

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 10 mA up to 200 A
- Output power max. 100 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 f _n :	50 Hz (45 ... 55 Hz) or 60 Hz (54 ... 66 Hz)
Ratio:	1:1 (primary current = secondary current)
Current range:	10 mA ... 200 A
Cable hole diameter / length:	30 mm / 0.15 m
Class:	0.05 (100 mA ... 200 A)

Output power (per phase)								
Current range:	200 A	120 A	100 A	80 A	60 A	10 A	1 A	100 mA
Output power max.:	100 VA	60 VA	50 VA	40 VA	30 VA	5 VA	50 mVA	0.5 mVA
Primary loss max. (1):	2.4 VA	0.86 VA	0.6 VA	0.38 VA	0.22 VA	insignificant		
(2):		1.73 VA	1.2 VA	0.77 VA	0.43 VA			
Input burden: (only primary cable in hole)	(1) 0.06 mΩ (cable cross section: 50 mm ² / cable length: 0.15 m) (2) 0.12 mΩ (cable cross section: 25 mm ² / cable length: 0.15 m)							

Output burden (per phase)	1 A ... 200 A						100 mA ... 1 A	
Current range:	200 A	120 A	100 A	80 A	60 A	10 A	1 A	100 mA
Output burden max.:	2.5 mΩ	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 ... 200 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 + K2006 (Class 0.01)	≤ ± 0.025 % (0.06 %) ≤ ± 0.04 % (0.12 %)	≤ ± 0.045 % (0.11 %) ≤ ± 0.09 % (0.22 %)	≤ ± 0.14 % (0.21 %) ≤ ± 0.49 % (0.99 %)
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 SHORT: With this button the ICT 2.3 is short-circuited (all LED's on)		Red LED's: General error message, e.g. overload or the ICT 2.3 is out of order 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
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