



-power in control



DATA SHEET



Selectable AC transducer **TAS-311DG**

- Measuring on AC networks
- Class 0.5 (IEC688) measurement
- Supply/measur. voltage up to 690 V
- Easy configuration via PC interface possible



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1. Data sheet

1.1 Contents

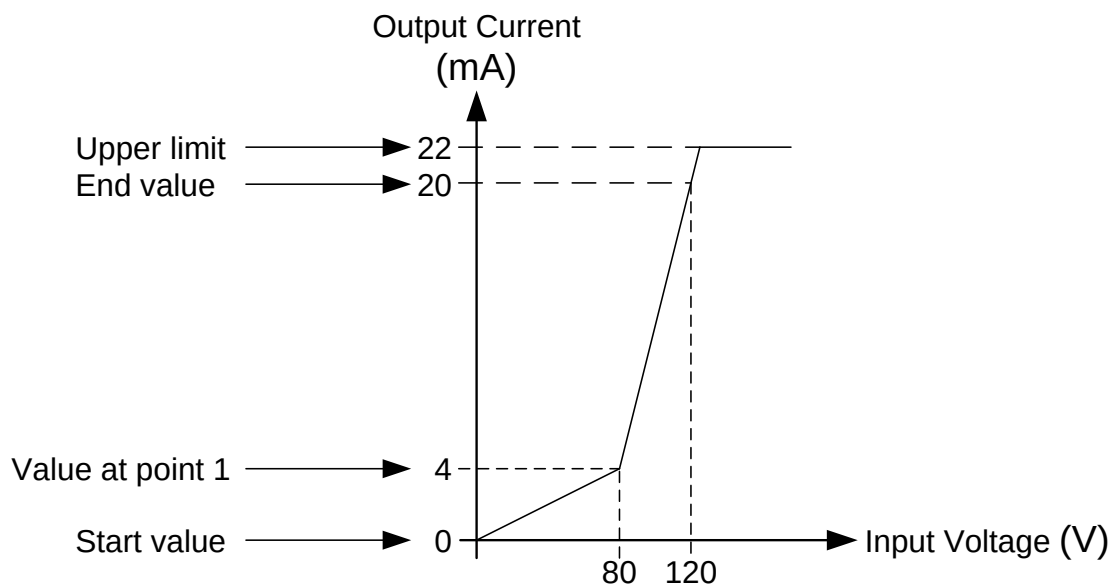
1.1.1 Application

TAS-311DG is a micro-controller based AC transducer with 1 analogue output for measurement of RMS voltages, RMS current, phase angle or frequency on an AC-network. TAS-311DG can be delivered pre-configured or it can be delivered un-configured for customer configuration through the PC interface. The PC configuration software allows free choice of voltage, current, phase angle or frequency measurement including configuration of the measuring range and output range without any mechanical settings or adjustments inside the transducer. The transducer holds no mechanical moving parts like potentiometers, and the calibration stability is excellent.

TAS-311DG can be configured as a normal linear transducer or with up to three slopes giving the possibility for a higher resolution in one or two ranges of the measurement. See figure below for an example of two slopes. Upper and lower output limitations can also be configured.

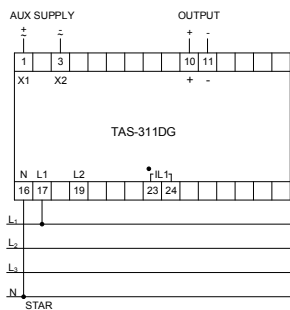
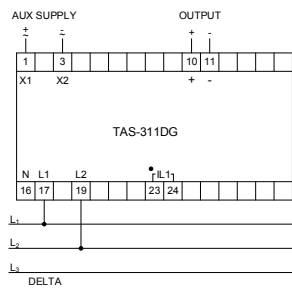
1.1.2 Example of dual slope

For further examples, see data sheets for TAS-321DG/TAS-331DG.

