



# Accessories for the mobile Power Quality Analyzers PQ-Box family

Oct-19



Accessories for PQ-Box family



| Rogowski coil set CAT IV 600V |
|-------------------------------|
|-------------------------------|

Current range: 1A to 3000A RMS, Accuracy: 1% size: 61 cm (24"), <u>set of 4 pieces</u> Diameter = 194mm, Rogowski clamp head = 9,9mm Frequency range: 10Hz to 20kHz

#### Order code: 111.7001

#### Rogowski coil set CAT IV 600V

Current range: 1A to 6000A RMS, Accuracy: 1% size: 91 cm ( 36" ), set of 4 pieces Diameter = 290mm, Rogowski clamp head = 9,9mm Frequency range: 10Hz to 20kHz

#### Order code: 111.7006

#### Rogowski coil set CAT IV 600V

Current range: 1A to 500A RMS; Accuracy: 1% size: 22 cm (9"), <u>set of 4 pieces</u> Diameter = 70mm, Rogowski clamp head = 6,1mm Frequency range: 10Hz to 50kHz





| Current clamp 4 probes CAT III 600V<br>MU-Metal clamp with two switchable measurement ranges,<br>15 mm inner diameter, <u>set of 4 pieces</u><br>(high precision – low angle error)<br>Switchable measurement range 020A200A<br>Order code: 111.7015 |   |
|--|---|
| Current clamp 4 probes CAT III 600V<br>Current clamp, 15 mm inner diameter, <u>set of 4 pieces</u><br>Measurement range 050A<br>Order code: 111.7035   | O |
| Current clamp 3 probes CAT III 600V<br>MU-Metal Current clamp, 15 mm inner diameter<br>set of 3 pieces , (special export edition)<br>Measurement range 020A<br>Order code: 111.7003  |   |



| Accessoires   |  |
|---|--|
| Extension cable<br>for current clamps & Rogowski Coils<br>5m length, for 7-pole Amphenol plug, IP65                 |  |
| Order code: 111.7025  |  |
| Adapter cable set<br>with 4 mm banana plugs for connection<br>of AC / DC clamp (111.7020) and other<br>manufacturer |  |
| Order code: 111.7004  |  |
| Current clamp one probe:  |  |
| 10mA5A (100mV/A) AC, 4 mm banana plugs  |  |
| Note: Adapter cable, order code 111.7004 is<br>necessary  |  |
| Order code: 111.7043  |  |



#### AC / DC Current clamp (set)

One Current clamp with switchable measurement ranges 60A / 600 A (600mV output), power supply for permanent supply and two 4mm adapter sockets for adapter cable set.

The adapter cable set 111.7004 is required additionally and has to be ordered separately.

| Order code: 111.7094                                 |              |
|--|--------------|
| Magnetic voltage probe, 7mm                          |              |
| with 4 mm safety plug (3 x red,1 x blue) 7mm         | <b>***</b> * |
| Order code: 111.7008                                 |              |
| Magnetic voltage probe, 6mm                          | A n          |
| with 4 mm safety plug (3 x black, 1 x blue) 6mm      |              |
| Order code: 111.7045                                 |              |
| Test plug  |              |
| with 4 mm safety banana sockets for voltage          | A Mo         |
| Measurement at grounding receptacle universal socket |              |
| Order code: 582.0509                                 |              |



| Accessoires   |  |
|---|--|
| <u>Variogrip – voltage tap</u>                            |  |
| Adjustable voltage tap for hexagon socket screws, 5mm.    |  |
| Order code: 111.7051                                      |  |
| <u>Variogrip – voltage tap</u>                            |  |
| Adjustable voltage tap for hexagon socket screws, 6mm.    |  |
| Order code: 111.7052                                      |  |
| <u>Grip F – voltage tap</u>                               |  |
| Adjustable voltage tap for power bars, 030mm              |  |
| Order code: 111.7053                                      |  |
| Clutch – voltage tap                                      |  |
| Voltage tap for fast and reliable contact of pins / bolts |  |
| Order code: 111.7065                                      |  |
| Spring Grabber- voltage tap                               |  |
| Voltage tap for fast and reliable contact of pins / bolts |  |
| Order code: 111.7066                                      |  |
| Test Tap – voltage tap                                    |  |
| Voltage tap for fast and reliable contact of sockets      |  |
| Order code: 111.7067                                      |  |



