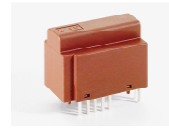


K-No.: 22743

**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	$\Omega$
$I_{SN}$	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 ( $R_M < 1\Omega$ )	$\pm 120$			A
$X$	Measuring accuracy @ $I_{PN}$ , $T_A=25^\circ C$ (Module)			0.5	%
$\epsilon_L$	Linearity			0.2	%
$I_{OH}$	Hysteresis		0.05	0.1	mA
$t_r$	Response time			1	$\mu s$
$\Delta t(I_{P,max})$	Delay time at $di/dt = 100 A/\mu s$		0.5	1	$\mu s$
$f$	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	$\Omega$	
$R_P$	Primary coil resistance per turn @ $T_A=25^\circ C$		0.95	1.1	m $\Omega$
$C_k$	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 $\mu s$ / 50 $\mu s$ -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	$V_d =$ $V_e \geq$	3,5 0,9	kV kV	60s

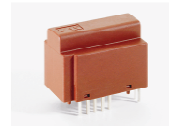
Datum	Name	Index	Änderung
15.11.19	NSch.	82	Data sheet reworked / updated (current status) and max. measuring range +/-120 added. Minor change
15.04.14	Psozny	82	"VAC" deleted from marking field. As already present in injection molding tool. Lapidary change

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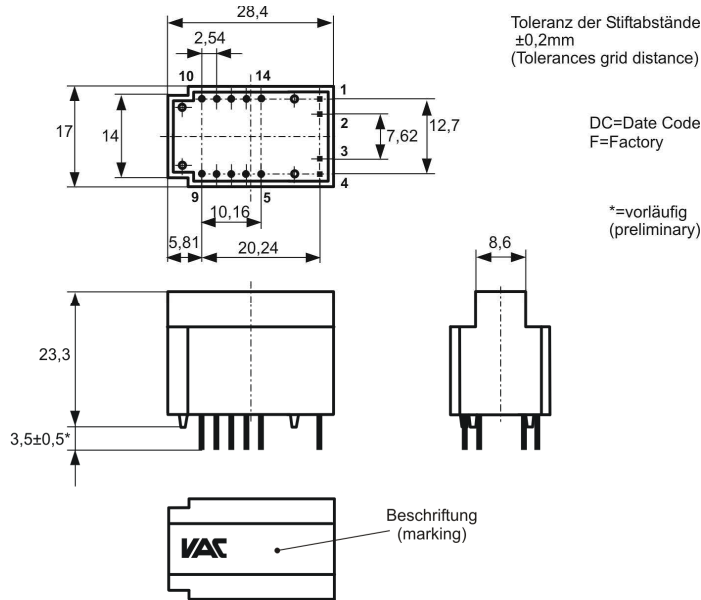
Customer: Standard Type

Customers Part No.:

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**Mechanical outline (mm):**

General tolerances DIN ISO 2768-c



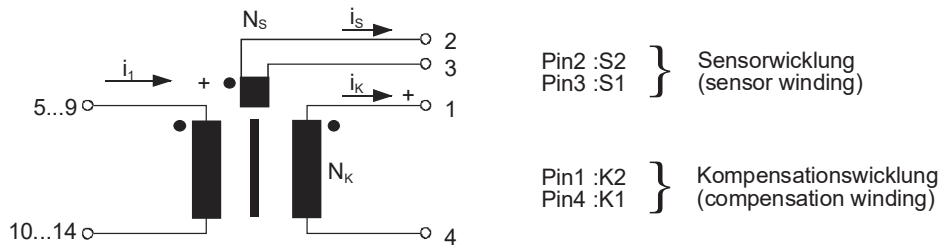
**Connections:**

1...4: 0.7 x 0.7 mm  
5...14: Ø 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 ± 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	$\Omega$
$R$ (S1-S2)	(V)	M3011/5:	Winding resistance magnetic probe coil	2.5...3.5	$\Omega$
$V_d$	(V)	M3014:	Testing voltage, 1s Pin 1 - 4 to Pin 5 - 14	3.5	kV <sub>RMS</sub>
$V_e$	(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.

Hrsg.: R&D-PD NPI D  
editor

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