CIP-CA/CV - Transducers of Current / Voltage

- Arithmetical mean value measurement: Calibration to RMS with sine waveform (average aalue)
- Accuracy class 0.5 as per International Standard IEC/EN 60 688.
- Auxiliary power supply: 40 V-300 V AC/DC.
  or 24 V-60 V AC/DC.
- Output Response Time < 250 ms.
- Fast and easy installation on DIN RAIL or onto a wall or in panel using optional screw hole bracket.

Application

The transducer CIP-CA / CIP-CV convert a sinusoidal AC current or AC voltage into load independent DC current or DC voltage proportional to the measured value.

Product Features

Measuring Input

AC voltage/current input signal, sine wave.

Auxiliary Power Supply

- 40 V-300 V AC/DC

or • 24 V-60 V AC/DC.

Analog Output

Isolated analog output which can be voltage or current.

Accuracy

Ouput signal accuracy class 0.5 as per International Standard IEC/EN60688.

LED Indication

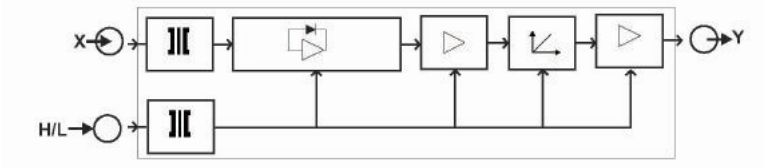
Led indication for power ON

Symbols and their meaning

X	Input AC Voltage / AC Current.
Y	Output DC Voltage / DC Current.
H/L	Power supply.
F_N	Nominal Frequency.
R_N	Rated value of output burden.
U_N	Nominal input voltage.
I_N	Nominal input current.

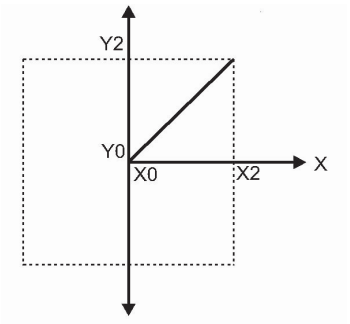
Mode of operation

Input signal X is separated from the mains network by using a transformer.
The signal is rectified and filtered in rectifier unit.
The transformation properties of the measuring transducer are determined in the succeeding characteristics circuit.
The output amplifiers transforms the measuring signal into an impressed output signal Y.
The circuit is supplied with Auxiliary supply H or L.



Output characteristics:

Example of setting with Linear Characteristics



X0 =	Start value of input	Y0 =	Start value of input
X2 =	End value of input	Y2 =	End value of input

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Technical Specifications

Measuring Input X:	**Voltage Transducer CIP-CV**	
Final value of Nominal input voltage U_N (X2) AC RMS		63.5V ≤ U_N ≤ 500V
Nominal Frequency F_N		50 or 60Hz
Nominal input voltage burden		< 0.6 VA at U_N
Overload capacity		1.2*U_N continuously 2*U_N for 1 second, repeated 10 times at 10 minute intervals
Measuring Input X:	**Current Transducer CIP-CA**	
Final value of Nominal input voltage I_N (X2) AC RMS		1A, 5A
Nominal Frequency F_N		50 or 60Hz
Nominal input current burden		< 0.2 VA at I_N
Overload capacity		1.2*I_N continuously 10*I_N for 3 second, repeated 5 times at 5 minute intervals 20*I_N for 1 second, repeated 5 times at 5 minute intervals 50*I_N for 1 second
Measuring Output Y		
Output type		Load independent DC voltage or DC current
Load independient DC output (Y2)		Calibration to RMS with sine waveform (Average value) 0...10mA, 0... 20mA, 2... 10mA, 4...20mA, 0... 5V, 0...10V
Output burden with DC current output signal		0V ≤ R ≤ 15V/Y2
Output burden with DC voltage output signal		Y2/(2mA) ≤ R ≤ ∞
Current limit under overload	R=0	≤ 1.6*Y2 with current output ≤ 25mA with voltage output
Voltage limit under	R=∞	≤ 1.6*Y2 with voltage output ≤ 25V with current output
Residual Ripple in output signal		≤ 1% pk-pk
Response time		< 250ms
Auxiliary supply H/L		
Rated operating voltage (for high aux. supply H)		40...300V AC/DC
Rated operating range of frequency (for high aux.Supply H)		45... 50... 60... 65Hz
Power consumption (for high aux. supply H)		< 4 VA
Rated operating voltage (for low aux. supply L)		24... 60V AC ±10%
Rated operating range of frequency (for low aux. supply L)		45... 50... 60... 65Hz
Power consumption(for low Aux. supply L)		< 3 VA
Accuracy: Acc. to IEC/EN 60 688		
Reference Value		Output End Value Y2 (Voltage or Current)
Accuracy class		0.5
Reference conditions for accuracy		
Ambient temperature		23°C +/- 1°C
Pre-conditioning		30min according to IEC EN 60688
Input variable		rated voltage/ rated current range
Input waveform		Sinusoidal
Input signal frequency		50 ... 60Hz
Auxiliary supply voltage		Rated Value ±1%
Auxiliary supply frequency		Rated Value ±1%
Output load		Rn = 7.5V / Y2 ± 1%, with DC current output signal Rn = Y2 / 1mA ± 1%, with DC voltage output signal
Miscellaneous		according to IEC EN 60688
Additional Error		
Temperature influence		± 0.2% / 10°C
Influence of Variations		As per IEC EN 60688 Standard
Safety		
Protection class		II (Protection isolated, EN 61010)
Protection		IP40, housing according to EN 60 529 IP20, terminal according to EN 60 529
Pollution degree		2
Installation category		III
Installation voltage		50Hz,1min. (EN 61 010-1) 5500V, Input versus outer surface. 3700V, Input versus all other circuits. 3700V, Auxiliary supply versus input and output circuits.
Installation data		
Mechanical housing		Lexan 940, polycarbonate Flammability class V-0 according to UL94, self extinguishing, non dripping, free of halogen
Mounting position		Rail mounting/ wall mounting
Weight		approx. 0.2kg

