TQ-Automation

Product catalog 2020

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E²MS

Embedded

E-Mobility

Robotics

Automation

Aviation

TQ-Group Main Headquarters
Delling

TQ Seefeld

TQ Murnau

TQ Shanghai

Quality Made in Germany – the wide world of TQ Group

TQ is one of Germany's largest suppliers of electronic products and services (E2MS provider and ODM) and offers the complete range from development and production to service and product life-cycle management.

Our individually designed and built components are used in a wide range of diverse industries – starting with robotics and medical technologies, they are also found in airplanes and motors for electronic bikes.

Of course, TQ also offers standard products such as completely assembled micro-computer modules known as minimodules.

Thanks to our outstanding top-quality "Made in Germany," TQ Group can look back on 20 years of continuous growth, and now has a staff of about 1,650 employees working at 14 locations throughout Germany, Switzerland and Shanghai, China.

Through our TQ Automation division, TQ provides the latest technology for energy management. Topics such as e-mobility, load management and energy flow control can now be realized easily and effectively.

TQ stands for reliability.
TQ stands for optimal solutions.
TQ stands for Technology in Quality.

For more information about TQ, please visit our website
www.tq-group.com

TQ Peiting

TQ Durach

TQ Leipzig

Monitor.
Analyse.
Optimise.

10 Why choose TQ Automation?

1. Patented technology with optimised body
2. Integrated hard- and software interfaces ensure high connectivity
3. Decreasing the consumption of energy for exemplary 30 %
4. Timesaving installation and start-up operations
5. Significant reduction of electrical wiring
6. Investment protection with adaptable types of use
7. Event customized automation
8. Peripheral data storage
9. Impressive visualization and digital archiving
10. Manufacturing and developement in Germany with official standards of industry

Energy Manager EM300 LR
LAN
STATUS
NETWORK
SENSOR
RESET
L1
L2
L3
N

ENERGY MANAGEMENT

PRODUCTS:

EM 210
EM 300
SMART HEATER
SENSORBARS

ENERGY MANAGER
EM 210

Product name	Order number
EM 210-L	253 098
EM 210-LR	252 647
EM 210-LRW	252 648
EM 210-LR + SmartHeater	254 767
EM 210-LRW + SmartHeater	254 768

PERFORMANCE SPECIFICATIONS ENERGY MANAGER EM 210:

- Monitors energy consumption and supply for each respective phase
- Measurement data is stored within the device
- Built-in webserver
- Visualization interface, IOS app, Android app
- Displays measurements of energy consumption and power supply as an overall total and for each respective phase in kWh
- Displays overall energy consumption and consumption per phase in euro
- Manual and automatic export or measurement data via email, FTP, SFTP
- LAN interface (EM 210 L), LAN/RS485 interface (EM 210 LR), LAN/WLAN/RS485 interface (EM 210 LRW)
- Optional equipment: Smart Heater for convenient Plug&Play energy management

PRIMARY FEATURES AT A GLANCE:

- Fully integrated smart meter *
- 3-phase active-power energy metering of supply and intake in real time
- Direct connections up to 63 A; connection of 100 A available using a transformer (higher currents are also possible)
- Top-hat rail assembly (4 TE)

* Not approved for generating billing data

TECHNICAL DATA EM 210

PROCESSOR DATA
ARM9 PROCESSOR with 450 MHz,
DDR2 RAM with 128 MByte
eMMC Flash 4 GByte
(2 GB for permanent data storage)

OPERATING SYSTEM
Embedded Linux with integrated TCP/IP Stack und SQLite database

INTERFACES (STANDARD)
LAN (10/100 Mbit), WLAN (802.11b/g/n)
RS485 (Half-Duplex, max. 115200 Baud) for optional connection of the Smart Heater, no galvanic isolation

PRODUCT NORMS
EN 61010, EN 50428, EN 60950

CURRENT AND ELECTRICITY INPUTS

Rated voltage:	max. 230/400 V~ (without WLAN)
	230/400 V~ (with WLAN)
Operating voltage:	110/230 V~ ± 10% (without WLAN)
	230 V~ ± 10% (with WLAN)
Frequency range:	50/60 Hz ± 5% (without WLAN)
	50 Hz ± 5% (with WLAN)
	(110 V 60 Hz available on request)

