

K-No.: 25102	<b>100 A Current-Sensor-Module</b> 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: 14.11.2007
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<b>Description</b> <ul style="list-style-type: none"> <li>Closed loop (compensation) Current Sensor with magnetic field probe</li> <li>Printed circuit board mounting</li> <li>Casing and materials UL-listed</li> </ul>	<b>Characteristics</b> <ul style="list-style-type: none"> <li>Excellent accuracy</li> <li>Very low offset current</li> <li>Very low temperature dependency and offset current drift</li> <li>Very low hysteresis of offset current</li> <li>Short response time</li> <li>Wide frequency bandwidth</li> <li>Compact design</li> </ul>	<b>Applications</b> Mainly used for stationary operation in industrial applications: <ul style="list-style-type: none"> <li>AC variabel speed drives and servo motor drives</li> <li>Static converters for for DC motor drives</li> <li>Battery supplied applications</li> <li>Switched Mode Power Supplies (SMPS)</li> <li>Power Supplies for welding applications</li> <li>Uninterruptable Power Supplies (UPS)</li> </ul>
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**Electrical Data – Ratings**

$I_{PN}$	Primary rated current, r.m.s	100	A
$R_M$	Load resistance	0 ... 200	$\Omega$
$I_{SN}$	Output rated current, r.m.s	100	mA
$K_N$	Turns ratio	1 : 1000	

Accuracy – Dynamic performance data (with DRV401 @ $V_C = 5V \pm 5\%$ )		min.	typ.	max.	Unit
$I_{P,max}$	Max. measuring range @ $R_M = 12,5 \Omega$	$\pm 230$			A
$X(T)$	Measuring accuracy @ $I_{PN}, T_A = -40... +85^\circ C$			0.5	%
$\epsilon_L$	Linearity			0.1	%
$I_o(T)$	Offset current @ $I_p=0, T_A = -40... +85^\circ C$		0.02	0.1	mA
$I_{oH}$	Hysteresis		0.06	0.1	mA
$t_r$	Response time		1		$\mu s$
$\Delta t(I_{p,max})$	Delay time at $di/dt = 100 A/\mu s$		1		$\mu s$
f	Frequency range	DC...100			kHz

General Data		min.	typ.	max.	Unit
$T_A$	Ambient temperature	-40		+85	$^\circ C$
$T_S$	Storage temperature	-40		+90	$^\circ C$
m	Mass		18		g
$R_S$	Secondary coil resistance @ $T_A=85^\circ C$			14	$\Omega$
$C_k$	Coupling capacity		6		pF

Mechanical Stress according to M3209/3  
Settings: 10 – 2000 Hz, 1 min/Decade, 2 hours

Constructed and manufactured and tested in accordance with EN 61800-5-1 (primary to secondary)

Reinforced insulation, Insulation material group 1, Pollution degree 2

$S_{clear}$	clearance (component without solder pad)	12			mm
$S_{creep}$	creepage (component without solder pad)	12			mm
$V_{sys}$	System voltage overvoltage category 3	RMS		600	V
$V_{work}$	Working voltage (table 7 acc. to EN61800-5-1)	RMS		1000	V
$U_{PD}$	Rated discharge voltage	peak value		1225	V

**Type Testing** according EN 61800-5-1 (primary to secondary)

$V_W$	HV transient test according to M3064 (1,2 $\mu s$ / 50 $\mu s$ -wave form)			8	kV
$V_d$	Testing voltage to M3014		(5 s)	3.6	kV
$V_e$	Partial discharge voltage acc.M3024 (RMS)			1300	V
	with $V_{vor}$ (RMS)			1625	V

Datum	Name	Index	Änderung			
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**100 A 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)

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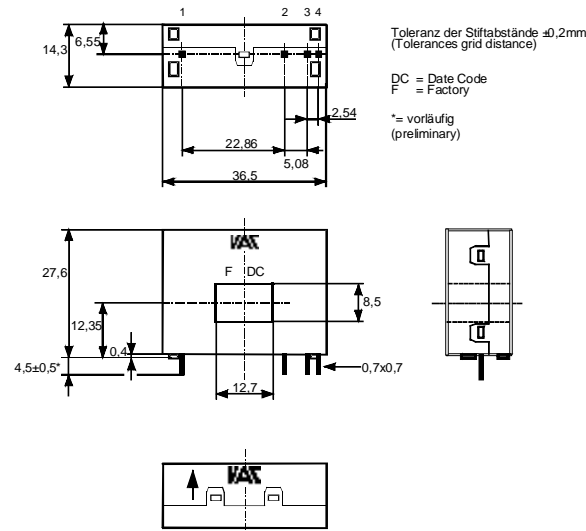
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**Mechanical outline (mm):**

General tolerances DIN ISO 2768-c



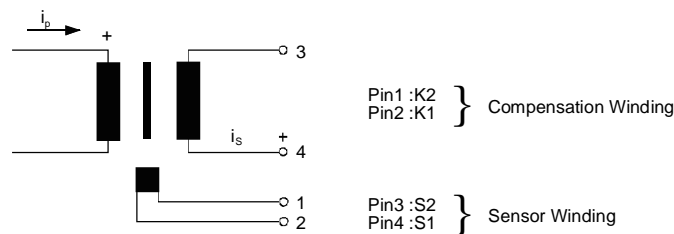
**Connections:**

1...6: Ø 1 mm  
7..10: 0,46\*0,46 mm

**Marking:**

**VAC**  
4645X100  
F DC

**Schematic diagram**



**Inspection** (Measurements after temperature balance of the samples at room temperature.)

$K_N$ (N1/N2)	(V)	M3011/6c:	Turns ratio ( $I_P=100A$ , 40...80 Hz)	1 : 1000 ± 0,5	%
$I_o$		M3226:	Offset current	< 0.1	mA
$\Delta\Phi$ (K1-K2)	(V)	M3090:	Magnetic Flux compensation core	6...8	nVs
$\Delta\Phi$ (S1-S2)	(V)	M3090:	Magnetic Flux sensor	20...35	nVs
$R_S$ (K1-K2)	(V)	M3011/5:	Winding resistance compensation coil	8.5...10,5	$\Omega$
$R$ (S1-S2)	(V)	M3011/5:	Winding resistance magnetic probe coil	2.5...3.5	$\Omega$
$V_d$	(V)	M3014:	Testing voltage, rms, 1s primary to secondary	1,8	kV
$V_e$	(AQL1/S4)	M3024:	Partial discharge voltage (RMS) with $V_{vor}$ (RMS)	>1300 1625	V V

**Applicable documents**

Current direction: A positive output current appears at point  $I_s$ , by primary current in direction of the arrow.

Temperature of the primary conductor should not exceed 110°C

Housing and bobbin material: UL-listed. Flammability class UL 94V-0.

Enclosures according to IEC 60529: IP50.

Additional data available on request.

This specification is no declaration of warranty acc. BGB §443.

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editor

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