

## ZIEGLER PRO-CA/CV Current / Voltage Transducer

### Application

The transducer Ziegler PRO - CA/CV (Fig.1) converts a sinusoidal AC Current or AC Voltage into **load independent** DC Current or **load independent** DC Voltage proportional to the measured value.

### Salient Features

- Arithmetical mean value measurement  
Calibration to RMS with sine waveform (Average Value)
- Accuracy **class 0.2**  
as per International Standard **IEC/EN 60 688**
- Wide Auxiliary power supply  
Accept any input between 40. 300V 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.
- Connection Terminal: Conventional Screw type.

### Product Features

#### Measuring Input

AC Current. Voltage input signal sine wave,

#### Auxiliary Power Supply

Accept any input between 40. 300 V AC DC.

#### Analog Output

Isolated analog output, which can be Voltage or Current.

#### Accuracy

Output signal accuracy **class 0.2** as per International Standard **IEC/EN 60 688**.

#### LED Indication

LED indication for power ON.

#### Output Response Time

> 250 ms.



Fig. 1 Transducer Ziegler PRO - CA/CV

#### Symbols and their meanings:

- X . Input AC Voltage AC Current/
- Y = Output DC Voltage / DC Current.
- H = 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.

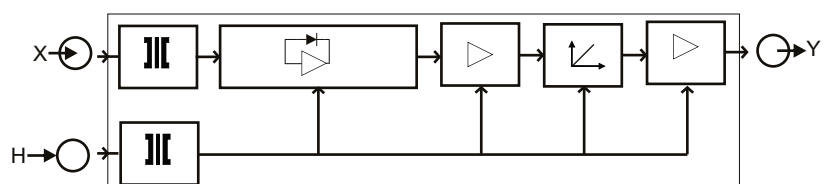


Fig. 2. Block Diagram

## Technical Specifications

### Measuring Input X

#### Voltage Transducer (Ziegler PRO- CV) :

Final value of Nominal input Voltage $U_N$ (X2,AC RMS)	$63.5V \geq U_N \geq 500 V$ .
Nominal Frequency $F_N$	50 or 60 Hz.
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 second intervals.

#### Current Transducer (Ziegler PRO- CA):

Final value of Nominal input Current $I_N$ (X2,AC RMS)	1 A, 5 A.
Nominal Frequency $F_N$	50 or 60 Hz.
Nominal input Current burden	. 0 2VA 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/Current.
Load independent 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	$0 \leq R \leq 15 V/Y2$
Output burden with DC voltage output Signal	$Y2/(2 \text{ mA}) \leq R \leq \infty$
Current limit under overload $R=0$	$\leq 1.6*Y2$ with Current output. $\leq 25 \text{ mA}$ with Voltage output.
Voltage limit under $R=\infty$	$\leq 1.6*Y2$ with Voltage output. $\leq 25 \text{ V}$ with Current output.

Residual Ripple in Output signal  $\leq 1\% \text{ pk-pk}$ .

Response Time  $< 250 \text{ ms}$ .

### Auxiliary Supply H

Rated operating voltage	40...300 V AC/DC
Rated operating range of frequency	45... <u>50...60</u> ...65 Hz
Power consumption	$< 4 \text{ VA}$

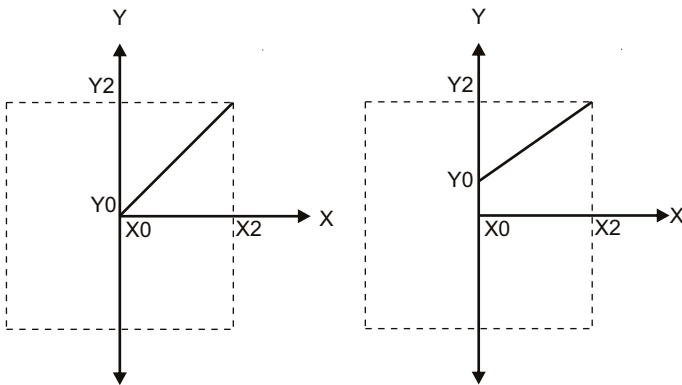
**Accuracy:** (Acc. to IEC/EN 60 688)

Reference Value	Output End Value Y2 (Voltage or Current)
Accuracy class	0.2

**Reference conditions for Accuracy :**

Ambient temperature	23°C +/- 1°C
Pre/conditioning	30 min acc to IEC. EN 60 688
Input Variable	Rated Voltage Range / 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	$R_N = 7.5 \text{ V} / Y2 \pm 1\%$ With DC Current output signal. $R_N = Y2 / 1 \text{ mA} \pm 1\%$ With DC Voltage output signal.
Miscellaneous	Acc. to IEC/EN 60 688
<b>Additional Error :</b> Temperature influence	± 0.2% /10°C
Influence of Variations.	: As per IEC EN 60 688 standard/

**Output characteristics:**



X0 = Start value of input

Y0 = Start value of output

X2 / End value of input  $U_N \neq I_N$

Y2 = End value of output

$U_N$  = Nominal input voltage

$I_N$  = Nominal input current

**Safety:**

Protection Class	II (Protection Isolated, EN 61 010)
Protection	IP 40, housing according to EN 60 529 IP 20 ,terminal according to EN 60 529
Pollution degree	2
Installation Category	III
Insulation 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 acc. To UL 94, self extinguishing, non dripping, free of halogen.
Mounting position	Rail mounting / wall mounting.
Weight	Approx. 0.12kg

