BELUK

MPFC SERIES

Developed and produced in Germany

To find out more about the equipment or any of its features, please click on the relevant link or image.

BELUK

MPFC-PF

CPR-1

MPFC FAMILY

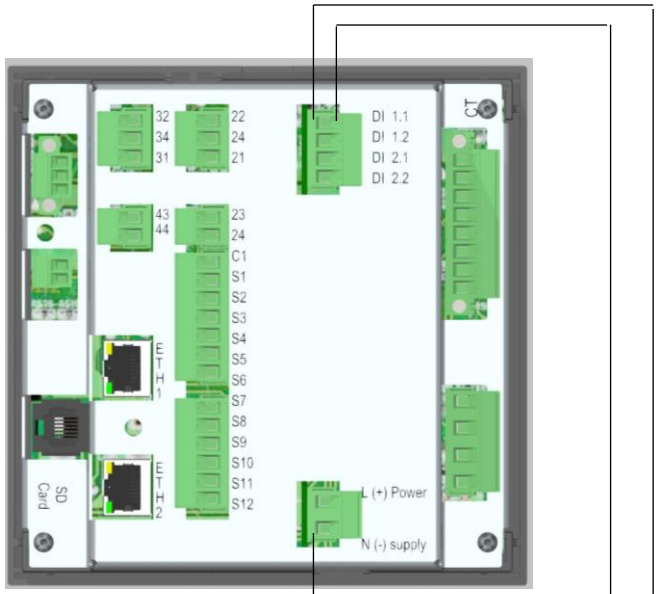
- Event Data Recorder
- Harmonics up to 63
- Supply Inputs
- Configurable CT input
- Modbus
- IEC 61850
- User-programmable alarms
- Display

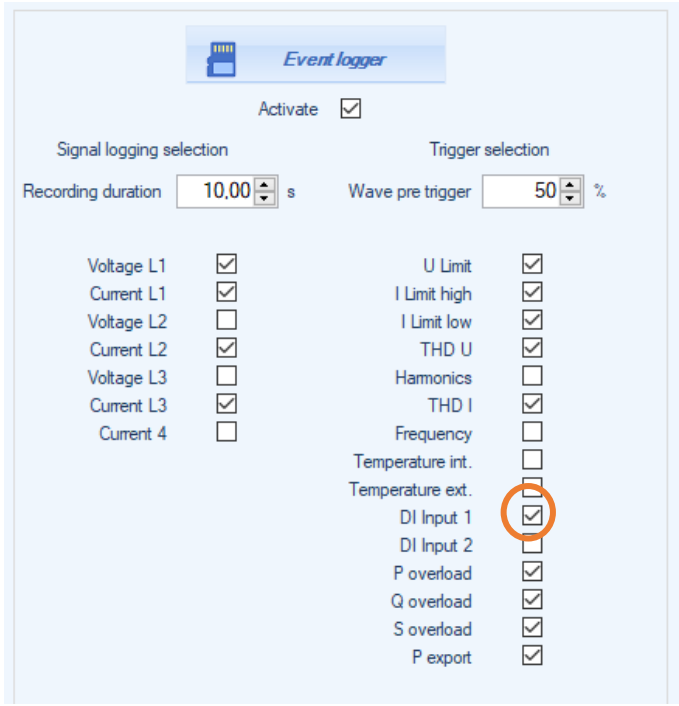
EMM6

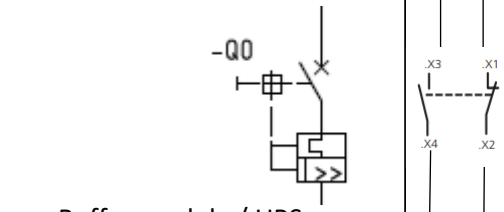
MPFC-UB

Any questions?

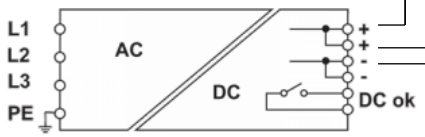
Event Data Recorder







Buffer module / UPS



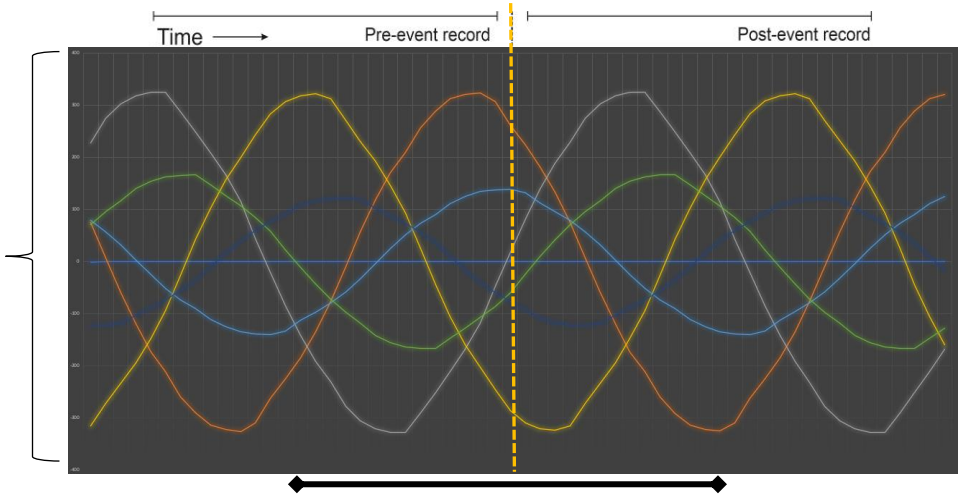
The Event Data Recorder (EDR) in the switchgear is responsible for recording important long-term data. This data is specifically saved for the time immediately before and during an alarm event. After the alarm, it can be retrieved. An SD card is required for this.