| Accessoires   |      |
|---|------|
| Fuse voltage probe  |      |
| High performance fuse (1A) with both sides 4mm<br>banana plugs usage with voltage measurement<br>cables of PQ-Box 100.            |      |
| Order code: 111.7014 .02  |      |
| Dolphin clamps  |      |
| For tapping the measuring voltage for the PQ-Box.<br>The set contains: 3x red, 1x blue, 1x green clamps<br>1000 V, CAT III / 32 A |      |
| Order code: 111.7024  |      |
| Extension of measuring lead   |      |
| To extant the measuring lead of the PQ-Box.<br>Length: 2m   | 1000 |
| Order code: 111.7054.00, black  |      |
| 111.7054.01, red<br>111.7054.02, blue   |      |



| Accessoires   |                       |
|---|-----------------------|
| Label set for measurement stripes<br>Label set, different colored, to tag measurement stripes<br>for international use. |                       |
| Order code: 111.7044  |                       |
| Measuring adapter 400V, CAT III   |                       |
| Adapter 5-phases including plug ( <b>32 A</b> ) and conductor to measure the voltage and current values.                |                       |
| 4 mm banana plugs to connect measurement stripes  |                       |
| Order code: 111.7042  |                       |
| Measuring adapter 400V, CAT III   |                       |
| Adapter 5-phases including plug ( <b>16 A</b> ) and conductor to measure the voltage and current values.                |                       |
| 4 mm banana plugs to connect measurement stripes  | - State of the second |
| Order code: 111.7068  |                       |



| Measuring adapter, 3-phase, 230V, CAT II<br>Adapter 3-phases including plug and conductor to measure<br>the voltage and current values.<br>4 mm banana plugs to connect measurement stripes<br>Order code: 111.7056   |  |
|---|--|
| <u>Test plug</u><br>with 4 mm safety banana sockets for voltage<br>Measurement at 16A CEE socket<br>Order code: 111.7072  |  |
| <u>Test plug</u><br>with 4 mm safety banana sockets for voltage<br>Measurement at 32A CEE socket<br>Order code: 111.7073  |  |
| GPS Clock for PQ-Box<br>radio controlled GPS-clock, RS232 for PQ-Box<br>U <sub>h</sub> : H1 or H2, with accessory<br>Order code: 111.9024.47 (H1)<br>H1: external AC 85V110V264V/DC88V220V280V<br>Order code: 111.9024.48 (H2)<br>H2: external DC 18V 60V 72V |  |



| Accessoires       |                                       |                            |         |
|-------------------|---------------------------------------|----------------------------|---------|
| <u>USB – RJ45</u> | extension cable                       |                            |         |
| Extension         | of USB cable via RJ 45, max 45        | īm                         |         |
| Order code        | e: 111.9030.51                        |                            |         |
| <u>USB - Ethe</u> | rnet Adapter                          |                            |         |
| for remote        | readout (only PQ-Box 100)             |                            | State   |
| Order code        | 2: 111.9030.43                        |                            |         |
|                   | nection for TCP interface             | UMTS                       | TOSIBOX |
| Order code        | 2:                                    |                            | Tosieox |
| Basic Unit:       | Tosibox Lock 100,                     | 111.9030.55                |         |
| Stick:            | Tosibox Key 200,                      | 111.9030.70                |         |
| Modem:            | USB-UMTS(3G) Modem,                   | 111.9030.54                |         |
|                   | Antenna adapter (3G),                 | 111.9030.58                |         |
|                   | USB-LTE (4G) Modem,                   | 111.9030.63                |         |
| Antonno           | Antenna adapter (4G),                 | 111.9030.64                |         |
| Antenna:          | Antenna, 8m cable,<br>Extension, 10m, | 111.9030.59<br>111.9030.60 |         |



#### **LEMP Isolation cover**

Small LEMP Isolation cover for PQ-Box 100 (only!) to cover measurement equipment during recording at the house connection box.

A simple and really rough case of a weak and steady isolation material allows a maximum way of safety. The cover could be locked by a locker, cable connector or seal at the cable sleeves.

