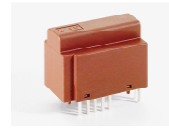


K-No.: 22743

10-16-25-50A Current-Sensor-Module

For the electronic measurement of currents:
DC, AC, pulsed, mixed ..., with a galvanic
Isolation between the primary circuit
(high power) and the secondary circuit
(electronic circuit)



Date: 15.11.2019

Customer: Standard Type

Customers Part No.:

Page 1 of 2

Description

- Closed loop (compensation)
Current Sensor with magnetic field probe
- Printed circuit board mounting
- Casing and materials UL-listed

Characteristics

- Excellent accuracy
- Very low offset current
- Very low temperature dependency and offset current drift
- Very low hysteresis of offset current
- Low response time
- Wide frequency bandwidth
- Compact design

Applications

Mainly used for stationary operation in industrial applications:

- AC variable speed drives and servo motor drives
- Static converters for DC motor drives
- Battery supplied applications
- Switched Mode Power Supplies (SMPS)
- Power Supplies for welding applications
- Uninterruptable Power Supplies (UPS)

Electrical Data - Ratings

I_{PN}	Primary rated current, r.m.s	50	A
R_M	Load resistance	0 ... 200	Ω
I_{SN}	Output rated current, r.m.s	50	mA
K_N	Turns ratio	1...5 : 1000	

Accuracy – Dynamic performance data (with DRV401, $V_C=5V$)

		min.	typ.	max.	Unit
$I_{P,max}$	max. measuring range ($R_M < 1\Omega$)	± 120			A
X	Measuring accuracy @ I_{PN} , $T_A=25^\circ C$ (Module)			0.5	%
ϵ_L	Linearity			0.2	%
I_{OH}	Hysteresis		0.05	0.1	mA
t_r	Response time			1	μs
$\Delta t(I_{P,max})$	Delay time at $di/dt = 100 A/\mu s$		0.5	1	μs
f	Frequency range	DC...200			kHz

General Data

T_A	Ambient operation temperature	-40	+105	$^\circ C$	
T_S	Ambient storage temperature	-40	+105	$^\circ C$	
m	Mass		15	g	
R_S	Secondary coil resistance @ $T_A=85^\circ C$		23	Ω	
R_P	Primary coil resistance per turn @ $T_A=25^\circ C$		0.95	1.1	m Ω
C_k	Coupling capacity		5	pF	
	Mechanical Stress according to M3209/3 Settings: 10 – 2000 Hz, 1 min/Octave, 2 hours		2	g	
V_b	Rated insulation voltage, according to EN50178 reinforced insulation Insulation material group 1, Pollution degree 2 mains supply, rms non mains supply (peak od DC)		600 940	V V	
	<u>HV transient test according to M3064</u> Pin 1 - 4 to Pin 5 - 14	Settings:	$V_{d,max} = 8 kV$ $R_i = 40 \Omega$ 1,2 μs / 50 μs -waveform 3 pulses in a cycle $t = 10$ seconds with changing polarity		
	<u>Test voltage and partial discharge voltage according to M3024</u> Pin 1 - 4 to Pin 5 - 14	$V_d =$	3,5 kV	60s	
		$V_e \geq$	0,9 kV		

Datum	Name	Index	Änderung
15.11.19	NSch.	82	Data sheet reworked / updated (current status) and max. measuring range +/-120 added. Minor change
15.04.14	Psozny	82	"VAC" deleted from marking field. As already present in injection molding tool. Lapidary change

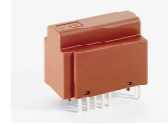
Hrsg.: R&D-PD NPI D editor	Bearb.: DJ designer	MC-PM: NSch. check	freig.: SB released
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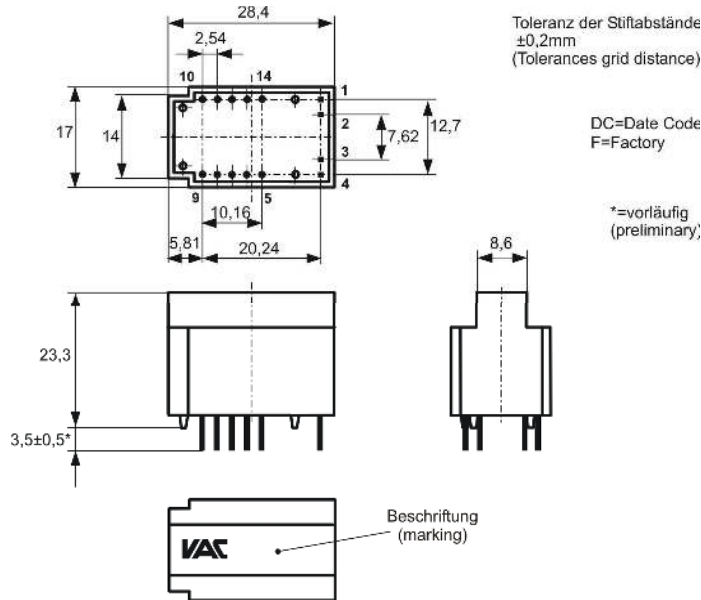
Customer: Standard Type

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Page 2 of 2

Mechanical outline (mm):

General tolerances DIN ISO 2768-c



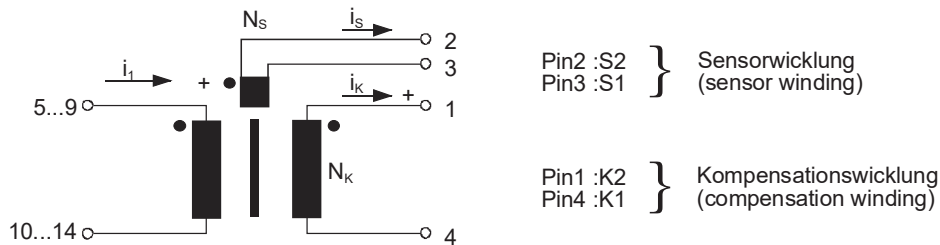
Connections:

1...4: 0.7 x 0.7 mm
5...14: \varnothing 1.0 mm

Marking:

4645-X211
F DC

Schematic diagram



Routine Tests: (Measurements after temperature balance of the samples at room temperature, SC = significant characteristic)

K_N (SC)	(V)	M3011/6c:	Turns ratio	1 : 1000 \pm 0.5	%
I_0	(V)	M3226:	Offset current	< 0.1	mA
$\Delta\Phi$ (S1-S2)	(V)	M3090:	Magnetic Flux sensor	20...35	nVs
R_s (K1-K2)	(V)	M3011/5:	Winding resistance compensation coil	15...17.5	Ω
R (S1-S2)	(V)	M3011/5:	Winding resistance magnetic probe coil	2.5...3.5	Ω
V_d	(V)	M3014:	Testing voltage, 1s Pin 1 - 4 to Pin 5 - 14	3.5	kV _{RMS}
V_e	(AQL1/S4)	M3024:	Partial discharge voltage	>900	V

Other information:

- Current direction: A positive output current appears at point I_s , by primary current in direction of the arrow.
- Constructed, manufactured and tested in accordance with EN 50178 and agrees with the standards.
- Housing and bobbin material: UL-listed. Flammability class UL 94V-0.
- The temperature of the primary conductors should not exceed 105°C.

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