**Connection Terminal:**

Connection Element	Conventional Screw type terminal with indirect wire pressure
Permissible cross section of the connection lead	≤ 4.0 mm <sup>2</sup> single wire or 2 x 2.5 mm <sup>2</sup> fine wire

**Environmental:**

Nominal range of use	0 °C... <u>23 °C</u> ... 45 °C (usage Group II)
Storage temperature	-40 °C to 70 °C
Relative humidity of annual mean	≤ 75%
Altitude	up to 2000 m

**Ambient tests:**

IEC 60 068-2-6	Vibration
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
IEC 60 068-2-27	Shock
Acceleration	3 x 50g 3 shocks in each in 6 directions
EN 60 068-2-1/-2/-3	Cold, Dry heat, Damp heat
IEC 61 000-4 <del>2</del> <del>3</del> <del>4</del> <del>5</del> /6 EN 55 011	Electromagnetic compatibility.

## Electrical Connections

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

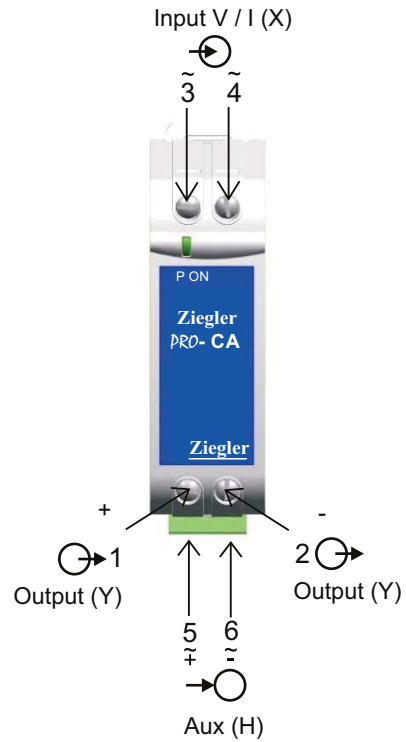
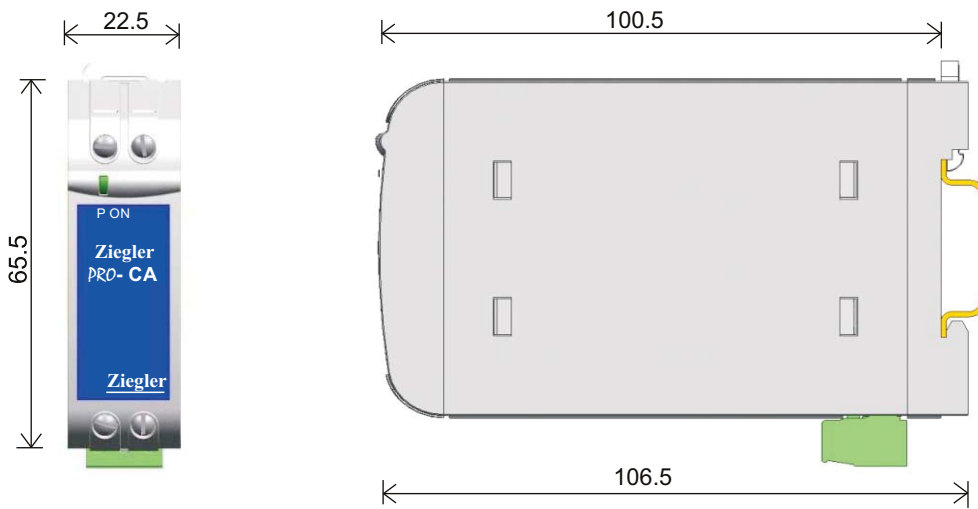


Fig. 3. Ziegler PRO - CA/CV Connection Diagram.

## Dimensions



Note : All Dimensions are in mm.

Fig. 4. Ziegler PRO - CA/CV Dimensions.

## Ordering Information

Sr.No.	Transducer parameter	Ordering Code	
1	<b>Input Signal</b>		
	<b>Voltage</b>	<b>Ziegler PRO - CV - AVG</b>	
	Input Range :		
	Standard Ranges :		
	0..63.5V	01	
	0...100V	02	
	0...110V	03	
	0...150V	04	
	0...220V	05	
	0...230V	06	
	0...240V	07	
	0...250V	08	
	0...300V	09	
	0...330V	10	
	0...415V	11	
	0...440V	12	
	0...450V	13	
	0...500V	14	
		<b>Current</b>	<b>Ziegler PRO - CA - AVG</b>
Input Range :			
Standard Ranges :			
0...1A	01		
0...5A	05		
	<b>Input Signal Frequency</b>	<b>F</b>	
	50/60 Hz		
2	<b>Output Signal</b>		
	<b>Voltage</b>	<b>V</b>	
	Output Ranges		
	0...10V	01	
	0...5V	02	
	<b>Current</b>	<b>I</b>	
	Output Ranges		
	0...20mA	01	
	4...20mA	02	
0...10mA	03		
2...10mA	04		

### Examples:

**Ziegler PRO- CV - AVG - 14 - F - V - 01**

Ziegler PRO- CV is Voltage transducer .input range is 0 500V output is Voltage with range 0 10V

**Ziegler PRO- CA - AVG - 05 - F - I - 02**

Ziegler PRO- CA is Current transducer .input range is 0 5A output is Current with range 4 20 mA ,

**Ziegler PRO- CV - AVG - 06 - F - I - 01**

Ziegler PRO- CV is Voltage transducer .input range is 0 230V output is Current with range 0 20mA ,

## ZIEGLER INSTRUMENTS

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