ENERGY CONSUMPTION

Voltage path:	‹ 0,01 VA per phase
Current path:	‹ 2 VA per phase
Device total:	‹ 5 W without activated WLAN
Electricity:	Nominal current 5 A, Limiting current 63 A
Start-up current:	‹ 25 mA

ASSEMBLY

Wire size:	10–25 mm² *

Torque for clamping screws: 2.0 Nm

* Mechanical:	from 1.5–25 mm²

METERING PRECISION
Accuracy in compliance with IEC 61557-12 applies to the value measured by the Energy Manager

Voltage:	± 0.5%
Current:	± 0.5%
Effective power:	± 1.0%
Apparent power:	± 1.0%
Idle power:	± 1.0%
Power factor:	± 1.0%

applies to IEC 62053-22 or -23 (conventional)

Active energy:	Class 1
Idle energy:	Class 1

When using external power generators, please consider their respective metering accuracy.

MECHANICAL DATA

Material of the housing:	Glass fiber-reinforced polyamide
Glow wire test:	in accordance with IEC 695-2-1
Protection cat./type:	II/IP2X
Weight/Dimensions:	0.3 kg/88×70×65 mm

OPERATING CONDITIONS

Ambient temperature:	-25°C...+45°C
Storage temperature:	-25°C...+60°C
Relative air humidity:	Up to 75% on annual average, (non-condensing)
	Up to 95% on up to 30 days/year
Max. altitude for operation:	2000 m above NN

ENERGY MANAGER
EM 300

Product name	Order number
EM 300-L	252 649
EM 300-LR	252 649
EM 300-LRW	252 650

SCOPE OF THE ENERGY MANAGER EM 300:

- Measures effective and idle power, apparent power; active, idle and apparent energy, current strength, voltage and idle power for each phase, up to 96 current sensors can be connected
- Automatic data export as CSV file (by email or FTP/SFTP)
- Additional transmission of metering data using standard interfaces-Modbus TCP/-RTU, master/slave configuration possible
- Configurable interval for transmission of metering data from 1 second, 200 ms available on request (master/slave)
- Query intervals of <1 second possible in Modbus TCP slave mode
- Metering data can also be transmitted via http request (Json format)
- Integrated webserver for easy configuration and user-friendly display of consumption values on an app (IOS/Android operating systems)
- Interface variants: LAN (EM 300 L), LAN/RS485 (EM 300 LR), LAN/WLAN/RS485 (EM 300 LRW)

PRIMARY FEATURES AT A GLANCE:

- Fully integrated Smart Meter*
- Real time data collection
- Four-quadrant meter
- 3-phasen energy metering of import and intake
- Direct connections up to 63 A; connection of 100 A available using a transformer (higher currents are also possible)
- Optional connection of up to 96 current sensors
- Active energy is calculated on the basis of apparent current, automatic allocation for idle power, manual entry or automated operation
- Decentralized data archive with capacity up to 15 years (depending on the configuration)
- Top hat-rail assembly (4 TE)

* Not approved for generating billing data

TECHNCIAL DATA EM 300

PROCESSOR DATA
ARM9 Processor with 450 MHz, DDR2 RAM with 128 MByte, eMMC Flash 4 GByte

OPERATING SYSTEM
Embedded Linux with integrated TCP/IP Stack

INTERFACES (STANDARD)
LAN (10/100 Mbit), WLAN (802.11b/g/n) for data transmission using Modbus TCP or Json/Ajax
RS485 (Half-Duplex, max. 115200 Baud) for data transmission using Modbus RTU

PRODUCT NORMS
EN 61010, EN 50428, EN 60950

CURRENT AND ELECTRICITY INPUTS

Metering voltage:	max. 230/400 V~ (without WLAN)
	230/400 V~ (with WLAN)
Operating voltage:	110/230 V~ ± 10% (without WLAN)
	230 V~ ± 10% (with WLAN)
Frequency range:	50/60 Hz ± 5% (without WLAN)
	50 Hz ± 5% (with WLAN)
	(110 V 60 Hz upon request)

INTERNAL CONSUMPTION

Voltage path:	‹ 0.01 VA per phase
Current path:	‹ 2 VA per phase
Device total:	‹ 5 W without active WLAN
Current:	Nominal current 5 A, Limiting current 63 A
Start-up current:	‹ 25 mA

ASSEMBLY

Wire size:	10–25 mm² *
Torque for clamping screws:	2.0 Nm
* Mechanical:	from 1.5–25 mm²

