Ethernet Meterbus Converter™ EMC-1

FOR IP-BASED NETWORKING AND INTERNET CONNECTIVITY

- IP Based Connectivity
- Supports HTTP, SNMP and MODBUS protocols
- Remote Monitoring
- Custom Programming

The Ethernet MeterBus Converter (model: EMC-1) provides the data and communications connection for Morningstar devices, between themselves, with surrounding systems, and with the outside environment through the internet. It's simple to connect to any compatible Morningstar product equipped with an RJ-11 Meterbus port (see the list of products at the table inside) to enable remote monitoring, custom programming, and access to future cloud-based data services.

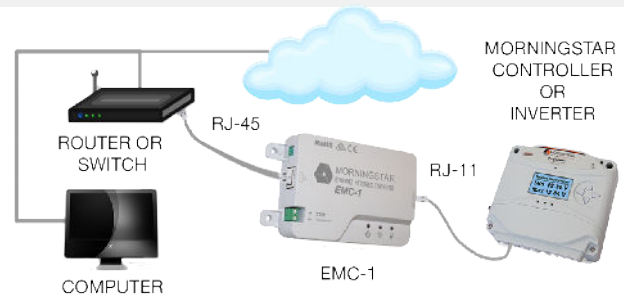**Protocols and technologies supported by the EMC include:**

- HTTP for LiveView: a simple and straightforward web dashboard for checking system status easily from any device browser
- SNMP (Simple Network Management Protocol): provides more detailed monitoring of all system data with existing IT management architecture
- MODBUS Industrial Control: provides high-speed monitoring and control for industrial equipment
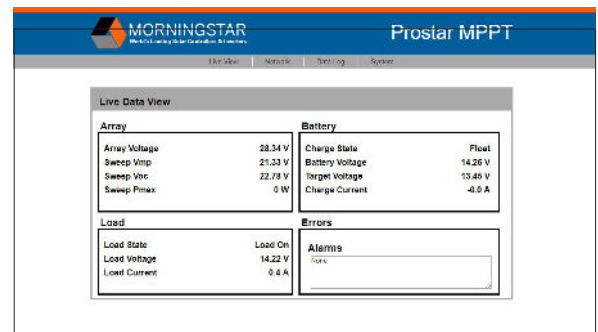
Compatible Morningstar products include:

- MPPT controllers: TriStar MPPT, ProStar MPPT, and SunSaver MPPT
- PWM controllers: TriStar, ProStar (Gen3)
- SureSine Classic inverter

The EMC-1 converts this connection into a fully enabled Ethernet port allowing data transfer to the internet.

Once connected, the MeterBus port enables transmission of serial data to the EMC-1 for remote monitoring, configuration, and control, using any type of IP-based network connection. This way, many new, powerful integration options for Morningstar products can be activated and used in remote power systems.

Live View

KEY FEATURES AND BENEFITS

- Adds SNMP to deliver real-time system data
- Enables Live View to display system status and log data directly from the EMC, in an easy-to-view webpage
- Adds IP-based MODBUS connectivity for remote industrial communication and control
- Connects to any MeterBus-enabled controller to provide enhanced data and network features
- Powered via MeterBus port on controller or DC Input for 12, 24 or 48V systems

Simple Network Management Protocol
☑SNMP™ ENABLED

Protocols supported by Morningstar EMC

Name	Protocol type	Description	Typical applications	Industry-standard port information	Morningstar products included
Live View	HTTP	Locally served web dashboard displays current operating status, real-time solar, battery and load data as well as access to internal historical datalog values (if enabled). Displayed in simple HTML format for easy viewing. Requires no configuration, provides considerable utility.	Residential and industrial applications with basic read-only data needs	Port 80	TriStar MPPT ProStar MPPT SunSaver MPPT TriStar PWM ProStar Gen3 SunSaver Duo SureSine Classic Inverter
Simple Network Management Protocol/ SNMP	SNMP	Real-time system data for all available device data values via network polling. Used when SNMP Network Management System is already in place and the user wishes to have high-level read-only power system data alongside network data. Usually configured with device-to-server implementation.	Critical systems requiring continuous status and performance monitoring. Typically wireless telecom systems, IT networks, UPS/ backup systems	Port 161	TriStar MPPT ProStar MPPT SunSaver MPPT TriStar PWM ProStar Gen3 SureSine Classic inverter
MODBUS Industrial Control and Data Polling	MODBUS	"Protocol of choice" for applications that require industry-standard support and a reliable connection for highspeed monitoring and real-time control. Most commonly used as a control/ communication connection between two hardware devices. Values are not pre-scaled; can be adapted to work in existing hardware environments with PLC's, RTU's, other SCADA equipment.	Industrial control, energy management	Port 502	TriStar MPPT ProStar MPPT SunSaver MPPT TriStar PWM ProStar Gen3 SunSaver Duo SureSine Classic Inverter