e.g. position signal load-break switch

5 seconds **before** alarm event

5 seconds **from** alarm event

Adjustable alarm triggering



Movable recording window e.g. 10 seconds

Selectable recording data

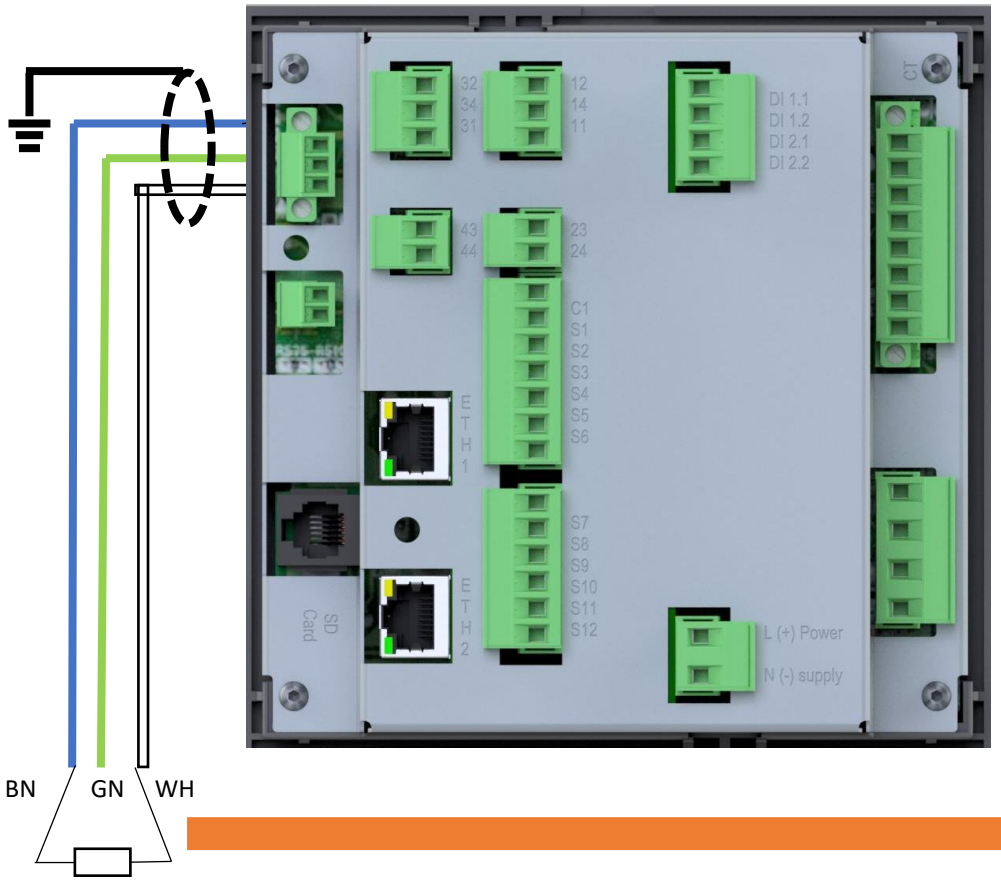
up to a

Sampling rate of **1600 Hz**

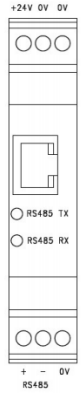
HOME NEXT

Modbus

120 Ohm
Terminating resistor

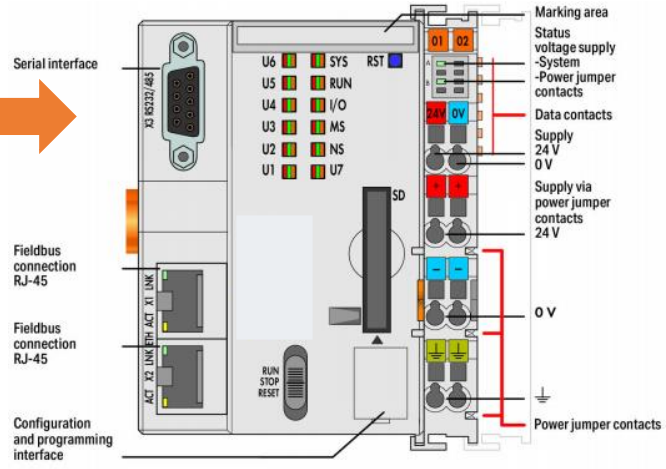


Converter



Converts RS 485 interface to RJ45 **Ethernet**
Modbus **RTU** Protocol –Modbus **TCP/IP** Protocol