Dimensions: 450x 250x250 mm

Order code: 111.7012

#### LEMP Isolation cover for PQ-Box, small

LEMP Isolation cover for PQ-Box to cover measurement equipment during recording at house connection-box.

A simple and really rough case of a weak and steady isolation material allows a maximum way of safety.

The cover could be locked by a locker, cable connector or seal at the cable sleeves.

Dimensions: 470x300x240 mm

Order code: 111.7071

LEMP Isolation cover for PQ-Box, large

LEMP Isolation cover for PQ-Box to cover measurement equipment during recording at house connection-box.

A simple and really rough case of a weak and steady isolation material allows a maximum way of safety.

The cover could be locked by a locker, cable connector or seal at the cable sleeves.

Dimensions: 735x435x240 mm







| Accessoires   |  |   |
|---|--|---|
| Calib Box<br>Calibration set for PQ-Box 100/150/200/300 for<br>connecting a calibrator, (default 230V).<br>Adjustment of all U / I inputs via software<br>with report<br>Order code: 111.7039   |  |   |
| Factory calibration current<br>Measurement points: 1A, 5<br>Order code: 200.0101  |  | Prüfbescheinigung<br>Test certificate   |
| Factory calibration rogowski coil set<br>Measurement points: 250A, 500A, 1000A<br>Order code: 200.0102  |  | Prüfbescheinigung<br>Test certificate   |
| DAkkS calibration of PQ-Box<br>Depending on the complexity of the desired measurement<br>points and test accessories.<br>The PQ-Box, current clamp and / or rogowski coil is checked<br>by an external calibration laboratory and returned with<br>report document. |  | esz AG calibration & metrology<br>akkreditiert durch die / accredited by the<br>Deutsche Akkreditierungsstelle GmbH<br>als Kalibrierlaboratorium im / as calibration laboratory in the<br>Deutschen Kalibrierdienst |
|   | Order code: 200.0201   |   |
| PQ-Box  |  |   |
| -   | Order code: 200.0202   |   |
| <u>current clamp set</u><br><u>rogowski coil set</u>  |  |   |
| <u>current clamp set</u><br><u>rogowski coil set</u><br>PQ-Box with   | Order code: 200.0202<br>Order code: 200.0203                         |   |
| <u>current clamp set</u><br><u>rogowski coil set</u><br>PQ-Box with<br><u>current clamp set</u>   | Order code: 200.0202   |   |
| <u>current clamp set</u><br><u>rogowski coil set</u><br>PQ-Box with<br><u>current clamp set</u><br>PQ-Box with  | Order code: 200.0202<br>Order code: 200.0203<br>Order code: 200.0204 |   |
| <u>current clamp set</u><br><u>rogowski coil set</u><br>PQ-Box with<br><u>current clamp set</u>   | Order code: 200.0202<br>Order code: 200.0203                         |   |



| Accessories   |  |
|---|--|
| Carrying box PQ-Box 50  |  |
| Carrying box with forms for PQ-Box 50 and accessories.<br>Case dimensions 450x 360x 123mm<br>Plastic material, color black, Weight 1500 g   |  |
| Order code: 582.0040  |  |
| Carrying bag PQ-Box 50<br>Carrying bag, textile with forms for PQ-Box 50 and accessories<br>Bag dimensions 420x 340x 85mm<br>Weight 1.300 g | Pa Bin 10<br>autor   |
| Order code: 582.0032.01   |  |
| Protection cover<br>Protection cover for PQ-Box 50<br>A simple and really rough case to protect your PQ-Box 50.<br>Material color black     |  |
| Order code: 564.0515  |  |
| Battery- Pack for PQ-Box 50<br>For PQ-Box 50  | A series and a s |
| Order code: 570.0015  |  |



