implemented with BMS and DCIM packages

The breadth of communications options surpasses all others on the market



The display for the M40 can be integrated into an end feed at 0° or 30° in order to view overhead applications.





M50 CPM

The M50 CPM was designed to minimize the footprint needed inside Starline Track Busway Plug-in Units to incorporate branch circuit level metering. This efficient design delivers the same power monitoring information as the M40 CPM, but in the smallest area possible. With display and non-display versions, the M50 CPM can be configured to monitor at the outlet level, as well as provide a summary of usage for the entire unit.



FEATURES & BENEFITS

Smallest metering footprint available to keep plug-in units small and efficiently designed, maximizing pluggable space on the busway

Common platform with the M40 series of products, for easy implementation

Daisy-chained Ethernet option provides the most cost effective way to implement a wired Ethernet topology



M60 CPM Vdc

The M60 CPM Vdc is a version of the Starline Critical Power Monitor for DC voltage installations. This solution is perfect for renewable energy deployments to data center applications that require DC power. The M60 series offers an extensive feature set and is easily upgradable when needed.

BENEFITS

- Revenue grade Vdc metering functionality
- Ability to monitor multiple circuits from one meter
- Bi-directional metering
- Easily implemented and configured

FEATURES

Voltage Ratings

- 120Vdc (+/- 60V) - 400Vdc (+/-200V) Split Phase
- 120Vdc – 300Vdc Single Phase

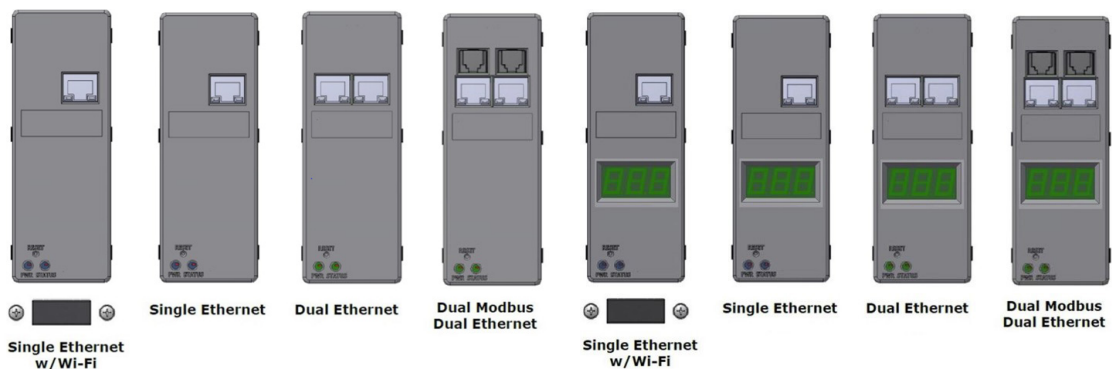
Current Ratings

- End Feeds - 0 to 800A
- Plug-in Units - 0 to 125A

BMS/DCIM Integration

- Data center software packages
- PDU software packages
- Manufacturer engineering support

The below images depict both the M50 & M60 series configurations





CPM Temperature Monitor

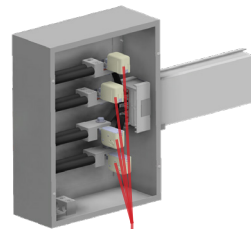
Temperature sensor technology is an available option with the Starline Critical Power Monitor (CPM) for End Feeds. This innovative technology is a first of its kind; making the monitoring and viewing of temperature data instantaneous.

BENEFITS

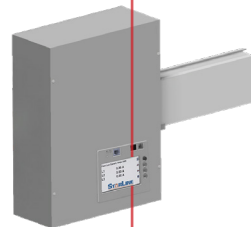
- Lower TCO
- Convenience
- Lowers Maintenance

FEATURES

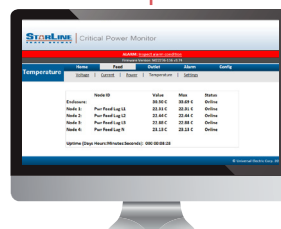
- Compatible with 225, 250, 400, 600, 800 & 1200 amp Starline Track Busway systems
- Eliminates need to periodically IR scan
- Provides end feed temperature data in real time (4 lugs and internal enclosure temperature)
- Over-temperature alarms
- Instantaneous firmware updates via CPM
- Compatible with all lug types
- Data available for end user analysis via webpage



Wireless nodes are installed in the busway end feed, which measure the temperature of each mechanical lug, as well as the overall internal box temperature.



