

MACC 2^{plus}

A contact free, high accurate current measuring system

Features and benefits

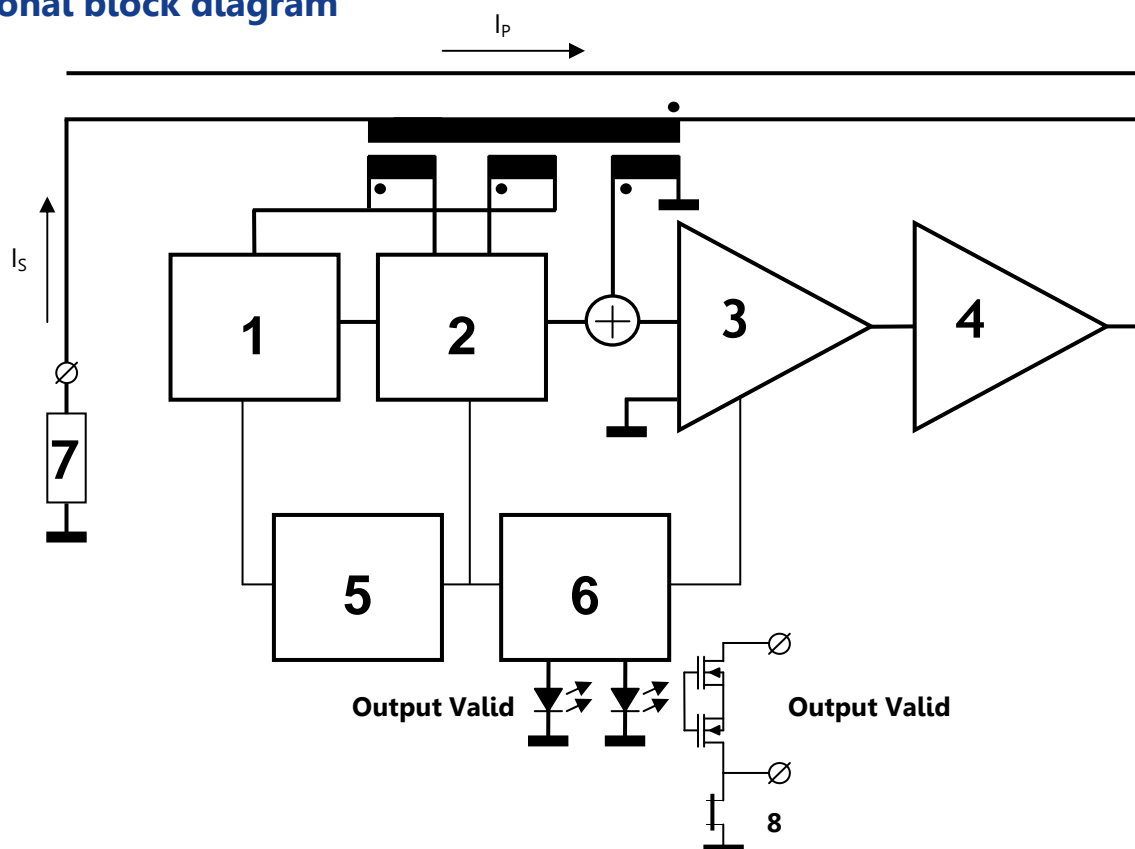
- Ultra low noise
- Excellent linearity
- Low temperature drift
- Zero-fluxTM technology
- DC and AC measurement
- Open circuit protection

Description

The MACC 2^{plus} is a current measuring system especially designed for applications where high accuracy in combination with low noise and low offset is needed. The MACC 2^{plus} can measure DC, AC and pulsed currents and is galvanically insulated (5kV_{AC}) to the primary circuit. The primary current is transformed into a proportional output current with a fixed ratio. Also the MACC 2^{plus} is fit, form and pin compatible with the MACC^{plus} making it possible to easily upgrade your application.



