

# Ordering information VOTANO 100

## Packages

|   | Ordering No. | Description  |
|---|--------------|--|
| <b>VOTANO 100 Package</b><br>incl. all cables and accessories | VE000804     | <b>Hardware</b><br>1 × VOTANO 100<br>1 × VBO2<br><b>Cables and accessories</b><br>1 × Connection cable (6 poles) VOTANO – VBO2 (6 m / 19.7 ft)<br>1 × Safety box SAB1 with cable (6 m / 19.7 ft)<br>2 × Grounding cable (6 m, 6 mm <sup>2</sup> / 19.7 ft, 0.01 sq in) with connection clamp<br>1 × Standard measurement cable, black, (6 m / 19.7 ft)<br>1 × Set consisting of two screened VBO2 high-voltage cables (6 m / 19.7 ft) or (15 m / 49.2 ft)<br>2 × Multipole connection cable VBO2 to voltage transformer<br>3 × Connection cable 0.5 m / 1.6 ft with 4 mm / 0.2 in banana sockets<br>2 × Set consisting of four Kelvin clamp adapters (two black and two red)<br>4 × Set consisting of two crocodile clamps with 4 mm / 0.2 in banana sockets<br>2 × Set consisting of 12 solid terminal adapters<br>1 × Set consisting of two Kelvin clamps with 4 mm / 0.2 in banana sockets<br>1 × USB 3.0 Compact Flash card reader<br>1 × Compact Flash card (512 MB)<br>2 × Power cable<br>1 × Power cable extension<br>1 × User manual<br>1 × Calibration confirmation<br>1 × VOTANO 100 PC Toolset CD<br>1 × Transport case VOTANO 100 + VBO2 |

## Available software packages



|  |          |   |
|--|----------|---|
| VOTANO 100 VT Standard Software Package      | VESM0803 | Software package for common load and no-load ratio and phase measurements on VTs  |
| VOTANO 100 CVT Standard Software Package     | VESM0804 | Software package for common load and no-load ratio and phase measurements on CVTs   |
| VOTANO 100 VT Advanced Software Package      | VESM0805 | Software package for complete measurements and simulation of VTs up to accuracy class 0.1 with automatic IEC/IEEE class assessment          |
| VOTANO 100 CVT Advanced Software Package     | VESM0806 | Software package for complete measurements and simulation of CVTs up to accuracy class 0.1 with automatic IEC/IEEE class assessment         |
| VOTANO 100 VT/CVT Universal Software Package | VESM0807 | Software package for complete measurements and simulation of VTs and CVTs up to accuracy class 0.1 with automatic IEC/IEEE class assessment |

# Ordering information VOTANO 100

## Software upgrade options

|  | Ordering No. | Description   |
|--|--------------|---|
| VOTANO 100 VT Standard to Advanced Upgrade Option            | VESM0808     | Upgrade option for complete measurements and simulation of VTs up to accuracy class 0.1 with automatic IEC/IEEE class assessment  |
| VOTANO 100 CVT Standard to Advanced Upgrade Option           | VESM0809     | Upgrade option for complete measurements and simulation of CVTs up to accuracy class 0.1 with automatic IEC/IEEE class assessment |
| Manufacturer Application Programming Interface License (API) | VESM0811     | Software license for usage of the VOTANO 100 Application Programming Interface (API)  |

## Additional accessories and cables

|   | Ordering No. | Description  |
|---|--------------|--|
| Calibration VT<br>            | VEHZ0801     | With this high-precision calibration IVT (0.05% accuracy) you can calibrate your VOTANO 100 and VBO2 (calibration certificate ISO / IEC 17025 included).   |
| VOTANO 100 Cable Package<br> | VEHK0804     | Additionally available cables / adapters for the connection of several secondary windings and burdens<br>1 × Multipole connection cable VBO2 to voltage transformer<br>1 × Set consisting of two Kelvin clamp adapters (two black and two red)<br>1 × Set consisting of two crocodile clamps with 4 mm / 0.2 in banana sockets<br>1 × Set consisting of 12 solid terminal adapters |

## Services

|  | Ordering No. | Description  |
|--|--------------|--|
| Recalibration for Calibration VT               | VEDK9057     | It is recommended to send us the calibration VT for recalibration every 1-2 years (return shipment included).  |
| Calibration of new VOTANO 100 devices          | VEDK0017     | New VOTANO 100 devices can be calibrated according to IEC17025 in order to certify their accuracy for VT accuracy class determination and verify the accuracy of their low- and high-voltage in- and outputs.  |
| Recalibration of VOTANO 100 devices in service | VEDK9058     | A recalibration of VOTANO 100 devices in service according to IEC17025 is recommended every year in order to certify their accuracy for VT accuracy class determination and verify the accuracy of their low- and high-voltage in- and outputs (return shipment included). |










