VACUUMSCHMELZE	SPECIFICATION	Item-No.: T60404-M4645-X030

K-No.: 24373	**100A 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
- Short 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 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			100	A
R_M	Load resistance			0 ... 200	Ω
I_{SN}	Output rated current, r.m.s			100	mA
K_N	Turns ratio			1...4 : 1000	

Accuracy – Dynamic performance data (with DRV401 @ V_C=5V ±5%)		**min.**	**typ.**	**max.**	**Unit**
$I_{P,max}$	max. measuring range (@ R_M = 1Ω)	±130			A
X	Measuring accuracy @ I_{PN}, T_A=25°C (Module)			0.5	%
ε_L	Linearity			0.2	%
I_{0H}	Hysteresis		0.03	0.1	mA
t_r	Response time			9	µs
$\Delta t(I_{P,max})$	Delay time at di/dt = 100 A/µs			2.5	µs
f	Frequency range	DC...100			kHz

General Data

		min.	**typ.**	**max.**	**Unit**
T_A	Ambient operation temperature	-40		+85	°C
T_S	Ambient storage temperature	-40		+85	°C
m	Mass		31		g
R_S	Secondary coil resistance @ T_A=85°C			29.5	Ω
R_P	Primary coil resistance per turn @ T_A=25°C		0.25		mΩ
C_k	Coupling capacity		10		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			600	V
	non mains supply (peak od DC)			1100	V
S_{clear}	clearance (component without solder pad)			10	mm
S_{creep}	creepage (component without solder pad)			11	mm

Type Testing (Pin 1 - 4 to Pin 5 - 12)

Designed according standard EN 50178 with insulation material group 1

V_W	HV transient test acc. to M3064 (1,2 µs / 50 µs-wave form) 5 pulses -> pol. +, 5 pulses -> pol. -			8	kV
V_d	Testing voltage acc. to M3014, 60s			3.5	kV_{RMS}
V_e	Partial discharge voltage acc. to M3024			1240	V_{RMS}

Date	Name	Index	Change
15.11.19	NSch.	81	Data sheet reworked / updated (current status) and max. measuring range +/- 130 added. Minor change.

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

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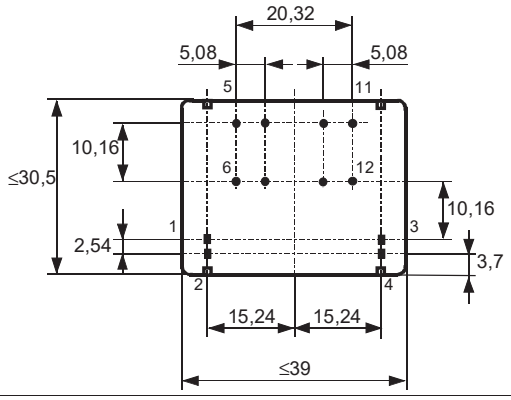
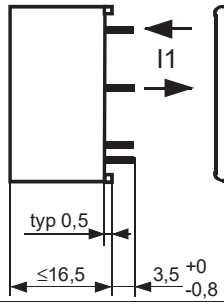
Mechanical outline (mm):

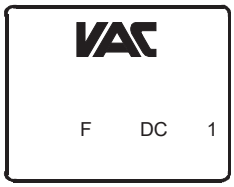
General tolerances DIN ISO 2768-c

Toleranz der Stiftabstände ±0,25mm
Tolerances grid distance

Ziffern 1 - 12 nicht aufgedruckt
Numbers 1 - 12 not imprinted







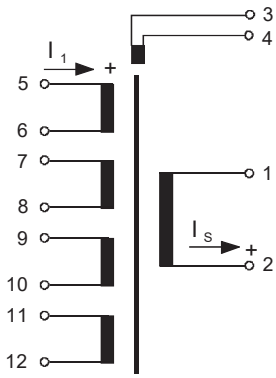
DC=Date Code
F=Factory

Connections:
No.: 1…4 = 0.88x0.6
No.: 5…12 = Ø 1.9

Marking:

4645-X030
F DC

Schematic diagram



Pin 1 : K1
Pin 2 : K2
→ Kompensationswicklung (compensation winding)

Pin 3 : S1
Pin 4 : S2
→ Sensorwicklung (sensor winding)

Pin 5.....12 Primärstrom-Bügel (primary current turns)

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

K_N (SC)	(V)	M3011/6c:	Turns ratio	4 : 1000 ± 0.5	%
I_0	(V)	M3226:	Offset current	< 0.1	mA
ΔΦ (K1-K2)	(V)	M3090:	Magnetic Flux compensation core	17...19.5	nVs
ΔΦ (S1-S2)	(V)	M3090:	Magnetic Flux sensor	20...35	nVs
R_S (K1-K2)	(V)	M3011/5:	Winding resistance compensation coil	20...35	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 – 12	3.5	kV_{RMS}
V_e	(AQL1/S4)	M3024:	Partial discharge voltage	>1240	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.

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