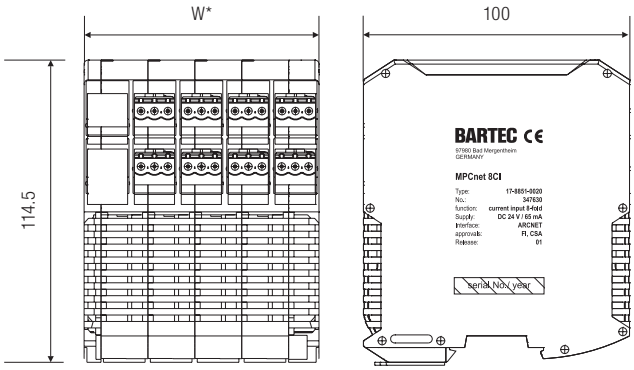
MPC[net] is a versatile and flexible system for controlling and monitoring electric trace heating applications. The construction of the control system is based on standard I/O bus systems and was developed specially to meet the demands of electric trace heating. The system is modular and can be adapted to the respective application's specific requirements by combining individual modules. MPC[net] enables solutions extending from simple temperature recording systems to centrally controlled temperature regulation, limitation and monitoring. The system is easy to plan and configure. PLC programming skills are not necessary. The software and touch panel make it simple for the operator to set parameters for the individual heating circuits.

- Simple system design
- Predictive maintenance
- Stepless power setpoint adjustment from 10 % to 100 %
- Cuttable to specific lengths: EKL and EMK, similar to BARTEC's SLHBs
- Programming skills not nessesary

Dimensions (in mm)



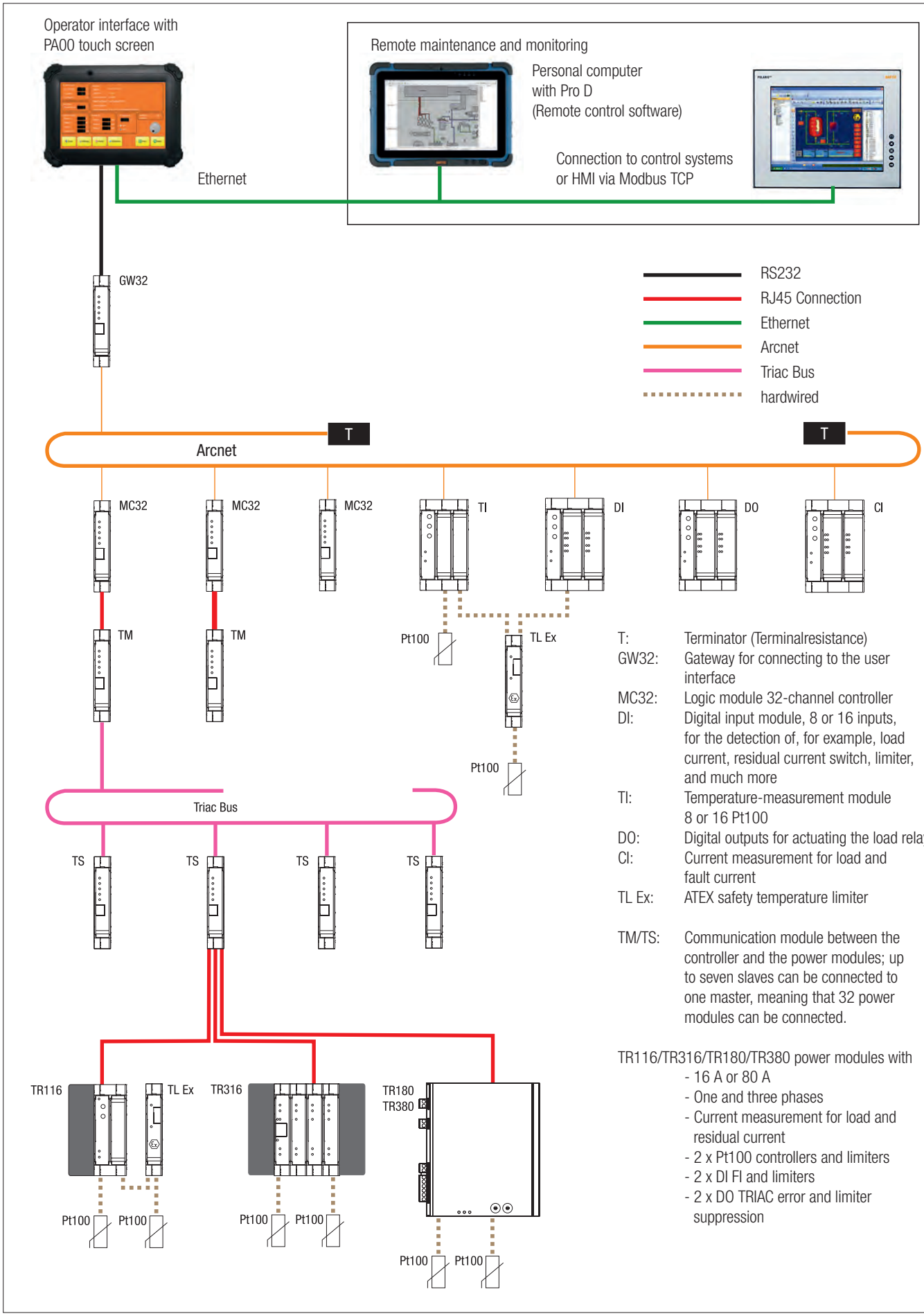
* = Please refer to the data sheets for the modules