| Accessoires   |                                       |
|---|---------------------------------------|
| <u>PQ-Box 50 Upgrade</u>  | PQ-Box 50                             |
| Basic (B0) to Light (B1)  | PQ-Box 50                             |
| <b>Order code: 900.9298</b>   | Upgrade: Basic - Light                |
| Note: serial number required  | Feature: B1                           |
| <u>PQ-Box 0 Upgrade</u>   | PQ-Box 50                             |
| Light (B1) to Expert (B2)   | PQ-Box 50                             |
| Order code: 900.9299  | Upgrade: Light to Expert              |
| Note: serial number required  | Feature: B2                           |
| PQ-Box 50 Upgrade   | PQ-Box 50                             |
| Basic (B0) to Expert (B2)   | PQ-Box 50                             |
| Order code: 900.9297  | Upgrade: Basic to Expert              |
| Note: serial number required  | Feature: B2                           |
| <u>PQ-Box 50 Upgrade</u>  | PQ-Box 50                             |
| Ripple control analysis (R0) to (R1)  | PQ-Box 50                             |
| Order code: 900.9296  | Upgrade: RSA                          |
| Note: serial number required  | Feature: R1                           |
| PQ-Box 50, Service package I<br>Recalibration with certificate and inspection sticker<br>Order code: 200.0013 | Prüfbescheinigung<br>Test certificate |



| Accessories  |                     |
|--|---------------------|
| Carrying box PQ-Box 100<br>Carrying box with forms for PQ-Box 100 and accessories.<br>Case dimensions 534x 427x 157mm<br>Plastic material, Weight 3.900 g                |                     |
| Order code: 582.0033   |                     |
| Carrying bag PQ-Box 100<br>Carrying bag, textile with forms for PQ-Box 100 and accessories<br>Bag dimensions 420x 340x 85mm<br>Weight 1.300 g<br>Order code: 582.0032.01 | Po-Box 10<br>a sime |
| Protection cover<br>Protection cover for PQ-Box 100<br>A simple and really rough case to protect your PQ-Box 100.<br>Material color orange<br>Order code: 564.0500       |                     |



| Accessoires   |                                       |  |  |  |
|---|---------------------------------------|--|--|--|
| <u>PQ-Box 100 Upgrade</u>   | PQ-Box 100                            |  |  |  |
| Basic (B0) to Light (B1)  | PQ-Box 100                            |  |  |  |
| <b>Order code: 900.9090</b>   | Upgrade: Basic - Light                |  |  |  |
| Note: serial number required  | Feature: B1                           |  |  |  |
| <u>PQ-Box 100 Upgrade</u>   | PQ-Box 100                            |  |  |  |
| Light (B1) to Expert (B2)   | PQ-Box 100                            |  |  |  |
| Order code: 900.9091  | Upgrade: Light to Expert              |  |  |  |
| Note: serial number required  | Feature: B2                           |  |  |  |
| PQ-Box 100 Upgrade  | PQ-Box 100                            |  |  |  |
| Basic (B0) to Expert (B2)   | PQ-Box 100                            |  |  |  |
| Order code: 900.9093  | Upgrade: Basic to Expert              |  |  |  |
| Note: serial number required  | Feature: B2                           |  |  |  |
| PQ-Box 100 Upgrade  | PQ-Box 100                            |  |  |  |
| Ripple control analysis (R0) to (R1)  | PQ-Box 100                            |  |  |  |
| Order code: 900.9092  | Upgrade: RSA                          |  |  |  |
| Note: serial number required  | Feature: R1                           |  |  |  |
| PQ-Box 100, Service package I<br>Recalibration with certificate and inspection sticker<br>Order code: 200.0001                                      | Prüfbescheinigung<br>Test certificate |  |  |  |
| PQ-Box 100, Service package II<br>Recalibration with certificate and inspection sticker<br>New Akku<br>New SD-Karte, 2GByte<br>Order code: 200.0002 | Prüfbescheinigung<br>Test certificate |  |  |  |



