#### **SPECIFICATION** T60404-N4646-X461 Item no.: Date: 24.01.2022 K-no.: 24620 100 A Current Sensor Module for 5V- Supply Voltage For electronic current measurement: DC, AC, pulsed, mixed ..., with a galvanic isolation between primary circuit (short power) and secondary circuit (electronic circuit) Customers Part no.: Page 1 of Customer: Standard type Characteristics Description **Applications** Excellent accuracy Mainly used for stationary operation in industrial Closed loop (compensation) Current Sensor with magnetic applications: Very low offset current AC variable speed drives and servo motor field probe Very low temperature dependency and offset Printed circuit board mounting current drift Static converters for DC motor drives Casing and materials UL-listed Very low hysteresis of offset current Short response time Battery supplied applications Switched Mode Power Supplies (SMPS) Wide frequency bandwidth Compact design Power Supplies for welding applications Uninterruptible Power Supplies (UPS) Reduced offset ripple **Electrical data - Ratings** Primary nominal r.m.s. current 100 IPN $V_{out}$ Output voltage @ IP $V_{Ref} \pm (0.625*I_P/I_{PN})$ ٧ Output voltage @ IP=0, TA=25°C V<sub>Ref</sub> ± 0.0025 Vout External Reference voltage range 0...4 ٧ $V_{Ref}$ Internal Reference voltage 2.5 ±0.005 V $K_N$ Turns ratio 1...3:1100 Accuracy - Dynamic performance data

4

		min.	typ.	max.	Unit
I <sub>P,max</sub>	Max. measuring range	±200			
Χ	Accuracy @ I <sub>PN</sub> , T <sub>A</sub> = 25°C			0.7	%
$\epsilon_{L}$	Linearity			0.1	%
Vout - VRef	Offset voltage @ I <sub>P</sub> =0, T <sub>A</sub> = 25°C			±2.5	mV
$\Delta$ V <sub>o</sub> / V <sub>Ref</sub> / $\Delta$ V	Temperature drift of Vout @ IP=0, TA= -4085°C		3	10	ppm/°C
$t_r$	Response time @ 90% von I <sub>PN</sub>		500		ns
Δt (I <sub>P,max</sub> )	Delay time at di/dt = 100 A/μs		500		ns
f	Frequency bandwidth	DC100			kHz
eneral data					

min. typ. max. Unit

## Gen

TA	Ambient operating	temperature	-40		+85	°C
Ts	Ambient storage to	-40		+85	°C	
m	Mass			15		g
Vc	Supply voltage		4.75	5	5.25	V
Ic	Current consumpt	ion		16		mA
		nanufactored and tested in acco ion, Insulation material group 1			-1 (Pin 1 - 6 to Pin	7 – 10)
Sclear	Clearance (compor	nent without solder pad)	10.2			mm
Screep	Creepage (compon	ent without solder pad)	10.2			mm
$V_{sys}$	, ,	overvoltage category 3			600	V <sub>RMS</sub>
$V_{work}$	Working voltage	(table 7 acc. to EN61800-5-1) overvoltage category 2			1020	V <sub>RMS</sub>
U <sub>PD</sub>	Rated discharge v	oltage			1400	$V_P$
Max. potential diffe	Max. potential difference acc. to UL 508				600	V AC .

Date	Name	Issue	Amendment						
24.01.2022	NSch.	85	Applicable do	olicable document on sheet 3 changed. "The color of the plastic material added. Minor change.					
24.04.17	DJ	85	Page A2, Med	age A2, Mechanical outline changed (3,5 +/- 0,5 deleted) typo. Minor change					
Hrsg.: MC	C-PD		arb: DJ		MC-PM: ZP			freig.: SB	
editor		desi	gner		check			Toloasca	



## **SPECIFICATION**

Item no.: T60404-N4646-X461

K-no.: 24620

Customer:

100 A Current Sensor Module for 5V- Supply Voltage

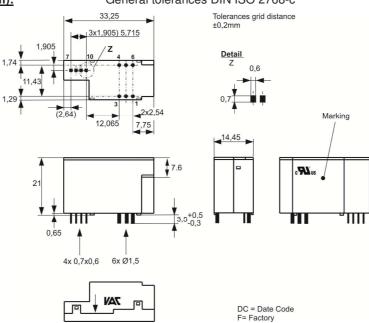
For electronic current measurement: DC, AC, pulsed, mixed ..., with a galvanic isolation between primary circuit (short power) and secondary circuit (electronic circuit) Date: 24.01.2022

