VACUUMSCHMELZE	SPECIFICATION		Item n	o.: T	60404-N	14646-X41
K-No.: 24616	50 A Current Sensor For the electronic measurement of o DC, AC, pulsed, mixed, with a ga Isolation between the primary circui (high power) and the secondary circuit (electronic circuit)	ılvanic t			Date:	20.01.2022
Customer: Stand	lard type	Customers Part	no.:		Page	1 of 5
Description Closed loop (compe Current Sensor with field probe Printed circuit board Casing and materia	characteristics ensation) magnetic magnetic Very low offset curre Very low temperatu current drift	re dependency and c of offset current ndwidth	Ma ap	drives	peed drives a ers for DC m ed applicatio e Power Sup es for welding	and servo moto notor drives ons pplies (SMPS) g applications
Electrical data – Ra	utings ¹⁾					
I PN	Primary nominal r.m.s. current				50	Α
R_M	Measuring resistance V _C =± 12V				10 200	Ω
	V _C =± 15V				22 400	Ω
Isn	Secondary nominal r.m.s. curren	t			50	mA
K _N	Turns ratio				13:100	00
Accuracy – Dynam	ic performance data ¹⁾					
			min	turn	may	Llmit
P may	Max. measuring range		min.	typ.	max.	Unit
I _{P,max}	Max. measuring range @ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} =$	10sec)	min. ±112	typ.	max.	Unit A
I P,max	@ $V_C = \pm 12V$, $R_M = 10 Ω$ ($t_{max} =$ @ $V_C = \pm 15V$, $R_M = 22 Ω$ ($t_{max} =$			typ.	max.	
I _{P,max}	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} =$		±112	typ. 0.1	0.5	A A %
	@ $V_C = \pm 12V$, $R_M = 10 Ω$ ($t_{max} =$ @ $V_C = \pm 15V$, $R_M = 22 Ω$ ($t_{max} =$		±112			A A
X			±112		0.5	A A %
Χ εL	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} =$ @ $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} =$ Accuracy @ I_{PN} , $T_A = 25^{\circ}C$ Linearity		±112	0.1	0.5 0.1	A A % %
Χ εL	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy @ I_{PN} , $T_{A} = 25^{\circ}C$ Linearity Offset current @ $I_{P} = 0$, $T_{A} = 25^{\circ}C$ Response time Delay time at di/dt = 100 A/ μ s		±112 ±128	0.1 0.02 500 200	0.5 0.1	A A % % mA ns
X ε _L I ₀ tr Δt (I _{P,max}) f			±112	0.1 0.02 500 200	0.5 0.1	A A % % mA ns
X ε _L I ₀ tr Δt (I _{P,max}) f	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy @ I_{PN} , $T_{A} = 25^{\circ}C$ Linearity Offset current @ $I_{P} = 0$, $T_{A} = 25^{\circ}C$ Response time Delay time at di/dt = 100 A/ μ s		±112 ±128	0.1 0.02 500 200	0.5 0.1 0.1	A A % % mA ns ns kHz
X εL Io tr Δt (I _{P,max}) f ieneral data ¹⁾	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} =$ @ $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} =$ Accuracy @ I_{PN} , $T_A = 25^{\circ}C$ Linearity Offset current @ $I_{P} = 0$, $T_A = 25^{\circ}C$ Response time Delay time at di/dt = 100 A/ μ s Frequency bandwidth		±112 ±128 DC200	0.1 0.02 500 200	0.5 0.1 0.1	A A % % mA ns ns kHz
X EL Io tr At (I _{P,max}) f General data ¹⁾	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy @ I_{PN} , $T_A = 25^{\circ}C$ Linearity Offset current @ $I_{P} = 0$, $T_{A} = 25^{\circ}C$ Response time Delay time at di/dt = 100 A/ μ s Frequency bandwidth Ambient operating temperature		±112 ±128 DC200 min. -40	0.1 0.02 500 200	0.5 0.1 0.1 *******************************	A A % % mA ns ns kHz Unit °C