PLC



Substation

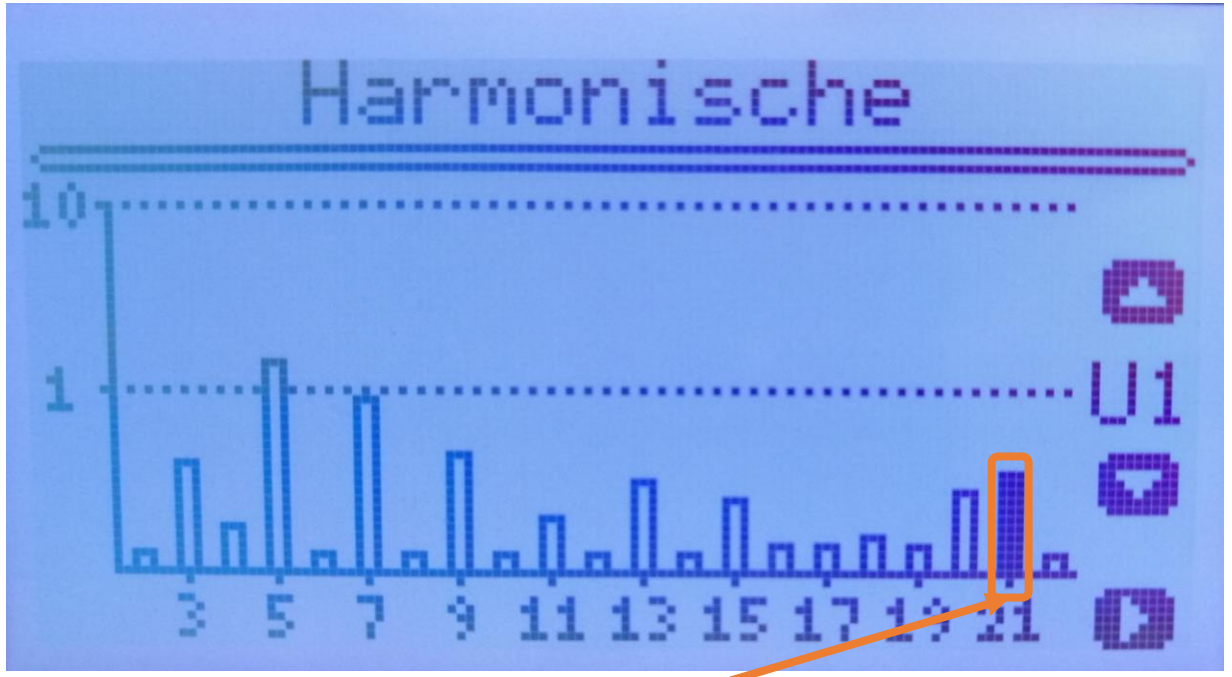
System Monitoring
Energy Management

Modbus RTU
IEC60870-104 protocol - **IEC 61850 Protocol**
Master PLC – **Slave** Power Factor Controller

HOME NEXT

Harmonics up to 63

Application
Limit value exceeded
Mains quality EN50160 or NRS048-2
The harmonics U1, U2, U3
THDI and THDU



If the limit value defined in EN50160 for a single harmonic is exceeded,
the corresponding harmonic in the
Bar graph completely colored.

IEC 61850

IEC 61850 is an international standard for communication and automation in electrical substations for MV and HV, enabling fast and reliable transmission of event data and control commands through the GOOSE protocol (Generic Object-Oriented Substation Event).

Data Set:

MeasVal Report

- DS MeasVal
  - DA PFC/MMXU1.MX.Hz.mag.f
  - DA PFC/MMXU1.MX.PPV.phsAB.cVal.mag
  - DA PFC/MMXU1.MX.PhV.phsA.cVal.mag.f
  - DA PFC/MMXU1.MX.A.phsA.cVal.mag.f
  - DA PFC/MMXU1.MX.A.phsB.cVal.mag.f
  - DA PFC/MMXU1.MX.A.phsC.cVal.mag
  - DA PFC/MMXU1.MX.W.phsA.cVal.mag.f
  - DA PFC/MMXU1.MX.W.phsB.cVal.mag.f
  - DA PFC/MMXU1.MX.W.phsC.cVal.mag.f
  - DA PFC/MMXU1.MX.VAr.phsA.cVal.mag
  - DA PFC/MMXU1.MX.VAr.phsB.cVal.mag.f
  - DA PFC/MMXU1.MX.VAr.phsC.cVal.mag.f
  - DA PFC/MMXU1.MX.VA.phsA.cVal.mag
  - DA PFC/MMXU1.MX.VA.phsB.cVal.mag.f
  - DA PFC/MMXU1.MX.VA.phsC.cVal.mag.f
  - DA PFC/MMXU1.MX.PF.phsA.cVal.mag.f
  - DA PFC/MMXU1.MX.PF.phsB.cVal.mag.f
  - DA PFC/MMXU1.MX.PF.phsC.cVal.mag.f

Counter CounterReport

- DS Counter
  - DA PFC/impMMTR1.ST.TotWh.actVal
  - DA PFC/impMMTR1.ST.TotVArh.actVal
  - DA PFC/expMMTR1.ST.TotWh.actVal
  - DA PFC/expMMTR1.ST.TotVArh.actVal

BankInfo Report BankInfoReport

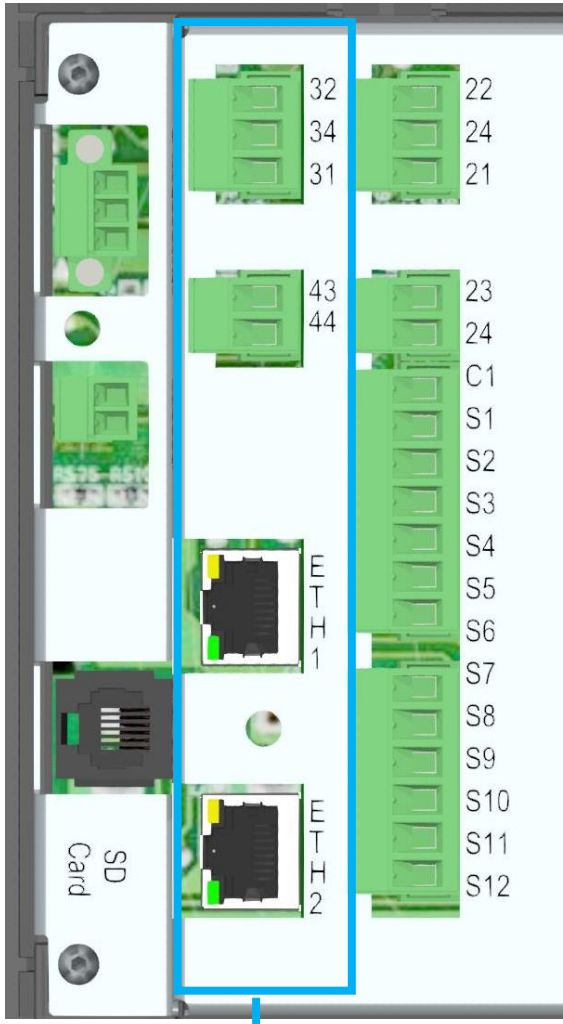
- DS BankInfo
  - DA PFC/ZCAP1.SP.NumSubIntv.setVal
  - DA PFC/ZCAP1.ST.Health.stVal
  - DA PFC/ZCAP2.ST.Health.stVal
  - DA PFC/ZCAP2.SP.NumSubIntv.setVal
  - DA PFC/ZCAP3.ST.Health.stVal
  - DA PFC/ZCAP3.SP.NumSubIntv.setVal
  - DA PFC/ZCAP4.ST.Health.stVal
  - DA PFC/ZCAP4.SP.NumSubIntv.setVal

