VACUUMSCHMELZE	**SPECIFICATION**	**Item-No.:** **T60404-M4645-X410**

K-No.: 25100	**50 – 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)	Date: 26.10.2007
Customer: Standard Type	Cutomers Part No.:	Page 1 of 3

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
- Short response time
- Wide frequency bandwidth
- Compact design

Applications

Mainly used for stationary operation in industrial applications:
- AC variabel speed drives and servo motor drives
- Static converters for 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	50/100		A
R_M	Load resistance		0 ... 200	Ω
I_{SN}	Output rated current, r.m.s	50/100		mA
K_N	Turns ratio		1…3 : 1000	

Accuracy – Dynamic performance data (with DRV401 @ V_C = 5V ±5%)		**min.**	**typ**	**max.**	**Unit**
$I_{P,max}$	Max. measuring range @ R_M = 1.56 Ω	±175			A
X(T)	Measuring accuracy @ I_{PN}, T_A= -40… +85°C			0.5	%
ε_L	Linearity			0.2	%
I_0(T)	Offset current @ I_P=0, T_A= -40… +85°C		0.03	0.1	mA
I_{0H}	Hysteresis		0.04	0.1	mA
t_r	Response time		0.5		µs
$\Delta t(I_{p,max})$	Delay time at di/dt = 100 A/µs		0.2		µs
f	Frequency range	DC...100			kHz

General Data		**min.**	**typ.**	**max.**	**Unit**
T_A	Ambient temperature	-40		+85	°C
T_S	Storage temperature	-40		+90	°C
m	Mass		14.5		g
R_S	Secondary coil resistance @ T_A=85°C			20.5	Ω
R_P	Primary coil resistance per turn @ T_A=25°C		0.35		mΩ
C_k	Coupling capacity		5		pF
	Mechanical Stress according to M3209/3 Settings: 10 – 2000 Hz, 1 min/Decade, 2 hours				10g
	Constructed and manufactored and tested in accordance with EN 61800-5-1 (Pin 1 - 6 to Pin 7 – 9) Reinforced insulation, Insulation material group 1, Pollution degree 2				
s_{clear}	clearance (component without solder pad)	10.2			mm
s_{creep}	creepage (component without solder pad)	10.2			mm
V_{sys}	System voltage overvoltage category 3	RMS		600	V
V_{work}	Working voltage (table 7 acc. to EN61800-5-1)	RMS		1020	V
U_{PD}	Rated discharge voltage	peak value		1414	V

Type Testing according EN 61800-5-1 (Pin 1 - 6 to Pin 7 - 10)

V_W	HV transient test according to M3064 (1,2 µs / 50 µs-wave form)		8	kV
V_d	Testing voltage to M3014	(5 s)	3,6	kV
V_e	Partial discharge voltage acc.M3024 (RMS)		1500	V
	with V_{vor} (RMS)		1875	V

Datum	Name	Index	Änderung
		81	

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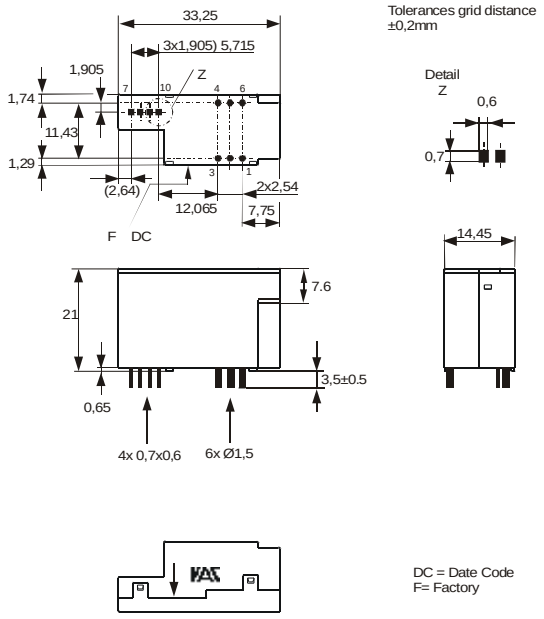
Mechanical outline (mm): General tolerances DIN ISO 2768-c

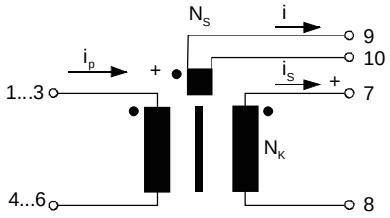


Connections:
1...6: ∅ 1.5 mm
7..10: 0.7*0.6 mm

Marking:

VAC
4645X410
F DC

Schematic diagram



Pin10 :S1
Pin9 :S2
} Sensor Winding

Pin8 :K1
Pin7 :K2
} Compensation winding

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

K_N (N1/N2)	(V)	M3011/6c:	Turns ratio (I_P=3*9.8A, 40…80 Hz)	3 : 1000 ± 0,5	%
I_0		M3226:	Offset current	< 0.1	mA
ΔΦ (K1-K2)	(V)	M3090:	Magnetic Flux compensation core	4,5...7	nVs
ΔΦ (S1-S2)	(V)	M3090:	Magnetic Flux sensor	20...35	nVs
R_S (K1-K2)	(V)	M3011/5:	Winding resistance compensation coil	12...15	Ω
R (S1-S2)	(V)	M3011/5:	Winding resistance magnetic probe coil	2.3...3.0	Ω
V_d	(V)	M3014:	Testing voltage, rms, 1s Pin 1 - 6 to Pin 7 – 10	1.8	kV
V_e	(AQL1/S4)	M3024:	Partial discharge voltage (RMS)	>1500	V
			with V_{vor} (RMS)	1875	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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