

Three single-phase current transformer + multi-functional power measuring unit „Quick Connect“



We make energy measurable and take care of your future



www.mbs-ag.com



ZERTIFIKAT ■ CERTIFICATE ■ CERTIFICADO ■ CERTIFICAT ■ 認 證 證 書 ■ ZERTIFIKAT ■ CERTIFICATE ■ CERTIFICADO ■ CERTIFICAT


Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH
certifies that


MBS AG
Eisbachstraße 51
74429 Sulzbach-Laufen
Germany

has established and applies
a Quality Management System for

Development, production and distribution of measuring transducers,
energy meters, low voltage current transformers, split core
current transformers, all current sensors, bus bar isolators / supports,
switchgear cabinet heating and control equipment,
"State approved test organization for measurement and calibration of
current transformers and energy meters".

An audit was performed, Report No. 70003062.
Proof has been furnished that the requirements
according to

ISO 9001:2015

are fulfilled.

The certificate is valid from 2016-03-11 until 2018-03-14.
Certificate Registration No.: 12 100 20346 TMS.


Product Compliance Management
Munich, 2016-03-11



TÜV SÜD Management Service GmbH • Zertifizierungsstelle • Ridlerstraße 65 • 80339 München • Germany
www.tuev-sued.de/certificate-validity-check

TUV[®]

Innovative connection technology to plug three single-phase current transformers to multifunctional power measuring unit

„Quick Connect“



**– Quick – simple – efficient –
Safe and reliable**

Your advantages when choosing „Quick Connect“

- Considerable reduction of working time because of less wiring and installation work
- Vast saving of labour costs through faster wiring
- Elimination of connection errors due to simple „Plug 'n Play“ technology
- Increased safety and less downtime due to integrated protection circuit, which allows to connect the three single-phase current transformers even when the grid is energized
- Large current range from 60 – 1250 A with only three different types of current transformer
- Two multifunctional power measuring units (72x72 mm & 96x96 mm) to select



„Quick Connect“ – the modular power meter system of MBS

How it works:

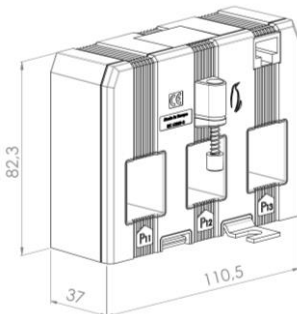
1. Choose current transformer (three construction types, selectable from 60 A up to 1250 A)
2. Define the needed measuring unit (MPR 3 in size 72x72 mm or MPR 4 in size 96x96 mm)
3. Pick the required cable length (0.3 m – max. 5.0 m; standard: 1 m)
4. Send all information to MBS – and you're done!

You have never set the components for a multifunctional power meter system faster.

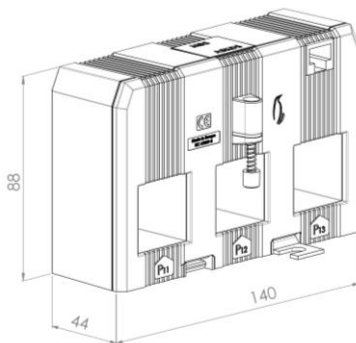
Three single-phase current transformers „ASKDS“ with innovative connection technology „Quick Connect“



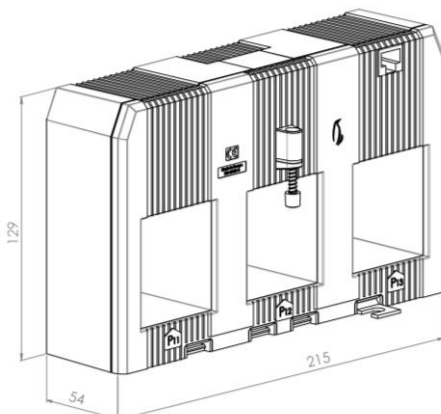
ASKDS 25



ASKDS 33



ASKDS 55



Quick – simple – efficient

- Quicker installation than with three conventional current transformers
- Simpler wiring by 8-pin RJ45-connector, instead of 6 individual wires when using conventional current transformers
- Most efficient set-up of a multifunction power measurement combined with our multifunctional power measuring unit MPR 3 (72x72 mm) or MPR 4 (96x96 mm)

