VACUUMSCHMELZE	**Specification**	**Item no.:**	**T60404-N4643-P160**

K-no.: K30716	**80A Open Loop Current Sensor for industrial application** DC, AC, pulsed and mixed electric current measurement with a galvanic insulation, analog voltage output, integrated primary busbar	Date 22.06.2026
Customer: Standard type	Customer part no:	Page 1 of 4

Description

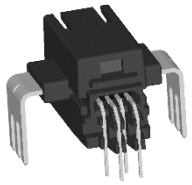
- Open Loop Current Sensor
- Hall-Effect field probe

Characteristics

- Wide frequency bandwidth
- Short response time
- Compact design

Applications

Mainly used for stationary operation in industrial applications



Electrical Data – Ratings

			Unit
I_{PN}	Primary nominal current value	80	A
V_{OUT}	Output Voltage @ I_P against V_{REF}	$V_{REF} \pm G \cdot I_P$	V
V_{REF}	External Reference voltage range	0.5 … 2.65	V
	Internal Reference voltage	2.5 ± 0.02	V
G	Sensitivity	10.0	mV / A

Accuracy & Dynamic performance data

		min.	typ.	max.	Unit
$I_{P,max}$	Max. Measuring range	-200		+200	A
X	Accuracy @ I_{PN} for ϑ_A= 25°C	-1.0		1.0	%
ε_G	Sensitivity error @ ϑ_A = 25°C (factory adjusted)	-0.5		0.5	%
ε_L	Linearity error @ ϑ_A = 25°C	-0.5		0.5	% of I_{PN}
$V_{OUT(0)}$-V_{REF}	Offset voltage @ ϑ_A = 25°C, I_P = 0A	-10		10	mV
I_{OM}	Magnetic offset (hysteresis after 3 x I_{PN} calc. to primary)	-0.6		0.6	A
TC_G	sensitivity drift over temperature -40 to 25°C	-540		540	ppm/K
	25 to 105°C	-175		175	ppm/K
TC_0	offset drift over temperature -40 to 25°C	-22		22	mA/K
	25 to 105°C	-10		10	mA/K
t_{r80}	Response time @ 80% of I_{PN} (200 A/µs)			1.4	µs
t_{r90}	Response time @ 90% of I_{PN} (200 A/µs)			1.5	µs
f	Frequency bandwidth (-3dB)	200			kHz

General data

		min.	typ.	max.	Unit
ϑ_A	Ambient operating temperature	-40		+105	°C
$\vartheta_{Storage}$	Ambient storage temperature acc. VAC M3101	-45		+105	°C
m	Mass		6.0	7.0	g
V_{CC}	Supply voltage	4.5		5.5	V
I_{C0}	Current consumption for I_P = 0A		16	23	mA

REMARK: The temperature of the primary conductor must not exceed 140°C * (hottest point in the middle of the sensor)
for verification: the measured temperature at the kink of the primary conductor should not exceed 125°C *

s_{clear} [1]	Clearance distance		8		mm
s_{creep} [1]	Creepage distance		8		mm
U_{sys} [1]	System voltage	basic insulation		1000	$V_{RMS/DC}$
		reinforced insulation		600	V_{RMS}
U_{work} [1]	Working voltage	basic insulation		1600	$V_{RMS/DC}$
		reinforced insulation		800	V_{RMS}
U_{PD} [1]	Rated discharge voltage			1131	V_{PEAK}
UL508	max. potential difference according UL 508			600	V_{AC}

