



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
- Future Cloud Hosted Data Service

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 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:

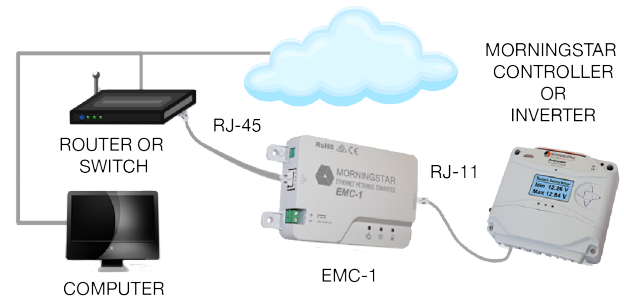
- HTTP for LiveView: a simple and straightforward web dashboard for checking system status easily from any device browser
- SNMP (Simple Network Management Protocol): provides more detailed monitoring of all system data with existing IT management architecture
- MODBUS Industrial Control: provides high-speed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

Compatible Morningstar products include:

- MPPT controllers: TriStar MPPT, ProStar MPPT, and SunSaver MPPT
- PWM controllers: TriStar, ProStar (Gen3) and SunSaver Duo
- Inverters: SureSine
- Inverter/charger: MultiWave (future release)

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

Array		Battery	
Array Voltage	28.34 V	Charge State	Float
Sweep Vmp	21.33 V	Battery Voltage	14.26 V
Sweep Voc	22.78 V	Target Voltage	13.46 V
Sweep Pmax	0 W	Charge Current	-0.0 A

Load		Errors	
Load State	Load On	Alarms	
Load Voltage	14.22 V	None	
Load Current	0.4 A		

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



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 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 Inverter MultiWave Inverter/ Charger
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 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

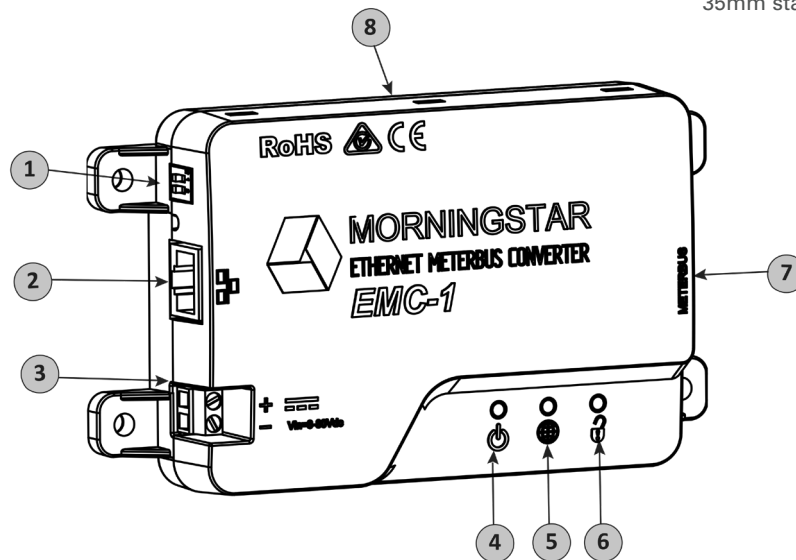
Green light indicates Ethernet write command capability

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