Error Error Report

- DS Error
  - DA PFC/genPTRC1.ST.Tr.general
  - DA PFC/PUPF1.ST.Str.general
  - DA PFC/PUPF1.ST.Op.general
  - DA PFC/POPF1.ST.Op.general
  - DA PFC/POPF1.ST.Str.general
  - DA PFC/activePowPDUP1.ST.Str.general
  - DA PFC/activePowPDUP1.ST.Op.general
  - DA PFC/reactivePowPDOP1.ST.Op.general
  - DA PFC/reactivePowPDOP1.ST.Str.general
  - DA PFC/activePowPDOP1.ST.Op.general
  - DA PFC/activePowPDOP1.ST.Str.general
  - DA PFC/curPHAR1.ST.Str.general
  - DA PFC/volPHAR1.ST.Str.general
  - DA PFC/phsPTUC1.ST.Op.general
  - DA PFC/phsPTUC1.ST.Str.general
  - DA PFC/phsPTOC1.ST.Op.general
  - DA PFC/phsPTOC1.ST.Str.general
  - DA PFC/PTUV1.ST.Op.general
  - DA PFC/PTUV1.ST.Str.general
  - DA PFC/PTOV1.ST.Str.general
  - DA PFC/PTOV1.ST.Op.general

Communication card

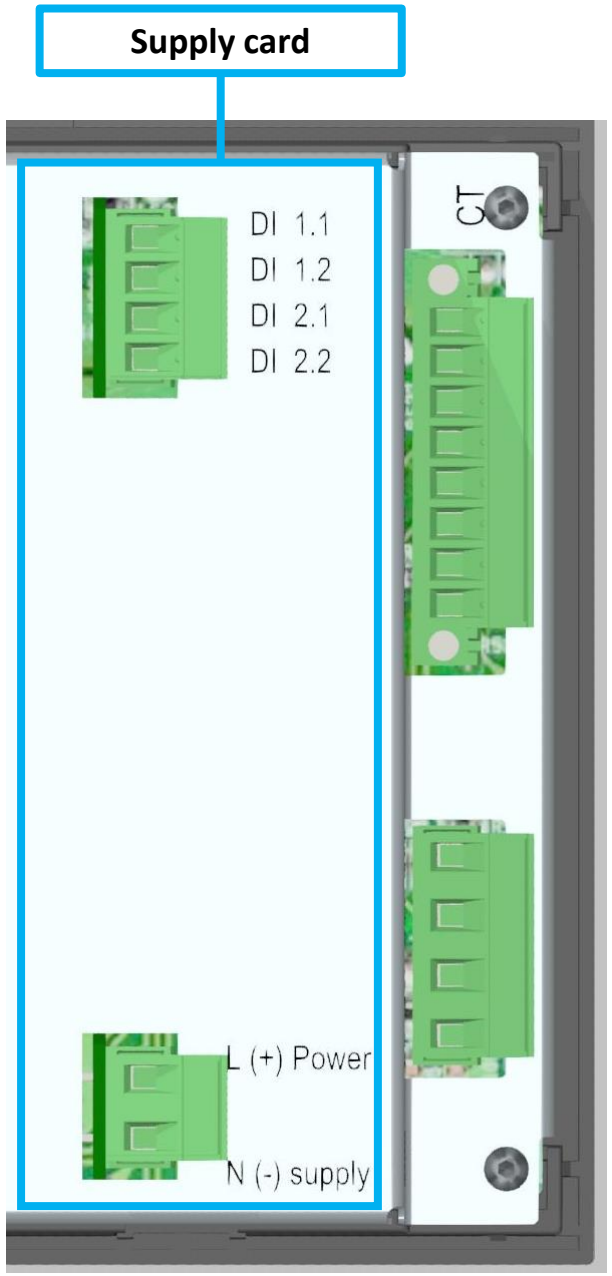
IEC61850 protocol
1 x additional changer
1 x additional Closers