Functional block diagram



1 Oscillator

5 Automatic Gain Control

2 Peak Detector

6 Saturation Detector

3 Integrator

7 External Burden

4 Power Amplifier

8 Jumper¹⁾
(Output Valid floating or non-floating)

I_p = primary current

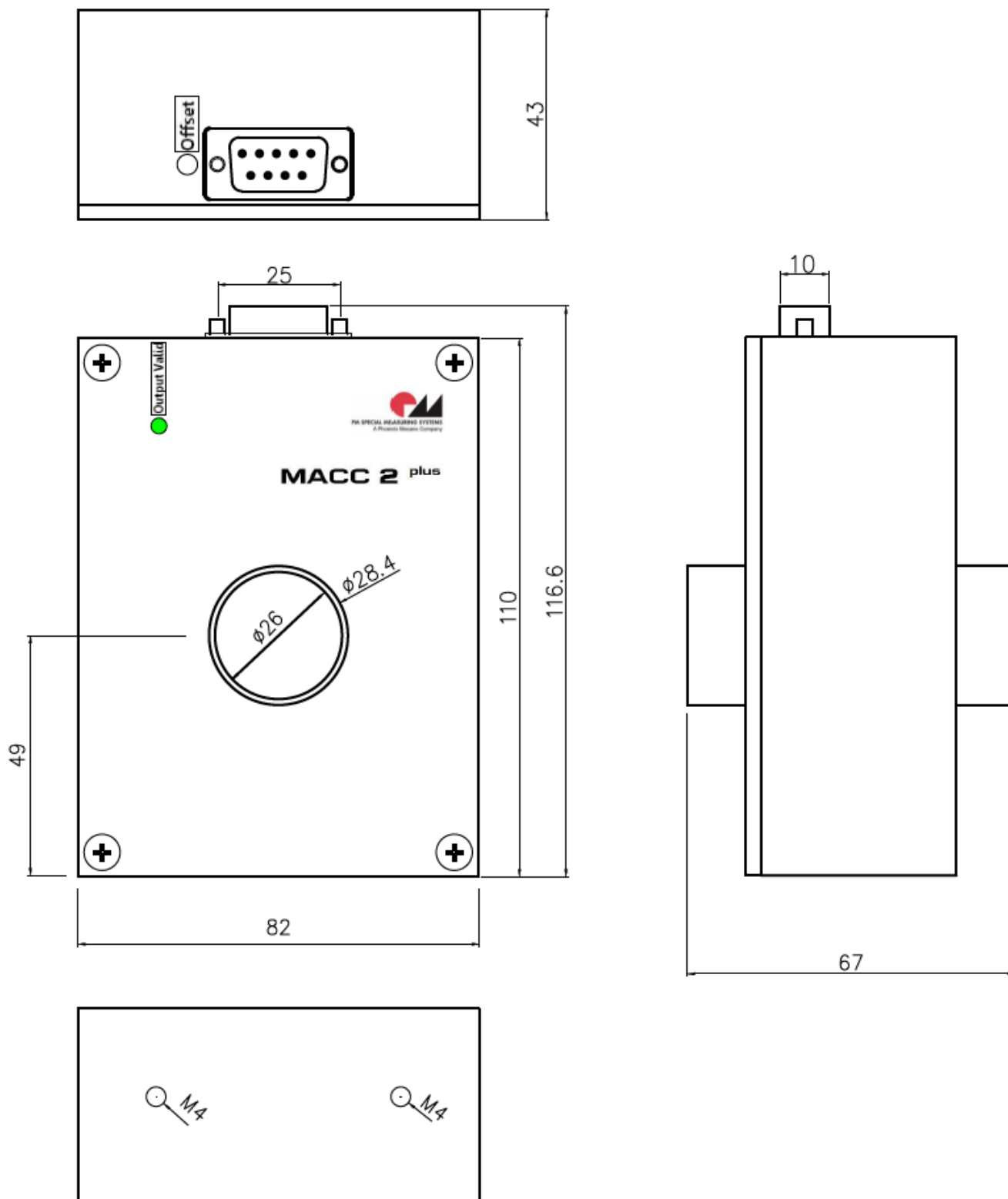
I_s = secondary current

¹⁾ Jumper for Output Valid O.C. is standard connected to ground. If floating output is required please remove top-cover and remove jumper located on the left hand side

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Mechanical data



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Main characteristics

Rated input current (I_{PN})	$\pm 600A$
Transfer ratio	1000:1
Rated output current (I_{SN})	$\pm 600mA$
Max. output current	$\pm 1.0A$
Linearity error	$< 2\mu A$
Output offset error (initial)	$< 3\mu A$
Offset drift (TC)	$< 0.1\mu A/K$
Offset error vs. supply voltage	$< 0.1\mu A/V$
Offset error vs. time	$< 0.2\mu A/month$
Output error vs. ext. magn. field	$< 3\mu A/mT$
Output noise (BW= 10kHz)	$< 0.8\mu A_{pp}$ (of I_{SN})
Small signal bandwidth (1% of I_{PN})	DC ... 800kHz (-3dB)
Step response time	$< 2.5\mu s$
Supply voltage V_C	$\pm 15V$
Load resistor (burden)	0 ... 7Ω (with supply voltage $\pm 15V$ @ I_{PN})
Induced into primary	$< 300\mu V_{pp}$

General data

Current consumption I_C	90mA + I_S
Power dissipation at 600A	9.5W ($R_b=0\Omega$)
Min/Max supply voltage V_C	$\pm 14V_{DC}/\pm 15.5V_{DC}$
Polarity protection	No
Output Valid indicator	LED (pure green)
Output Valid contact	PhotoMOS relays: $R_{ON} = 0,8\Omega$, $I_{MAX} = 200mA$, $V_{MAX} = 40V_P$
Dimensions (l x w x h)	110x82x43mm, incl. isolator 67mm.
Hole diameter	26mm
Material	
Housing	Aluminium
Primary isolator	POM-C
Weight	< 450 gram
Ambient operating temperature	0 ... $+40^\circ C$
Relative Humidity	20 ... 80% (Non condensing)
Ambient storage temperature	-40 ... $+75^\circ C$
Relative Humidity	20 ... 80% (Non condensing)
Pollution degree	2