Features / benefits

- Three single-phase current-transformer-set designed for the usage together with our multifunctional power measuring units MPR 3 (72x72 mm) or MPR 4 (96x96 mm)
- Transmission of the measuring signal to the measuring unit using a modified RJ45 bus via a standard-CAT5-patch cable (deliverable in different lengths, max. 5m)
- All current transformers can be operated permanently open, due to a built-in protection circuit
- Three single-phase current transformer-set developed for installation directly in the region of standard circuit breakers

General technical specifications

- Operating temperature: $-10^{\circ}\text{C} < T < +50^{\circ}\text{C}$
- Storage temperature: $-25^{\circ}\text{C} < T < +70^{\circ}\text{C}$
- Therm. nominal continuous rated current I_{ctH} : $1.0 \times I_N$
- Therm. nominal short-time current I_{th} : $60 \times I_N$, 1 sec.
- Max. operating voltage U_m : 1.2 kV
- Isolation test voltage: 6 kV, U_{eff} , 50 Hz, 1 min.
- Output limit under overload: $\leq 2 \times U_{AN}$
- Rated frequency: 50 Hz
- Isolation class: B
- Applicable technical standard: IEC 61869, part 8

Main dimensions

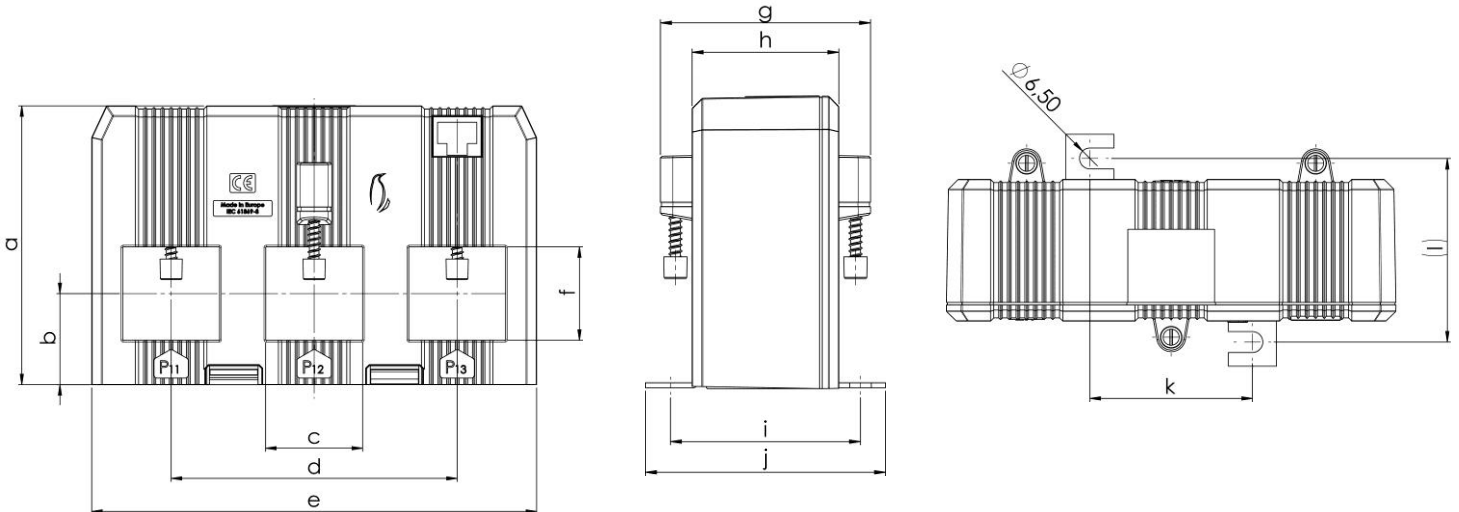
Dimension \ Type	ASKDS 25	ASKDS 33	ASKDS 55
Window dimension (w x h)	21 x 25 mm	30.5 x 29.5 mm	50.2 x 54 mm
Distance between phases	35 mm	45 mm	70 mm
Transformer width	110.5 mm	140 mm	215 mm
Transformer height	82.3 mm	88 mm	129 mm
Transformer depth	56 mm	63 mm	73 mm

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Dimensions



Dimension table

Dim.	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	f [mm]	g [mm]	h [mm]	i [mm]	j [mm]	k [mm]	l [mm]
ASKDS 25	82.3	28.5	21	70	110.5	25	56	37	57	72	35	57
ASKDS 33	88	28.75	30.5	90	140	29.5	63	44	57	72	50.6	57
ASKDS 55	129	46	50.2	140	215	54	73	54	64	79	112.5	64