METERING ACCURACY
Accuracy in compliance with IEC 61557–12 applies to metering values, Energy Manager

Voltage:	± 0.5%
Current:	± 0.5%
Effective power:	± 1.0%
Apparent power:	± 1.0%
Idle power:	± 1.0%
Power factor:	± 1.0%

Refers to IEC 62053–22 or -23 (conventional)

Active energy:	Class 1
Idle energy:	Class 1

When using external current converters, the accuracy of the respective data must be taken into consideration.
When using current sensors on the sensor bar, the accuracy of effective power may be Class 2, depending on the idle power

MECHANICAL DATA

Material of the housing:	Glass fiber-reinforced polyamide
Glow wire test:	in accordance with IEC 695–2–1
Protection cat./type:	II/IP2X
Weight/Dimensions:	0.3 kg/88×70×65 mm

OPERATING CONDITIONS

Ambient temperature:	-25°C...+45°C
with I_N lowered to 32 A:	-25°C...+55°C*
Storage temperature:	-25°C...+60°C
Relative air humidity:	Up to 75% on annual average, (non-condensing) up to 95% on up to 30 days/year
Max. altitude for operation:	2000 m above NN

*** The following conditions apply for operation in environmental temperatures of up to 55°C:**
Continuous operation at 55° ambient temperature is not approved. Fuse protection may not exceed 32 A. For higher currents, use external current converters. Energy Manager must be connected with 10 mm. cables at least 1 m long.

SMART HEATER

SCOPE OF THE SMART HEATER:

- Power: 0 to 3500 watt, can be set to 500-watt intervals depending on the input
- System efficiency is 10% higher than comparable, similar systems
- 3 heating circuits built-in (500 W, 1000 W, 2000 W)
- All power electronics are integrated in the device (no external protection needed)
- Convenient set-up and installation (Plug & Play)
- No additional software, no additional hardware required
- Desired temperature can be adjusted manually
- Built-in, temperature-sensitive safety cutoff
- Development and manufacturing: 100% Made in Germany

Product name	Order number
SmartHeater	265 105

TECHNICAL DATA SMART HEATER

AMBIENT CONDITIONS

Ambient temperature:	0...+40°C
Altitude over N.N:	max. 2000 m

NORMS AND PERMITS

Product standard:	DIN EN 60335–1, DIN VDE 0700–253, DIN EN 60730 1+9, DIN EN 62233
Protection class:	I
Overcurrent category:	II
Certificates:	CE, VDE

OPERATIONAL MANAGEMENT, COMMUNICATION

Interfaces:	RS485
Monitoring:	Display of current power, Communication
Heater temperature configurable:	up to max. 80°C, anti-frost feature
Safety cutoff:	using fail-safe temperature limiter (STB)

MATERIAL

Heating coil:	Nickel-iron-chrome alloy INCOLOY 825, 2.4858
Screw head:	Stainless steel 1.4404

MECHANICAL DATA

Protection class:	IP54 in accordance with DIN EN 60529
Housing:	PA6 GF30
Connecting thread:	G 1 ½ " B
Spanner gap:	60 mm
Unheated length:	95 mm
max. immersion depth:	450 mm

ELECTRICAL DATA

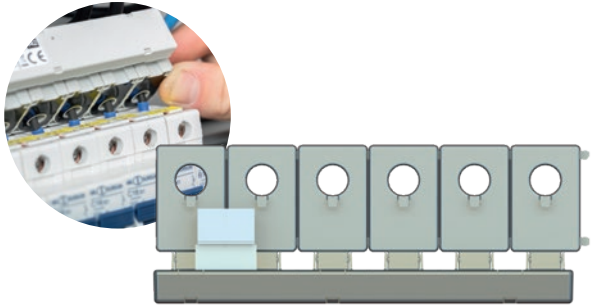
Power consumption

• in standby:	‹ 0.5 W
• in operation:	0.5...3.5 kW in 500-watt intervals
Voltage supply:	230 V/16 A

MODEL VERSION

Smart Heater (insulated) with sacrificial anodes for storing service water

SENSORBARS
EB 203, 206, 209, 212



Product name	Order number
EB 203 (Sensorbar incl. sensors, max. 3 channels)	274 324
EB 206 (Sensorbar incl. sensors, max. 6 channels)	274 323
EB 209 (Sensorbar incl. sensors, max. 9 channels)	274 320
EB 212 (Sensorbar incl. sensors, max. 12 channels)	274 318

