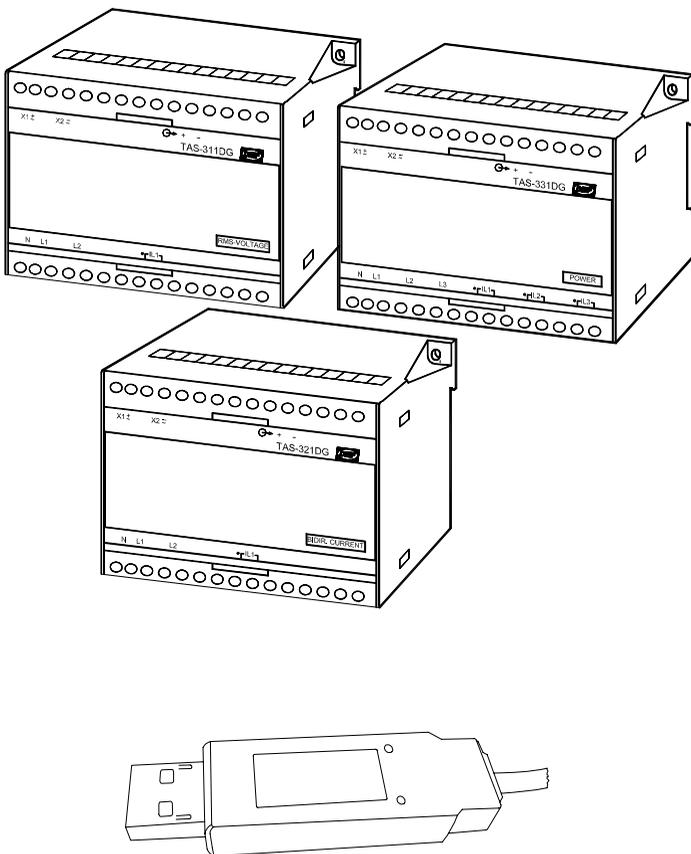


**TAS-311DG, TAS-321DG and TAS-331DG**  
**Selectable AC transducers**  
**4189300012E (UK)**





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## Introduction

TAS-311DG is an AC transducer for measurement of RMS-voltage, RMS-current, frequency or phase angle on an AC network.

TAS-331DG is an AC transducer for power measurement on a 1-phase or 3-phase network with or without neutral conductor.

TAS-321DG is a special AC transducer for measurement of current with indication of current direction or for power measurement on a 3-phase network where only 2 phases are available for the measurement, coupling 1W2/1var2.

The transducers can be configured, i. e. adjusted for the actual purpose, from a PC which is connected to the transducer via our *“Transducer configuration kit”*.

The enclosed software allows configuration or modification of all parameters of TAS-311DG, TAS-321DG and TAS-331DG, for example:

Type of network on which the measurement is performed  
Measuring range  
Ratio of a connected voltage transformer  
Ratio of a connected current transformer  
Output range  
Transfer curve (up to 3 slopes are possible on the output)

The *“Transducer configuration kit”* for configuration of the transducer can be ordered from DEIF A/S. The *“Transducer configuration kit”* includes a *“USB to TTL converter”* with cable for connection to PC and transducer, a CD-ROM with the required driver and software, 30 preprinted labels and a pen plus a sheet of self-adhesive labels with all units preprinted. The actual unit is cut out of the sheet and attached to the front of the transducer.

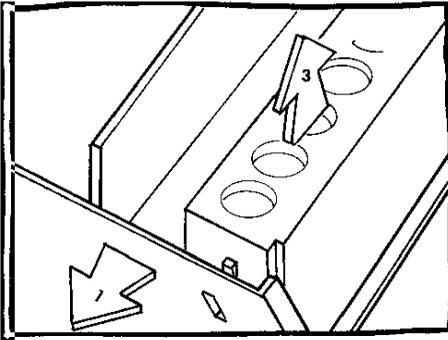
## Preparation for configuration

Before the configuration of TAS-311DG/TAS-321DG/TAS-331DG can be made, the transducer must be connected to auxiliary voltage. From the label shown below it appears whether the transducer is delivered with mounted auxiliary voltage module or without auxiliary voltage module. If the transducer is delivered without, an auxiliary voltage module must be mounted.