Communication card

HOME NEXT

Supply inputs



Supply card

Variant 1:
90-550 V AC

Overvoltage category

CAT II
Phase - Neutral: 300 – 317V AC
Phase – Phase: 519 – 550V AC

CAT III
Phase - Neutral: < 300V AC
Phase - Phase: < 519V AC

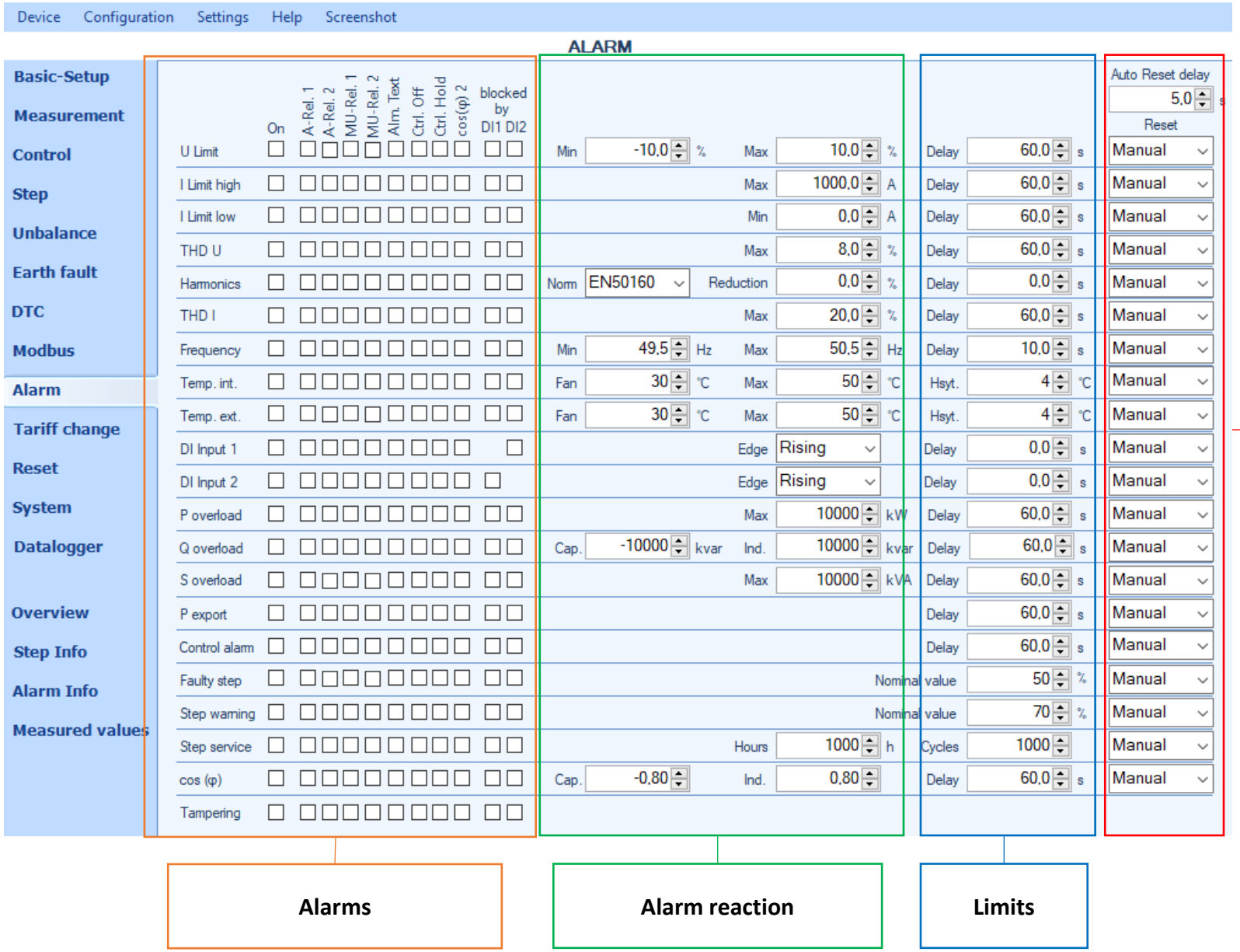
Variant 2:
40 - 220 V DC

Overvoltage category

CAT III
40 – 240 V DC

2 x programmable digital inputs