# Detailed ordering information VOTANO 100

## VOTANO 100 package, single items

| Order no.   | Description   |
|---|---|
|    | VOTANO 100  |
|    | VBO2  |
|    | VEHG0008 Safety box SAB1 with cable (6 m / 19.7 ft)   |
|    | VEHK0800 Connection cable (6 poles) VOTANO – VBO2 (6 m / 19.7 ft)   |
|   | VEHK0615 Grounding cable (6 m, 6 mm <sup>2</sup> / 19.7 ft, 0.01 sq in) with connection clamp             |
|  | VEHK0901 Standard measurement cable, black, (6 m / 19.7 ft)   |
|  | VEHK0807 Screened VBO2 high-voltage cable (6 m / 19.7 ft)   |
|  | VEHK0808 Screened VBO2 high-voltage cable (15 m / 49.2 ft)  |
|   | VEHK0803 Multipole connection cable VBO2 to voltage transformer   |
|  | VEHK0809 Connection cable 0.5 m / 1.6 ft with 4 mm / 0.2 in banana sockets                                |
|  | VEHZ0651 Set consisting of two crocodile clamps with 4 mm / 0.2 in banana sockets (one black and one red) |
|  | VEHS0006 Set consisting of 12 solid terminal adapters   |

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## VOTANO 100 package, single items

| Order no.   | Description   |
|---|---|
| VEHZ0628  | Set consisting of 8 Kelvin clamp adapter with cable 0.25m / 0.82 ft (4 red, 4 black) plus bag |
|    |   |
| VEHK0810  | Serial cable (6m / 19.7 ft) for connection to VBO2  |
|    |   |
| VEHZ0773  | Kelvin clamp black with 4 mm / 0.2 in banana sockets  |
|    |   |
| VEHZ0679  | Kelvin clamp red with 4 mm / 0.2 in banana sockets  |
|    |   |
| VEHZ0655  | USB 3.0 Compact Flash card reader   |
|    |   |
|   | Power cable, black, 10 A, 2.5 m / 8 ft (country specific)                                     |
|   |   |
| VEHK0806  | Power cable extension   |
|  |   |
| VEHP0080  | Transport case VOTANO 100 + VBO2  |
|  |   |
| VEHP0081  | Carry bag for VOTANO 100 and VBO2   |
|  |   |

# Software packages details

## Features of VOTANO 100 software packages

|   | VT       | VT       | CVT      | CVT      | VT/CVT    |
|---|----------|----------|----------|----------|-----------|
|   | Standard | Advanced | Standard | Advanced | Universal |
| PC software remote interface  | ■        | ■        | ■        | ■        | ■         |
| Simple VT/CVT ratio check   | ■        | ■        | ■        | ■        | ■         |
| VT/CVT polarity check   | ■        | ■        | ■        | ■        | ■         |
| Measurements for inductive VTs with up to 5 secondary windings                        | ■        | ■        | –        | –        | ■         |
| Measurements for capacitive VTs with up to 5 secondary windings                       | –        | –        | ■        | ■        | ■         |
| Measurements for VTs as part of combined VT/CT units with up to 5 secondary windings  | ■        | ■        | –        | –        | ■         |
| VT/CVT ratio and phase measurements under load and no-load condition                  | ■        | ■        | ■        | ■        | ■         |
| VT/CVT ratio error and phase displacement measurement in accordance with the standard | –        | ■        | –        | ■        | ■         |
| > Primary voltage levels between 5 % and 190 % of the nominal primary voltage         |          |          |          |          |           |
| > Nominal burden and burden values below (0VA, 25 % and 100 % burden)                 |          |          |          |          |           |
| > Other windings under load and no-load condition                                     |          |          |          |          |           |
| > Customized burden and Total Simultaneous Burden (TSB)                               |          |          |          |          |           |
| Automatic assessment as per applicable standards up to accuracy class $\geq 0.1$      |          |          |          |          |           |
| > IEC 60044-2 for inductive VTs   | –        | ■        | –        | –        | ■         |
| > IEC 60044-5 for capacitive VTs  | –        | –        | –        | ■        | ■         |
| > IEC 61869-3 for inductive VTs   | –        | ■        | –        | –        | ■         |
| > IEC 61869-5 for capacitive VTs  | –        | –        | –        | ■        | ■         |
| > IEEE C57.13 for instrument transformers   | –        | ■        | –        | –        | ■         |
| > ANSI C93.1 for capacitive VTs   | –        | –        | –        | ■        | ■         |
| Automatic test and assessment of ground fault winding (open delta)                    | –        | ■        | –        | ■        | ■         |
| Equivalent circuit parameter determination  | –        | ■        | –        | ■        | ■         |
| > VT/CVT excitation curve measurements  |          |          |          |          |           |
| > Winding resistances   |          |          |          |          |           |
| > Leakage reactances  |          |          |          |          |           |
| Subsequent simulation and re-assessment of the VTs/CVTS after modification of         | –        | ■        | –        | ■        | ■         |
| > Burden, nominal/rated voltage factor, accuracy class of VT/CVT, primary voltage     |          |          |          |          |           |
| Reloading of saved measuring data into VOTANO 100 for simulation at any time          | –        | ■        | –        | ■        | ■         |
| Short-circuit impedance measurements  | ■        | ■        | ■        | ■        | ■         |
| Burden measurement  | ■        | ■        | ■        | ■        | ■         |

■ included    – not included

OMICRON is an international company serving the electrical power industry with innovative testing and diagnostic solutions. The application of OMICRON products allows users to assess the condition of the primary and secondary equipment on their systems with complete confidence. Services offered in the area of consulting, commissioning, testing, diagnosis and training make the product range complete.

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