Safety

Protection class	III (IEC 60 950-1, Supplied by external SELV power source)
Protection degree	
Terminals	IP20 (Test finger, EN 60 529)
Housing	IP40 (Test finger, EN 60 529)
Flammability class acc. UL94	V0

Insulation characteristics

Creepage distance	12mm (between primary busbar and housing)
Clearance distance	12mm (between primary busbar and housing)
CTI	600 (primary isolator)
Test voltage (sine)	
Prim. busbar to output	5kV/50Hz, 1min (IEC61010-1)
Electronics to housing	500V _{DC} /10s
Impulse voltage (surge)	
Prim. busbar to output	5kV 1.2/50 μs

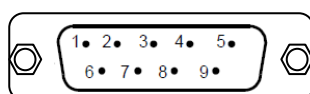
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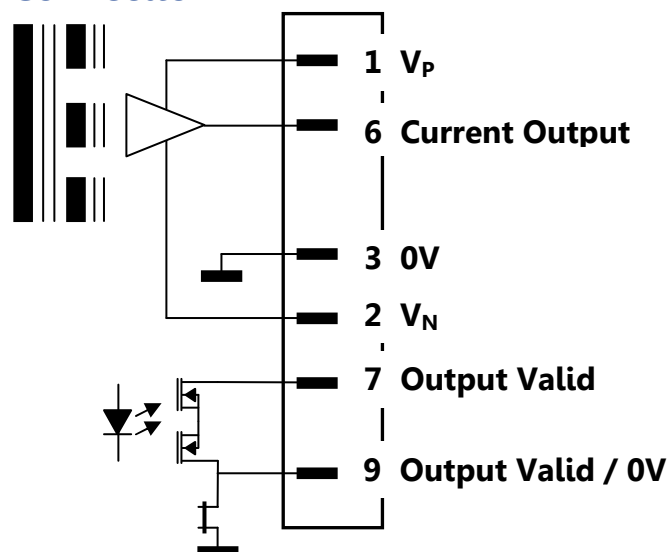
Type A (default) Interface

Sub-D 9p connector MALE

Pin 1	+15V (V _P)
Pin 2	-15V (V _N)
Pin 3	0V
Pin 4	NC
Pin 5	NC
Pin 6	Current Output
Pin 7	Output Valid
Pin 8	NC
Pin 9	Output Valid or 0V ¹⁾



Connection

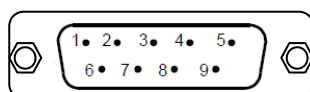


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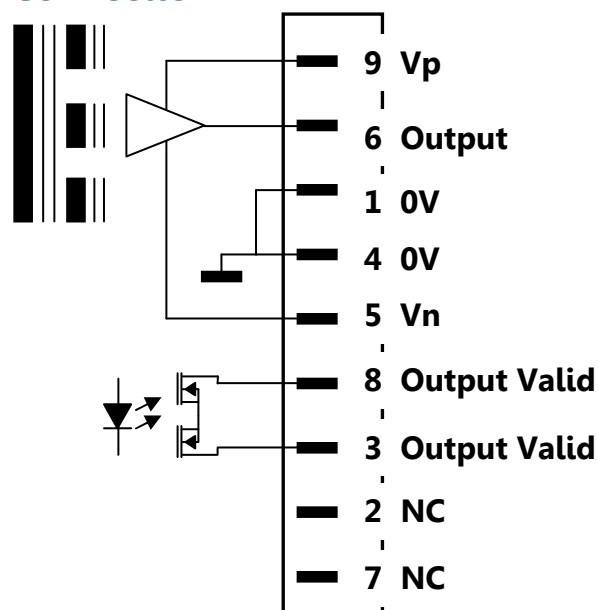
Type B (on request) Interface

Sub-D 9p connector MALE

Pin 1	0V
Pin 2	NC
Pin 3	Output valid
Pin 4	0V
Pin 5	-15Vdc (Vn)
Pin 6	Output
Pin 7	NC
Pin 8	Output Valid
Pin 9	+15Vdc (Vp)



Connection

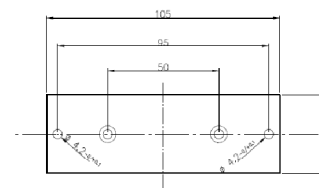


Accessories

Mounting bracket (l x w x h=105 x 35x 3mm)

Partnumber

8870.006



Subject to change without prior notice

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