Order list

„Quick Connect“ with ASKDS 25

Art.-no.	Primary current [A]	Meas. unit	RJ45 cable
150-0001	60	MPR 3	1 m
150-0002	75	MPR 3	1 m
150-0003	100	MPR 3	1 m
150-0004	150	MPR 3	1 m
150-0005	200	MPR 3	1 m
150-0006	250	MPR 3	1 m
150-3301	60	MPR 4	1 m
150-3302	75	MPR 4	1 m
150-3303	100	MPR 4	1 m
150-3304	150	MPR 4	1 m
150-3305	200	MPR 4	1 m
150-3306	250	MPR 4	1 m

Order list

„Quick Connect“ with ASKDS 33

Best.-Nr.	Primary current [A]	Meas. unit	RJ45 cable
150-0007	250	MPR 3	1 m
150-0008	300	MPR 3	1 m
150-0009	400	MPR 3	1 m
150-0010	500	MPR 3	1 m
150-0011	600	MPR 3	1 m
150-3307	250	MPR 4	1 m
150-3308	300	MPR 4	1 m
150-3309	400	MPR 4	1 m
150-3310	500	MPR 4	1 m
150-3311	600	MPR 4	1 m

Order list

„Quick Connect“ with ASKDS 55

Best.-Nr.	Primary current [A]	Meas. unit	RJ45 cable
150-0012	750	MPR 3	1 m
150-0013	800	MPR 3	1 m
150-0015	1000	MPR 3	1 m
150-0015	1200	MPR 3	1 m
150-0016	1250	MPR 3	1 m
150-3312	750	MPR 4	1 m
150-3313	800	MPR 4	1 m
150-3314	1000	MPR 4	1 m
150-3315	1200	MPR 4	1 m
150-3316	1250	MPR 4	1 m

Accessories: - Snap-on mounting for mounting on 35mm DIN-rail (Art.-no.: 55020)
 - QuickFix for quick and easy fixing on primary conductor (Art.-no.: 3x 55021)
 - Further connection cable lengths on request

Accessories: - Snap-on mounting for mounting on 35mm DIN-rail (Art.-no.: 55012)
 - QuickFix for quick and easy fixing on primary conductor (Art.-no.: 3x 55021)
 - Further connection cable lengths on request

Accessories: - Snap-on mounting for mounting on 35mm DIN-rail (Art.-no.: 2x 55011)
 - QuickFix for quick and easy fixing on primary conductor (Art.-no.: 3x 55021)
 - Further connection cable lengths on request

Multifunctional power measuring unit „MPR 3“ with innovative connection technology „Quick Connect“



Features / benefits

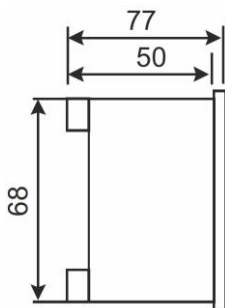
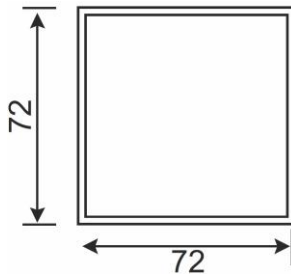
- Simpler wiring of the three single-phase current-transformer-set ASKDS via 330 mV voltage output for equivalent primary current from 60 A to 1250 A
- Alternatively the split-core current transformers type KBR 18/32/44 can be connected by means of a RJ45-adaptor
- Replaces a variety of analogue measuring devices, along with significantly less wiring expenses
- Storage of minimum and maximum values allows monitoring and error analysis
- Due to a digital in- and output as well as a pulse output a connection to a power management system is possible
- Additionally the device has a Modbus-RTU interface (RS485)

Application

Energy is becoming more and more expensive and is thus a steadily growing cost factor.

In order to detect high-level power consumers, MBS AG has developed the multifunctional measuring unit MPR 3 (72x72 mm) and MPR 4 (96x96 mm) in combination with the three single-phase current-transformer-set ASKDS, which are especially designed for monitoring of 3- or 4-line networks in building technology.

All relevant network data can be measured and displayed.



Measurements

The following measurements can be displayed with the multifunctional measuring unit MPR 3:

- The current values for voltage, current, frequency and power factor
 - The active power, apparent power and reactive power for each phase and for the whole grid
 - The minimum and maximum values for voltage, current, active power, reactive power and power factor for each phase and for the whole grid
- Optionally the THD-I and THD-V can be displayed.