X εL Io tr Δt (I _{P,max}) f seneral data ¹⁾	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy @ I_{PN} , $T_A = 25^{\circ}C$ Linearity Offset current @ $I_{P} = 0$, $T_A = 25^{\circ}C$ Response time Delay time at di/dt = 100 A/ μ s Frequency bandwidth Ambient operating temperature Ambient storage temperature		±112 ±128 DC200	0.1 0.02 500 200	0.5 0.1 0.1	A A % % mA ns ns kHz Unit °C °C
X εL Io tr Δt (I _{P,max}) f General data 1) TA Ts m	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) $R_M = 22 \Omega$ ($t_{max} = 0$) $R_M = 0$) $R_M = 0$ ($t_{max} = 0$) $R_M = 0$) $R_M = 0$ 0 $R_M = 0$		±112 ±128 DC200 min. -40	0.1 0.02 500 200 typ.	0.5 0.1 0.1 *******************************	A A % % mA ns ns kHz Unit °C °C
X ε _L I ₀ t _r Δt (I _{P,max}) f General data ¹⁾ T _A T _S m V _C	@ $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy @ I_{PN} , $T_A = 25^{\circ}C$ Linearity Offset current @ $I_{P} = 0$, $T_A = 25^{\circ}C$ Response time Delay time at di/dt = 100 A/ μ s Frequency bandwidth Ambient operating temperature Ambient storage temperature Mass Supply voltage		±112 ±128 DC200 min. -40	0.1 0.02 500 200 typ. 13.5 ±12 or ±15	0.5 0.1 0.1 *******************************	A A % % mA ns ns kHz Unit °C °C g V
X εL Io tr Δt (I _{P,max}) f General data 1) TA Ts m	(a) $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy (a) I_{PN} , $I_A = 25^{\circ}C$ Linearity Offset current (a) $I_{P} = 0$, $I_A = 25^{\circ}C$ Response time Delay time at di/dt = 100 A/ μ s Frequency bandwidth Ambient operating temperature Ambient storage temperature Mass Supply voltage Current consumption	10sec)	±112 ±128 DC200 min. -40 -40	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5	0.5 0.1 0.1 *******************************	A A % % mA ns ns kHz Unit °C °C g V mA
X εL Io tr Δt (I _{P,max}) f seeneral data ¹⁾ T _A T _S m V _C	(a) $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy (a) I_{PN} , $I_A = 0$) I_{PN} (b) I_{PN}) $I_A = 0$) I_{PN} (b) I_{PN}) I_{PN} (c)	10sec)	±112 ±128 DC200 min. -40 -40	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5 h EN 61800-5-1	0.5 0.1 0.1 *******************************	A A % % mA ns ns kHz Unit °C °C g V mA
X EL Io tr At (I _{P,max}) f General data Ts m Vc Ic	(a) $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy (a) I_{PN} , $I_A = 0$) I_{PN} (b) I_{PN}) $I_A = 0$) Offset current (a) I_{PN} 0. I_{PN} 1 I_{PN} 2 I_{PN} 3 I_{PN} 4 I_{PN} 5 I_{PN} 6 I_{PN} 6 I_{PN} 7 I_{PN} 7 I_{PN} 8 I_{PN} 9 I_{P	and tested in according material group 1, F	±112 ±128 DC200 min. -40 -40 ±11.4 dance wit	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5 h EN 61800-5-1	0.5 0.1 0.1 *******************************	A A % % mA ns ns kHz Unit °C °C g V mA o Pin 7 – 9)
X εL Io tr Δt (I _{P,max}) f seneral data ¹⁾ T _A T _S m	(a) $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) Accuracy (a) I_{PN} , $I_A = 0$) I_{PN} (b) I_{PN}) $I_A = 0$) I_{PN} (b) I_{PN}) I_{PN} (c)	and tested in according terrial group 1, Fer pad)	±112 ±128 DC200 min. -40 -40	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5 h EN 61800-5-1	0.5 0.1 0.1 *******************************	A A % % mA ns ns kHz Unit °C °C g V mA