Customers Part no.: Page 2 of 4

Mechanical outline (mm):

Standard type

#### General tolerances DIN ISO 2768-c



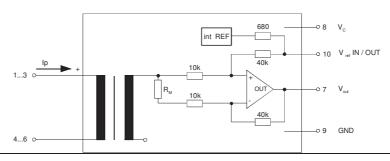
1...6: ∅ 1.5 mm 7..10: 0.7\*0.6 mm

Connections:

Marking:

UL-sign 4646-X461 F DC

#### Schematic diagram



## Possibilities of wiring

#### $(@ T_A = 85^{\circ}C)$

primary windings	primary RMS	current maximal	output current RMS	turns ratio	primary resistance	wiring
N <sub>P</sub>	I <sub>P</sub> [A]	$\hat{\mathbf{I}}_{P,max}\left[\mathbf{A}\right]$	$I_S(I_P)$ [mA]	$K_N$	$R_P$ [m $\Omega$ ]	
1	100	±200	2.5±0.625	1:1100	0.1	1 3
2	50	±100	2.5±0.625	2:1100	0.45	1 3 4 6>
3	33.3	±66	2.5±0.625	3:1100	1	> 1 3 6 >

Hrsg.: MC-PD	Bearb: DJ	MC-PM: ZP		freig.: SB
editor	designer	check		released

Temperature							
For electronic current measurement: local content in desiration between primary circuit (electronic circuit) (electronic circuit) (electronic circuit) (electronic circuit) (electronic circuit) (electronic circuit)    Voice	VACUUMSCHMELZE	SPECIFICATION		Item no.	: Т	60404-N40	346-X461
File   Part	K-no.: 24620	For electronic current measurement DC, AC, pulsed, mixed, with a gisolation between primary circuit (short power) and secondary circuit	nt: ıalvanic	oly Voltage	•	Date: 2	4.01.2022
Maximum supply voltage (without function)   6   V   V   V   V   V   V   V   V   V	Customer: Standa	ard type	Customers Part	no.:		Page 3	of 4
Votict         Maximum supply voltage (without function)         6         V           Io         Supply Current with primary current         16mA + I <sub>b</sub> *N <sub>H</sub> +V <sub>cwl</sub> /R <sub>L</sub> mA           Row         Resistance / primary winding @ Ta=25°C         0.3         mΩ           Re         Resistance / primary winding @ Ta=25°C         15         Ω           R. (Vau)         Output resistance of Reference input         670         Ω           R. (Vau)         Output resistance of Vau         1         Ω           R. (Vau)         Output resistance of Vau         500         pF           AL (Vau)         External recommended resistance of Vout         500         pF           AVa (Vau)         External recommended capacitance of Vout         500         pF           AVa (Vau)         Value of Value         500         pF           AVa (Value)         Value of Value         500         pF           AVa (Value)         Value of Value         1         mV           Vo         Longtermdrift of Value         1         mV           Vo         Longtermdrift of Value         1         mV           Vo         Temperature drift value (Value) (Valu	Electrical Data		•				
Column	.,			min.	typ.		
Short circuit output current		,	,	16m A .	I *KV ./D	•	•
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			Territ	TOITIA +		L	
Ris         Secondary coil resistance @ Ta=85°C         15         Ω           Ri, (Vox)         Internal resistance of Vout         670         Ω           Ri, (Vox)         Output resistance of Vout         1         Ω           Ri, (Vox)         Output resistance of Vout         1         Ω           Ri, (Vox)         External recommended resistance of Vout         1         kΩ           CL         External recommended capacitance of Vout         1         MΩ           ΔXπ/ΔV         Temperature drift vor X@ Ta = 40 +85°C         40         ppm/K           ΔVor         External recommended capacitance of Vout         1         mV           Vot         Longtermdrift of Vo         1         mV           Vot         Longtermdrift of Vo         1         mV           Vot         Longtermdrift of Vo         1         mV           Vot         Hystereses of Vout @ In=0A (after an overload of 10 x I <sub>Psi</sub> )         0.5         mV           Vos         Offsetripple (with 1 MHz- filter first order)         21         mV           Voss         Offsetripple (with 1 MHz- filter first order)         3.5         6         mV           Voss         Offsetripple (with 2 OkHz- filter first order)         3.5         6         m	,		) T₄=25°C		±20	0.3	
Ri.Ref   Internal resistance of Reference input   670   Ω							
R <sub>L</sub>   External recommended resistance of V <sub>out</sub>   1		•			670	10	