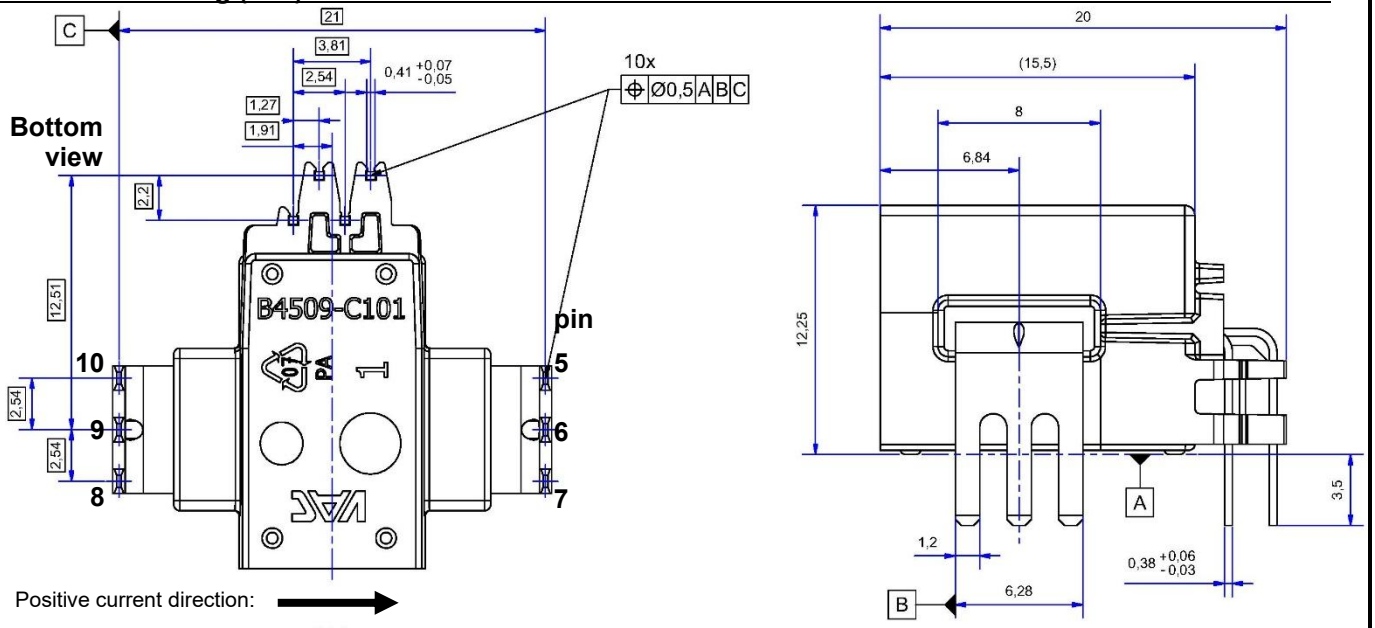
[1] Constructed, manufactured and tested in accordance with IEC 61800-5-1:2007 - Material group 1, Pollution degree 2, OVC III, altitude ≤ 2000m

Date	Name	Issue	Amendment
22.06.26	Ku	81	Minor Change - Test condition t_{r80} & t_{r90} changed from '(50A/µs 300A)' to '(200A/µs)'. – page 1.
20.04.26	Ku	81	Minor Change - additional dimension and pin description – page 2.

Hrg R&D-PD-CS editor	Bearb: Ku. designer		MC-PM: FS check			freig.: SB released

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Mechanical drawing (mm): General tolerance DIN ISO 2768-c



Pin no.	Name	Function
1	U_{ref}	Reference Voltage
2	U_{OUT}	Voltage Output
3	GND	Ground (0V)
4	$+U_C$	Supply Voltage (+5V)

N4643-P180-02

Connection diagram

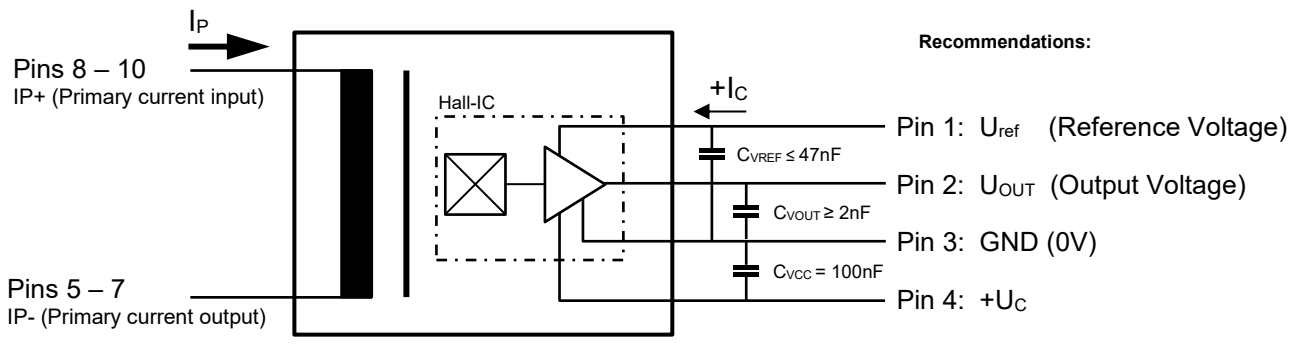
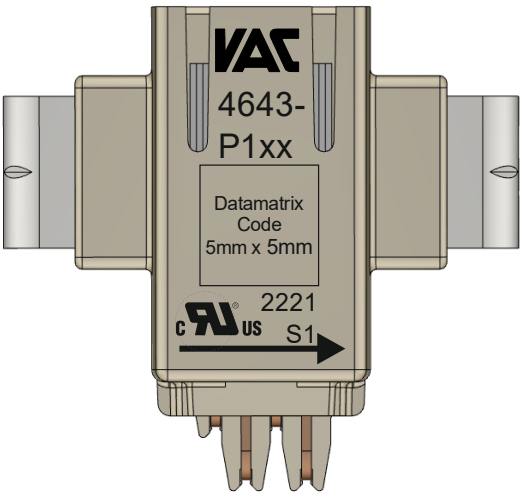