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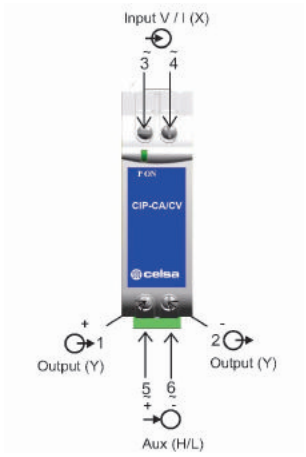
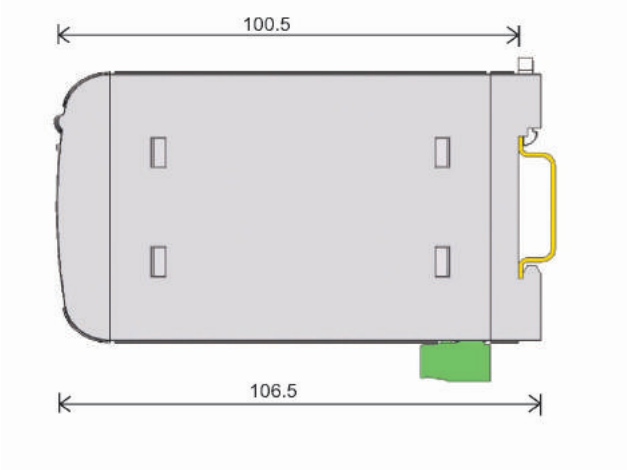
Connection Terminal	
Connection elemet	Convetional screw type terminal with indirect wire pressure
Permissible cross section of the connection lead	≤ 4.0mm² single wire or 2x2.5mm² fine wire
Environmental	
Nominal range of use	0°C...23°C...45°C
Storage temperature	-40 to +70°C
Relative humidity of annual mean	≤ 75%
Altitude	up to 2000 m
Ambient tests	
Vibration	EN 60 068-2-6
Acceleration	± 2 g
Frequency range	10...150..10Hz
Rate of frequency sweep	1 octave/minute
Number of cycles	10, in each of the three axes
Schock	EN 60 068-2-7
Acceleration	3x50g
	3 shocks in each direction
Cold, dry, damp heat	EN 60 068-2-1/-2/-3
Electromagnetic compatibility	IEC 61000-4-2/-3/-4/-5/-6 EN 55 011

Electrical Connections:

Connection	Terminal details	
Measuring input	~ ~	3 4
Auxiliary power supply	~, + ~, -	5 6
Measuring output	+ -	1 2



Dimensions:



Type	Description	Output (to indicate)	Auxiliary supply (to indicate)
CIP-CA	Compact 1 output Current	0 - 20 mA 4 - 20 mA 0 - 10V	40 - 300V AC/DC 24 - 60V AC/DC
CIP-CV	Compact 1 output Voltage	0 - 20 mA 4 - 20 mA 0 - 10V	40 - 300V AC/DC 24 - 60V AC/DC

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