X EL Io tr At (I _{P,max}) f General data TA Ts m Vc Ic Sclear	(a) $V_C = \pm 12V$, $R_M = 10 \Omega$ ($t_{max} = 0$) $V_C = \pm 15V$, $R_M = 22 \Omega$ ($t_{max} = 0$) $R_M = 0$) $R_M = 0$ ($t_{max} = 0$) $R_M = 0$) $R_M = 0$ ($t_{max} = 0$) $R_M = 0$) $R_M = 0$ 0 $R_M = 0$	and tested in accord material group 1, F er pad) er pad)	±112 ±128 DC200 min. -40 -40 ±11.4 dance wit Pollution of 10.2 10.2 RMS	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5 h EN 61800-5-1	0.5 0.1 0.1 max. +85 +90 ±15.75 (Pin 1 - 6 to	A A W W MA ns ns kHz Unit °C °C g V mA o Pin 7 – 9) mm
X εL I ₀ tr Δt (I _{P,max}) f General data 1) TA Ts m Vc Ic Ic Sclear Screep Vsys Vwork	 W_C = ±12V, R_M = 10 Ω (t_{max} = @ V_C = ±15V, R_M = 22 Ω (t_{max} = Accuracy @ I_{PN}, T_A= 25°C Linearity Offset current @ I_P=0, T_A= 25°C Response time Delay time at di/dt = 100 A/μs Frequency bandwidth Ambient operating temperature Ambient storage temperature Mass Supply voltage Current consumption Constructed and manufactored a Reinforced insulation, Insulation clearance (component without solde creepage (component without solde System voltage overvoltage ca Working voltage (table 7 acc. 	and tested in accord material group 1, F er pad) er pad)	±112 ±128 DC200 min. -40 -40 ±11.4 dance wite Pollution of 10.2 10.2 RMS RMS	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5 h EN 61800-5-1 degree 2	0.5 0.1 0.1 max. +85 +90 ±15.75 (Pin 1 - 6 to	A A % % mA ns ns kHz Unit °C °C g V mA o Pin 7 – 9) mm mm V V
X ε _L I ₀ t _r Δt (I _{P,max}) f General data ¹⁾ TA Ts m Vc Ic Sclear Screep Vsys	 W_C = ±12V, R_M = 10 Ω (t_{max} = @ V_C = ±15V, R_M = 22 Ω (t_{max} = Accuracy @ I_{PN}, T_A= 25°C Linearity Offset current @ I_P=0, T_A= 25°C Response time Delay time at di/dt = 100 A/μs Frequency bandwidth Ambient operating temperature Ambient storage temperature Mass Supply voltage Current consumption Constructed and manufactored a Reinforced insulation, Insulation clearance (component without solde creepage (component without solde System voltage overvoltage ca 	and tested in according aterial group 1, For pad) er pad) tegory 3	±112 ±128 DC200 min. -40 -40 ±11.4 dance wit Pollution of 10.2 10.2 RMS	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5 h EN 61800-5-1 degree 2	0.5 0.1 0.1 max. +85 +90 ±15.75 (Pin 1 - 6 to	A A W W MA ns ns kHz Unit °C °C g V mA o Pin 7 – 9) mm mm V
X £L Io tr At (IP,max) f General data TA TS TS TO VC IC Sclear Screep Vsys Vwork UPD	 W_C = ±12V, R_M = 10 Ω (t_{max} = @ V_C = ±15V, R_M = 22 Ω (t_{max} = Accuracy @ I_{PN}, T_A= 25°C Linearity Offset current @ I_P=0, T_A= 25°C Response time Delay time at di/dt = 100 A/μs Frequency bandwidth Ambient operating temperature Ambient storage temperature Mass Supply voltage Current consumption Constructed and manufactored a Reinforced insulation, Insulation clearance (component without solde creepage (component without solde System voltage overvoltage ca Working voltage (table 7 acc. 	and tested in according aterial group 1, For pad) er pad) tegory 3	±112 ±128 DC200 min. -40 -40 ±11.4 dance wite Pollution of 10.2 10.2 RMS RMS	0.1 0.02 500 200 typ. 13.5 ±12 or ±15 18,5 h EN 61800-5-1 degree 2	0.5 0.1 0.1 max. +85 +90 ±15.75 (Pin 1 - 6 to	A A % % mA ns ns kHz Unit °C °C g V mA o Pin 7 – 9) mm mm V V