|                                                                                                                                                                                                                                                                           |           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| TYPE                                                                                                                                                                                                                                                                      | TAS-331DG |
| SUPPLY                                                                                                                                                                                                                                                                    | None      |
| Unconfigured transducer, please use configuration software to set input and output range.                                                                                                                                                                                 |           |
|    600V CAT III. |           |

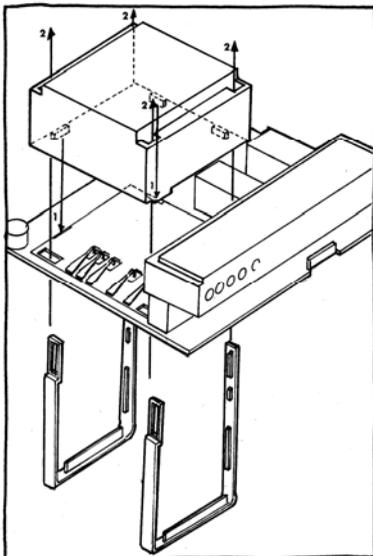
### Mounting of the auxiliary voltage module

First the front panel of the transducer is removed – see page 6. The auxiliary voltage module is placed on the upper PCB where the “*telephone point*” for connection of the “*USB to TTL converter*” is mounted. The print card can be pulled out of the transducer box by following the illustration below.

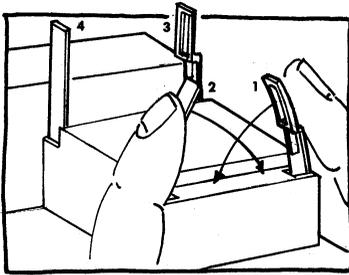


The PCB is prepared for removal from the box by pulling at the ends of the box and pushing at the screw block with the thumb. The illustration shows how the terminal block is fastened in the box.

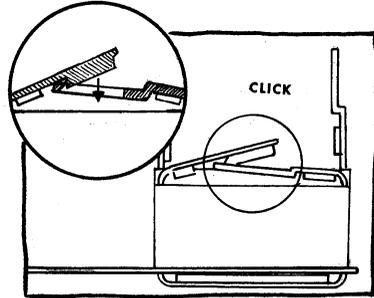
After the print card has been pulled out of the box, the auxiliary voltage module can be mounted by following the illustration below. Please note that the 2 shown clips for fastening are enclosed with the transducer.



Before mounting the module, the 2 shown clips may be placed in each of the 2 clip holes from the bottom without pushing them through. Be careful not to touch the contact springs. When the module is placed, the 2 clips are pushed until they are through.

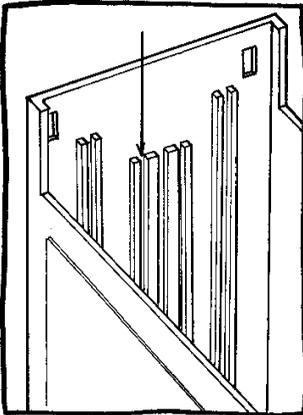


The clips are set into position for locking.

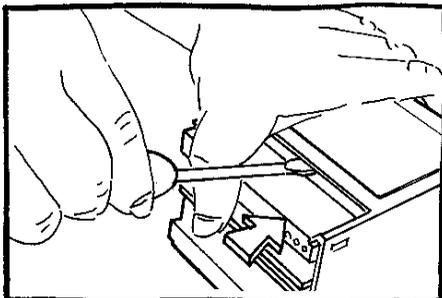


Push hard on the top of the clips until a clear "click" is heard.

When the auxiliary voltage module is mounted, the transducer is assembled by following the illustration below.



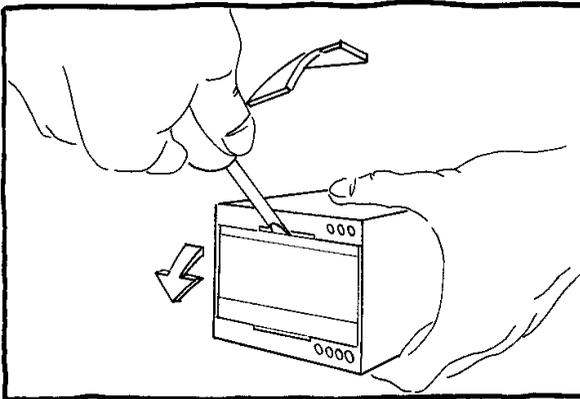
The illustration indicates the track(s) into which the PCB is inserted. It is recommended to press on both sides of the box when the print card is inserted.



