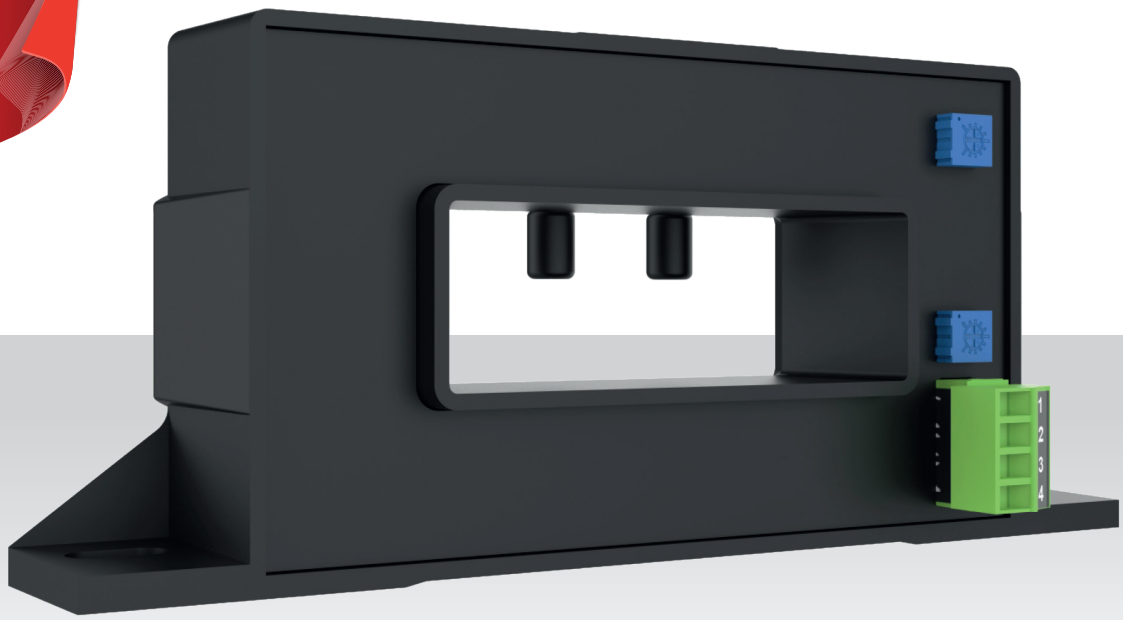
sifam tinsley
PRECISION INSTRUMENTATION

CURRENT TRANSDUCER
www.sifamtinsley.co.uk

DATASHEET Issue 1

NEW PRODUCT



Multifunction Meters
Transducers & Isolators
Temperature Controllers
Converters & Recorders
Digital Panel Meters
Current Transformers
kWh Energy Meters
Analogue Panel Meters
Shunts
Digital Bargraphs
Digital Multimeters
Protection Relays
Synchroscope Series
Rotary Switches
Power Supplies
Test & Measurement

RoHS CE

THETA HSC SERIES OPEN LOOP CURRENT TRANSFORMER

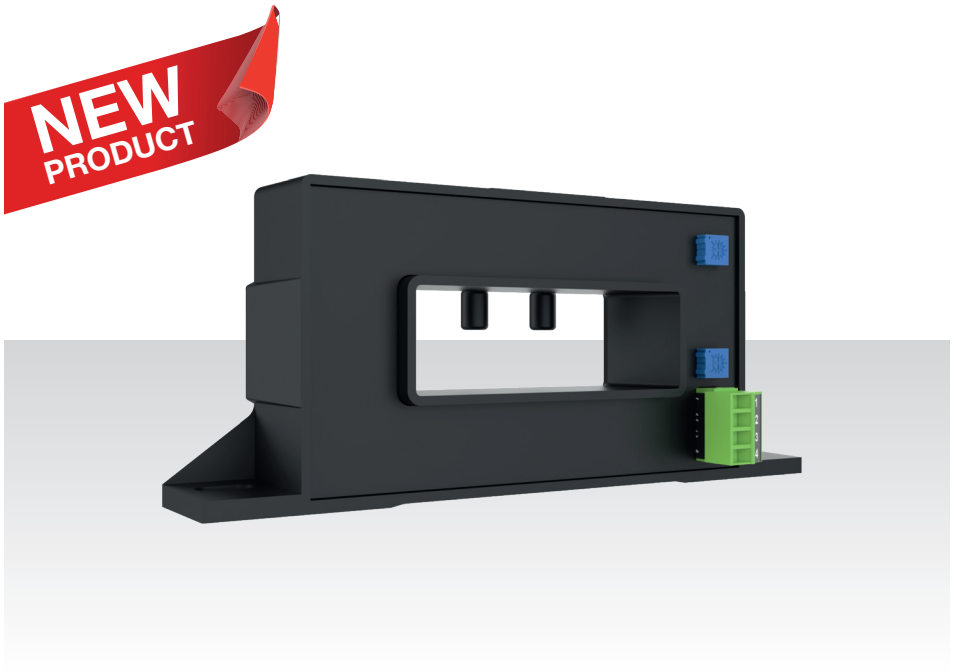
SUBJECT TO CHANGE WITHOUT NOTICE
This datasheet superseded all previous versions – please keep for future reference

Theta HSC Series

Product Features:

- ➜ Hall effect measuring principle
- ➜ Low insertion losses
- ➜ Low power consumption
- ➜ Only one design for a wide current rating range
- ➜ Reverse Supply Protection
- ➜ High immunity to external interference
- ➜ Small size and space-saving
- ➜ Easy installation.

