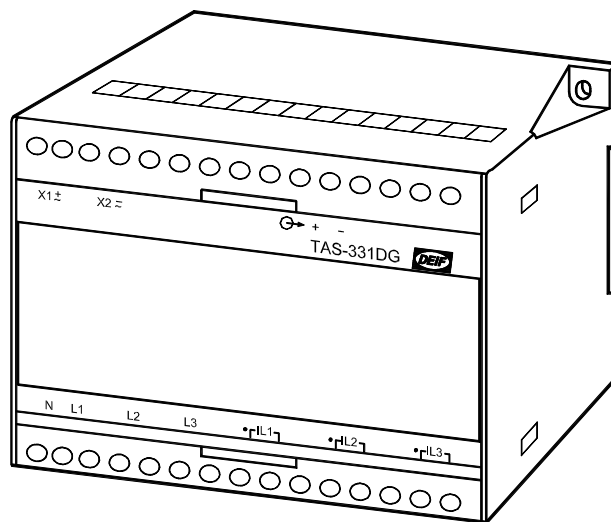


# Selectable AC-transducer

Type TAS-331DG

4921220036H



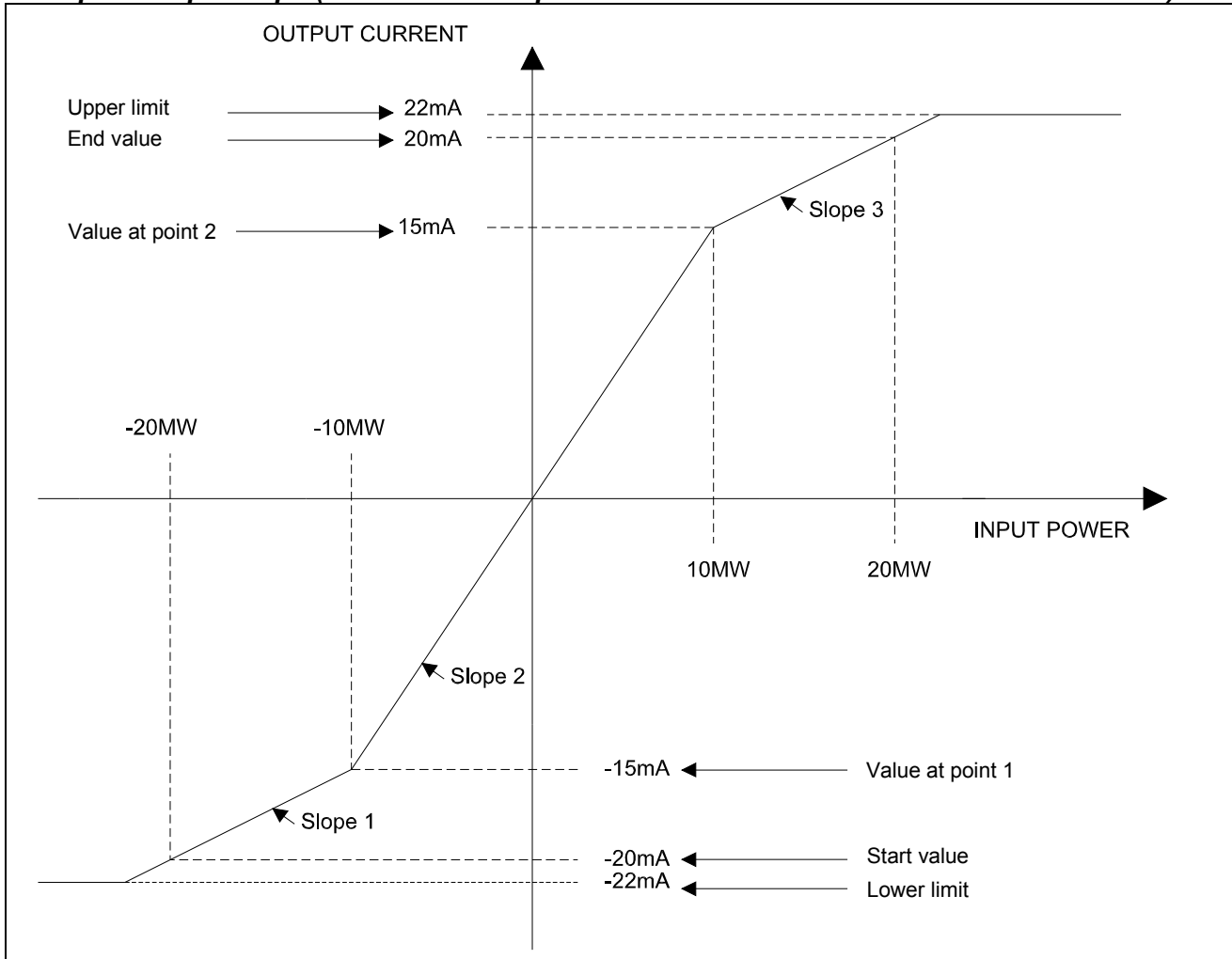
- *Measures power or reactive power on 3-phase AC networks*
- *Class 0.5 (IEC-688) measurement*
- *Supply and measuring voltage up to 690 V*
- *Easy configuration via PC-interface possible*
- *Non-linear output characteristics possible*