Lift the upper part by means of a screwdriver and simultaneously press the print card as indicated by the arrow. When a "click" is heard, the print card is inserted correctly.

## Prepare communication

The communication between the PC and the "USB to TTL converter" is based on an empty USB port. The unit is connected to a USB port on the PC. The transducer is connected via the enclosed cable fitted with "telephone point". To connect the transducer to the "USB to TTL converter," it is necessary to dismount the front panel of the transducer. See illustration below.



The front panel is removed by means of a screwdriver. The front panel may be loosened in the right side first and is then totally dismounted by moving the screwdriver towards left.

## Environment

- 1 compatible PC type 486 or higher
- Windows 95 or higher
- 1 USB port
- 1 CD-ROM drive

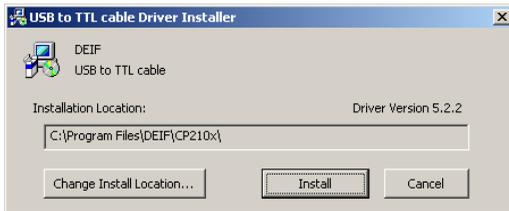
## Installation of Windows driver and Configuration software on PC

Installation of Windows driver:

Do **not** install the "USB to TTL converter", until the installation of the driver has been carried out.

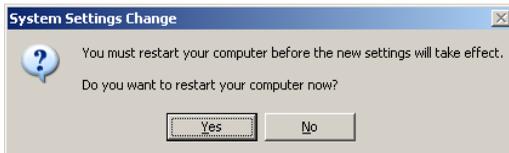
Insert the enclosed CD in the CD drive and run the programme CP210xVCPInstaller.

The display below appears.



Click Install.

It takes a couple of minutes to carry out the installation. When the installation is completed, the computer must be restarted.



Click Yes.

Insert the "USB to TTL converter" in an empty USB port when the computer has been restarted.

The display below appears.



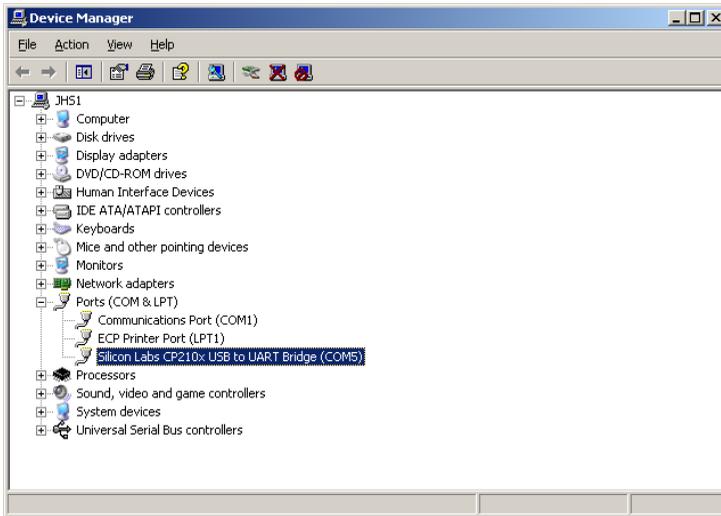
After a few seconds, the display below appears.



Now the driver for the "USB to TTL converter" is installed and ready for use.

Check of correctly installed hardware:

Open My Computer, View system information. Select the Hardware tab and click Device Manager. Check Ports (COM & LPT).



Installation of Configuration software:

Run the programme Transducer Configuration Software Ver. 1.22 Setup.exe, which can be found on the enclosed CD-ROM.

Setup will guide the setting up of the PC.

If Next has been used during the whole installation, the programme will now be at C:\programmer\DEIF\Transducer Configuration\csw.

Then click Yes for Launch the program file and click Finish.

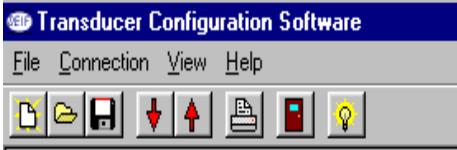
The Transducer configuration software is now ready.