Richard   External recommended resistance of Vout   1	7 -		лірас		0.0	1	
CL         External recommended capacitance of Vout         500         pF           ΔΧη ΔΑ         Temperature drift of X@ TA = -40 +85 °C         40         ppm/K           ΔVο = Δ(Vout-VNet)         Sum of any offset drift including:         2         6         mV           Vot         Longtermdrift of V₀         1         mV           Vor         Temperature drift von V₀ @ TA = -40 +85°C         1         mV           Vor         Hystereses of V₀ut @ IP=0A (after an overload of 10 x I <sub>IPN</sub> )         0.5         mV           Vor         Hystereses of V₀ut @ IP=0A (after an overload of 10 x I <sub>IPN</sub> )         0.5         mV           ΔV₀/ΔVc         Supply voltage rejection ratio         1         mV/V           V₀ss         Offsetripple (with 10 kHz- filter first order)         21         mV           V₀sss         Offsetripple (with 10 kHz- filter first order)         3.5         6         mV           V₀sss         Offsetripple (with 10 kHz- filter first order)         1         1.5         mV           Ck         Maximum possible coupling capacity (primary – secondary)         5         pF         Mechanical stress           according to M3209/3         30g         3         6         mV           V₀ut(SC)         (V) M3011/6: Output voltage vs. re	,	•	nce of Vout	1		•	
	=			•		500	
ΔV <sub>0</sub> = Δ(V <sub>out</sub> - V <sub>Ref</sub> )         Sum of any offset drift including:         2         6         mV           Vor         Longtermdrift of V <sub>o</sub> 1         mV           Vor         Temperature drift von V <sub>o</sub> @ T <sub>A</sub> = -40+85°C         1         mV           VoH         Hystereses of V <sub>out</sub> @ I <sub>P</sub> =OA (after an overload of 10 x I <sub>PN</sub> )         0.5         mV           ΔVo/ΔVc         Supply voltage rejection ratio         1         mV/V           Voss         Offsetripple (with 1 MHz- filter first order)         21         mV           Voss         Offsetripple (with 100 kHz- filter first order)         3.5         6         mV           Voss         Offsetripple (with 20 kHz- filter first order)         1         1.5         mV           V <sub>Soss</sub> Offsetripple (with 20 kHz- filter first order)         1         1.5         mV           V <sub>Soss</sub> Offsetripple (with 20 kHz- filter first order)         1         1.5         mV           V <sub>Soss</sub> Offsetripple (with 20 kHz- filter first order)         3.5         6         mV           V <sub>Soss</sub> Offset voltage (1)         3.5         pF         Mechanical stress           Inspection         (Maximum possible coupling capacity (primary – secondary)         5         pF         Mechanical st		•				40	
Vot         Longtermdrift of V₀         1         mV           Vor         Temperature drift von V₀ @ Ta = -40+85°C         1         mV           V₀H         Hystereses of V₀ut @ Ie-DA (after an overload of 10 x I <sub>PN</sub> )         0.5         mV           ΔV₀/ΔVc         Supply voltage rejection ratio         1         mV/V           V₀ss         Offsetripple (with 1 MHz- filter first order)         21         mV           V₀sss         Offsetripple (with 10 kHz- filter first order)         3.5         6         mV           V₀sss         Offsetripple (with 10 kHz- filter first order)         1         1.5         mV           Ck         Maximum possible coupling capacity (primary – secondary)         5         pF         Mechanical stress           according to M3209/3         30g         Settings: 10 – 2000 Hz, 1 min/Oktave, 2 hours         Mechanical stress           Inspection         (Measurement after temperature balance of the samples at room temperature, SC = significant characteristic)         Vot         Vot         Vot         Vot         Moderation characteristic         Vot         Vot         Vot         Moderation characteristic         Vot         Vot         Moderation characteristic         Vot         Moderation characteristic         Vot         Vot         Moderation characteristic         Vot		·			2	6	
VoH	,	•			1		mV