SCOPE OF PERFORMANCE SENSOR BARS:

The sensorbars make it possible to measure current in alternating current networks up to 63 A, facilitating power metering and monitoring of the active energy of individual consumption points in low-voltage networks, for example. This is done by including the phase voltage and cos ϕ from the Energy Manager in the calculation. Metering data is forwarded via the RS485 bus to the Energy Manager, where it is analysed. The Energy Manager also delivers the supply voltage of 9 V DC to the sensor bar. Sensorbars are available in four variants, respectively with three (EB203), six (EB206), nine (EB209) or twelve (EB212) input jacks for current sensors. The current sensors are situated directly on the circuit breakers and register the actual current strength.

Up to eight sensorbars can be connected to a single Energy Manager. With the twelve current sensors on the EB212 you can monitor up to 96 conduits and forward the data to the Energy Manager.

PRIMARY FEATURES OF THE SENSORBARS AT A GLANCE:

- Expansion of energy monitoring on the circuit level
- Connection of up to 96 current sensors per each Energy Manager
- Consolidation and monitoring of user groups possible
- Simple, space-saving assembly above circuit breakers, convenient retrofitting
- No additional power pack needed to power the current sensors

TECHNICAL DATA SENSORBARS

ELECTRICAL CONNECTIONS

Supply voltage:	9 V DC
Supply current:	Max. 20 mA
Power consumption:	Max. 0.5 W
Nominal voltage/ Wire insulation:	300 V RMS
Overvoltage category:	CAT III 300 V
Rated value supply voltage:	250 V AC
Current:	63 A
Transient overvoltage:	4000 V

FIELDBUS

RS485 cable length:	Max. 10 m
Modbus address range:	1 to 247

LINE CONNECTORS

Wire size:	0.25 mm^2 to 1.5 mm^2

HOUSING PROTECTION CLASS

Protection type:	IP2X

ENVIRONMENTAL CONDITIONS

Ambient temperature

• Operation:	-25°C...+55°C
• Storage/Transport:	-25°C...+60°C
Relative air humidity:	50% to 95% (non-condensing)
Air pressure during operation:	790 hPa to 1070 hPa

PRODUCT SAFETY

DIN EN 61010-1

EMV

EN61000-6-2

ACCURACY

better than +/- 1% from the measuring end

RESOLUTION

12 Bit

SAMPLING RATE

5 kHz

EFFECTIVE VALUE

Basis fundamental oscillation

POW 100
CUB 100
MIO 100

ENERGY AUTOMATION

SYSTEM:

DM100

PRODUCTS:

POW 100
CUB 100
MIO 100
ANO 100
UIO 100
REL 100
PAT 100

POWER PACK
POW 100

PERFORMANCE SPECIFICATIONS POW 100:

The intelligent power pack ensures a stable voltage supply for all modules in use and affords access to network data such as voltage, current and power.

The POW 100 power module monitors the CAB bus and supplies it with the necessary voltage and signals. You can attach up to seven MIO 100 and a CUB 100.

Product name	Order number
POW 100 Power module	259 407

EASY INSTALLATION THANKS TO PLUG-AND-PLAY ELECTRONICS

All bus systems, regardless whether they are built-in or attached using a gateway, are fully integrated in the B-Studio planning software.

The module has two parts; the lower half is the terminal module. It contains all the plugs you need to connect the wires and fieldbuses. All the electronics are in the top half. This two-part construction gives users a number of advantages. The electronics half can be plugged into the terminal module in a subsequent, separate step. And you don't have to undo any wiring if you need to repair or exchange a component. Initial installation in the wiring cabinet is also more convenient, because you have more space to work with. Electronics modules can be tested from an office space when all the terminal modules are installed.

All terminal models are interconnected by means of the CAB bus. Thanks to the jumpers, this takes place automatically when you attach it to the top-hat rail. The modules can also be addressed fully automatically; no additional configuration is required.

