MTE Meter Test Equipment

ICT 2.3

Three-phase Isolation Current Transformer

The ICT 2.3 three-phase Isolation Current Transformer is used on multi position test benches for testing three-phase meters with closed links between the current and voltage measuring circuits (C-P links). Meter of this type are produced and used with increasing frequency.

While testing meters with fix closed C-P links, unwanted connections between voltage and current path at each test position will cause significant accuracy reduction.

In this case transformers in the current circuit are required to decouple the voltage from the current path.

To achieve complete decoupling the test installation must be fitted with one current transformer per phase for each test position. In this way each meter under test is supplied with isolated test currents via these toroidal-core current transformers.

Normally the current ratio is 1:1 and a phase error over the required current range small enough not to introduce significant additional errors.

Advantages

- Wide current range from 25 mA up to 120 A
- Output power max. 60 VA
- High accuracy class 0.05 by electronic error compensation
- Overload protected

Application

- Multi position test systems for meters with closed current-voltage links
- Module for modernisation of older test systems

Technical Data ICT 2.3

General characteristics

Auxiliary supply:	85 VAC_{min} … 265 VAC_{max} / 47 Hz … 63 Hz
Power consumption:	max. 15 VA
Housing:	Hard plastic
Dimensions:	W 152 x D 238 x H 262 mm
Operation temperature:	- 10 °C … +50 °C
Storage temperature:	- 20 °C … +60 °C
Weight:	approx. 17 kg
Temperature coefficient:	≤0.003 %/°C (+0 °C ... +15 °C / +25 °C ... +40 °C) ≤0.005 %/°C (-10 °C ... +0 °C / +40 °C ... +50 °C)

Transformer characteristics

Nominal frequency fn:	50 Hz (45 … 55 Hz) or 60 Hz (54 … 66 Hz)
Ratio:	1:1 (primary current = secondary current)
Current range:	10 mA ... 120 A
Class:	0.05 (100 mA … 120 A)

Output power (per phase)							
Current range:	120 A	100 A	80 A	60 A	10 A	1 A	100 mA
Output power max.:	60 VA	50 VA	40 VA	30 VA	5 VA	50 mVA	0.5 mVA
Primary loss max.:	5 VA	3.5 VA	2.2 VA	1.3 VA	insignificant		
Input burden:	0.35 mΩ (Calculated with primary cable length / ICT 2.3: 0.5 m and cable section 25 mm^2)						

Output burden (per phase)	**1 A … 120 A**					**100 mA … 1 A**	
Current range:	120 A	100 A	80 A	60 A	10 A	1 A	100 mA
Output burden max.:	4.2 mΩ	5.0 mΩ	6.3 mΩ	8.3 mΩ	50 mΩ	50 mΩ	50 mΩ
Output burden voltage:	0.5 V					50 mΩ / I	

Error			
Current range:	100 mA … 120 A (whole output burden range)	25 mA … 100 mA (whole output burden range)	10 mA … 25 mA (whole output burden range)
Ratio error:	≤ ± 0.02 % (typical) ≤ ± 0.05 % (max.)	≤ ± 0.10 % (typical) ≤ ± 0.20 % (max.)	≤ ± 0.50 % (typical)
Angle error:	≤ ± 0.8 min	≤ ± 1.5 min	≤ ± 3 min
Range: Typical (max.) error of meter test system with ICT 2.3	cos φ = 1 cos φ = 0.5c ... 1 ... 0.5i	cos φ = 1 cos φ = 0.5c ... 1 ... 0.5i	cos φ = 1 cos φ = 0.5c ... 1 ... 0.5i
ICT 2.3 + SRS 400.3 (Class 0.02)	≤ ± 0.03 % (0.07 %) ≤ ± 0.05 % (0.14 %)	≤ ± 0.05 % (0.12 %) ≤ ± 0.10 % (0.24 %)	≤ ± 0.15 % (0.22 %) ≤ ± 0.50 % (1.00 %)
ICT 2.3 + SRS 121.3 (Class 0.05)	≤ ± 0.05 % (0.10 %) ≤ ± 0.10 % (0.20 %)	≤ ± 0.10 % (0.15 %) ≤ ± 0.15 % (0.30 %)	≤ ± 0.15 % (0.25 %) ≤ ± 0.50 % (1.00 %)

Control elements and connections

Green LED´s:
Normal operation conditions. The isolation current transformer ICT 2.3 is switched on

Red LED´s:
General error message, e.g. overload or the ICT 2.3 is out of order

SHORT:
With this button the ICT 2.3 is short-circuited (all LED´s on)

RESET:
With this button the ICT 2.3 is reset

Supply voltage connection:
To supply the ICT 2.3 with the operation voltage

Supply voltage connection:
For transmission of the operation voltage to the next ICT 2.3

Remote control
SHORT
RESET
Status indication
OK and OVL