AVo/ΔVc Supply voltage rejection ratio  Voss Offsetripple (with 1 MHz- filter first order)  Voss Offsetripple (with 10 kHz- filter first order)  Voss Offsetripple (with 100 kHz- filter first order)  Voss Offsetripple (with 20 kHz- filter first order)  Voss Offsetripple (with 20 kHz- filter first order)  Ck Maximum possible coupling capacity (primary – secondary)  Settings: 10 – 2000 Hz, 1 min/Oktave, 2 hours    Inspection (Measurement after temperature balance of the samples at room temperature, SC = significant characteristic)    Vout (SC) (V) M3011/6: Output voltage vs. reference (Ip=3x10Apeak, 40-80Hz) 625±0,7% mV    Vout VRef (V) M3226: Offset voltage (Ip=OA) ± 0.0025 V  Vd (V) M3014: Test voltage, 1s pin 1 – 6 vs. pin 7 – 10  Ve (AQL 1/S4) Partial discharge voltage acc.M3024 1500 VRMS with Vvor 1875 VRMS    Vd (Testing voltage to M3014 (5 s) 5 kV  Vd Testing voltage to M3014 (5 s) 5 kV  Ve Partial discharge voltage acc.M3024 1500 VRMS with Vvor 1875 VRMS    Applicable documents   Vertical discharge voltage acc.M3024 1500 VRMS with Vvor 1875 VRMS   Vertical discharge voltage acc.M3024 1500 VRMS with Vvor 1875 VRMS   Vertical discharge voltage acc.M3024 1500 VRMS with Vvor 1875 VRMS   Vertical discharge voltage acc.M3024 1500 VRMS with Vvor 1875 VRMS   Vertical discharge voltage acc.M3024 1500 VRMS   Vertical discharge voltage acc.M30	V <sub>0T</sub>	Temperature drift von V <sub>0</sub> @ T <sub>A</sub> =	= -40+85°C		1		mV
Voss   Offsetripple (with 1 MHz- filter first order)   21 mV	V <sub>0H</sub>	Hystereses of Vout @ IP=0A (after	er an overload of 10 x	I <sub>PN</sub> )		0.5	mV
Voss         Offsetripple (with 100 kHz- filter firdt order)         3.5         6         mV           Voss         Offsetripple (with 20 kHz- filter first order)         1         1.5         mV           Ck         Maximum possible coupling capacity (primary – secondary)         5         pF         Mechanical stress           according to M3209/3         30g         Settings: 10 – 2000 Hz, 1 min/Oktave, 2 hours         Mechanical stress           Inspection (Measurement after temperature balance of the samples at room temperature, SC = significant characteristic)           Vout (SC)         (V) M3011/6: Output voltage vs. reference (Ip=3x10Appsak, 40-80Hz)         625±0,7%         mV           Vout (SC)         (V) M3014: Test voltage (Ip=0A)         ± 0.0025         V           Vd         (V) M3014: Test voltage, 1 s pin 1 – 6 vs. pin 7 – 10         2.5         kVms           Ve         (AQL 1/S4)         Partial discharge voltage acc.M3024         1500         VRMS           Type Testing         (Pin 1 - 6 to Pin 7 – 10)           Vw         HV transient test according to M3064 (1,2 μs / 50 μs-wave form)         8         kV           Vg           Type Testing         (Pin 1 - 6 to Pin 7 – 10)           Vg	$\Delta V_0/\Delta V_C$	Supply voltage rejection ratio				1	mV/V
Voss         Offsetripple (with 20 kHz- filter first order)         1         1.5         mV           Ck         Maximum possible coupling capacity (primary – secondary)         5         pF           Mechanical stress           Inspection (Measurement after temperature balance of the samples at room temperature, SC = significant characteristic)           Vout (SC)         (V) M3011/6:         Output voltage vs. reference (I <sub>P</sub> =3x10A <sub>Presix</sub> , 40-80Hz)         625±0,7%         mV           Vout (SC)         (V) M3011/6:         Output voltage (I <sub>P</sub> =0A)         ± 0.0025         V           Vout (SC)         (V) M3014:         Test voltage, 1 s pin 1 – 6 vs. pin 7 – 10         ± 2.5         kV <sub>RMS</sub> Very (AQL 1/S4)         Partial discharge voltage acc.M3024         1500         V <sub>RMS</sub> Type Testing         (Pin 1 - 6 to Pin 7 – 10)           Vw         HV transient test according to M3064 (1,2 μs / 50 μs-wave form)         8         kV           Vg         Testing voltage acc.M3024         1500 <t< td=""><td></td><td></td><td>,</td><td></td><td></td><td></td><td></td></t<>			,				
Ck Maximum possible coupling capacity (primary – secondary) 5 pF Mechanical stress according to M3209/3 30g Settings: 10 – 2000 Hz, 1 min/Oktave, 2 hours    Inspection   (Measurement after temperature balance of the samples at room temperature, SC = significant characteristic)   Vout (SC)   (V) M3011/6: Output voltage vs. reference (Ip=3x10Apeak, 40-80Hz) 625±0,7% mV	V <sub>OSS</sub>		·			•	