## Configuration of TAS-331DG

The transducer is connected to auxiliary voltage and the "USB to TTL converter". The "USB to TTL converter" is connected to an empty USB port on the PC.

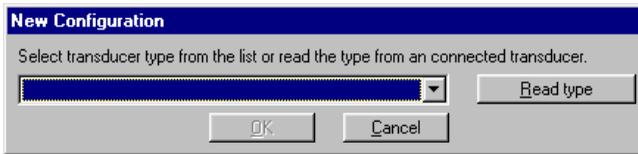
The programme CSW.exe is started.

The display below appears.



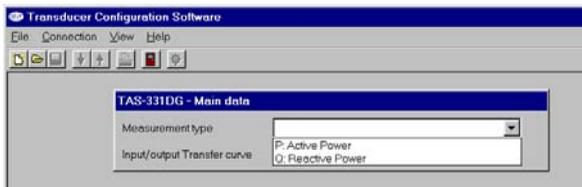
Click Connection and select the port, to which the "USB to TTL converter" is connected (My Computer, View system information, Hardware tab, Device Manager).

Click File and select New.



Click OK when the desired transducer type is selected from the pull down menu. The following example is for TAS-331DG.

Click the pull down menu and the display below appears.



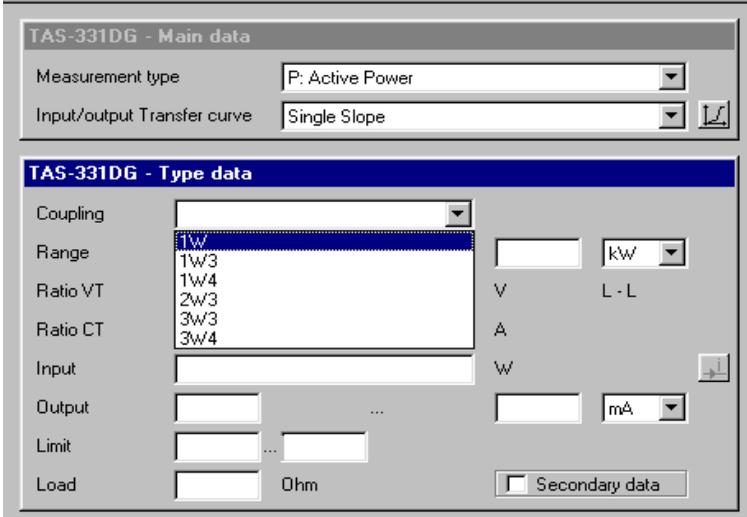
Choose between P: Active power or Q: Reactive power.

The display below appears if Active power is selected.



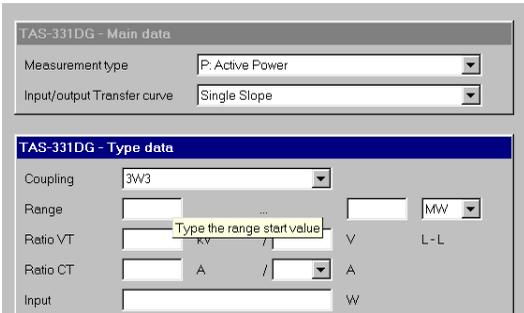
Please note that Single slope is selected default. In connection with data entry it is possible to return to the menu Main data and choose between Dual or Triple slope.

Click the arrow key off Coupling, the pull down menu shown below will now appear.



Use the mouse or the arrow keys to select the desired coupling from the menu.

- |              |                                                        |
|--------------|--------------------------------------------------------|
| Coupling 1W  | 1 phase with neutral (2 wire/1 Ct) unbalanced load.    |
| Coupling 1W3 | 3 phase without neutral (3 wire/1 Ct) balanced load.   |
| Coupling 1W4 | 3 phase with neutral (4 wire/1 Ct) balanced load.      |
| Coupling 2W3 | 3 phase without neutral (3 wire/2 Ct) unbalanced load. |
| Coupling 3W3 | 3 phase without neutral (3 wire/3 Ct) unbalanced load. |
| Coupling 3W4 | 3 phase with neutral (4 wire/3 Ct) unbalanced load.    |



In the example shown above, coupling 3W3 has been selected.