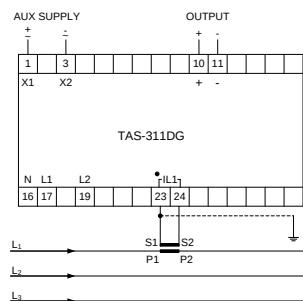


1.1.3 Connection diagram

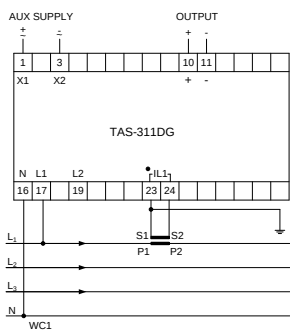
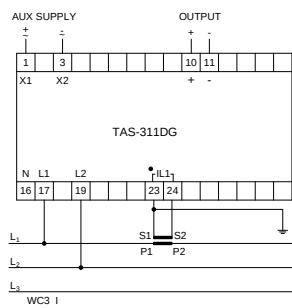
VOLTAGE/FREQUENCY



CURRENT



PHASE ANGLE



Coupling	17	19	23/24
WC3 I	L1	L2	L1
WC3 II	L2	L3	L1
WC3 III	L3	L1	L1



With voltages above 480 V phase-phase! The secondary side of the current transformer **MUST** be connected to earth. Alternatively, a double insulated current transformer can be used.

1.1.4 General technical specifications

Accuracy	Voltage/current: Class 0.5 (-10...15...30...55°C) according to IEC 688 Frequency: Class 0.2 of f max. (-10...15...30...55°C) according to IEC 688 Phase angle: Class 1.0 (-10...15...30...55°C) according to IEC 688
Meas. current (I _n)	0.75/1.5/3.0/6.0 A Meas. range (I _n): 0...200%
Overload, currents	20 A max., continuously 75 A max. for 10 s 240 A max. for 1 s
Load	Max. 0.5 VA
Meas. voltage (U _n)	73/140/254/400 V phase to neutral Meas. range (U _n): 1...120% 127/240/440/690 phase to phase Meas. range (U _n): 1...120%
Overload, voltages	1.2 x U _n max., continuously 2 x U _n max. for 10 s
Load	Min. 480 kΩ
Frequency range	30...45...65...80 Hz
Indication	Red LED function: (The LED is located behind the front plate) Calibration error = flash frequency 5 Hz Configuration error = flash frequency 1 Hz
Output	1 analogue output
Standard range	Output (0...100%): 0...1 mA, 0...5 mA, 0...10 mA, 0...20 mA, 0...1 V, 0...5 V, 0...10 V Output (10...100%): 0.1...1 mA, 0.5...5 mA, 1...10 mA, 2...20 mA, 0.1...1 V, 0.5...5 V, 1...1 V Output (20...100%): 0.2...1 mA, 1...5 mA, 2...10 mA, 4...20 mA, 0.2...1 V, 1...5 V, 2...10 V Output (-100...0...100%): -1...0...1 mA, -5...0...5 mA, -10...0...10 mA, -20...0...20 mA, -1...0...1 V, -5...0...5 V, -10...0...10 V Other ranges possible
Limit	Max. ±120% of nominal output
Output load	Burden if current output: Max. 10 V (max. 1 kΩ) Burden if voltage output: Max. 20 mA
Output cable	Max. length 30 m
Δ _{out} /Δ _{Rload}	10 V, 5 V, 1 V, 20 mA ranges according to IEC 688 10 mA, 5 mA, 1 mA ranges ±0.5%
Ambient temperature	-10...55°C (nominal) -25...70°C (operating) -40...70°C (storage)