User-programmable alarms

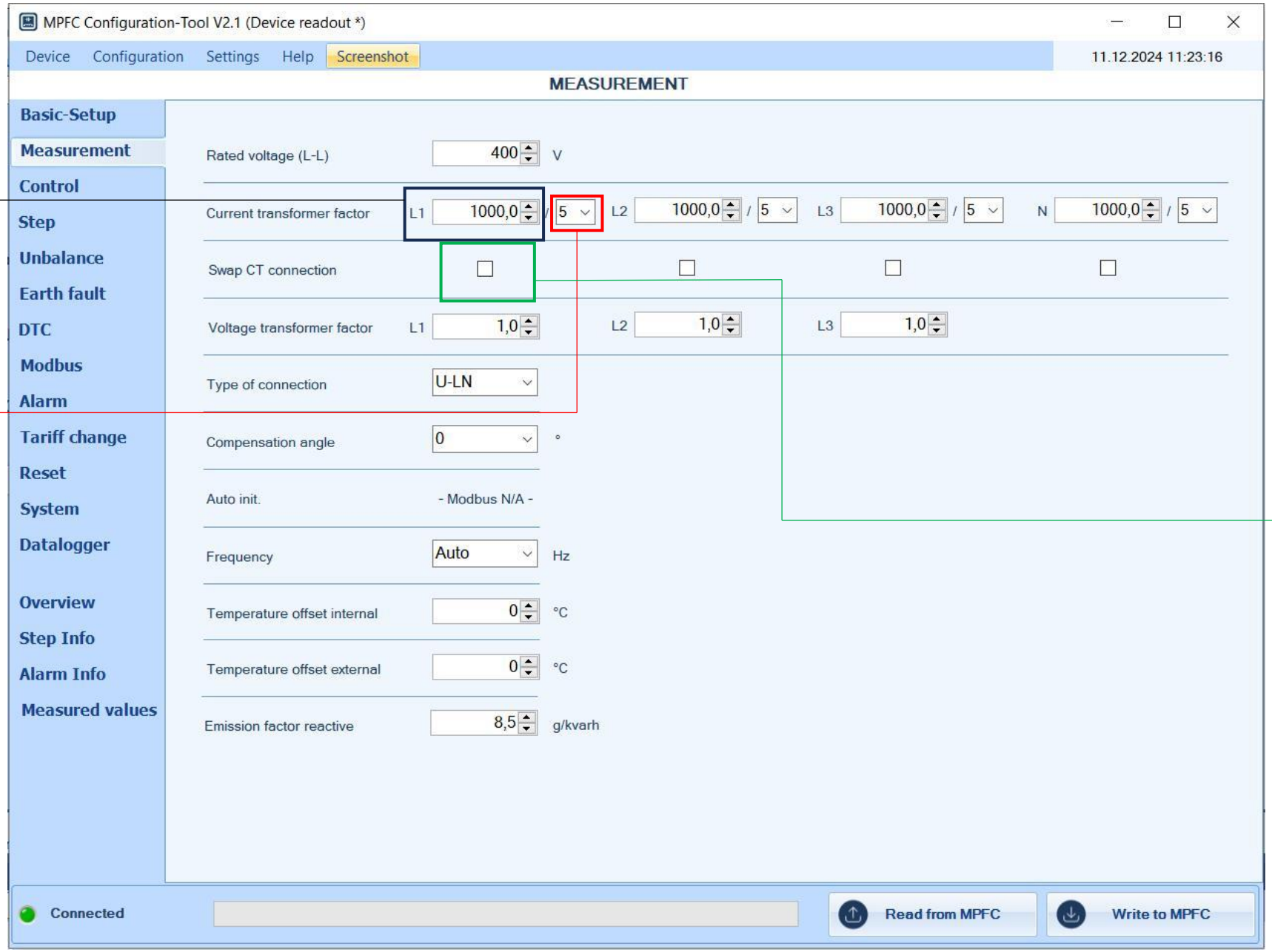


HOME NEXT

Configurable CT input

1-9600 adjustable on the primary side

1 or 5 can be set as secondary



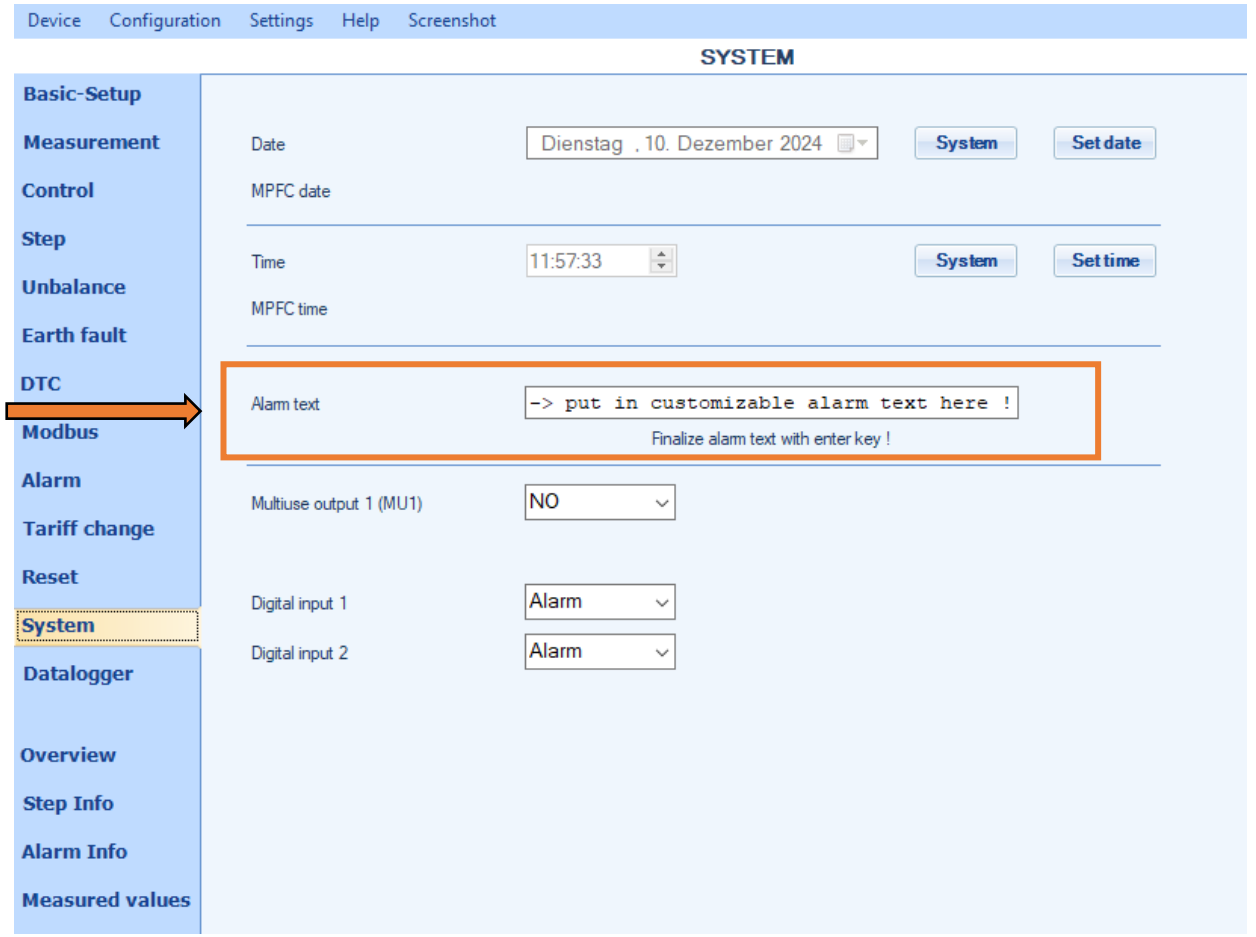
Swap of K and L

HOME NEXT

Display

- Plain text menu
- Measured value display
- Status display
- Alarm display
- Memory function
- Date and time

