



MACC 2 plus

A contact free, high accurate current measuring system

Features and benefits

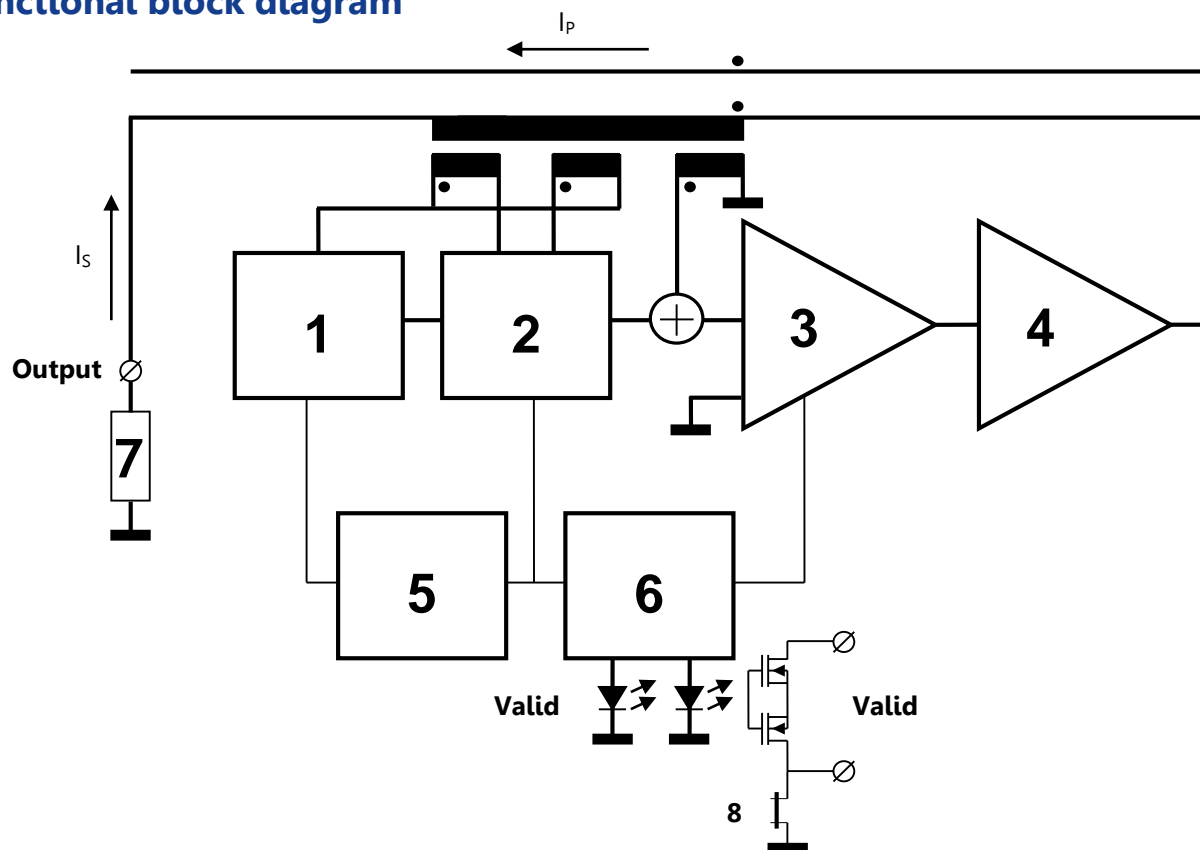
- Ultra low noise
- Excellent linearity
- Low temperature drift
- Zero-flux™ technology
- DC and AC measurement
- Open circuit protection

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 (5 kV_{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 | 2 Peak Detector | 3 Integrator | 4 Power Amplifier |
| 5 Automatic Gain Control | 6 Saturation Detector | 7 External Burden | 8 Jumper ¹⁾ |
| | | | (Valid floating or non-floating) |