TECHNICAL DATA POW 100

VOLTAGE SUPPLY
120...240 V AC

POWER CONSUMPTION
max. 115 VA

HOUSING DESIGN
REG (DIN 43880)

HOUSING WIDTH
5 TE

OPERATING/STORAGE TEMPERATURE

Ambient temperature in operation:	0°C...+50°C
Storage temperature:	-25°C...+60°C

PROTECTION CLASS
IP20

CONTROL UNIT
CUB 100

Product name	Order number
CUB 100 Controller-Unit-Building Module	259 785

PERFORMANCE SPECIFICATIONS CUB 100:

Equipped with a powerful processor, the CUB 100 controller-unit building module reliably fulfills even the most complex controlling requirements. Multiple CUB 100 controllers, in combination with other intelligent components, provide a decentralized network for automation tasks. Equipped with a run-time system in compliance with IEC 61499, the CUB 100 is ideally suited for distributed systems.

With the B-Studio engineering software you can plan and program an entire distributed system. Preprogrammed software libraries reduce the complexity and facilitate fast, reliable engineering.

The CUB 100 has 24 V inputs and outputs as well as two RS485, one CAN and one RS232 interface, allowing you to immediately connect EnOcean, SMI and M-bus gateways.

Two switched Ethernet jacks facilitate information exchange within a given distributed control system as well as with upstream management systems. This makes it possible to daisy-chain other active components in the automation network. A third Ethernet jack can be used for MODBUS TCP or EtherCat, for example.

TECHNICAL DATA CUB 100

EASY INSTALLATION THANKS TO PLUG-AND-PLAY ELECTRONICS

All bus systems, regardless whether they are built-in or attached using a gateway, are fully integrated in the B-Studio planning software.

The module has two parts; the lower half is the terminal module. It contains all the plugs you need to connect the wires and fieldbuses. All the electronics are in the top half. This two-part construction gives users a number of advantages. The electronics half can be plugged into the terminal module in a subsequent, separate step. And you don't have to undo any wiring if you need to repair or exchange a component. Initial installation in the wiring cabinet is also more convenient, because you have more space to work with. Electronics modules can be tested from an office space when all the terminal modules are installed.

All terminal models are interconnected by means of the CAB bus. Thanks to the jumpers, this takes place automatically when you attach it to the top-hat rail. The modules can also be addressed fully automatically; no additional configuration is required.

VOLTAGE SUPPLY
Using CAB bus

HOUSING DESIGN
REG (DIN 43880)

HOUSING WIDTH
6 TE

OPERATING/STORAGE TEMPERATURE

Ambient temperature in operation:	0°C...+50°C
Storage temperature:	-25°C...+60°C

PROTECTION CLASS
IP20

INTERFACES

DIGITAL INPUTS
4x 24 V

DIGITAL OUTPUTS
4x 24 V (max. 400 mA when powered using AUX IN)

ETHERNET
3x (2x switched, 1x direct; 10/100 Base TX)

ADDITIONAL BUS SYSTEMS
EnOcean, SMI, M-Bus, EtherCAT, Modbus-TCP

RS232
1x RS232, max. 19200 Bit/s, Flow control possible with XON/XOFF

RS485
2x RS485, half-duplex, max. 19200 Bit/s, galvanically isolated, 120 Ω Scheduling can be added using a micro-switch, 24 V supply for external sensors or gateways (max. 100 mA)

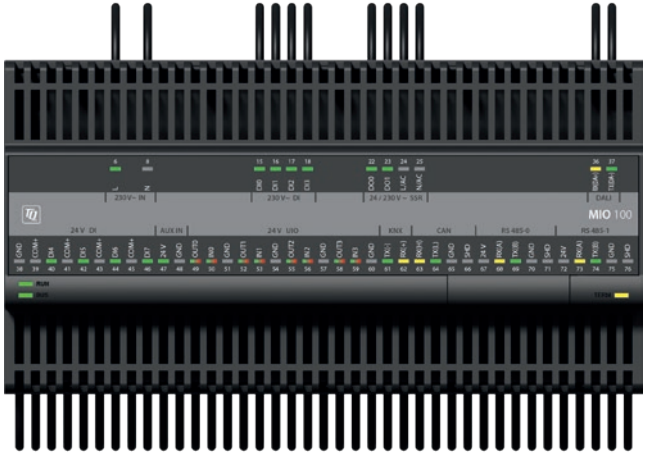
CAN
1x CAN2.0B, max. 500 kBit/s, galvanically isolated, 120 Ω Scheduling can be added using a micro-switch

MULTI-I/O-MODUL
MIO 100

PERFORMANCE SPECIFICATIONS MIO 100:

The MIO 100 module provides excellent connectivity that is optimally geared toward the requirements of modern building automation.