Construction

The system is modular in construction and can therefore be adapted flexibly to the respective requirements of the plant or equipment. Diverse function modules are available to allow its operation as a two-state controller. They register temperature, load and residual current and diverse control signals, e.g. output signals from limiters. Output module provides floating contacts to emit alarms. It is also used to actuate the external contactor for switching the heating circuits. Independent complete modules are available for each heating circuit to allow its operation as a proportional controller. These regulate the outputted heating power as well as the holding temperature. The load and residual current are registered for that purpose. The heating circuits are activated through an integrated triac then. The MC32 controller module accesses the various modules through the system bus. A controller module provides up to 32 heating circuits. This number can be increased by adding more modules to the bus. An optional gateway ensures communication to the higher-ranking control system and to the touch panel. The parameters for the modules can be set by means of software or a touch panel.

Function

The load and residual current monitor constantly checks the entire heating system and ensures that the heating cables and temperature sensors always function reliably. Alarms are given if values exceed or fall below the pre-defined load or leakage-current limits. The MPC[net] Process Designer software can be adapted individually to the user's requirements and constantly show the state of the heating system. Statistical data on the current and energy consumption are determined by means of the integrated data logger. This provides information on the condition and ageing status of the material that is being used.



T: Terminator (Terminalresistance)
GW32: Gateway for connecting to the user interface
MC32: Logic module 32-channel controller
DI: Digital input module, 8 or 16 inputs, for the detection of, for example, load current, residual current switch, limiter, and much more
TI: Temperature-measurement module 8 or 16 Pt100
DO: Digital outputs for actuating the load relay
CI: Current measurement for load and fault current
TL Ex: ATEX safety temperature limiter

TM/TS: Communication module between the controller and the power modules; up to seven slaves can be connected to one master, meaning that 32 power modules can be connected.

TR116/TR316/TR180/TR380 power modules with
- 16 A or 80 A
- One and three phases
- Current measurement for load and residual current
- 2 x Pt100 controllers and limiters
- 2 x DI FI and limiters
- 2 x DO TRIAC error and limiter suppression

GW32 Gateway

The GW32 gateway connects the MC32 modules, which operate independently of each other, into a complete system. It serves as an interface between the controller hardware and the MPC[net] ProcessDesigner software. The PA00 touch panel also accesses the control system's parameters through the gateway. The physical connection is established by means of the RS232 interface. In conjunction with the PA00 touch panel, the GW32 also establishes communication between a higher-ranking control system and the MPC[net]. The PA00 touch panel serves as the interface here. See the system description for the Installation Instructions.

Ordering information

MPC[net] GW32 Gateway, B = 17.5 mm	**17-8851-0002**

Technical data subject to change without notice.

MC32 Controller module

The MC32 Controller module regulates and monitors up to 32 heating circuits. It flexibly accesses the individual I/O modules by means of the bus system integrated in the DIN rail. By inserting more MC32 modules into the bus, the number of heating circuits to be monitored can be increased at will. Two setpoint values can be assigned to each heating circuit and changed by means of an external switching contact. The MC32 monitors parameters, such as temperature, overheating, load current, residual current, and external status signals such as rccb auxiliary contacts, limiter alarms, manual switches etc. for each of the 32 heating circuits individually. Up to three temperature sensors per circuit are monitored, whereby the controlled variable is fixed in relation to one sensor. The other sensors serve to monitor a high and a low alarm value. Individual upper and lower limits can be assigned to each monitored value and individual alarms emitted by means of the MPC[net] control system's digital outputs. In addition, all individual alarms can be emitted through the MC32 module's group alarm contact to an indicator light or suchlike. The bus status signals and alarms are also indicated by means of LEDs. Connecting the GW32 gateway and PA00 touch-panel allows a transfer not only of the setpoint and actual values but also of all alarms into a higher ranking control. All of the control system's parameters and alarms can be altered or acknowledged from the control centre. See system description for the Installation Instructions.

Ordering information

MPC[net] MC32 Controller module, W = 17.5 mm	**17-8851-0001**

Technical data subject to change without notice.