## Application

TAS-331DG is a micro-controller based AC-transducer with 1 analogue output for measurement of power or reactive power on an AC-network. TAS-331DG can be delivered pre-configured to the desired measuring value and range or it can be delivered un-configured for customer configuration through the PC-interface. The PC-configuration makes free adjustment of the full input range and output range possible 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-331DG will check the wiring for faults when starting up and indicate possible faults on a LED.

TAS-331DG 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 three slopes. Upper and lower output limitations can also be configured.

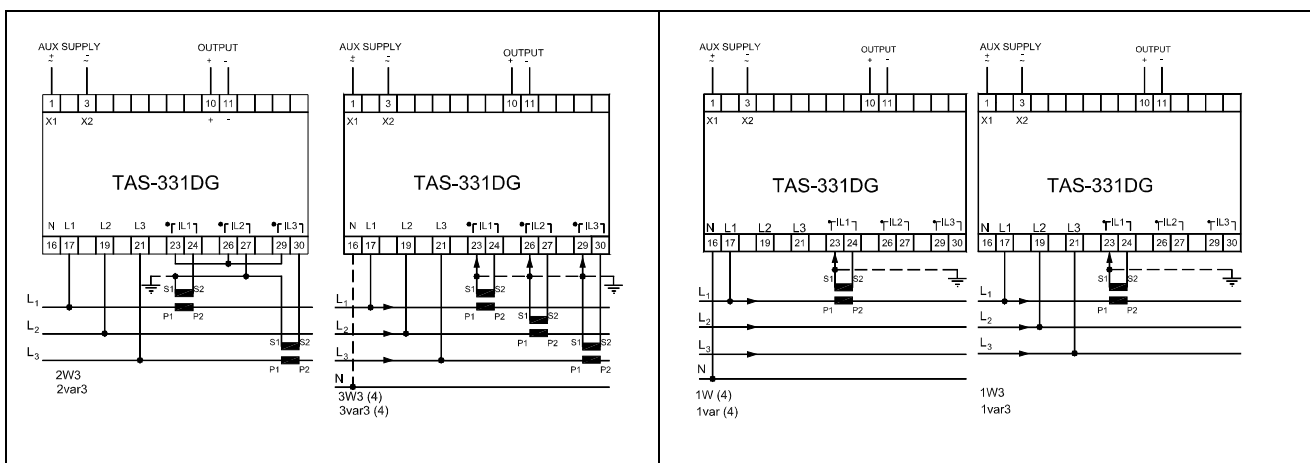
### Example of triple slope (for further examples see data sheets for TAS-311DG/TAS-321DG)



## Connection diagram



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.



## Technical specifications

Accuracy:	Class 0.5 (-10...15...30...55°C) according to IEC 688	
Influence, phase angle:	$\leq \pm 0.75^\circ$	
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 per phase	
Meas. voltage (Un):	73/140/254/400 V phase to neutral 127/240/440/690 V phase to phase	Meas. range: 30...120%Un (57...400 V) Meas. range: 30...120%Un (100...690 V)
Overload, voltages:	1.2 x Un max., continuously, 2 x Un max. for 10 s	
Load:	Min. 480 k $\Omega$	
Frequency range:	30...45...65...80 Hz Note: For fundamental frequency (1. harmonic) outside 20 Hz...80 Hz, the input is fixed to 0	
Indication:	Red LED function:  (The LED is located behind the front plate) Incorrect wiring = constant light, only active for coupling 1W3, 2W3, 3W3(4) and 1VAr3, 2VAr3, 3VAr3(4). Check at power up, in case of doubt disconnect supply and reconnect 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...10V 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...1V, -5...0...5 V, -10...0...10 V  Other ranges possible	
Limit:	Max. $\pm 120\%$ of nominal output	
Output load:	Current: Max. 10 V (max. 1 k $\Omega$ ) 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 $\pm 0.5\%$	
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:	Coupling 2W3/2VAr3, 3W3/3VAr3, 3W4/3VAr4 <225 ms, typically 200 ms Coupling 1W/1VAr, 1W4/1VAr4 <150 ms, typically 125 ms Coupling 1W3/1VAr3 <125 ms, typically 100 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.	
Supply voltage:	57.7-63.5-100-110-127-200-220-230-240-380-400-415-440-450-480-660-690V AC $\pm 20\%$ 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 mm <sup>2</sup> multi-stranded Max. 4.0 mm <sup>2</sup> single-stranded	
Materials:	All plastic parts are self-extinguishing to UL94 (V1)	