Settings: 10 – 2000 Hz, 1 min/Oktave, 2 hours					-		
Vout (SC)         (V)         M3011/6:         Output voltage vs. reference (I <sub>P</sub> =3x10A <sub>Peak</sub> , 40-80Hz)         625±0,7%         mV           Vour-VRef         (V)         M3226:         Offset voltage (I <sub>P</sub> =0A)         ± 0.0025         V           Vd         (V)         M3014:         Test voltage, 1 s pin 1 – 6 vs. pin 7 – 10         2.5         kV <sub>RMS</sub> Ve         (AQL 1/S4)         Partial discharge voltage acc.M3024         1500         V <sub>RMS</sub> Type Testing (Pin 1 - 6 to Pin 7 – 10)           Vw         HV transient test according to M3064 (1,2 μs / 50 μs-wave form)         8         kV           Ve         Partial discharge voltage acc.M3024         1500         V <sub>RMS</sub> Ve         Partial discharge voltage acc.M3024         1500         V <sub>RMS</sub> Applicable documents           Temperature of the primary conductor should not exceed 100°C.           Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow.           Further standards UL 508; file E317483, category NMTR2 / NMTR8           Enclosures according to IEC529: IP50.         Three color of the plastic material is not specified and the current sensor can be supplied in different colors	according to M3209/3	30g	•		γι	Wicon	inical stress
Vout-VRef       (V) M3226: Offset voltage (Ip=0A)       ± 0.0025       V         Vd       (V) M3014: Test voltage, 1 s pin 1 – 6 vs. pin 7 – 10       2.5       kV <sub>RMS</sub> Ve       (AQL 1/S4)       Partial discharge voltage acc.M3024       1500       V <sub>RMS</sub> Type Testing       (Pin 1 - 6 to Pin 7 – 10)         Vw       HV transient test according to M3064 (1,2 μs / 50 μs-wave form)       8       kV         Va       Testing voltage to M3014       (5 s)       5       kV         Ve       Partial discharge voltage acc.M3024       1500       V <sub>RMS</sub> Applicable documents         Temperature of the primary conductor should not exceed 100°C.         Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow.         Further standards UL 508; file E317483, category NMTR2 / NMTR8         Enclosures according to IEC529: IP50.         "The color of the plastic material is not specified and the current sensor can be supplied in different colors	Inspection (Measurer	nent after temperature balance of the	samples at room tem	perature, SC :	= significant ch	aracteristic)	
Vd       (V)       M3014:       Test voltage, 1 s pin 1 – 6 vs. pin 7 – 10       2.5       kVRMS         Ve       (AQL 1/S4)       Partial discharge voltage acc.M3024       1500       VRMS         Type Testing       (Pin 1 - 6 to Pin 7 – 10)         Vw       HV transient test according to M3064 (1,2 μs / 50 μs-wave form)       8       kV         Vd       Testing voltage to M3014       (5 s)       5       kV         Ve       Partial discharge voltage acc.M3024       1500       VRMS         with Vvor       1875       VRMS     Applicable documents  Temperature of the primary conductor should not exceed 100°C.  Current direction: A positive output current appears at point Vout, by primary current in direction of the arrow.  Further standards UL 508; file E317483, category NMTR2 / NMTR8  Enclosures according to IEC529: IP50.  "The color of the plastic material is not specified and the current sensor can be supplied in different colors	$V_{out}(SC)$ (V)	M3011/6: Output voltage vs.	reference (I <sub>P</sub> =3x10A <sub>F</sub>	Peak, 40-80Hz)		625±0,7%	mV
Pin 1 – 6 vs. pin 7 – 10  Ve (AQL 1/S4) Partial discharge voltage acc.M3024 1500 V <sub>RMS</sub> with V <sub>vor</sub> Type Testing (Pin 1 - 6 to Pin 7 – 10)  Vw HV transient test according to M3064 (1,2 μs / 50 μs-wave form) 8 kV  Vd Testing voltage to M3014 (5 s) 5 kV  Ve Partial discharge voltage acc.M3024 1500 V <sub>RMS</sub> with V <sub>vor</sub> Applicable documents  Temperature of the primary conductor should not exceed 100°C. Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow. Further standards UL 508; file E317483, category NMTR2 / NMTR8 Enclosures according to IEC529: IP50.  "The color of the plastic material is not specified and the current sensor can be supplied in different colors	V <sub>out</sub> -V <sub>Ref</sub> (V)	M3226: Offset voltage (I <sub>P</sub> =0	)A)			± 0.0025	V