Fig. 6: functional block diagram of the sensor

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Marking

Readable text: Item-number "xxxxxxxx"
F = Factory code, e.g."S4"
DC = Date code (YYWW) e.g. "2138"



Datamatrix code (ECC200):

code size: 5.0mm x 5.0mm
symbol size: 16 x 16 modules
data region: 14 x 14 modules

data content:			
1. Item number	IN	4 digits
2. Reserved (std=1)	R1	1 digit
3. Factory Code	FC	2 digits
4. Reserved 2	R2	4 digits
5. Serial no. (hex)	SN	5 digits

Format: "IN,R1,FC,R2,SN" example: P1801S42403C8FB3

- For a factory code of only 1 digit an underscore character "_" is added

Routine Test

(Measurement after temperature balance of the samples at room temperature; SC = significant characteristic)

G	(100%) M3011/6	Sensitivity (I_{PN}= 80A_{DC})	±0.5	% (SC)
$I_{0M\ (IPN)}$	(100%) M3226	Magnetic Offset voltage (I_{PN}= 80A_{DC})	1.6	mV
U_P	(100%) M3014	Test voltage (1s) Pin 1,3,5 to primary opening	2.2	kV_{rms}
U_{PDE}	(AQL 1/S4)	Partial discharge voltage (extinction)	1.2	kV_{rms}
$U_{PD(rms)}$ ·1.875		*acc. table 24	1.5	kV_{rms}

Type Test (Preconditioning acc. VAC M3236)

(Pins to primary opening)

$\hat{U}_W$	M3064	HV transient test (1.2µs / 50µs, 5 pulses ➔ polarity +, 5 pulses ➔ polarity -)	8.0	kV
U_P	M3014	Test voltage (5s)	3.6	kV_{rms}
U_{PDE}	M3024	Partial discharge voltage (extinction)	1.2	kV_{rms}
$U_{PD(rms)}$ ·1.875		*acc. table 24	1.5	kV_{rms}

*** IEC61800-5-1:2007**

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Explanation to parameters used in this datasheet

Accuracy

X: The sum of all errors at 25°C at nominal primary current I_{PN}

ε_S: Sensitivity error at factory adjustment.

ε_L: Linearity error where I_P is any input DC and $V_{OUT}(I_P)$ the corresponding output term.

Offset, hysteresis and drift

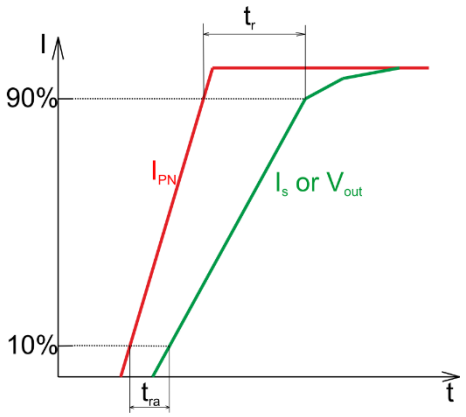
I_{SO}: Offset current

I_{SOH}: magnetic offset variation after overloading with a DC of threefold the rated value

Dynamic properties

t_{ra} Reaction time, measured as a delay time between a rectangular primary current and the output current I_S at $I_P = 0.1 * I_{PN}$

$t_{r80/90}$: Response time, measured as a delay time between a rectangular primary current and the output current I_S at $I_P = 0.8 * I_{PN}$ (respectively $0.9 * I_{PN}$)



Voltage ratings (according to IEC 61800-5-1:2007)

U_{PD} Rated discharge voltage (recurring peak voltage separated by the insulation)

U_{sys} System voltage: RMS value of rated voltage

U_{AC} Working voltage: RMS voltage which occurs by design in a circuit or across an insulation

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