Using CAN and two RS485 interfaces it is possible to communicate with EnOcean, SMI and M-Bus gateways.



Product name	Order number
MIO 100 Multi-I/O Module	259 786

TECHNICAL DATA MIO 100

EASY INSTALLATION THANKS TO PLUG-AND-PLAY ELECTRONICS

All bus systems, regardless whether they are built-in or attached using a gateway, are fully integrated in the B-Studio planning software.

The module has two parts; the lower half is the terminal module. It contains all the plugs you need to connect the wires and fieldbuses. All the electronics are in the top half. This two-part construction gives users a number of advantages. The electronics half can be plugged into the terminal module in a subsequent, separate step. And you don't have to undo any wiring if you need to repair or exchange a component. Initial installation in the wiring cabinet is also more convenient, because you have more space to work with. Electronics modules can be tested in an office space when all the terminal modules are installed.

All terminal models are interconnected by means of the CAB bus. Thanks to the jumpers, this takes place automatically when you attach it to the top-hat rail. The modules can also be addressed fully automatically; no additional configuration is required.

VOLTAGE SUPPLY
120...240 V AC

POWER CONSUMPTION
max. 50 VA

HOUSING DESIGN
REG (DIN 43880)

HOUSING WIDTH
10 TE

OPERATING/STORAGE TEMPERATURE
Ambient temperature
in operation: 0°C...+50°C
Storage temperature: -25°C...+60°C

PROTECTION CLASS
IP20

INTERFACES

DIGITAL INPUTS
4x 230 V AC, 4x 24 V DC

DIGITAL OUTPUTS
2x 24 V AC or 2x 230 V AC
(max. 1 A, configurable)

UNIVERSAL INPUTS/OUTPUTS
4x Universal I/O
each channel is completely configurable:
AI (4–20 mA, 0–10 V, PT1000...)/
DI/DO (max. 400 mA when powered using AUX IN)

KNX
Max. 80 mA
(approx. 10 participants, scalable)

DALI
Max. 64 mA, equal to 8 actuators (each 4 mA) and 4 sensors (each 6 mA, scalable)

ADDITIONAL BUS SYSTEMS
EnOcean, SMI, M-Bus

RS485
2x RS485, half-duplex, max. 19200 Bit/s, 120 Ω Scheduling can be added using a micro-switch, 24 V-Versorgung supply for external sensors or gateways (max. 100 mA)

CAN
1x CAN2.0B, max. 500 kBit/s, galvanically isolated, 120 Ω Scheduling can be added using a micro-switch

ANALOG OUTPUT MODULE
ANO 100

PERFORMANCE SPECIFICATIONS ANO 100:

The ANO100 module provides eight analog outputs in a single compact unit. The channels can be configured as 0–10 V or 0–20 mA.

Product name	Order number
ANO 100 Analog Output Module	278 314

EASY INSTALLATION THANKS TO PLUG-AND-PLAY ELECTRONICS

The module has two parts; the lower half is the terminal module. It contains all the plugs you need to connect the wires and fieldbuses. All the electronics are in the top half. This two-part construction gives users a number of advantages. The electronics half can be plugged into the terminal module in a subsequent, separate step. And you don't have to undo any wiring if you need to repair or exchange a component. Initial installation in the wiring cabinet is also more convenient, because you have more space to work with. Electronics modules can be tested in an office space when all the terminal modules are installed.

All terminal models are interconnected by means of the CAB bus. Thanks to the jumpers, this takes place automatically when you attach it to the top-hat rail. The modules can also be addressed fully automatically; no additional configuration is required.

TECHNICAL DATA ANO 100

VOLTAGE SUPPLY
Using CAB-Bus

HOUSING DESIGN
REG (DIN 43880)

HOUSING WIDTH
3 TE

OPERATING-/STORAGE TEMPERATURE

Ambient temperature in operation:	0°C...+50°C
Storage temperature:	-25°C...+60°C

PROTECTION CLASS
IP20

INTERFACES

ANALOG OUTPUTS
8x 0–20 mA, 0–10 V

UNIVERSAL-I/O-MODULE
UIO 100

PERFORMANCE SPECIFICATIONS UIO 100:

THE UIO100 module provides eight universal I/Os that can be individually configured for analog input, digital input, or digital output. The module also features six additional, dedicated digital inputs.