Temperature coefficient	Max. $\pm 0.2\%$ of full scale per 10°C
Response time	Current voltage: $<105\text{ ms}$ in the range $0\ldots 90\%$ of nominal input according to IEC 688 $<300\text{ ms}$ in the range $0\ldots 30\%$ of nominal input $<85\text{ ms}$ in the range $30\ldots 100\%$ of nominal input Frequency: $<75\text{ ms}$, typical value 50 ms Phase angle: $<275\text{ ms}$, typical value 200 ms
Ripple	Twice the class index (peak to peak measurement) according to IEC 688
Galvanic separation	AC aux. supply models: Between inputs, outputs and aux. supply: $3750\text{ V-50 Hz-1 min.}$ DC aux. supply models: Between inputs and outputs: $3750\text{ V-50 Hz-1 min.}$ Between inputs and supply: $3750\text{ V-50 Hz-1 min.}$ Between supply and outputs: $1500\text{ V-50 Hz-1 min.}$
Aux. supply voltage	$57.7\text{-}63.5\text{-}100\text{-}110\text{-}127\text{-}200\text{-}220\text{-}230\text{-}240\text{-}380\text{-}400\text{-}415\text{-}440\text{-}450\text{-}480\text{-}660\text{-}690\text{ V}_{\text{ac}} \pm 20\%$ $24\text{-}48\text{-}110\text{-}220\text{ V}_{\text{dc}} -25/+30\%$
Consumption	(Aux. supply) 3.5 VA/2 W
Climate	HSE, to DIN 40040
EMC	According to EN 61000-6-1/2/3/4
Protection	Housing: IP40. Terminals: IP20 to IEC 529 and EN 60529
Connections	Max. 2.5 mm^2 multi-stranded Max. 4.0 mm^2 single-stranded
Materials	All plastic parts are self-extinguishing to UL94 (V1)

1.1.5 Specific technical specifications

Voltage	Measuring voltage	57...690 V _{ac}
	Start value	0...67% of end value
	End value	100...120% of measuring voltage
	Connection	Star connection (UL1-N): 57 V...400 V _{ac} Delta connection (UL1-L2): 100 V...690 V _{ac}
Current	Measuring current	0.5...8 A
	Start value	0...67% of end value
	End value	100% of measuring current
Frequency	Measuring range	20 Hz...80 Hz
	Start value	20 Hz...76 Hz
	End value	40 Hz...80 Hz
	Measuring span	4 Hz < end value - start value
	Connection	Star connection (UL1-N): 57 V...400 V _{ac} . Meas. range (Un): 30...120% Delta connection (UL1-L2): 100 V...690 V _{ac} . Meas. range (Un): 30...120%
Phase angle	Reference	Delta phi = 180°, Sine wave Un and Inom (Inom = 1 A or 5 A) Voltage influence 1.5 % between 50...120% Un Current influence 1.5 % between 50...150% Inom, 2.5 % between 20...50 % Inom
	Measuring range	0°...60°/360° electrical degrees
	Start value	-359.9°...360°
	End value	-359.9°...360°
	Measuring span	60° < difference between start and end values <360°
	Connection	WC1: (IL1 and UL1-N) or (IL2 and UL2-N) or (IL3 and UL3-N): 57...400 V _{ac} WC3 I: (IL1 and UL1-L2): 100...690 V _{ac} WC3 II: (IL1 and UL2-L3): 100...690 V _{ac} WC3 III: (IL1 and UL3-L1): 100...690 V _{ac} Meas. range (Un): 30...120 %

1.1.6 Available variants

Type	Variant no.	Description	Item no.	Note
TAS-311DG, voltage	01	TAS-311DG, customised - AC voltage aux. supply	2962010100-01	
TAS-311DG, voltage	02	TAS-311DG, customised - DC voltage aux. supply	2962010100-02	
TAS-311DG, phase angle	03	TAS-311DG, customised - AC voltage aux. supply	2962010100-03	
TAS-311DG, phase angle	04	TAS-311DG, customised - DC voltage aux. supply	2962010100-04	
TAS-311DG, frequency	05	TAS-311DG, customised - AC voltage aux. supply	2962010100-05	
TAS-311DG, frequency	06	TAS-311DG, customised - DC voltage aux. supply	2962010100-06	
TAS-311DG, current	07	TAS-311DG, customised - AC voltage aux. supply	2962010100-07	
TAS-311DG, current	08	TAS-311DG, customised - DC voltage aux. supply	2962010100-08	
TAS-311DG	09	TAS-311DG, unconfigured - AC voltage aux. supply	2962010100-09	
TAS-311DG	10	TAS-311DG, unconfigured - DC voltage aux. supply	2962010100-10	