Date	Name	Isuue	Amenament					
20.01.2022	NSch.	81	Applicable do	oplicable document changed on sheet 4. "The color of the plastic material added. Minor change				
18.04.13	KRe	81	Mechanical o	Mechanical outline: marking with UL-sign. and max. potential difference added. CN-660				
Hrsg.: KB-E Bearb: Le designer			KB-PM IA: KRe.			freig.: SB released		

K-No.: 24616 50 A

SPECIFICATION

Item no.: T60404-N4646-X410

50 A Current Sensor

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

Date: 20.01.2022

(electronic circuit)

Page 2 of 5

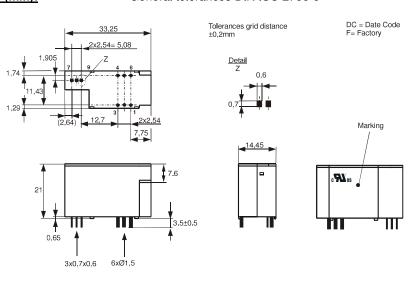
Mechanical outline (mm):

Standard type

Customer:

General tolerances DIN ISO 2768-c

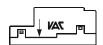
Customers Part no.:



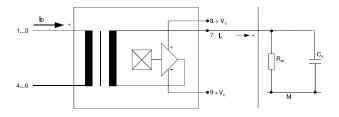
Connections: 1...6: Ø 1,5 mm 7...9: 0,6x0,7 mm

Marking:

UL-sign 4646X410 F DC



Schematic diagram



Possibilities of wiring for V_C = ±15V (@ T_A = 85°C, R_M = 22 Ω)

primary windings N _P	RMS n	current naximal Î _{P,max} [A]	output current RMS I _S (I _P) [mA]	turns ratio	primary resistance \mathbf{R}_{P} [$\mathbf{m}\Omega$]	wiring
1	50	128	50	1:1000	0,12	1 3 6 4
2	20	64	40	2:1000	0,54	1 3 6 4
3	15	43	45	3:1000	1,1	3 6 4>