Product name	Order number
UIO100 Universal-I/O Module	278 311

EASY INSTALLATION THANKS TO PLUG-AND-PLAY ELECTRONICS

The module has two parts; the lower half is the terminal module. It contains all the plugs you need to connect the wires and fieldbuses. All the electronics are in the top half. This two-part construction gives users a number of advantages. The electronics half can be plugged into the terminal module in a subsequent, separate step. And you don't have to undo any wiring if you need to repair or exchange a component. Initial installation in the wiring cabinet is also more convenient, because you have more space to work with. Electronics modules can be tested from an office space when all the terminal modules are installed.

All terminal models are interconnected by means of the CAB bus. Thanks to the jumpers, this takes place automatically when you attach it to the top-hat rail. The modules can also be addressed fully automatically; no additional configuration is required.

TECHNISCHE DATEN UIO 100

VOLTAGE SUPPLY
Using CAB-Bus

HOUSING DESIGN
REG (DIN 43880)

HOUSING WIDTH
5 TE

OPERATING/STORAGE TEMPERATURE

Ambient temperature in operation:	0°C...+50°C
Storage temperature:	-25°C...+60°C

PROTECTION CLASS
IP20

INTERFACES

DIGITAL INPUTS
6x 24 VDC

UNIVERSAL IN-/OUPUTS
8x Universal I/O (each channel is completely configurable):
AI (4–20 mA, 0–10 V, PT1000)/DI/DO
(max. 400 mA when powered using AUX IN)

RELAY MODULE
REL 100

PERFORMANCE SPECIFICATIONS REL 100:

The REL100 module has eight relays, four of which are changers and four are closers. There are also four universal input/output connectors. The module is designed for four jalousies with window contacts.

Product name	Order number
REL100 Relay Module	278 318

EASY INSTALLATION THANKS TO PLUG-AND-PLAY ELECTRONICS

The module has two parts; the lower half is the terminal module. It contains all the plugs you need to connect the wires and fieldbuses. All the electronics are in the top half. This two-part construction gives users a number of advantages. The electronics half can be plugged into the terminal module in a subsequent, separate step. And you don't have to undo any wiring if you need to repair or exchange a component. Initial installation in the wiring cabinet is also more convenient, because you have more space to work with. Electronics modules can be tested from an office space when all the terminal modules are installed.

All terminal models are interconnected by means of the CAB bus. Thanks to the jumpers, this takes place automatically when you attach it to the top-hat rail. The modules can also be addressed fully automatically; no additional configuration is required.

TECHNICAL DATA REL 100

VOLTAGE SUPPLY
Using CAB-Bus

HOUSING DESIGN
REG (DIN 43880)

HOUSING WIDTH
5 TE

OPERATING/STORAGE TEMPERATURE

Ambient temperature in operation:	0°C...+50°C
Storage temperature:	-25°C...+60°C

PROTECTION CLASS
IP20

INTERFACES

RELAYS
4x changer max. 230 VAC max. 6 A

4x changer max. 230 VAC max. 6 A

UNIVERSAL IN-/OUPUTS
4x Universal I/O (each channel is completely configurable):
AI (4–20 mA, 0–10 V, PT1000)/DI/DO
(max. 400 mA when powered using AUX IN)

CONNECTING MODULE
PAT 100

Product name	Order number
PAT 100 Patch Module	259 607

PERFORMANCE SPECIFICATIONS PAT 100:

The PAT 100 connecting module facilitates flexible installation of modules, even in separate rooms. The PAT 100 functions as an extension of the CAB-Bus. Using RJ45 cable you can connect two parts inside the fuse box. Alternatively you can use the LSA clamp provided and stagger modules along an overall length of 100 meters.

HOUSING DESIGN
REG (DIN 43880)