| Zubehör   |                              |
|---|------------------------------|
| Carrying box PQ-Box 150<br>Carrying box with forms for PQ-Box 150 and accessories.<br>Case dimensions 534x 427x 157mm<br>Plastic material, Weight 3.900 g<br>Order code: 582.0038 |                              |
| <u>PQ-Box 150 Upgrade</u>   | PQ-Box 150                   |
| Basic (B3) to Basic+ (B2)   | PQ-Box 150                   |
| Order code: 900.9398  | Upgrade: Basic to Basic+     |
| Note: serial number required  | Feature: B3 → B2             |
| <u>PQ-Box 150 Upgrade</u>   | PQ-Box 150                   |
| Basic+ (B2) to Light (B0)   | PQ-Box 150                   |
| Order code: 900.9390  | Upgrade: Basic+ to Light     |
| Note: serial number required  | Feature: $B2 \rightarrow B0$ |
| <u>PQ-Box 150 Upgrade</u>   | PQ-Box 150                   |
| Light (B0) to Expert (B1)   | PQ-Box 150                   |
| <b>Order code: 900.9391</b>   | Upgrade: Light to Expert     |
| Note: serial number required  | Feature: $B0 \rightarrow B1$ |
| <u>PQ-Box 150 Upgrade</u>   | PQ-Box 150                   |
| Basic+ (B2) auf Expert (B1)   | PQ-Box 150                   |
| <b>Order code: 900.9393</b>   | Upgrade: Basic+ to Expert    |
| Note: serial number required  | Feature: B2 → B1             |
| <u>PQ-Box 150 Upgrade</u>   | PQ-Box 150                   |
| Basic (B3) to Light (B0)  | PQ-Box 150                   |
| <b>Order code: 900.9399</b>   | Upgrade: Basic to Light      |
| Note: serial number required  | Feature: B3 → B0             |
| <u>PQ-Box 150 Upgrade</u>   | PQ-Box 150                   |
| Basic (B3) auf Expert(B1)   | PQ-Box 150                   |
| <b>Order code: 900.9400</b>   | Upgrade: Basic to Expert     |
| Note: serial number required  | Feature: B3 → B1             |



| Zubehör  |                                       |
|--|---------------------------------------|
| <u>PQ-Box 150 Upgrade</u>  | PQ-Box 150                            |
| Ripple control analyses (R0) to (R1)   | PQ-Box 150                            |
| Order code: 900.9392   | Upgrade: RSA                          |
| Note: serial number required   | Feature: R1                           |
| <u>PQ-Box 150 Upgrade</u>  | PQ-Box 150                            |
| Wifi (S0) to (S1)  | PQ-Box 150                            |
| <b>Order code: 900.9397</b>  | Upgrade: Wifi                         |
| Note: serial number required   | Feature: S1                           |
| PQ-Box 150, Service package I<br>Recalibration with certificate and inspection sticker<br>Order code: 200.0031 | Prüfbescheinigung<br>Test certificate |



| Accessoires  |                           |  |  |  |  |
|--|---------------------------|--|--|--|--|
| Carrying box PQ-Box 200  |                           |  |  |  |  |
| Carrying box with forms for PQ-Box 200 and accessories   |                           |  |  |  |  |
| Case dimensions 534x 427x 157mm  | PD:Box 200                |  |  |  |  |
| plastic material, weight 3.900 g   |                           |  |  |  |  |
| Order code: 582.0035   |                           |  |  |  |  |
| Protection braces for PQ-Box 200   |                           |  |  |  |  |
| Protection braces for PQ-Box 200<br>set of 2 pieces with strap, Material color orange<br><b>Order code: 564.0510</b> |                           |  |  |  |  |
|  | PQ-Box 200                |  |  |  |  |
| PQ-Box 200 Upgrade   | PQ-Box 200                |  |  |  |  |
| Ripple control analyses (R0) auf (R1)  | Upgrade: RSA              |  |  |  |  |
| Order code: 900.9094   | Feature: R1               |  |  |  |  |
| Note: serial number required   |                           |  |  |  |  |
| PQ-Box 200 Upgrade   | PQ-Box 200                |  |  |  |  |
| Wifi (S0) to (S1)  | PQ-Box 200                |  |  |  |  |
| Order code: 900.9396   | Upgrade: Wifi             |  |  |  |  |
| Note: serial number required   | Feature: S1               |  |  |  |  |
| PQ-Box 200 Upgrade   | PQ-Box 200                |  |  |  |  |
| Transient measuring board (T0) auf (T1)  | PQ-Box 200                |  |  |  |  |
| Order code: 200.0020   | Upgrade: Transientenkarte |  |  |  |  |
|  | Feature: T1               |  |  |  |  |
| Note: device must be sent in for retrofitting  |                           |  |  |  |  |
| PQ-Box 200, Service package I  | Dellife and the last      |  |  |  |  |
| Recalibration with certificate and inspection sticker  | Prüfbescheinigung         |  |  |  |  |
| Order code: 200.0011   | Test certificate          |  |  |  |  |