Additionally integrated into the device is a 4-quadrant energy meter for the active and reactive energy, two operating hours counters and a rotary field direction display.

One of the operating hours counter can be reset manually.

The device is operated by using four buttons and the menu on the display.

All the outputs given above are galvanically isolated from the measurement inputs and the auxiliary voltage.

Order list

Art.-no.	Pulse output	RS485 (Modbus-RTU)	Digital Input	Digital Output	Alarm	Event logs	Outage records	THD-I	THD-V
99-72001	•	•	1x	1x	•	•	•	•	•

Technical parameters

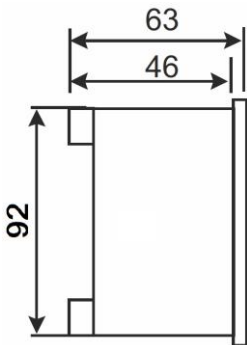
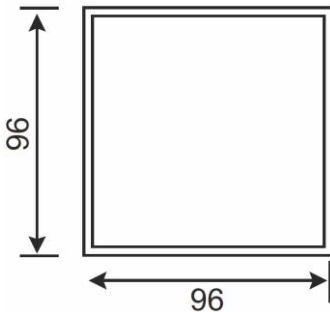
Input	
Input voltage:	10 – 400 V AC L-N (10 – 690 V AC (L-L) (2,5 mm ²))
Input current (U ~ I):	0 – 330 (500) mV via current-transformer-set ASKDS using CAT5 RJ45-cable (alternatively via split-core current transformer type KBR 18/32/44 by means of RJ45-adaptor)
Frequency:	45-65 Hz
Auxiliary supply:	185 – 300 V AC/DC ± 10 % (2,5 mm ²)
Power consumption:	< 5 VA
Housing according to DIN / IEC 61 554 (DIN 43 700)	
Dimensions (W x H x D) / Cut-out:	72 x 72 x 50 mm / 68 ^{+0.7 / -0.0} x 68 ^{+0.7 / -0.0} mm
Weight:	Approx. 230 g
Mounting:	Snap-on mounting for instrument panel thickness ≤ 8 mm
Terminals:	Voltage: Screw terminals Current: 8-pin RJ45-connector
Front panel:	4 control keys
Display:	FSTN LCD-Display with background illumination
Display dimensions (W x H):	2.6"
Environment behaviour	
Operating temperature:	- 10 °C ... + 55 °C
Storage temperature:	- 20 °C ... + 70 °C
Relative humidity:	Up to 90%, non-condensing
Sea level:	Up to 2000 m
Pollution degree:	2, according to EN 61010-1:2011
Operation conditions	
Electrical safety:	According to EN 61010-1:2011; CAT III 300 V
Protection class according to EN 60529:	IP51 Front panel; IP20 Terminals
Max. voltage to earth:	≤ 400 V
EMC	
Emission:	According to EN 55011 Class A; EN 55022 Class B
Susceptibility:	According to EN 61000-4-2, EN 61000-4-3, EN 61000-4-4
Measuring accuracy	
Current, voltage,	0,5 %
Active-, reactive-, apparent power, active energy	1,0 %
Reactive energy	2,0 %
cos φ	0,2 %
Frequency	0,1 %
Output modules	
Pulse output:	Max. 1 pulse output possible
Impulse time:	20, 40, 60, 80, 100, 150, 200, 300, 400, 500 ms
Switch current (pulse output):	Max. 50 mA
Extern voltage (pulse output):	5 ... 48 V
RS485 Modbus-RTU	Max. 1 Modbus module possible (max. ±12 V, 1.5 mm ²)
Baud rate (Modbus):	2400, 4800, 9600, 19200, 38400, 57600, 115200
Address / Parity (Modbus):	1 – 247 / Even, Odd, None
Max. communication range (Modbus):	1200 m (by using repeater)
Digital in- / output	1 Input + 1 Output (5 – 30 V DC, 1,5 mm ²)
Memory	
Internal memory	1 MB
Password protection	
Setting protected by password:	Available

Multifunctional power measuring unit „MPR 4“ with innovative connection technology „Quick Connect“



Features / benefits

- Simpler wiring of the three single-phase current-transformer-set ASKDS via 330 mV voltage output for equivalent primary current from 60 A to 1250 A
- Alternatively the split-core current transformers type KBR 18/32/44 can be connected using the screw terminals of the measuring device
- Replaces a variety of analogue measuring devices, along with significantly less wiring expenses
- Storage of minimum and maximum values allows monitoring and error analysis
- Due to an integrated Modbus-RTU interface (RS485) a connection to a power management system is possible
- Optionally the device can be equipped with an output module, which has the following outputs: 2x digital input; 2x digital output; 2x analogue output; 2x switching output



Application

Energy is becoming more and more expensive and is thus a steadily growing cost factor.