Ve (AQL 1/S4) Partial discharge voltage acc.M3024 1500 V <sub>RMS</sub> vith V <sub>vor</sub> Type Testing (Pin 1 - 6 to Pin 7 – 10)  Vw HV transient test according to M3064 (1,2 μs / 50 μs-wave form) 8 kV  Vd Testing voltage to M3014 (5 s) 5 kV  Ve Partial discharge voltage acc.M3024 1500 V <sub>RMS</sub> vith V <sub>vor</sub> Applicable documents  Temperature of the primary conductor should not exceed 100°C.  Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow. Further standards UL 508; file E317483, category NMTR2 / NMTR8  Enclosures according to IEC529: IP50.  "The color of the plastic material is not specified and the current sensor can be supplied in different colors	$V_d$ (V)					2.5	kV <sub>RMS</sub>
With V <sub>vor</sub> Type Testing (Pin 1 - 6 to Pin 7 – 10)  Vw HV transient test according to M3064 (1,2 μs / 50 μs-wave form) 8 kV  Vd Testing voltage to M3014 (5 s) 5 kV  Ve Partial discharge voltage acc.M3024 1500 V <sub>RMS</sub> with V <sub>vor</sub> Applicable documents  Temperature of the primary conductor should not exceed 100°C.  Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow. Further standards UL 508; file E317483, category NMTR2 / NMTR8  Enclosures according to IEC529: IP50.  "The color of the plastic material is not specified and the current sensor can be supplied in different colors	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \					1500	N/
Vw HV transient test according to M3064 (1,2 μs / 50 μs-wave form) 8 kV V <sub>d</sub> Testing voltage to M3014 (5 s) 5 kV V <sub>e</sub> Partial discharge voltage acc.M3024 1500 V <sub>RMS</sub> with V <sub>vor</sub> 1875 V <sub>RMS</sub> Applicable documents  Temperature of the primary conductor should not exceed 100°C. Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow. Further standards UL 508; file E317483, category NMTR2 / NMTR8 Enclosures according to IEC529: IP50. "The color of the plastic material is not specified and the current sensor can be supplied in different colors	Ve (AQ		эпаде асс.м3024				
V <sub>d</sub> Testing voltage to M3014 (5 s) 5 kV  V <sub>e</sub> Partial discharge voltage acc.M3024 1500 V <sub>RMS</sub> with V <sub>vor</sub> 1875 V <sub>RMS</sub> Applicable documents  Temperature of the primary conductor should not exceed 100°C. Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow. Further standards UL 508; file E317483, category NMTR2 / NMTR8 Enclosures according to IEC529: IP50.  "The color of the plastic material is not specified and the current sensor can be supplied in different colors		·	10004 (4.0 / 50		. \	0	1.17
Ve Partial discharge voltage acc.M3024 with V <sub>vor</sub> 1500 V <sub>RMS</sub> V <sub>RMS</sub> Applicable documents  Temperature of the primary conductor should not exceed 100°C. Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow. Further standards UL 508; file E317483, category NMTR2 / NMTR8 Enclosures according to IEC529: IP50. "The color of the plastic material is not specified and the current sensor can be supplied in different colors			/i3064 (1,2 μs / 50 μ	is-wave form		-	
Applicable documents  Temperature of the primary conductor should not exceed 100°C. Current direction: A positive output current appears at point V <sub>out</sub> , by primary current in direction of the arrow. Further standards UL 508; file E317483, category NMTR2 / NMTR8 Enclosures according to IEC529: IP50.  "The color of the plastic material is not specified and the current sensor can be supplied in different colors			3024		(5 8)		
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	Temperature of the prim Current direction: A posi Further standards UL 50 Enclosures according to "The color of the plastic	ary conductor should not exceed 100 tive output current appears at point V <sub>0</sub> 08; file E317483, category NMTR2 / I IEC529: IP50. material is not specified and the curre	out, by primary current NMTR8 ent sensor can be supp	olied in differe			