Theta HSC Series Open Loop Current Transformer



Overview

The Theta HSC Series Open Loop Current Transformer is a transducer designed to convert input current signal into output voltage. The transducer converts a sinusoidal AC Current (Upto 25kHz frequency of the input signal) ,DC Current or Pulsating DC current into a corresponding output voltage proportional to the measured value. The transducer output is galvanically isolated from the input signal and auxiliary supply.

Application

- Variable speed drives for AC motors and servo motor control systems
- Power conversion units used for driving DC motors
- Systems powered by batteries for various applications
- Uninterruptible Power Supplies (UPS)
- Switched Mode Power Supplies (SMPS)
- Power units designed for welding operations

Product Features

Hall effect measuring principle

The product integrates Hall effect technology to deliver accurate measurements of current, using the generated Hall voltage for precise and reliable sensing performance.

Low insertion losses

The product offers low insertion losses, ensuring minimal signal degradation during transmission. This results in improved signal integrity and enhanced overall performance, making it ideal for high-precision applications.

Low power consumption

The product is designed with low power consumption, ensuring energy efficiency and extended operational life. This reduces overall energy costs while maintaining optimal performance for extended periods.

Only one design for a wide current rating range

The product offers a single, versatile design that accommodates a wide range of current ratings. This eliminates the need for multiple models, simplifying inventory management and ensuring consistent performance across different applications.

Reverse Supply Protection

The product offers a protection against the reverse supply connected at the supply terminals mainly interchange of the negative and the positive supply making it an additional benefit as it will avoid the issue of the product being damaged permanently

High immunity to external interference

The product features high immunity to external interference, ensuring reliable performance even in challenging environments with electrical noise or signal disruption. This enhances accuracy and stability, making it ideal for sensitive applications.

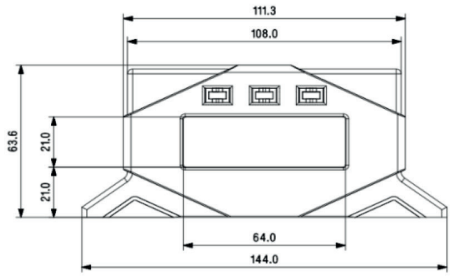
Small size and space-saving

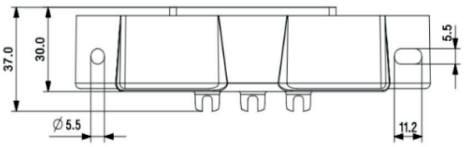
The product features a compact, space-saving design, making it easy to integrate into tight spaces without compromising performance. Its small size enhances versatility and allows for efficient use of available space in various applications.

Easy installation

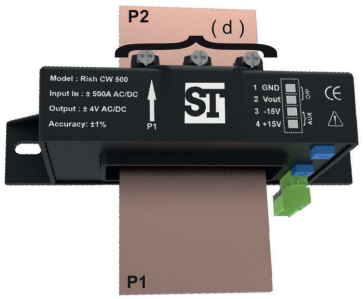
The product is designed featuring a user friendly setup that requires minimal effort and time. This ensures quick deployment and reduces the downtime, making it hassle-free for users to integrate into their systems.

Dimensions Details





Busbar Mounting Guidelines



a) It is recommended to fix the primary busbar at the center of the aperture as the accuracy of the transducer is influenced by the position of the busbar.