HOUSING WIDTH
1 TE

OPERATING/STORAGE TEMPERATURE

Ambient temperature in operation:	0°C...+50°C
Storage temperature:	-25°C...+60°C

PROTECTION CLASS
IP20

TECHNICAL DATA PAT 100

INTERFACES

LSA
1x cut-and-clamp connector

RJ45
1x RJ45 jack

SOFTWARE
DM 100

PERFORMANCE SCOPE

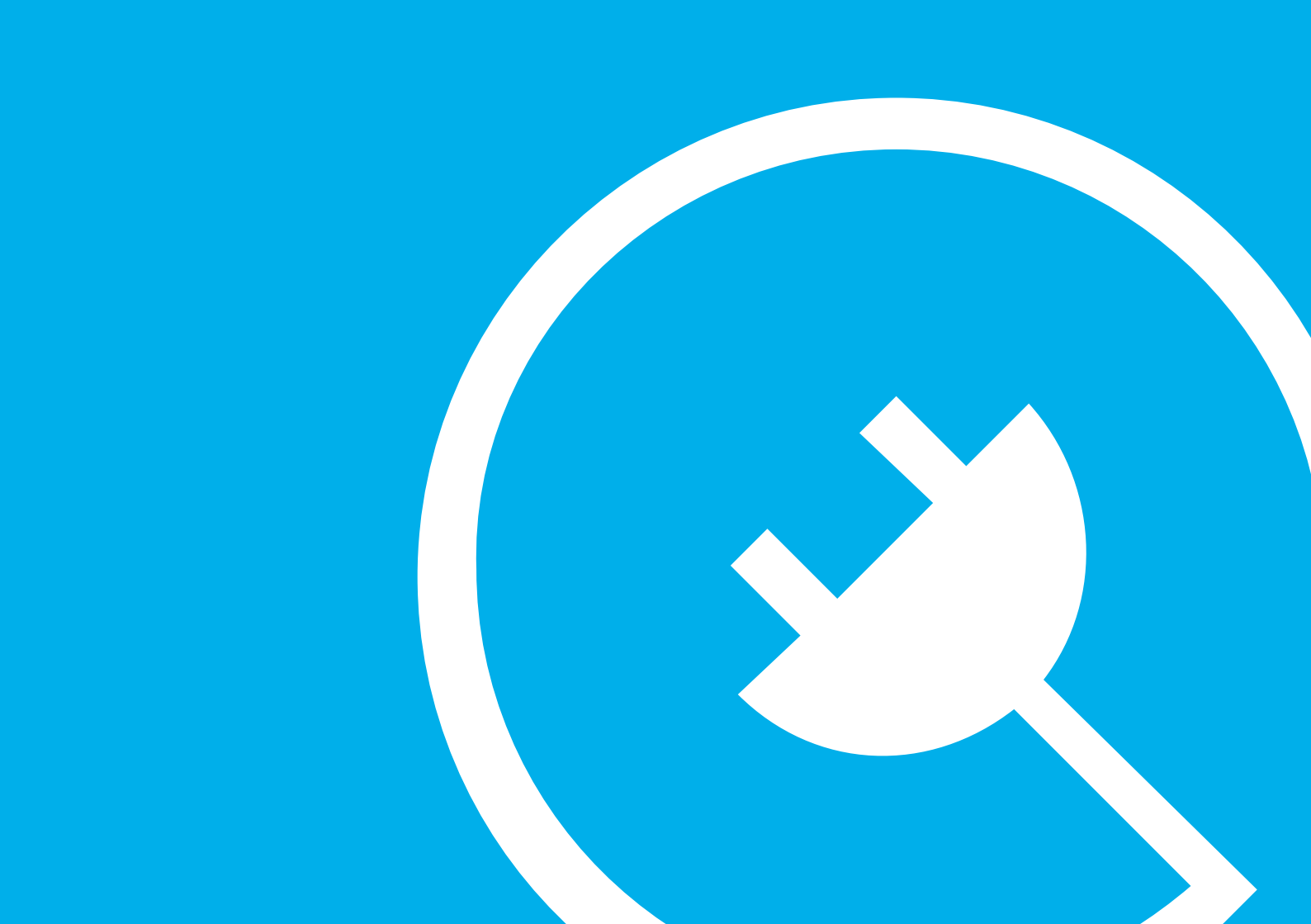
The DM100 is an application library, which provides a flexible demand Side Management in trade and industry. The classical load management of the building is combined with the e-mobility charge management extended. This means that the available energy optimally according to parameterizable rules and priorities on consumers, producers and charging infrastructure and the existing connected load is used efficiently.

REAL AUTOMATION

It is based on the hardware of the automation system product line. B-control for decentralized controls according to IEC-61499 with the corresponding configuration tool B-Studio. The application is defined according to the local conditions in the number of switching points B-DMSlave and charging points B-DMCharge from the DM100 modular solution system are implemented project-specifically.

Product name	Order number
B-VISRUN S	-
B-ARCHIVE L	-
B-EtherCAT	-
B-Mbus	-
B-DMSlave	306942
B-DMCharge	306942

Let´s start into the world of modern energy automation.



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