### Available variants

Type	Variant no.	Description	Item no.	Note
TAS-331DG, power	01	TAS-331DG, customised – AC voltage aux. supply	2962010200-01	-
TAS-331DG, power	02	TAS-331DG, customised – DC voltage aux. supply	2962010200-02	-
TAS-331DG	03	TAS-331DG, unconfigured – AC voltage aux. supply	2962010200-03	-
TAS-331DG	04	TAS-331DG, unconfigured – DC voltage aux. supply	2962010200-04	-

### 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-331DG		
Item no.	2962010200-02	2962010200-01
Type	Power	Power
Variant no.	02	01
Measuring range:	0...2 MW	0...1 MVar (2MVar) <sup>1)</sup>
Coupling <sup>2)</sup> :	1W3	1 VAr3
VT ratio:	10 kV/100 V	10 kV/100 V
Measuring voltage:	100 V	100 V
CT ratio:	100/5 A	100/5 A
Transfer curve:	Single slope	Dual slope
Output start value:	4 mA	4 mA
Value at point 1:	-	20 mA corresponding to 1MVar <sup>1)</sup>
Output end value:	20 mA	20 mA corresponding to 2MVar <sup>1)</sup>
Output lower limit:	4 mA	4 mA
Output upper limit:	21.5 mA	20 mA must be equal to end value <sup>1)</sup>
Auxiliary voltage:	110V DC	230V AC

<sup>1)</sup> As the transducer for measurement of reactive power is configured at 50% var in proportion to the active power, the function "dual slope" is activated. This method can be used to ensure that the dynamic range of the current input is not exceeded on the var transducer.

<sup>2)</sup> At coupling 1W4/1VAr4 L-L voltage must be stated when ordering.

Check of the chosen measuring range is within the configuration range of the transducer.

$$0.375 \text{ A} = < \frac{\text{Primary power}}{1.73 \times \text{measuring voltage} \times \text{Vt ratio} \times \text{Ct ratio}} = < 6 \text{ A}$$

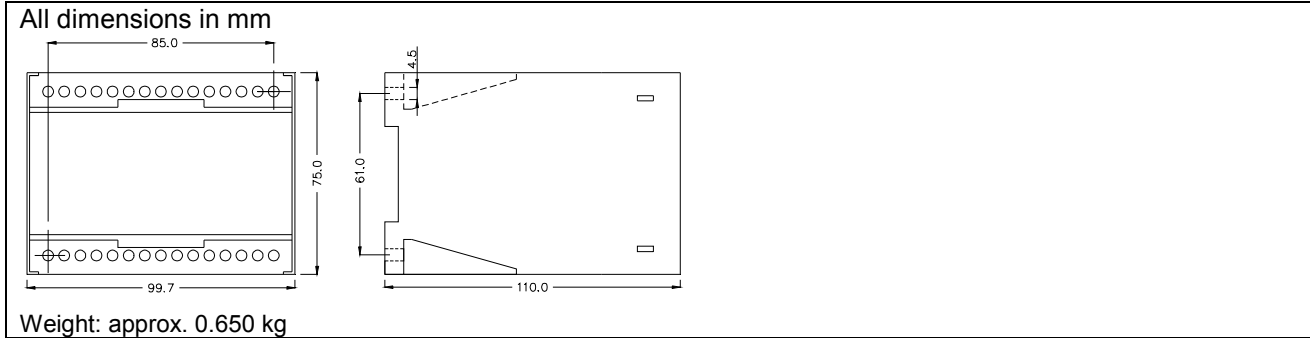
At 1W/1VA<sub>r</sub> coupling, the factor 1.73 is left out of the above calculation.

If I (current) is beyond 0.375 A...6 A, another Ct with a larger or smaller ratio is chosen.

### Accessories

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

### Dimensions



### Mounting instructions

TAS-331DG 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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