Option to personalise the alarm text, for example by adding a phone number



HOME NEXT

MPFC-PF

Power factor controller

MPFC-PF

1 phase/ 3phase

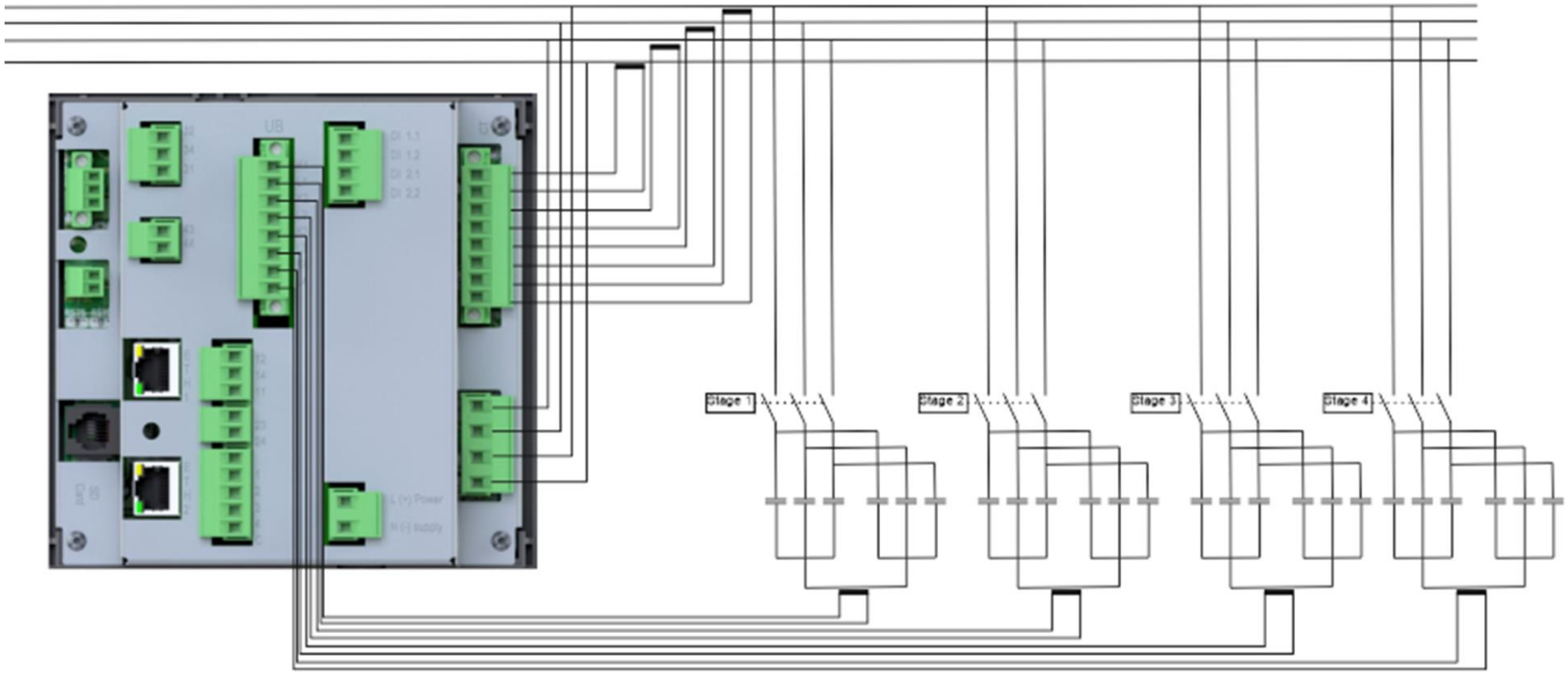
Control:

- Q-Algorithmen Option:
  - Cos phi (U)
  - Cos phi (P)
  - Q(U)
  - Static Q
- Optional self-consumption measurement available
- Slave operation for coupled transformers
- Separate detection of solar systems
- Inductive and capacitive stages
- Up to 26 Steps

MPFC-UB

Unbalanced relays

- For automatic power factor correction up to 4 stages
- Unbalance monitoring for double star
- Monitoring of the mains voltage for voltage harmonics and overvoltage or undervoltage



HOME NEXT

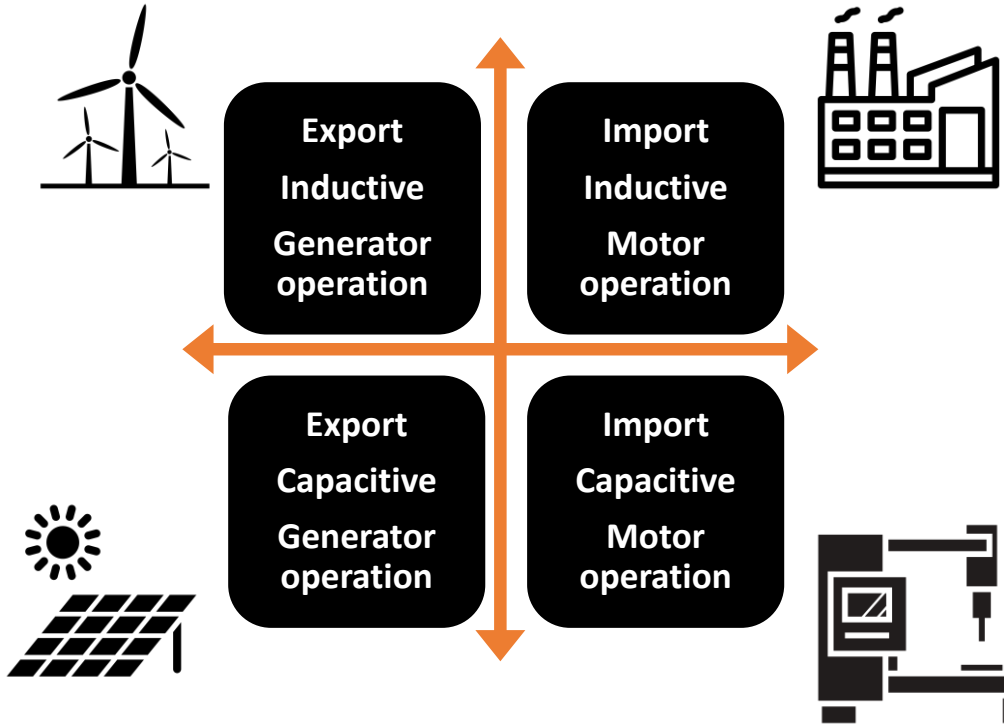
EMM6

Measurment device

Comparison

Differences at a glance:

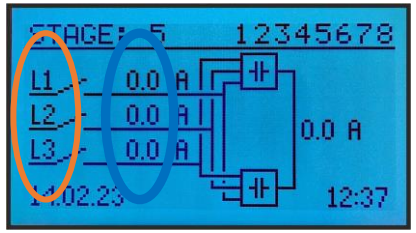
- Colored status display
- Status detection at a glance
- Increase measurement class to Cat 4
- Low response threshold
- External temperature monitoring via NTC22K
- EEPROM ring memory
- Data logger
- Event recorder (sampling rate max. 1600 Hz) in connection with memory expansion with SD card 32GB
- Installation depth (20mm deeper than the EMM5)
- Higher measured value resolution (sampling rate 6.4 kHz)
- IEC61850 communication module
  Ethernet 100 Mbit communication interface



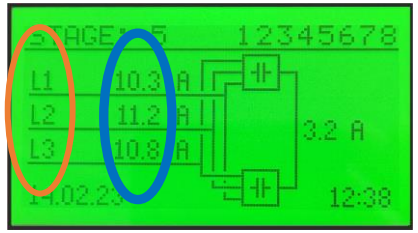
HOME NEXT

CPR-1

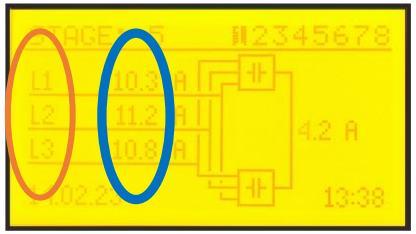
Protection device



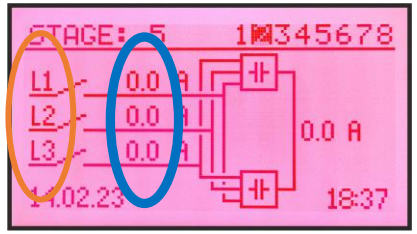
Inactive



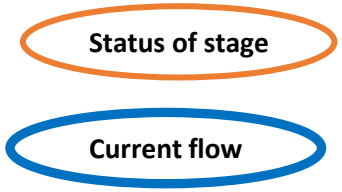
Active

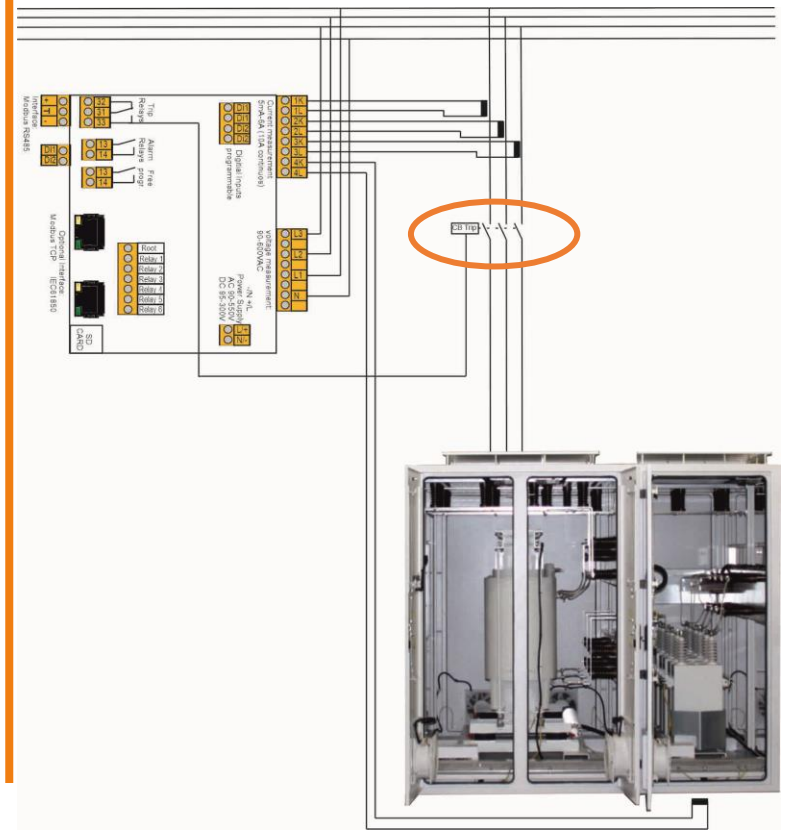


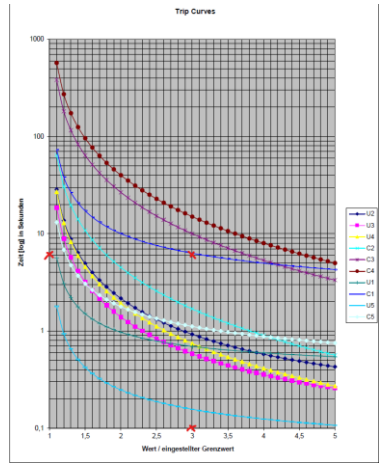
Alarm



Trip





Monitored Values	Alarm settings	Event Delay time
• OL Overload -> ANSI27 • OLth Overload thermal -> ANSI49 • OLf Overload fundamental • UL Underload -> ANSI37 • OV Overvoltage -> ANSI59 • UV Undervoltage -> ANSI27 • UB Unbalance • Earth Fault • VA Voltage Asymetric –> ANSI60P	• Threshold adjustable for each alarm / trip. • Repetitive threshold violation monitoring	• Fixed adjustable time in sec. • Tripping charachteristic ANSI U1-U5 C1-C5 

HOME NEXT

MPFC SERIES

If you have any questions, please do not hesitate to contact us.

The Power Quality Team looks forward to your inquiries and will be happy to advise you!

Stephan Leckel
Managing Director
& Head of Power Quality

Mobile: +49 172 652833
stephan.leckel@beluk.de

Anna-Maria Jais
Technical Support and Sales
Power Quality

Mobile: +49 173 4118152
a.jais@beluk.de

HOME