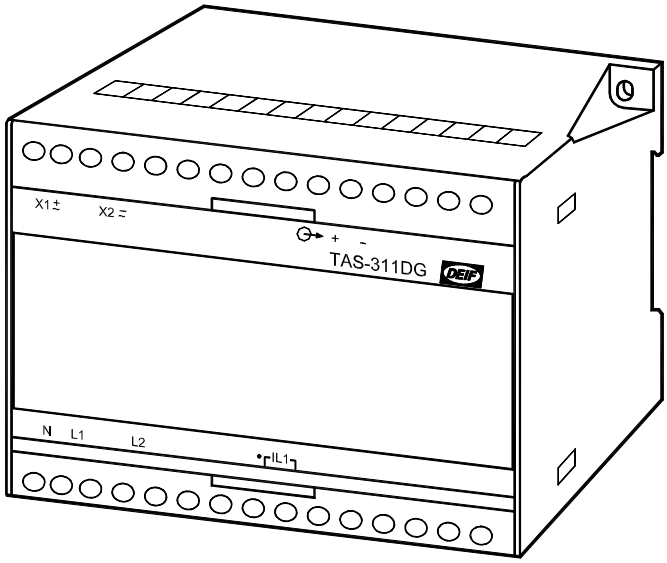
DEIF A/S

Selectable AC-transducer

Type TAS-311DG

4921220038H



- *Measures voltage, current, frequency or phase angle on AC networks*
- *Class 0.5 (IEC-688) measurement*
- *Supply and measuring voltage up to 690 V*
- *Easy configuration via PC-interface possible*
- *Non-linear output characteristics possible*

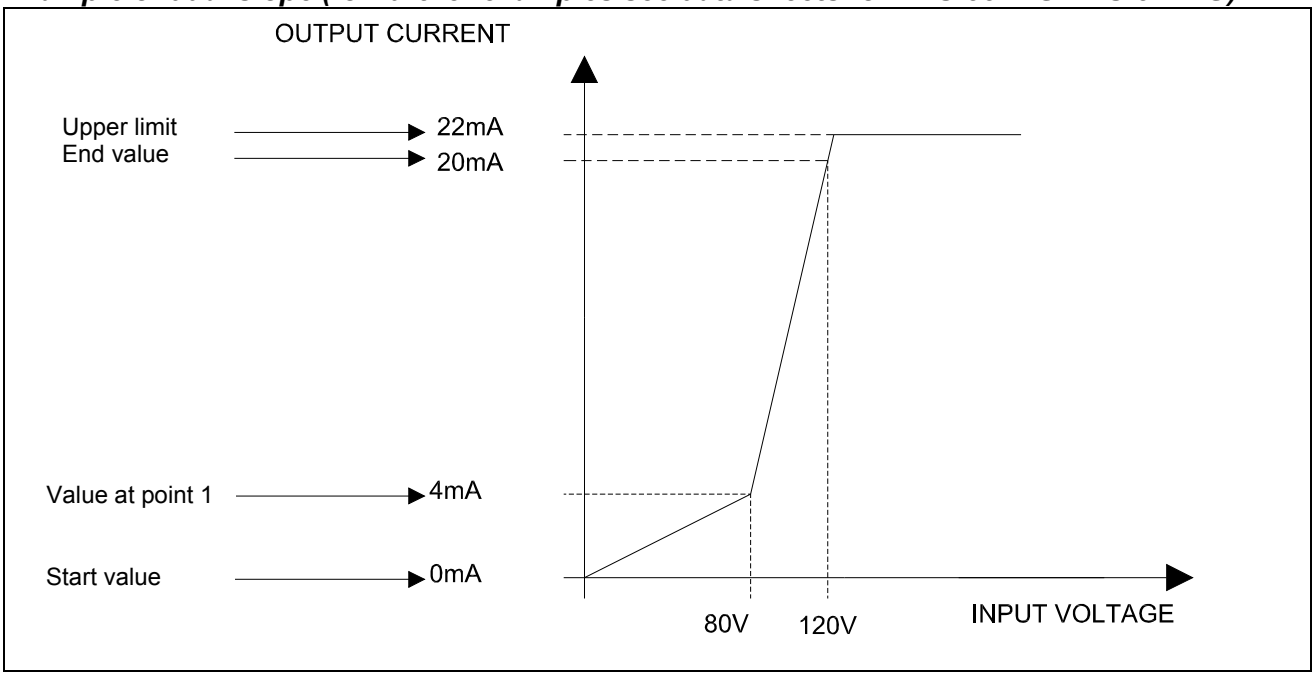
CE

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 therefore the calibration stability is excellent.

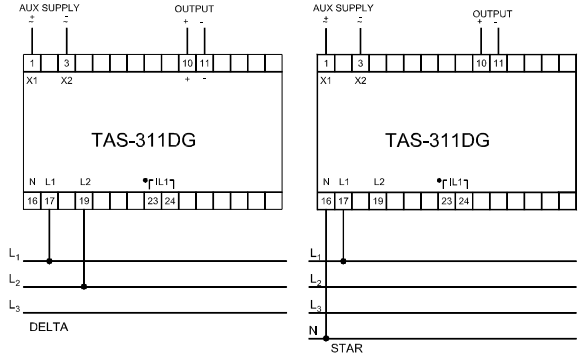
TAS-311DG can be configured as a normal linear transducer or with up to three slopes giving the possibility for a higher resolution in one or two ranges of the measurement. See figure below for an example of two slopes. Upper and lower output limitations can also be configured.