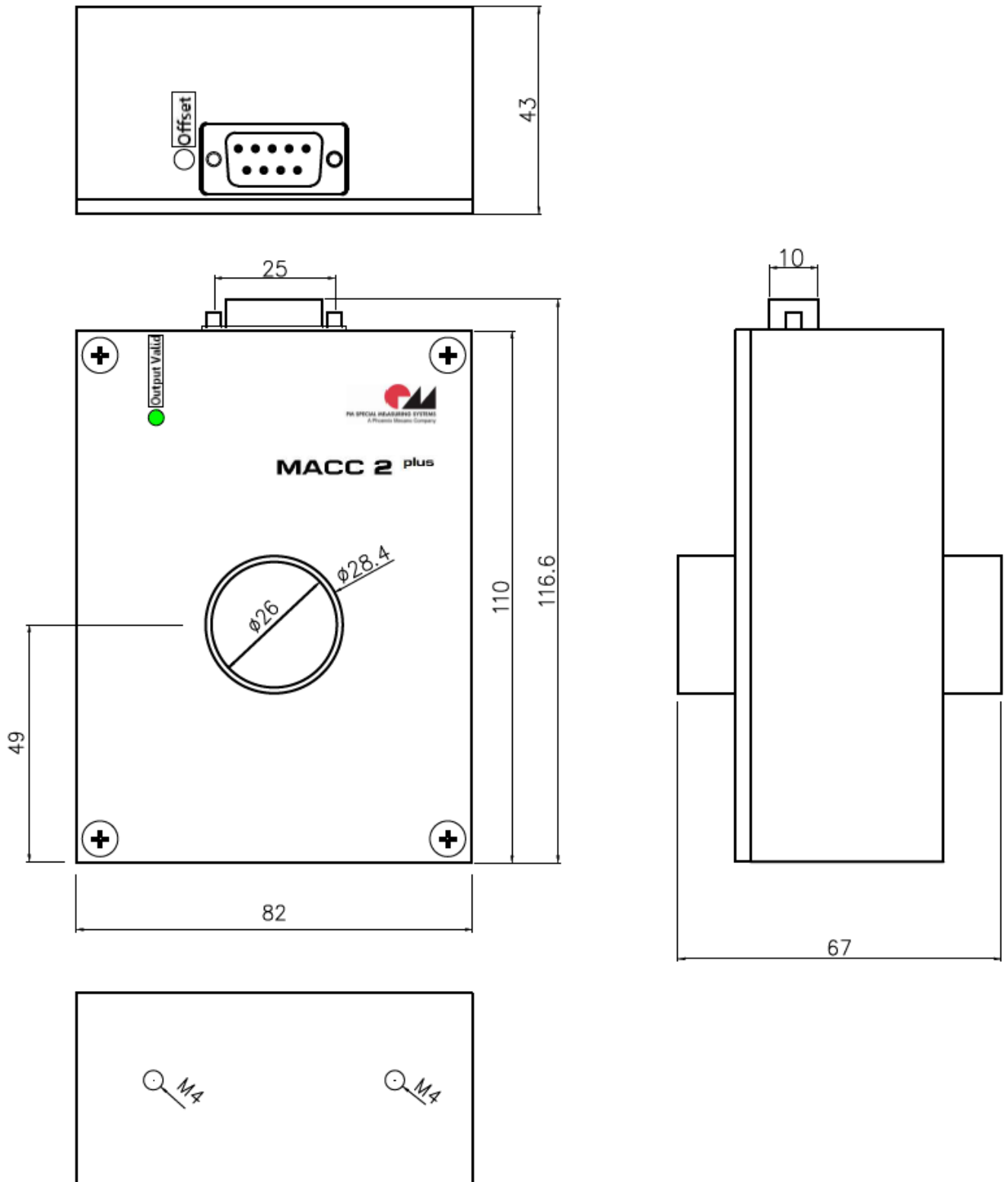
I_p = primary current
 I_s = secondary current

1) Jumper "Valid" contact is standard connected to 0V. If floating output is required please remove top-cover and remove jumper located on the left hand side

MACC 2 plus

A contact free, high accurate current measuring system

Mechanical data



MACC 2 plus

A contact free, high accurate current measuring system

Main characteristics

Rated input current (I_{PN})	± 600 A
Overload current	120 % (DC / AC_{RMS} , max. 1000 A_{DC} 6 min/hour)
Transfer ratio	1000:1
Rated output current (I_{SN})	± 600 mA Note: Output current is negative when input current is positive.
Max. output current	± 1.0 A
Linearity error	< 2 μ A
Output offset error (initial)	< 3 μ A
Offset drift (TC)	< 0.1 μ A/K
Offset error vs. supply voltage	< 0.1 μ A /V
Offset error vs. time	< 0.2 μ A/month
Output error vs. ext. magn. field	< 3 μ A/mT
Output noise (BW= 10kHz)	< 0.8 μ A _{pp}
Small signal bandwidth (1% of I_{PN})	DC ... 800 kHz (-3 dB)
Step response time	< 2.5 μ s
Supply voltage	± 15 V
Load resistor (burden)	0 ... 7 Ω (1 Ω at 1 kA_{DC} and supply voltage ± 15 V @ I_{PN})
Induced into primary	< 300 μ V _{pp}