MC-PM: ZP

Bearb: DJ

freig.: SB released



# **SPECIFICATION**

Item no.: T60404-N4646-X461

Date:

24.01.2022

K-no.: 24620

100 A Current Sensor Module for 5V- Supply Voltage

For electronic current measurement: DC, AC, pulsed, mixed ..., with a galvanic isolation between primary circuit (short power) and secondary circuit

(electronic circuit)

Customer: Standard type Customers Part no.: Page 4 of 4

#### Explanation of several of the terms used in the tablets (in alphabetical order)

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

 $\Delta t$  (I<sub>Pmax</sub>): Delay time (describe the dynamic performance for the rapid current pulse rate e.g short circuit current) measured between I<sub>Pmax</sub> and the output voltage V<sub>out</sub>(I<sub>Pmax</sub>) with a primary current rise of dip/dt  $\geq$  100 A/ $\mu$ s.

 $U_{PD}$  Rated discharge voltage (recurring peak voltage separated by the insulation) proved with a sinusoidal voltage  $V_e$   $U_{PD}$  =  $\sqrt{2}$  \*  $V_e$  / 1,5

V<sub>vor</sub> Defined voltage is the RMS valve of a sinusoidal voltage with peak value of 1,875 \* U<sub>PD</sub> required for partial discharge test in IEC 61800-5-1

 $V_{vor} = 1,875 * U_{PD} / \sqrt{2}$ 

V<sub>sys</sub> System voltage RMS value of rated voltage according to IEC 61800-5-1

Vwork Working voltage voltage according to IEC 61800-5-1 which occurs by design in a circuit or across insulation

 $V_0$ : Offset voltage between  $V_{out}$  and the rated reference voltage of  $V_{ref} = 2,5V$ .

 $V_0 = V_{out}(0) - 2.5V$ 

 $V_{0H}$ : Zero variation of  $V_0$  after overloading with a DC of tenfold the rated value

 $V_{0t}$ : Long term drift of  $V_0$  after 100 temperature cycles in the range -40 bis 85 °C.

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

$$X = 100 \cdot \left| \frac{V_{out}(I_{PN}) - V_{out}(0)}{0.625V} - 1 \right| \%$$

X<sub>ges</sub>(I<sub>PN</sub>): Permissible measurement error including any drifts over the temperature range by the current measurement I<sub>PN</sub>

$$X_{\text{ges}} = 100 \cdot \left| \frac{V_{\text{out}} \left( I_{\text{PN}} \right) - 2,5V}{0,625 \text{V}} - 1 \right| \quad \% \quad \text{or} \quad X_{\text{ges}} = 100 \cdot \left| \frac{V_{\text{out}} \left( I_{\text{PN}} \right) - V_{\textit{ref}}}{0,625 \text{V}} - 1 \right| \quad \%$$

 $\varepsilon_{\rm L}{:} \qquad \qquad \text{Linearity fault defined by} \qquad \varepsilon_{\rm L}{=}\,100 \cdot \left| \frac{\rm I_{\rm P}}{\rm I_{\rm PN}} \, - \, \frac{\rm V_{\it out}(I_{\it P}) - V_{\it out}(0)}{\rm V_{\it out}(I_{\it PN}) - V_{\it out}(0)} \right| \, \%$