In order to detect high-level power consumers, MBS AG has developed the multifunctional measuring unit MPR 3 (72x72 mm) and MPR 4 (96x96 mm) in combination with the three single-phase current-transformer-set ASKDS, which are especially designed for monitoring of 3- or 4-line networks in building technology.

All relevant network data can be measured and displayed.

Measurements

The following measurements can be displayed with the multifunctional measuring unit MPR 4:

- The current values for voltage, current, frequency and power factor
 - The active power, apparent power and reactive power for each phase and for the whole grid
 - The minimum and maximum values for voltage, current, active power, reactive power and power factor for each phase and for the whole grid
- Optionally the THD-I and THD-V can be displayed.

Additionally integrated into the device is a 4-quadrant energy meter for the real and reactive energy, two operating hours counters and a rotary field direction display.

One of the operating hours counter can be reset manually.

The device is operated by using five buttons and the menu on the display.

All the outputs given above are galvanically isolated from the measurement inputs and the auxiliary voltage.

Order list

Art.-no.	RS485 (Modbus-RTU)	Available output modules	Alarm	Event logs	Outage records	THD-I	THD-U
99-96003	•	Digital in- / output, Relay output, Analogue output, Pulse output	•	•	•	•	•

Technical parameters

Input	
Input voltage:	5 – 277 V AC L-N (5 – 480 V AC L-L) (2.5 mm ²)
Input current (U ~ I):	0 – 330 (500) mV via current-transformer-set ASKDS using CAT5 RJ45-cable (alternatively via split-core current transformer type KBR 18/32/44 using the screw terminals for the measuring device)
Frequency:	50-60 Hz
Auxiliary supply:	50 – 270 V AC/DC ± 10 % (2.5 mm ²)
Power consumption:	< 5 VA
Housing	
Dimensions (W x H x D) / Cut-out:	96 x 96 x 46 mm / 92 ^{+0.8/-0.0} x 92 ^{+0.8/-0.0} mm
Weight:	Approx. 340 g
Mounting:	For instrument panel thickness ≤ 8 mm
Terminals:	Voltage: Screw terminals Current: 8-pin RJ45-connector + screw terminals
Front panel:	5 control keys
Display:	FSTN LCD-Display with background illumination
Display dimensions (W x H):	3.5"
Environment behaviour	
Operating temperature:	- 5 °C ... + 55 °C
Storage temperature:	- 20 °C ... + 70 °C
Relative humidity:	Up to 90%, non-condensing
Sea level:	Up to 2000 m
Pollution degree:	2, according to EN 61010-1:2011
Operation conditions	
Electrical safety:	According to EN 61010-1:2011; CAT III 300 V
Protection class according to EN 60529:	IP51 Front panel; IP20 Terminals
Max. voltage to earth:	≤ 277 V
EMC	
Emission:	According to EN 55011 Class A; EN 55022 Class B
Susceptibility:	According to EN 61000-4-2, EN 61000-4-3, EN 61000-4-4
Measuring accuracy	
Current, voltage	0,5 %
Active-, reactive-, apparent power, active energy	1,0 %
Reactive energy	2,0 %
cos φ	0,2 %
Frequency	0,1 %
Modbus-RTU (RS485) interface	
Baud rate (Modbus):	2400, 4800, 9600, 19200, 38400, 57600, 115200
Address / Parity (Modbus):	1 – 247 / Even, Odd, None
Max. communication range (Modbus):	1200 m (by using repeater)
Optional output module	
Available outputs:	2x DO / 2x DI / 2x analogue output / 2x switching output
Memory	
Internal memory	16 MB
Password protection	
Setting protected by password:	Available

Split-core current transformer, type KBR



Features / benefits

- Perfect for subsequent assembly into already existing installations
- Due to the „click“-system even a one-hand mounting is possible
- Deliverable as a current sensor (0...333 mV)
- Using plug adaptor a quick and easy connection of three split-core current transformers to the measuring unit MPR 3 is possible
- The measuring unit MPR 4 has separate screw terminals for direct connection
- "Quick connect" compatible
- Three different construction types