| Accessoires  |  |
|--|--|
| Carrying box PQ-Box 300<br>Carrying box with forms for PQ-Box 300 and accessories<br>Case dimensions 534x 427x 157mm<br>plastic material, Weight 3.900 g<br>Order code: 582.0039 | Podec (0)  |
| Protection braces for PQ-Box 300<br>Protection braces for PQ-Box 300<br>set of 2 pieces with strap, Material color black<br>Order code: 564.0514                                 |  |
| <u>PQ-Box 300 Upgrade</u><br>Ripple control analyses (R0) auf (R1)<br><b>Order code: 900.9394</b><br>Note: serial number required  | PQ <sub>5</sub> Box 300<br>PQ-Box 300<br>Upgrade: RSA<br>Feature: R1 |
| <u>PQ-Box 200 Upgrade</u><br>Wifi (S0) to (S1)<br>Order code: 900.9395<br>Note: serial number required   | PQ-Box 300<br>PQ-Box 300<br>Upgrade: Wifi<br>Feature: S1             |
| PQ-Box 300, Service package I<br>Recalibration with certificate and inspection sticker<br>Order code: 200.0012   | Prüfbescheinigung<br>Test certificate                                |



#### Carrying bag PQ-Box 150/200/300

Carrying bag textile with forms for PQ-Box 150/200/300 and accessories. Case dimensions 475x 365x 65 mm, Weight 600 g

#### Order code: 582.0036

#### Locker for PQ-Box 150/200/300

Locker with steel cable (length 1,8 m)to lash PQ-Box 150/200/300.







| Accessoires  |  |
|--|--|
| Adapter cable set for PQ-Box 200/300   |  |
| with 4 mm banana plugs for connection of<br>AC / DC clamp (111.7020) and other manufacturer  |  |
| Order code: 111.7028   |  |
| Irradiance sensor and temperature probe  |  |
| Irradiance sensor and temperature probe for<br>PQ-Box 200/300  |  |
| Measurement range: 01000W/m <sup>2</sup> , -3070°C, 01V<br>The power supply 111.7049 is required additionally and<br>has to be ordered separately. | 66000  |
| Order code: 111.7040   |  |
| Temperature sensor probe   |  |
| Temperature sensor probe for PQ-Box 200/300  | 4  |
| Measurement range: 2080°C – 01V  |  |
| The power supply 111.7049 is required additionally and   |  |
| has to be ordered separately.  | and and a state of the state of |
| Order code: 111.7041   |  |
| Power supply   |  |
| Power supply   | •  |
| Power supply 230V AC,  |  |
| Output 15V DC, 400 mA  |  |



# Accessoires DCF 77 Radio controlled clock for PQ-Box 150/200/300 DCF 77 Radio controlled clock for PQ-Box incl. rotating wall holder, connection cable and documentation output: RS232 Order code: 111.9024.01 Wide range power supply for PQ-Box 150/200/300 Range: 88V ... 500V AC / 100V ... 300V DC 600V CAT IV, IP 65, Set with two adapter cables Order code: 111.7069 Adapter cable As a junction at a measuring point For use with power supply you need two pieces Order code: 582.2037 Wide range power supply Set 1x Wide range power supply (111.7069) 1x Test plug (582.0509) 2x Adapter cable (582.2037) Order code: 111.7069.10



| Accessoires   |   |
|---|---|
| <u>Battery- Pack for PQ-Box 150/200/300</u><br>For PQ-Box 150/200/300                         | And a series of the series of |
| Order code: 570.0011  |   |
| Micro-SD-Card 4GB for PQ-Box 150/200/300<br>For PQ-Box 150/200/300<br>Order code: 900.9098.04 | Inc. C. Indiana   |
| Micro-SD-Card 8GB for PQ-Box 150/200/300<br>For PQ-Box 150/200/300<br>Order code: 900.9098.08 | Interest Sca<br>Industrial Gage   |