1.1.7 Available accessories

Type	Description	Item no.	Note
Accessories for TAS	TAS configuration kit	2032410021	
Accessories for TAS	30 extra labels	2192410001	

1.1.8 Order specifications (examples)

The examples below are order specifications for pre-configured transducers. For un-configured transducers, only auxiliary voltage must be specified.

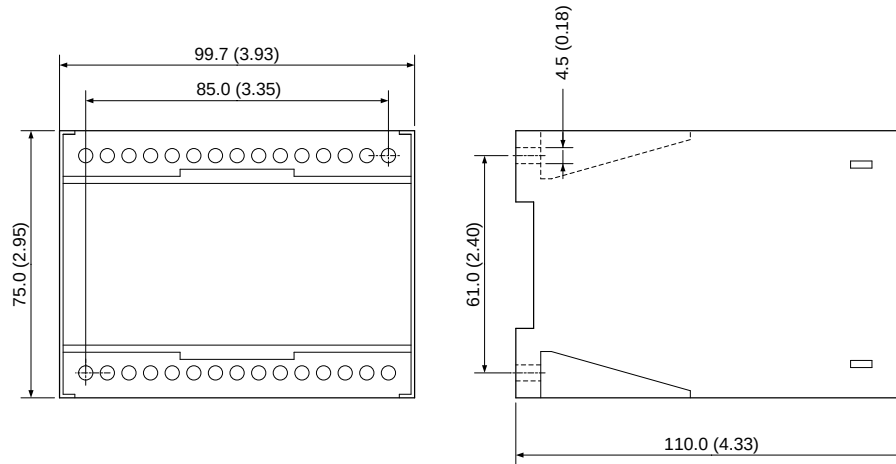
TAS-311DG				
Item no.	2962010100-01	2962010100-08	2962010100-05	2962010100-04
Type	Voltage	Current	Frequency	Phase angle
Variant no.	01	08	05	04
Measuring range	0 kV...8 kV...12 kV	0...120 A	45...50...55 Hz	-90°...-60°...0°...60° ...90°0...0.5cap...1... 0.5...0ind
Connection	Delta (phase-phase)	NA	Star (phase-neutral)	WC3 I
VT ratio	10 kV/100 V	NA	-	-
Input voltage	0...80...120 V	NA	400 V _{ac}	400 V
CT ratio	NA	100/1 A	NA	500/5 A
Input current	NA	1.2 A	NA	5 A
Transfer curve	Dual slope	Single slope	Single slope	Triple slope
Output start value	0 mA	4 mA	4 mA	-10 V
Threshold 1	4 mA	-	-	-8 V
Mid value	12 mA	-	12 mA	0 V
Threshold 2	-	-	-	8 V
Output end value	20 mA	20 mA	20 mA	10 V
Output lower limit	0 mA	0 mA	4 mA	-12 V
Output upper limit	22 mA	24 mA	21.5 mA	12 V
Auxiliary voltage	100 V _{ac}	110 V _{dc}	400 V _{ac}	220 V _{dc}

1.1.9 Accessories

Please order separately:

- PC configuration kit containing connection cable and software for customer configuration
- Extra labels

1.1.10 Dimensions in mm (inches)



1.1.11 Mounting instructions

The transducer is designed for panel mounting, being mounted in a 35 mm DIN rail, or by means of two 4 mm screws.

The design of the transducer makes mounting of it close to similar equipment possible, however make sure that there is min. 50 mm between the top and bottom of the transducer and other equipment. The DIN rail must always be placed horizontally when several transducers are mounted on the same rail.

1.1.12 Disclaimer

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