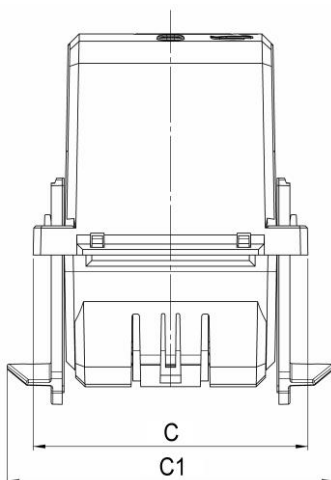
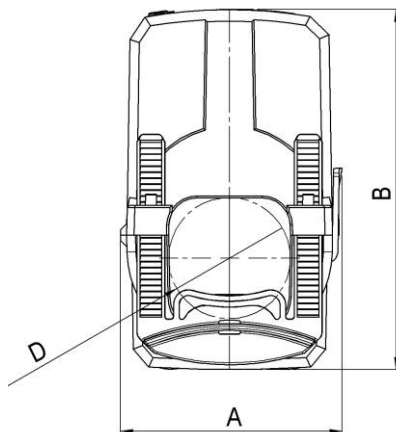
General technical specifications

- Length of connection cable: 0...333 mV: 2.5 m, cross section 2x0.75 mm²
- Operating temperature: -5°C < T < +50°C
- Storage temperature: -25°C < T < +70°C
- Therm. nominal continuous rated current I_{cth} : 1.2 x I_N
- Therm. nominal short-time current I_{th} : 60 x I_N , 1 sec.
- Max. operating voltage U_m : 0.72 kV
- Isolation test voltage: 3 kV, U_{eff} , 50 Hz, 1 min.
- Rated frequency: 50 Hz
- Isolation class: E
- Applicable technical standard: DIN EN 61869, part 1 + 2



Dimensions

Type	A (width) [mm]	B (height) [mm]	C / C1 (depth) [mm]	D (diameter) [mm]
KBR 18	41.6	64.5	55 / 67.3	18.5
KBR 32	59.2	96.4	75 / 89.2	32.5
KBR 44	72.2	120.6	85 / 98.1	44



Order list

Current transformer type	KBR 18	KBR 32	KBR 44
Output	0...333 mV AC	0...333 mV AC	0...333 mV AC
Primary current [A]	Accuracy class	Accuracy class	Accuracy class
	1	1	1
	Art.-no.	Art.-no.	Art.-no.
50	18-1001		
75	18-1006		
100	18-1011	32-1011	
125	18-1016	32-1026	
150	18-1021	32-1021	
200	18-1026	32-1026	
250	18-1031	32-1031	44-1001
300		32-1034	44-1006
400		32-1036	44-1011
500		32-1038	44-1016
600		32-1040	44-1021
750			44-1026
800			44-1031
1000			44-1036

RJ45 adaptor for connection to measuring unit MPR 3: Art.no.: RJ45-A

MBS – Wir machen Energie messbar

MBS – We Make Energy Measurable

Auf dem Energieübertragungsweg zwischen Kraftwerk und Verbraucher ist an einer Vielzahl von Messstellen die korrekte Erfassung der Stromstärken notwendig. Dies erfolgt mit Hilfe von Stromwandlern. MBS produziert ein umfangreiches Sortiment an Niederspannungs- und Mittelspannungs-Stromwandlern für Mess- und Schutzzwecke.

When transferring energy from power station to consumer, it is essential to ensure the correct collection of amperages at a multiplicity of measuring points. This is done by means of current transformers. MBS produces an extensive assortment of low- and medium voltage current transformers for measuring and protection purposes.

10 Reasons for MBS

- ✓ Customer oriented solutions
- ✓ Individual consultancy and product training
- ✓ Satisfied customers in all continents
- ✓ Product range with more than 28,000 articles
- ✓ International licenses and approvals
- ✓ Supreme technical quality
- ✓ State approval for calibration of energy meters and accurate measurement acc. to latest calibration law
- ✓ Reliability
- ✓ Fast deliveries
- ✓ Experience since 1977



- Current transformers for industry
- Current transformers for tariff
- Accessories for current transformers
- Medium-voltage CTs
- Bus bar insulators / -supports
- Shunts
- Voltage transformers
- All current sensors
- Measuring transducers
- Energy meters with or without MID approval
- Accessories for energy meters
- Panel board heaters, filter fans, roof fans and control units



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