General data

Current consumption	95 mA + I_S
Power dissipation at 600 A	9.5 W ($R_b=0$ Ω)
Min/Max supply voltage	± 14 V / ± 15.5 V
Polarity protection	No
Valid indicator	LED (pure green)
Valid "contact" (closed at normal operation)	PhotoMOS relays: $R_{ON} = 0,8$ Ω , $I_{MAX} = 200$ mA, $V_{MAX} = 40$ V _P
Dimensions (l x w x h)	110 x 82 x 43 mm, incl. isolator 67 mm.
Hole diameter	26 mm
Material	
Housing	Aluminium
Primary insulator	POM-C
Mass	< 700 gram
Ambient operating temperature	0 ... +40 $^{\circ}$ C
Relative humidity	20 ... 80 % (Non condensing)
Ambient storage temperature	-40 ... +70 $^{\circ}$ 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	12 mm (between primary busbar and housing)
Clearance distance	12 mm (between primary busbar and housing)
CTI	600 (primary insulator)
Test voltage	
Prim. busbar to output	5 kV/50 Hz, 1 min (IEC61010-1)
Electronics to housing	500 V _{DC} /10 s
Impulse voltage (surge)	
Prim. busbar to output	5 kV 1.2/50 μ s

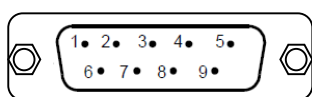
MACC 2 plus

A contact free, high accurate current measuring system

Type A (default) Interface

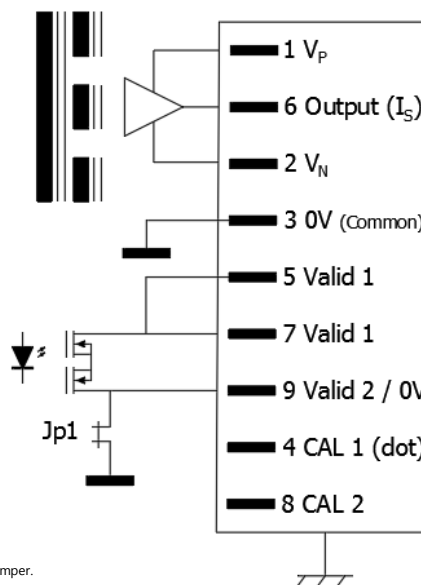
Sub-D 9p connector MALE

Pin 1	+15 V (V _P)
Pin 2	-15 V (V _N)
Pin 3	0 V
Pin 4	Option CAL 1 (dot)
Pin 5	Valid 1
Pin 6	Output (I _S)
Pin 7	Valid 1
Pin 8	Option CAL 2
Pin 9	Valid 2 / 0 V ¹⁾



¹⁾ Jumper Jp1 for "Valid" standard connected to 0V. If floating output is required please remove top-cover and remove jumper.

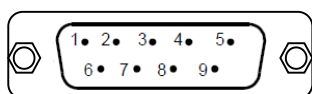
Connection diagram



Type B (on request) Interface

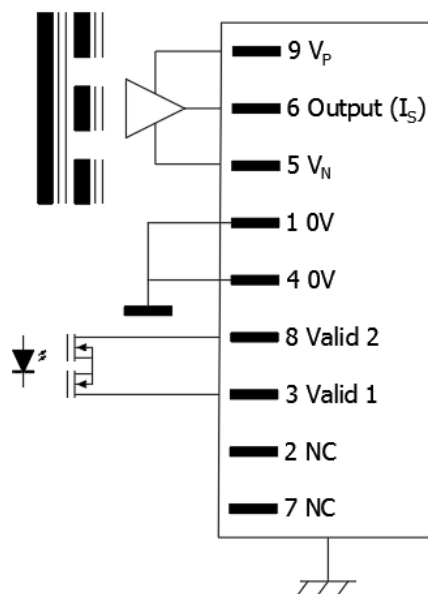
Sub-D 9p connector MALE

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



NC = Not connected

Connection diagram

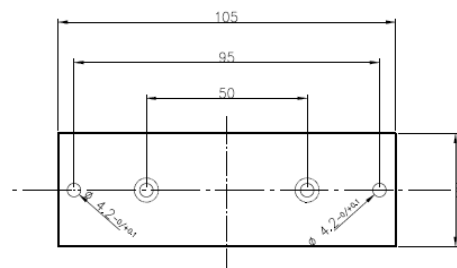


Accessories

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

Partnumber

8870.006



Subject to change without prior notice

Page 4 of 4