|   |                       |                                      | ×      |                           |            |                     |            |      |            |            |
|---|-----------------------|--------------------------------------|--------|---------------------------|------------|---------------------|------------|------|------------|------------|
| Netzanalysator Typ  | -                     | Q-Box                                |        |                           | PQ-Bo      |                     |            | PQ-B | ox 200     | PQ-Box 300 |
| Gerätevariante  | Basic                 | Light                                | Expert | Basic                     | Basic+     | Light               | Expert     | T0   | TI         | HF         |
| Speichergröße in Gbyte (Speicher optional)  |                       | - I.                                 |        | 4 (32)                    |            |                     | 4 (32)     |      | 8 (32)     |            |
| Abtastfrequenz Spannung   | 20,46 kHz 20,46 kHz   |                                      |        |                           |            | 6 kHz               | 409,60 kHz |      |            |            |
| Abtastfrequenz Strom  |                       | 20,46 kHz 20,46 kHz                  |        | 40.96 kHz                 |            | 40.96 kHz           |            |      |            |            |
| Abtastfrequenz Transientenmesskarte   | -                     |                                      |        | -                         | 4 MHz      | 409,60 kHz          |            |      |            |            |
| Eingänge Spannung (Auflösung AD-Wandler)  | 4 (16-bit) 4 (24-bit) |                                      |        | 4-bit)                    | 4 (24-bit) |                     |            |      |            |            |
| Eingänge Strom<br>Betriebszeit über Akku  | -                     | 4 (16-bit) 4 (24-bit)<br>4.0 h 4.0 h |        | 5 (24-bit)<br>4.0 h 3.5 h |            | 5 (24-bit)<br>3.5 h |            |      |            |            |
| Schutzklasse  |                       | 1P65                                 |        |                           | 4,0 h      |                     |            | 1P65 |            | 1P65       |
| Analogeingang (1000 mV)   | -                     | -                                    | _      | -                         | -          | -                   | _          | 1965 |            |            |
| Binäreingang (0-250 V AC/DC)  | -                     | -                                    | -      | -                         | -          | -                   | -          |      |            | •          |
| Automatische Normauswertung und Ereigniserfassung nach<br>ENS0160/IEC 61000-2-2/IEC 61000-2-12/IEC 61000-2-4<br>(Klasse 1; 2; 3)/NRS048 /IEEE 519/VDE AR-4105 | -                     | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| Aufzeichnung freies Intervall I sec bis 30 min:   |                       |                                      |        |                           |            |                     |            |      |            |            |
| Aufzeichnung 200 msec und 3 sec Intervall zusätzlich zu freiem Intervall  |                       | -                                    |        | •                         | •          | •                   | •          | •    | •          | •          |
| Spannung & Strom: Mittel-, ½ Perioden-Minimal-, Maximalwert   | •                     | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| Leistung: P, Q, S, PF, $cos(\phi)$ , $sin(\phi)$ , $tan(\phi)$  | •                     | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| Verzerrungs-, Grundschwingungs-, Modulations-, Unsymmetrieblindleistung   |                       | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| Energie: P, Q, P+, P-, Q+, Q-   | •                     | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| Flicker (Pst, Plt, Pinst)   | -                     | •                                    | •      | -                         | •          | •                   | •          | •    | •          | •          |
| Unsymmetrie Strom und Spannung; Gegensystem, Mittsystem, Nullsystem   | •                     | •                                    | •      | -                         | •          | •                   | •          | •    | •          | •          |
| Spannungsharmonische nach IEC 61000-4-30 Ed. 3 Class A - bis H50.<br>Spannungsharmonische Extremwerte 2. bis 50. (200 ms RM5)                                 | -                     | •                                    | •      | -                         | •          | •                   | •          | •    | •          | •          |
| Phasenwinkel der Spannungs und Stromharmonischen  | -                     | -                                    | -      | -                         | -          | •                   | •          |      |            |            |
| Spannungsharmonische 200 Hz Frequenzbänder - 2 kHz bis 9 kHz<br>(IEC 61000-4-7)   | -                     | -                                    | -      | -                         | -          | -                   | •          | •    | •          | •          |
| Supraharmonische 2 kHz bis 170 kHz (200 Hz / 2 kHz Frequenzbänder)  | -                     | -                                    | -      | -                         | -          | -                   | -          | -    | -          | •          |
| Stromharmonische 2. bis 50.   | -                     | •                                    | •      | -                         | •          | •                   | •          | •    | •          | •          |