Example of dual slope (for further examples see data sheets for TAS-331DG/TAS-321DG)

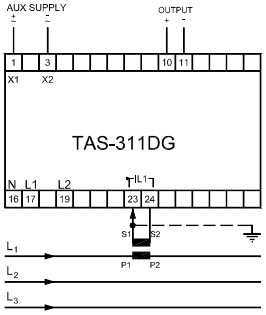


Connection diagram

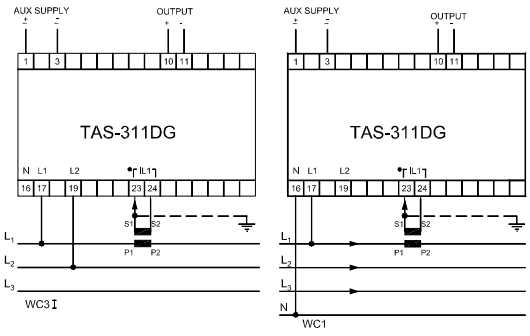
VOLTAGE/FREQUENCY



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 <u>must</u> be connected to earth. Alternatively a double insulated current transformer can be used.

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 (In):	0.75/1.5/3.0/6.0 A	Meas. range (In): 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 (Un):	73/140/254/400 V phase to neutral	Meas. range (Un): 1…120%
	127/240/440/690 phase to phase	Meas. range (Un): 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:	Current: Max. 10 V (max. 1 kΩ) Voltage: Max. 20 mA	
Output cable:	Max. length 30 m	
$\Delta out/\Delta R_{load}$:	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. ±0.2% of full scale per 10°C	
Response time:	Current/voltage:	<105 ms in the range 0...90% of nominal input according to IEC 688 <300 ms in the range 0...30% of nominal input <85 ms in the range 30...100% of nominal input
	Frequency:	<75 ms, typical value 50 ms
	Phase angle:	<275 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 V-50 Hz-1 min. DC aux. supply models: Between inputs and outputs: 3750 V-50 Hz-1 min. Between inputs and supply: 3750 V-50 Hz-1 min. Between supply and outputs: 1500 V-50 Hz-1 min.	
Aux. supply voltage:	57.7-63.5-100-110-127-200-220-230-240-380-400-415-440-450-480-660-690V AC ±20% 24-48-110-220V 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 mm² multi-stranded Max. 4.0 mm² single-stranded	
Materials:	All plastic parts are self-extinguishing to UL94 (V1)	

Specific technical specifications

Voltage:	Measuring voltage:	57...690V AC	
	Start value:	0…67% of end value	
	End value:	100…120% of measuring voltage	
	Connection:	Star connection (UL1-N):	57 V…400V AC
		Delta connection (UL1-L2):	100 V…690V AC
Current:	Measuring current:	0.5...8 A	
	Start value:	0...67% of end value	

End value: 100% of measuring current

Specific technical specifications, continued

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…400V AC Meas. range (Un): 30...120%
  Delta connection (UL1-L2): 100 V…690V 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…400V AC
  WC3 I: (IL1 and UL1-L2): 100…690V AC
  WC3 II: (IL1 and UL2-L3): 100…690V AC
  WC3 III: (IL1 and UL3-L1): 100…690V AC
  Meas. range (Un): 30...120%

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	-

Available accessories

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

Order specifications (examples)

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

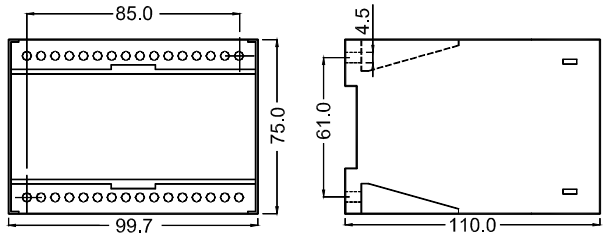
TAS-311DG				
Item no.	2962010100-01	2962010100-08	2962010100-05	2962010100-04
Type:	Voltage	Current	Frequency	Phase angle
Variant no.	01	08	05	04
Measuring range:	0 kV…8 kV…12 kV	0…120 A	45…50…55 Hz	-90°…-60°…0°…60°…90° 0…0.5cap…1…0.5…0ind
Connection:	Delta (phase-phase)	NA	Star (phase-neutral)	WC3 I
VT ratio:	10 kV/100 V	NA	-	-
Input voltage:	0…80…120 V	NA	400V 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:	100V AC	110V DC	400V AC	220V DC

Accessories

PC-configuration kit containing connection cable and software for customer configuration, and extra labels must be ordered separately.

Dimensions

All dimensions in mm



Weight: approx. 0.600 kg

Mounting instructions

TAS-311DG is designed for panel mounting, being mounted on 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 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.

Due to our continuous development we reserve the right to supply equipment which may vary from the described.

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