Hrsg.: KB-E	Bearb: Le	KB-PM IA: KRe.		freig : SB
editor	designer	check		released

	50 A Current Sensor For the electronic measuremen DC, AC, pulsed, mixed, with Isolation between the primary c (high power) and the secondary (electronic circuit) ard type stigate by a type checking) Maximum supply voltage (with ±15.75 ±18 V: for 1s per h Secondary coil resistance @ Primary coil resistance per turent Temperature drift of X @ TA = Offset current (including Io, Io Long term drift Offset current Offset current temperature drift of the Hyteresis current @ Ip=0 (cau Supply voltage rejection ratio Offset ripple* (with 1 MHz- filteresis current)	a galvanic ircuit Customers Part Customers Part Customers Part Ta=85°C Ta=85°C Ta=85°C Ta=25°C Ta=40 +85 °C Ta=10T Ta=10T	no.: min.	typ.	Page max. ±18 88	20.01.2022 3 of 5 Unit V	
Electrical Data (inve	Maximum supply voltage (with ±15.75 ±18 V: for 1s per has Secondary coil resistance @ Primary coil resistance per tusted Temperature drift of X @ TA = Offset current (including Io, Io Long term drift Offset current Offset current temperature drift Hyteresis current @ Ip=0 (cau Supply voltage rejection ratio	nout function) our TA=85°C rn @ TA=25°C = -40 +85 °C a, I _{OT}) I _O		typ.	max. ±18	<mark>Unit</mark> V	
V _{Ctot} Rs Rp XTi loges	Maximum supply voltage (with ±15.75 ±18 V: for 1s per his Secondary coil resistance @ Primary coil resistance per turn Temperature drift of X @ TA = Offset current (including Io, Io Long term drift Offset current temperature drift Hyteresis current @ Ip=0 (cau Supply voltage rejection ratio	nout function) our TA=85°C rn @ TA=25°C = -40 +85 °C s, I _{OT}) I ₀	min.	typ.	±18	V	
V _{Ctot} Rs Rp XTi loges	Maximum supply voltage (with ±15.75 ±18 V: for 1s per his Secondary coil resistance @ Primary coil resistance per turn Temperature drift of X @ TA = Offset current (including Io, Io Long term drift Offset current temperature drift Hyteresis current @ Ip=0 (cau Supply voltage rejection ratio	nout function) our TA=85°C rn @ TA=25°C = -40 +85 °C s, I _{OT}) I ₀	<mark>min.</mark>	typ.	±18	V	ļ
Rs R _p X _{Ti} I _{0ges}	±15.75 ±18 V: for 1s per h Secondary coil resistance @ Primary coil resistance per tu Temperature drift of X @ T _A = Offset current (including I ₀ , I ₀ Long term drift Offset current Offset current temperature dr Hyteresis current @ I _P =0 (cau Supply voltage rejection ratio	our T _A =85°C rn @ T _A =25°C = -40 +85 °C					
R _p X _{Ti} I _{0ges}	Primary coil resistance per tu Temperature drift of X @ T _A = Offset current (including I ₀ , I ₀ Long term drift Offset current Offset current temperature dr Hyteresis current @ I _P =0 (cau Supply voltage rejection ratio	rn @ T _A =25°C = -40 +85 °C t, I _{OT})			88	0	
X _{Ti}	Temperature drift of X @ T _A = Offset current (including I ₀ , I ₀ Long term drift Offset current Offset current temperature dr Hyteresis current @ I _P =0 (cau Supply voltage rejection ratio	= -40 +85 °C 1, I _{OT})				Ω	
l _{0ges}	Offset current (including I ₀ , I ₀ Long term drift Offset current Offset current temperature dr Hyteresis current @ I _P =0 (cau Supply voltage rejection ratio	t, I _{OT}) I _O			0.36	$m\Omega$	
_	Long term drift Offset current Offset current temperature dr Hyteresis current @ I _P =0 (cau Supply voltage rejection ratio	l o			0.1	%	
Ot	Offset current temperature dr Hyteresis current @ I _P =0 (cau Supply voltage rejection ratio				0.15	mA	
	Hyteresis current @ I _P =0 (cau Supply voltage rejection ratio	ift I_0 @ $T_A = -40 \dots +85$		0.05		mA	
ОТ	Supply voltage rejection ratio			0.05		mA	
І он			x I _{PN})	0.04	0.1	mA	
$\Delta I_0/\Delta V_C$					0.01	mA/V	
loss	Offset ripple* (with 100 kHz-	, , , , , , , , , , , , , , , , , , ,		0.03	0,15 0.05	mA mA	
loss l _{oss}	Offset ripple* (with 20 kHz- fil	· · · · · · · · · · · · · · · · · · ·		0.007	0.03	mA	
C _k	Maximum possible coupling		condary)	4	0.01	pF	
	Mechanical Stress according Settings: 10 – 2000 Hz, 1 mir An exceptionally high rate of on/off – accelerates the aging process of the	n/Oktave, 2 hours switching of the supply volta	ge		10g		
Inspection (Measure	ment after temperature balance of	the samples at room tem	perature)				
$K_N(N_1/N_2)$ (V)	M3011/6 Transfo	rmation ratio (I _P =3*10/	A, 40-80 Hz	<u>'</u>)	13 : 1000	± 0.5 %	
I_0 (V)	M3226 Offset of				< 0.1	mA	
$V_{P,eff}$ (V)		tage, rms, 1s to Pin 7 - 9			2.5	kV	
V _e (AQL 1/S4)	Partial o	discharge voltage acc.	M3024 (RN	MS)	1500 1875	V V	I
Type Testing (Pin 1 -	6 to Pin 7 – 9)						
,	standard EN 61800 with insul	ation material group 1					
Vw	HV transient test according (t (1,2 μs / 50 μs-wave form)	<u> </u>			8	kV	
V _d	Testing voltage acc. M3014 (RMS)		(5 s)	5	kV	
Ve	Partial discharge voltage acc with V_{vor} (RMS)	. M3024 (RMS)			1500 1875	V V	
Hrsg.: KB-E		KB-PM IA: KRe,				freig.: SB	



SPECIFICATION

Item no.: T60404-N4646-X410

K-No.: 24616

Customer:

50 A Current Sensor

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: 20.01.2022

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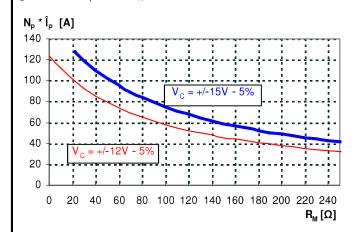
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of

Page

Standard type Limit curve of measurable current ÎP(RM)