Remote I/O-Module 8TI/16TI

The 8TI and 16TI temperature registering modules are suitable for the direct connection of 3-wire Pt100 temperature sensors. They are operated and supplied by means of the MC32 controller. The internal, galvanically isolated bus connection is established by simply joining the modules. The modules feature open-circuit/short-circuit detection. LEDs display the bus status messages and fault signals. See system description for the Installation Instructions.

Ordering information

Remote I/O module MPC[net] 8TI, W = 54.0 mm	**17-8851-0010**
Remote I/O module MPC[net] 16TI, W = 88.0 mm	**17-8851-0011**
Accessories: Pt100 Ex	**27-71-13..**

Technical data subject to change without notice.

Remote 8DO and 16DO I/O modules

The 8DO and 16DO output modules are suitable for indirectly switching heating cables by means of a power contactor. In addition, the individually adjustable alarms can be outputted through the digital outputs. They are operated and supplied with the aid of the MC32 controller. The internal, galvanically isolated bus connection is established by simply joining the modules together. LEDs display the bus status signals and the status signals per channel. See system description for Installation Instructions.

Ordering information

Remote I/O module MPCnet 8DO, W = 41.0 mm	**17-8851-0016**
Remote I/O module MPCnet 16DO, W = 63.5 mm	**17-8851-0017**

Technical data subject to change without notice.

Remote I/O module 8DI/16DI

The 8DI and 16DI digital input modules register and monitor diverse status signals. The inputs are floating, and this means that non-floating contacts are required for transmitting signals. They are operated and supplied through the MC32 controller. The internal, galvanically isolated bus connection is established by simply joining the modules together. LEDs display the bus status messages and other status messages per channel. See the system description for the Installation Instructions.

Ordering information

Remote I/O module MPCnet 8DI, W = 41.00 mm	**17-8851-0013**
Remote I/O module MPCnet 16DI, W = 63.5 mm	**17-8851-0014**

Technical data subject to change without notice.

Remote I/O module 8CI/16CI

The 8CI and 16CI current measuring modules register load and residual currents in conjunction with the LoaC and LeaC measuring transducers. Up to three phases and the total current can be monitored for each heating circuit. The individual inputs are assigned and configured either by means of the MPCnet ProcessDesigner software or by the touch panel. The modules are operated and supplied through the MC32 controller. The internal, galvanically isolated bus connection is established by simply joining the modules together. See the system description for the Installation Instructions.

Ordering information

Remote I/O module MPCnet 8CI, W = 41.0 mm	**17-8851-0020**
Remote I/O module MPCnet 16CI, W = 63.5 mm	**17-8851-0021**
Accessories	
MPCnet LoaC load current transformer	**17-8851-0023**
MPCnet LeaC total current transformer	**17-8851-0024**

Technical data subject to change without notice.

Communication modules TM04/TS04

The TR16, TR26 and TR38 power modules are integrated into the MPCnet network architecture by means of the TM04 and TS04 communication modules, whereby up to 4 power modules can be connected to each communication module. The communication between the individual power modules and the MC32 controller is established by means of the TM04 master module. By inserting more TS04 communication modules into the bus, the number of connectable power modules can be extended to 32. See system description for the Installation Instructions.

Ordering information

MPCnet communication master module TM04, W = 17.5 mm	**17-8851-0004**
MPCnet communication slave module, W = 17.5 mm	**17-8851-0005**

Technical data subject to change without notice.

Power modules TR116/TR316

The TR116 and TR316 power modules combine the functions of all MPCnet I/O modules in one single module. Each module has two Pt100 inputs and digital inputs for monitoring RCCBs and limiters. For each heating circuit the heating power can be adjusted steplessly between 10 % and 100 % for up to three phases, whereby the load and total current are monitored. The modules are operated and supplied via the TM04 or TS04 power module controllers. The set point value is determined by the MC32 controller. The internal, galvanically isolated bus connection is established by simply joining the modules together by means of RJ-45 plug connectors.

Ordering information

MPCnet TR116 power module, W = 62.5 mm	**17-8851-0006**
MPCnet TR316 power module, W = 126 mm	**17-8851-0007**
Power modules with 40 A and 80 A available on request.	

Technical data subject to change without notice.

PA00 HMI touch panel

The HMI touch panel is used as a central operating unit on which all parameters for the entire control system can be set and monitored.

Ordering information

PA00 HMI Touchpanel	**17-8851-0003**

Technical data subject to change without notice.

Ordering information Accessories

CHD: Hand-held unit for setting up on-site and for extended maintenance and settings in the system	**on request**
Arcnet repeater	**on request**
Triac Bus repeater	**on request**
Termination set (Two terminators/one connection terminal and end terminal each)	**on request**
Expansion and Triac Bus connection set (one connection terminal and end terminal each)	**on request**
GW32 connection adapter to PA00	**on request**

Technical data subject to change without notice.