Each node communicates the temperature back to the Starline CPM. Both power and temperature information will now display on the meter's LCD screen.



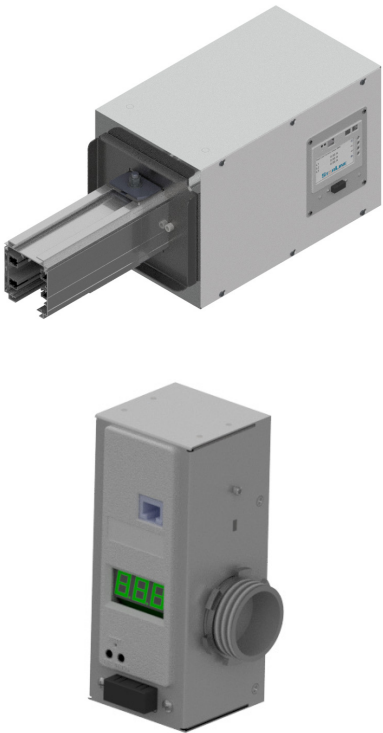
Temperature data also automatically transfer to the CPM's integral webpage—placing timely data at the end users fingertips.

Corded, Retrofit & Factory Upgrade Metering Options

It has never been easier to add metering to an existing Starline installation, or upgrade existing legacy metering products. Over the years, many systems have either been sold without metering, or have previous models of meters installed. Now that power monitoring data has become such an important metric in facilities management, having the granularity of data necessary to effectively understand energy usage is critical in today's mission critical world.

The Starline Critical Power Monitor is available in three unique retrofit and upgrade options to best address the needs of your particular installation. These three options include Corded, Retrofit, and Factory Upgrades. Depending upon timeframe, ability to remove and de-energize equipment, and cost targets, one of these options will be able to meet the needs and requirements of your business.

As with the traditional CPM products, the Retrofit and Corded options provide the same great feature set, offering revenue-grade metering functionality to your installation. Several communication and connectivity options are available, with both wired and Wi-Fi versions, and include localized display capability.



Corded CPM

The corded CPM offers an easy method to add metering capabilities to your existing installation. With two versions of the device available, any load up to 63A three-phase can have monitoring added post installation. The units will be assembled with the necessary plug and connector body, and are easily added in-line with the device. Custom cord lengths and plug/connector body configurations are available to meet the specific metering requirements of your installation.



FEATURES

- Standalone device
- Ideal for field power monitoring on-the-fly
- Capable of monitoring the energy of any device

BENEFITS

- Minimally disruptive option for the addition of post-installation metering to your facility
- No modifications needed to existing infrastructure to add metering functionality
- Plug-in units do not need to be removed from the busway for implementation

Retrofit CPM

Available for both end feed and plug-in unit versions, the Retrofit CPM option provides a cost effective option for the addition or upgrade of existing Starline systems in the field.

For plug-in units, a small enclosure with an adjustable pass-through has been developed to house the Critical Power Monitor. This can be easily mounted to any available free space on plug-in enclosures. This will enable you to add metering capabilities to plug-in units that you have existing at your facility.

End feed Retrofit kits have also been developed to easily add or upgrade metering in the field. These kits include the new Critical Power Monitor, as well as the sheet metal lid, and will be specific to your installation. For end feeds with existing legacy metering devices installed, the new CPM units can be calibrated to work with the existing current transformers so feed cables do not need to be removed from the terminal lugs.

BENEFITS

Utilize existing end feed and/or plug-in units installed at your facility

Cost effective solution requiring the minimal number of new components to be purchased for the installation

Implementation can be accomplished on-site



Factory Upgrades

The Factory Upgrade option is another way to add or upgrade metering capabilities to an existing installation. With this scenario, you have the option for Starline to perform the upgrade work for you at one of our global production facilities. For this to occur, units will need to be returned to Starline, inspected and tested, and then upgraded. All upgrades will be performed by qualified metering staff, and will be validated and re-certified once the CPM integration work has been completed. All connection points will be retorqued to the original specifications, and units will receive a new serial number and test record.

