WM1000U | WM1000I
Measuring Bridges for Voltage Transformers and Current Transformers

Testing of Conventional Measuring Transformers

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The current/voltage measuring bridges WM1000U and WM1000 I are high-precision comparator units for comparing secondary signal from transformer under test with a reference signal supplied by a standard device.

The resulting error value will be displayed as ratio error and phase displacement on the screen.

In general the operation of the measuring bridges will be performed via integrated 8.9” touch screen. Optionally control and read-out of the measuring values can be performed via integrated interfaces and PC.

- Conventional voltage transformers (VT) and current transformers (CT) according to:
  - IEC61869-1 (VT/CT)
  - IEC61869-2 (CT)
  - IEC61869-3 (VT)

- Voltage inputs for VT with high impedance direct input (WM1000U)
- Current inputs for CT with high impedance direct input (WM1000I)
- User friendly operation via touch screen with integrated graphical user interface
- A/D conversion of measuring value by 24 Bit converter
**General**

- **Power supply**: 85 ... 265 V, 47 ... 63 Hz
- **Power consumption**: 55 VA
- **Temperature range, operation**: 5° ... + 40° C
- **Relative humidity (not condensing)**: max. 95%
- **Dimensions (DxWxH)**: 450 x 483 x 177 mm
- **Weight**: ~ 8.5 kg
- **Fundamental frequency**: 15 ... 65 Hz

**Safety**

- **IP class according to DIN EN 60529**: IP30
- **Declaration of conformity**: CE conform
- **Protection class according to DIN EN 61140**: I

**Voltage transformer measurement**

**Voltage input N-channel**

- **Voltage measurement**: 2 V ... 500 V
- **Voltage channels input impedance (@ range)**: 380 KΩ / 500 pF @ 3.75 V ... 480 V
- **Voltage measurement accuracy 3)**: < 100 x 10^{-6} @ 10 V ... 500 V  
  < 200 x 10^{-6} @ 2 V ... < 10 V
- **Maximum of voltage**: 500 V

**Voltage input X-channel**

- **Voltage measurement**: 2 V ... 500 V
- **Voltage channels input impedance (@ range)**: 380 KΩ / 500 pF @ 3.75 V ... 480 V
- **Voltage measurement accuracy 3)**: < 100 x 10^{-6} @ 10 V ... 500 V  
  < 200 x 10^{-6} @ 2 V ... < 10 V
- **Maximum of voltage**: 500 V

**Ratio error indication 1) 3)**

- TV 0.9 ... 1:  
  < 50 x 10^{-6} @ 10 V ... 500 V  
  < 100 x 10^{-6} @ 2 V ... < 10 V
- TV 0.5 ... < 0.9:  
  < 100 x 10^{-6} @ 10 V ... 500 V  
  < 150 x 10^{-6} @ 2 V ... < 10 V
- TV < 0.5:  
  < 200 x 10^{-6} @ 10 V ... 500 V  
  < 250 x 10^{-6} @ 2 V ... < 10 V

**Phase displacement indication 1) 3)**

- TV 0.9 ... 1:  
  < 0.2 min @ 10 V ... 500 V  
  < 0.5 min @ 2 V ... < 10 V
- TV 0.5 ... < 0.9:  
  < 0.4 min @ 10 V ... 500 V  
  < 0.7 min @ 2 V ... < 10 V
- TV < 0.5:  
  < 0.6 min @ 10 V ... 500 V  
  < 0.9 min @ 2 V ... < 10 V

1: with TV = divider ratio  
(input voltage X / input voltage N) or  
(input voltage N / input voltage X)

2: in N-channel @ 10 V ... 500 V

3: From 45 ... 65 Hz

Subjects to alteration.
### General
- **Power supply**: 85 ... 265 V, 47 ... 63 Hz
- **Power consumption**: max. 280 VA
- **Temperature range, operation**: 5° ... + 40° C
- **Temperature range, storage**: -15° ... + 65° C
- **Relative humidity (not condensing)**: max. 95 %
- **Dimensions (DxWxH)**: 450 x 483 x 177 mm
- **Weight**: ~ 11 kg
- **Max. height above sea level**: 2000 m
- **Fundamental frequency**: 15 ... 65 Hz

### Safety
- **IP class according to DIN EN 60529**: IP30
- **Declaration of conformity**: CE conform
- **Protection class according to DIN EN 61140**: I

### Current transformer measurement

#### Current input N-channel
- **Current measurement**: 1 mA ... 15 A
- **Current channels input impedance (@ range)**: < 5 mΩ
- **Current measurement accuracy 3)**: < 100 x 10^-6 @ 15A .. 50 mA  
  < 200 x 10^-6 @ < 50 mA ... 5 mA
- **Maximum current**: 15 A

#### Current input X-channel
- **Current measurement**: 1 mA ... 15 A
- **Current channels input impedance (@ range)**: < 5 mΩ @ 5 mA ... 15 A
- **Current measurement accuracy 3)**: < 100 x 10^-6 @ 15A .. 50 mA  
  < 200 x 10^-6 @ 5 mA ... 5 mA
- **Maximum current**: 15 A

#### Ratio error indication 1) 3)
- **TV 0.9 ... 1:**  
  < 50 x 10^-6 @ 50 mA ... 15 A
  < 150 x 10^-6 @ 5 mA ... < 50 mA
  TV 0.5 ... < 0.9 :  
  < 100 x 10^-6 @ 50 mA ... 15 A
  < 200 x 10^-6 @ 5 mA ... < 50 mA
  TV < 0.5 :  
  < 200 x 10^-6 @ 50 mA ... 15 A
  < 300 x 10^-6 @ 5 mA ... < 50 mA

#### Phase displacement indication 1) 3)
- **TV 0.9 ... 1:**  
  < 0.2 min @ 50 mA ... 15 A
  < 0.5 min @ 5 mA ... < 50 mA
  TV 0.5 ... < 0.9 :  
  < 0.4 min @ 50 mA ... 15 A
  < 0.7 min @ 5 mA ... < 50 mA
  TV < 0.5 :  
  < 0.6 min @ 50 mA ... 15 A
  < 0.9 min @ 5 mA ... < 50 mA

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1: with TV = divider ratio  
2: in N-channel @ 50 mA ... 15 A  
3: From 15 ... 65 Hz

Subjects to alteration.

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