Technical Specifications

Mechanical
- Dimensions
  15.3 x 8.60 x 3.0 cm
  6.04 x 3.37 x 1.2 in
- Weight
  0.13 kg / 0.28 lbs

Electrical
- DC Input Supply Voltage Range
  8-80 Vdc
- Maximum Self-consumption
  2 Watts

Data & Communications
- Communication Protocols and Ports:
  MorningStar MeterBus (RJ-11)
  MODBUS Serial (RJ-11)
  MODBUS IP (RJ-45)
  HTTP (RJ-45)
  SNMP (RJ-45)
- Ethernet speed:
  10/100Base-T

Environmental
- Operating Temperature Range
  –40°C to +60°C
- Storage Temperature Range
  –55°C to +80°C
- Humidity
  100% non-condensing

1. **Dip Switches**
   DIP 1 enables Ethernet write commands
   DIP 2 enables cloud data service (future use)
2. **Ethernet Port (RJ-45)**
   Used to connect the EMC-1 to LAN / Internet
3. **Power Input**
   8-80 Vdc power input
4. **Status LED**
   Green and red lights indicate unit status
5. **Web Monitoring Service LED**
   Green and red LEDs indicate Web Service status (future use)
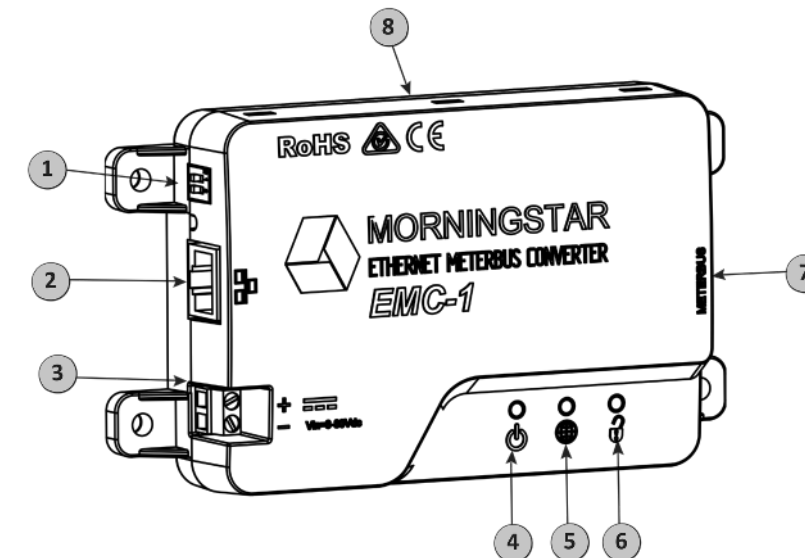6. **Ethernet Write LED**
   Green light indicates Ethernet write command capability
7. **Meterbus (RJ-11 port)**
   Used to connect the EMC-1 to Morningstar Device
8. **DIN rail mounts (bottom of unit)**
   35mm standard size

Warranty
Five year warranty period.
Contact Morningstar or your authorized distributor for complete terms.

Solar powers telecommunications.
And we power solar

Over 4 million used in more than 100 countries

Protocols:

SNMP — NMS

HTTP — Web & Browser (LiveView)

MODBUS — SCADA (MS View)

Internet / WAN

Switch / Router

EMC-1

ProStar MPPT

Today's Battery Voltage
Min 12.26 V
Max 12.84 V

Loads for Applications

Solar Array

Battery Energy Storage