Please consult your Authorized Starline Sales Representative or Application Engineer to learn more about this option.

BENEFITS

Factory installed and tested to ensure work has been completed properly

Utilize existing end feed and/or plug-in units

Round robin approach available for upgrades to meet project timelines, power management constraints, and cost targets



Before factory upgrade



After factory upgrade



Universal Global Services

Factory trained and certified technicians will provide comprehensive on-site meter commissioning that includes meter inspection, programming and detailed documentation. Our technicians will program CPM meters and offer optional integration services to your BMS or DCIM for any and all meters located within your facility.

METER PROGRAMMING

Technicians will safely and efficiently program meters

Inspection and comprehensive verification of meter functionality

Custom programming of set points and communication protocol settings

On-site labeling of all meters to customer specifications

BENEFITS

On-site technicians will program meters quickly to meet every commissioning deadline

Real-time data delivers the analytics to make better operational decisions

Specify set-points to create customized and meaningful dashboards

Analyze data for more predictable maintenance schedules

METER INTEGRATION

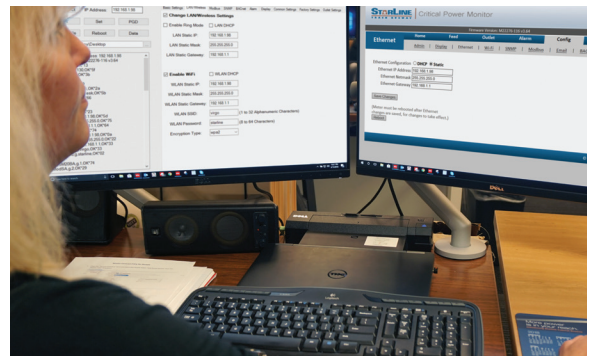
Integrate your devices so that you can focus on operational goals

Provide all necessary hardware and install if required

Install software on Windows Server

Enable each device with a unique identifier and verify meter data

Program and configure all devices and train personnel on software



For more information on meter services, ask your Starline Sales Representative or download the detailed Statement of Work document at:
<http://downloads.uecorp.com/services/>



All CPM meters can be easily integrated with BMS/DCIM packages



Measured Values	Real-Time	/Phase	Total	Average	Max	Min
Feed Voltage L-N	X	X		X		
Feed Voltage L-L	X	X		X	X	X
Feed Line Currents*	X	X		X	X	X
Feed Line Current Demand		X	X		X	
Feed Watts	X	X	X		X	
Feed Watts Demand			X		X	
Feed +/- VAR	X	X	X			
Feed VAR Demand			X		X	
Feed VA	X	X	X			
Feed VA Demand			X		X	
Feed Watt-hour	X	X	X			
Feed Power Factor	X	X	X			
Outlet Line Currents	X	X			X	X
Outlet Line Current Demand		X	X		X	
Outlet Watts	X		X		X	
Outlet VAR	X		X			
Outlet VA	X		X			
Outlet Watt-hour	X		X			
Outlet +/- Power Factor	X		X			
Frequency	X					

Measured Parameters	Accuracy
Voltage L-N	0.5 % of Reading
Voltage L-L	0.5 % of Reading
Current	0.5 % of Reading
+/- Watts	ANSI 12.20 Class 0.5
+/- Wh	ANSI 12.20 Class 0.5
+/- VARs	ANSI 12.20 Class 0.5
VA	ANSI 12.20 Class 0.5
Power Factor	1.0 % of Reading
Frequency	+/-0.1 Hz

*Measured Feed Neutral Current is optional

Universal Electric Corporation (UEC), the manufacturer of Starline, has been a leader in power distribution since 1924. The company's founders led the way for many new technologies in the power distribution equipment industry. Today, this family tradition of innovation continues to pave the way for safer, more innovative and more reliable electrical power distribution systems. Visit www.StarlinePower.com for your flexible power solutions.



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