b) The temperature of the primary conductor must not exceed 100 °C.b

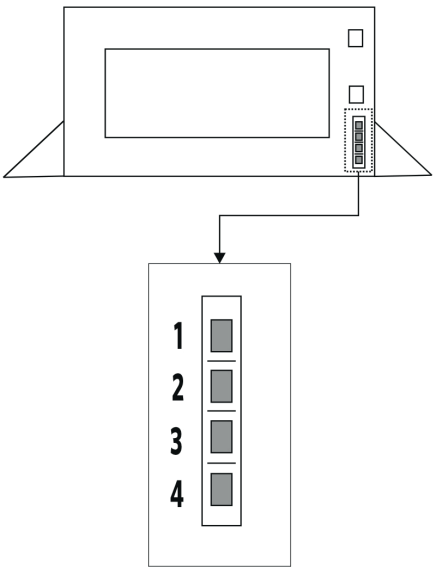
Technical Specifications

Input Parameter:		
Type	**Nominal Measuring RMS Current (I_N)**	**Measuring RMS Current Range (I_M)[2]**
CW 500	±500A	±1500A
CW 600	±600A	±1800A
CW 850	±850A	±2550A
CW 1000	±1000A	±3000A
Frequency bandwidth (–3 dB)[7]	DC … 25 kHz	
Overload Withstand	30000A @ 60 seconds	
Output Parameters :		
Analog Output Voltage @ ±IN , RL=10 kΩ @25 °C[4]	±4V	
Output internal resistance	100Ω	
Load Resistance @ Voltage Output	1kΩ<RL<10KΩ	
Insulation resistance @ 500 V DC	> 1000MΩ	
Auxiliary Supply:		
Type	Bipolar	
Auxiliary Supply Voltage[1]	±15V (±5%)	
Auxiliary Current consumption @IN	>20mA	
Accuracy & Applicable Standards		
Reference Condition for Accuracy@ 25°C		
Accuracy Parameters		
Error @IN, (excluding offset)	<±1 % of IN	
Linearity error (Excluding offset)[a 5]	<±1 % of IN	
Electrical offset Output Voltage	< ±20 mV	
Hysteresis offset voltage @ IN = 0, after an excursion of 1 × IN	< ±30 mV	
Temperature coefficient of offset Output Voltage	<±1 mV/K	
Delay time to 90 % of the final output value for IN step[3]	<5us	

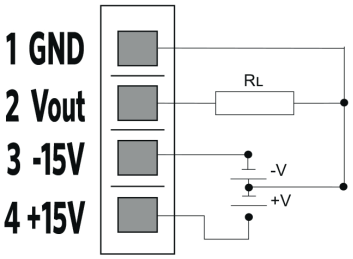
NOTES:

1) The measuring range will be reduced if auxiliary voltage ±12 V < V < ±15 V
2) To use the device at maximum measuring range auxiliary voltage = ±18V
3) For a di/dt of 50 A/µs.
4) Accuracy class within ±5% for EMI EMC conditions
5) The linearity data excludes the electrical offset.
6) Vout is positive when IN flows in the direction indicated by the arrow.
7) Refer User Manual for more Technical Information.

Connector Details



(1) GND - Ground
(2) Vout - Output Voltage
(3) -15V - Negative Supply
(4) +15V - Positive Supply



Technical Specifications

Applicable Standards	
IEC 60068-2-1	Vibration Test
IEC 60068-2-6	Cooling test
IEC 60068-2-14	Temperature Cycle Test
IEC 60068-2-32	Free fall
IEC EMC 61000-4-3	Radiated electromagnetic field immunity test
IEC EMC 61000-4-4	EFT Test
IEC EMC 61000-4-6	Immunity to conducted disturbances induced by radio frequency fields
IEC EMC 61000-4-8	PFMF
Safety	
Applicable Standard	IEC 62477-1
Installation Category	III
Over voltage Category	3
Protection Class	II
Pollution Degree	II
Insulation Test Voltage	5kV,50Hz,60 secs
Impulse Withstand Voltage	1.2/50us - 8.3kV
Creepage Distance	15.7mm
Clearance Distance	12.7mm
Comparative Tracking Index (Group I)	600V
Altitude	Up to 2000m

This transducer must be used in limited-energy secondary circuits according to IEC 62477-1.

The transducer must be used in electrical/electronic equipment in compliance with relevant standards and safety regulations, following the manufacturer's operating instructions.

Caution, risk of electrical shock

During operation, certain parts of the module, such as the primary busbar and power supply, may carry hazardous voltage. Ignoring this warning could lead to injury or serious damage. The transducer is a built-in device, and its conductive components must be inaccessible after installation. A protective cover or additional shielding may be required. The main power supply must be disconnectable

Environmental Condition	
Operating Temperature	-20 to 80 °C
Storage Temperature	-40 to 85 °C
Mechanical Characteristics	
General tolerance	±1 mm
Transducer fastening	1 hole and 1 notch Ø 5.5 mm/ 2 M4 steel screws
Recommended fastening torque	1.5 N-m or 3 screw mounting or 3 M4 steel screws
Recommended fastening torque	1.5 N-m
Connection of Secondary	XY2500 FC4, Female Terminal
Installation	
Enclosure Material:	Polycarbonate, Flammability Class V-0 acc. to UL 94
Dimensions (in mm):	W:144 x H:62 x D:26
Primary Through Hole:	64*21 mm
Weight:	450g approx
Mounting:	Wall mounting

Ordering Information

Ordering Information	CW50-	XX	01	01	0000000
Variant	500A	01			
	600A	02			
	850A	03			
	1000A	04			
Auxiliary Supply	±15 V		01		
Output Voltage	±4 V			01	

** Required external aux supply can be provided at an extra cost upon requirement.

Order Code Example

CW50-010101000000 - OPEN LOOP CT CW500: NOMINAL CURRENT: ±500A, ±15V Auxiliary Supply Voltage, ±4V Output Voltage.

Contact

Sifam Tinsley Instrumentation Ltd

1 Warner Drive
Springwood Industrial Estate
Braintree
Essex
CM7 2YW

Tel: 01376 335271
Email: sales@sifamtinsley.com

www.sifamtinsley.co.uk