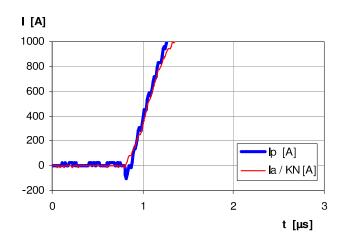
@ ambient temperature T_A ≤ 85 °C



Maximum measuring range (µs-range)

Output current behaviour of a 3kA current pulse @ $V_C = \pm 15V$ und $R_M = 25\Omega$

Customers Part no .:



Fast increasing currents (higher than the specified $I_{p,max}$), e.g. in case of a short circuit, can be transmitted because the currents are transformed directly.

Offsetripple reduction

The offset ripple can be reduced by an external low pass. Simplest solution is a passive low pass filter of 1st order with

$$f_g = \frac{1}{2\pi \cdot R_M \cdot C_a}$$

In this case the response time is enlarged.

It is calculated from:

$$t_r' \le t_r + 2.5 R_M C_a$$

Applicable documents

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

Constructed and manufactored and tested in accordance with EN 61800.

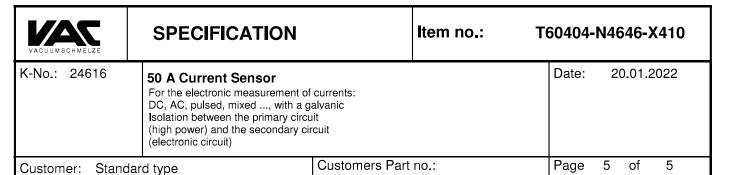
Further standards UL 508; file E317483, category NMTR2 / NMTR8

Temperature of the primary conductor should not exceed 100°C.

"The color of the plastic material is not specified and the current sensor can be supplied in different colors

(e.g. brown, black, white, natural). This has no effect on the specifications or UL approval."

Hrsg.: KB-E	Bearb: Le	KB-PM IA: KRe.		freig : SB
editor	designer	check		released



Explanation of sever al of the terms used in the tablets (in alphabetical order)

 I_{0H} : Zero variation of I_0 after overloading with a DC of tenfold the rated value ($R_M = R_{MN}$)

 I_{0t} : Long term drift of I_0 after 100 temperature cycles in the range -40 bis 85 °C.

tr: Response time (describe the dynamic performance for the specified measurement range), measured as delay time at $I_P = 0.9 \cdot I_{Pmax}$ between a rectangular current and the output current.

Delay time (describe the dynamic performance for the rapid current pulse rate e.g short circuit current) measured between I_{Pmax} and the output current I_a with a primary current rise of I_{Pmax} and I_{Pmax} and I_{Pmax} and I_{Pmax} are the output current I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the output I_{Pmax} and I_{Pmax} are the output I_{Pmax} are the outpu

 $X_{ges}(I_{PN})$: The sum of all possible errors over the temperature range by measuring a current I_{PN} :

$$X_{ges} = 100 \cdot \left| \frac{I_{S} (I_{PN})}{K_{N} \cdot I_{PN}} - 1 \right| \%$$

 Δt (I_{Pmax}):

X: Permissible measurement error in the final inspection at RT, defined by

$$X = 100 \cdot \left| \frac{I_{SB}}{I_{SN}} - 1 \right| \%$$

where I_{SB} is the output DC value of an input DC current of the same magnitude as the (positive) rated current ($I_0 = 0$)

X_{Ti}: Temperature drift of the rated value orientated output term. I_{SN} (cf. Notes on F_i) in a specified temperature range, obtained by:

$$X_{\text{Ti}} = 100 \cdot \left| \frac{I_{\text{SB}}(T_{\text{A2}}) - I_{\text{SB}}(T_{\text{A1}})}{I_{\text{SN}}} \right| \%$$

 $\varepsilon_{\text{L}}\text{:}\qquad \qquad \text{Linearity fault defined by} \qquad \varepsilon_{\text{L}}\text{=}\,100\cdot \left|\frac{I_{\text{P}}}{I_{\text{PN}}}-\frac{I_{\text{Sx}}}{I_{\text{SN}}}\right|\,\%$

Where I_P is any input DC and I_{Sx} the corresponding output term. I_{SN} : see notes of F_i ($I_0 = 0$).