| Stromharmonische Extremwerte 2. bis 50. (200 ms RMS)  | -                     | -                                    | -      | -                         | -          | •                   | •          | •    | •          | •          |
| Stromharmonische 200 Hz Frequenzbänder 2 kHz bis 9 kHz  | -                     | -                                    | -      | -                         | -          | -                   | •          | •    | •          | •          |
| Wirk-, Blind-, Scheinleistung und Phasenwinkel Harmonische  | -                     | -                                    | -      | -                         | -          | •                   | •          | •    | •          | •          |
| THD U und I ; PWHD U und I ; PHC  | •                     | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| FFT Berechnung bis  | -                     | 10                                   | kHz    | -                         | -          | 10                  | kHz        | 20   | kHz        | 170 kHz    |
| Rundsteuersignal 100 Hz bis 3 kHz (200 ms RMS Maximalwerte)   | -                     | -                                    | •      | -                         | -          | •                   | •          | •    | •          | •          |
| Frequenz, 10 sec, Mittel-, Minimal-, Maximalwert  | •                     | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| 10/15/30 min Intervall Leistungswerte P, Q, S, D, $\cos(\phi)$ , $\sin(\phi)$ , $\tan(\phi)$  | •                     | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| Online Modus  |                       |                                      |        |                           |            |                     |            |      |            |            |
| Oszilloskopbild - Abtastfrequenz  |                       | 20,46 k                              |        |                           | 20,46      | _                   |            |      | 6 kHz      | 409,60 kHz |
| Leistungsdreieck 3D für Wirk-, Blind, Schein- und Verzerrungsblindleistung  |                       | •                                    | •      | •                         | •          | •                   | •          | •    | •          | •          |
| Spannungs-, Strom-, Zwischenharmonische (U,I)   | -                     | •                                    | DC bis | -                         | •          | DC bis              | •          | DC   | •<br>; bis | DC bis     |
| Online Spektralanalse   | -                     | -                                    | 10 kHz | -                         |            | 10 kHz              |            |      | kHz        | 200 kHz    |
| Spannungs-, Stromharmonische 200 Hz Frequenzbänder - 2 kHz bis 9 kHz<br>Supraharmonische bis 200 kHz (200 Hz; 2 kHz Frequenzbänder)                           | -                     | -                                    | -      | -                         | -          | -                   | -          |      |            | •          |
| Richtung der Harmonischen und Phasenwinkel Stromharmonische   | -                     | -                                    | -      | -                         | -          | -                   | -          | -    | -          | •          |
| Triggerfunktionen (Oszilloskop / TRMS)  |                       |                                      |        |                           |            |                     |            |      |            |            |
| Manueller Trigger über Taste  | -                     | -                                    | -      | -                         |            | •                   | •          |      | •          | •          |
| Effektivwert-Trigger Unterschreitung und Überschreitung (U, I)  | -                     | -                                    | •      | -                         | •          | •                   | •          | •    | •          | •          |
| Effektivwert-Trigger Sprung (U, I)  | -                     | -                                    | •      | -                         |            | •                   | •          | •    | •          | •          |
| Frequenztrigger Unterschreitung, Überschreitung, Sprung   | -                     | -                                    | •      | -                         | -          | •                   | •          | •    | •          | •          |
| Phasensprung-Trigger  | -                     | -                                    | •      | -                         | -          | •                   | •          | •    | •          | •          |
| Hüllkurven-Trigger  | -                     | -                                    | •      | -                         | -          | •                   | •          | •    | •          | •          |
| Intervall-Trigger; Automatik-Trigger  | -                     | -                                    | •      | -                         | -          | •                   | •          | •    | •          | •          |
| Trigger auf Binäreingang (0 – 250 V AC/DC; Schwelle 10 V)   | -                     | -                                    | -      | -                         | -          | -                   | -          | •    | •          | •          |
| Option RI<br>Rundsteueranalyse Rekorder für Spannung und Strom 100 Hz bis 3 kHz<br>Opsion SI  | RI                    | RI                                   | RI     | RI                        | RI         | RI                  | RI         | RI   | RI         | RI         |
| Option SI<br>WLAN / Wifi  | •                     | •                                    | •      | SI                        | SI         | SI                  | SI         | SI   | SI         | SI         |



#### **Warranty Conditions:**

Warranty: 1 year from date of delivery for accessories & 3 years for PQ-Boxes.

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Accessories for PQ-Box family