

K-No.: 25103

100 ...2000 mA DI- Current-Sensor-Module

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

Date: 04.11.2013

Customer: Standard Type

Customer Part No.:
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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:

- Solar converters

Electrical Data – Ratings

I_{PN}	Primary rated current, r.m.s	50	A
$I_{\Delta N}$	Differential rated current, r.m.s	0.3	A
R_M	Load resistance	0 ... 2000	Ω
I_{SN}	Output rated current, r.m.s	0.3	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 @ $R_M = 620 \Omega$	± 0.85			A
X(T)	Measuring accuracy @ $I_{\Delta N}, T_A = -40 \dots +85^\circ C$			1	%
ϵ_L	Linearity			1	%
$I_0(T)^*$	Offset current @ $I_P=0, T_A = -40 \dots +85^\circ C$			0.01	mA
I_{0H}^*	Hysteresis		0.03	0.07	mA
t_r	Response time (with 10 kHz-T-Filter)		35		μs
$\Delta t(I_{p,max})$	Delay time at $di/dt = 100 A/\mu s$ (with 10 kHz-T-Filter)		35		μs
f	Frequency range (with 10 kHz-T-Filter)	DC...10			kHz

General Data

		min.	typ.	max.	Unit
T_A	Ambient temperature	-40		+85	$^\circ C$
T_S	Storage temperature	-40		+85	$^\circ C$
m	Mass		35		g
R_S	Secondary coil resistance @ $T_A=85^\circ C$			80	Ω
S_{clear}	clearance (component without solder pad)	1			mm
S_{creep}	creepage (component without solder pad)	1			mm

*) After degaussing with electronic IC DRV 401 and 10kHz-T-filter (s. Application note of the VAC)

Datum	Name	Index	Änderung
04.11.13	KRe	81	Mechanical outline: Marking with UL-sign. Applicable documents: Further standards added.
			Marking acc to UL changed (4645X150 → 4645-X150). CN-830

Hrsg.: KB-E editor	Bearb.: Le designer	KB-PM: KRe. check	freig.: HS released
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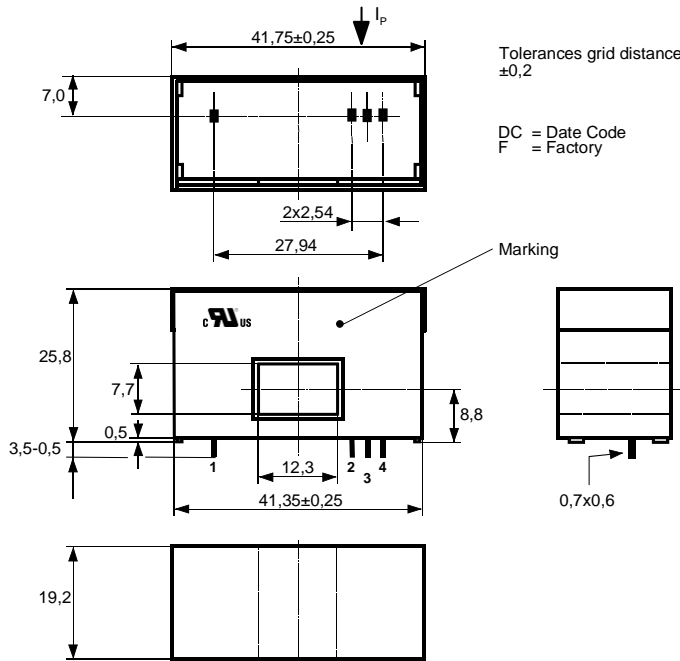
Customer: Standard Type

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Mechanical outline (mm):

General tolerances DIN ISO 2768-c



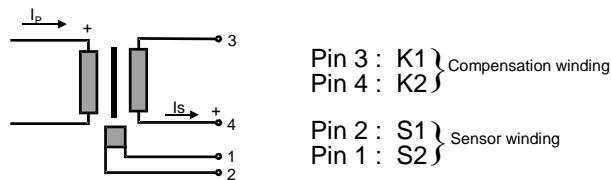
Connections:

1...4: 0.7*0.6 mm

Marking:

VAC
 UL-sign
 4645-X150
 F DC

Schematic diagram



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

K_N (N1/N2)	(V)	M3011/6c:	Turns ratio ($I_P=1A, 40...80$ Hz)	3 : 1000 ± 1	%
I_0		M3226:	Offset current	< 0.05	mA
$\Delta\Phi$ (K1-K2)	(V)	M3090:	Magnetic Flux compensation core	17...19.5	nVs
$\Delta\Phi$ (S1-S2)	(V)	M3090:	Magnetic Flux sensor	20...35	nVs
R_S (K1-K2)	(V)	M3011/5:	Winding resistance compensation coil	55...64	Ω
R (S1-S2)	(V)	M3011/5:	Winding resistance magnetic probe coil	2.5...3.5	Ω

Applicable documents

Short clearance and creepage due to metallic shielding.
 Current direction: A positive output current appears at point I_S , by primary current in direction of the arrow.
 Housing and bobbin material: UL-listed. Flammability class UL 94V-0.
 Enclosures according to IEC 60529: IP50.
 Further standards UL 508, file E317483, category NMTR2 / NMTR8

Additional data available on request.
 This specification is no declaration of warranty acc. BGB §443.

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