It is possible to enter the other configuration data in random order, but as the last entry always determines whether the configuration is valid, this procedure may result in the programme subsequently changing already entered values. Any changes are indicated in bold italics>.

To avoid this it is recommended to use the tabulator which acts as a guide through the fields. If the tabulator is used, the cursor will now jump to the field of unit, in the shown example MW is selected as unit (prefix). If the tabulator is used, subsequently jump to the field of entry of the lowest measuring range.

If the cursor via the mouse is placed in a field, a help text will appear. Please note that this help text will not appear when the tabulator is used. In the example the help text for entry of the highest measuring range is shown.

The example below illustrates a complete configuration. When Range, Vt and Ct have been entered, the programme will calculate the secondary power. In the shown example the secondary power is calculated at -1000...0...1000W.

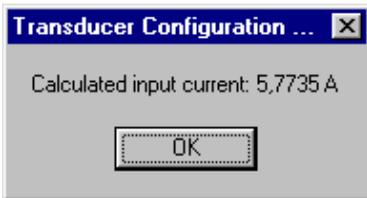
The output is configured at -20...0...20mA. The transducer is equipped with an output limiter which is activated if the input of the transducer is exceeded. In the shown example this limit is set at  $\pm 22$ mA. The maximum output current for a  $\pm 20$ mA output is  $\pm 24$ mA. Values must always be entered in the Limit fields.

Please note that if the transducer is applied without an external current transformer, nothing is entered/selected in the fields for Ratio CT.

The last field Load is automatically filled in by the programme in connection with the choice of output.

It is possible to see the calculated current by clicking the symbol

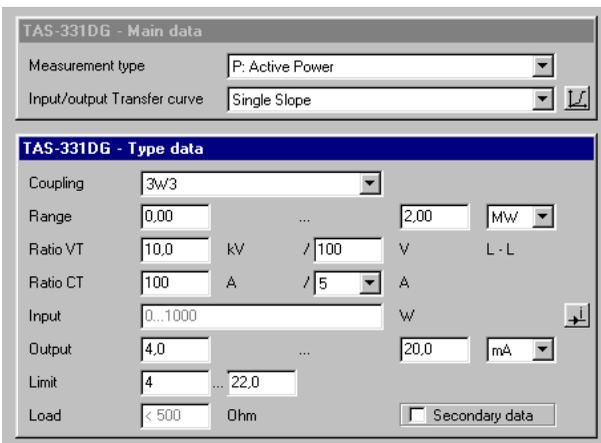
The display below appears.



Click OK to accept. Please note that it is possible to accept a value that will be rejected later on by the configuration check routine. This is activated in connection with Write configuration or Save/Save as.

If a TAS-331DG transducer configured for measurement of *var* (reactive power) is to match a TAS-331DG transducer for measurement of Watt (active power) so the Watt transducer is configured to 100% and the *var* transducer is configured to 50% of the power source to which the transducer is connected, the following method can be used.

The example below shows the configuration of the transducer for measurement of Watt. The range is selected at 0...2MW and the output is selected at 4...20mA.



The transducer for *var* measurement is desired to be configured so the range will be 0...1Mvar/output 4...20mA.

If the mentioned *var* transducer is configured normally, the programme will in some cases indicate that the configuration is beyond the dynamic range of the transducer. To avoid this the function Dual slope is activated – it is found in Main data under Input/output transfer curve.

Dual slope, Coupling 3var3 and unit Mvar have been selected. Please note that under the field Range an extra field has appeared. The help text indicates that the range value for point 1 is to be entered here.

The screenshot shows the configuration interface for TAS-331DG. It is divided into two main sections: 'TAS-331DG - Main data' and 'TAS-331DG - Type data'.

**TAS-331DG - Main data:**

- Measurement type: Q: Reactive Power
- Input/output Transfer curve: Dual Slope

**TAS-331DG - Type data:**

- Coupling: 3var3
- Range: 0 ... [ ] [ ] Mvar
- Ratio VT: [ ] kV Type the range value at point 1 - L
- Ratio CT: [ ] A / [ ] A
- Input: [ ] var

The example below shows how all fields are filled in for the *var* transducer. Please note that in the field for Value 1 the value for the desired range (1Mvar) is entered. In the field for End value 2Mvar is entered. Please note that the calibration is the same as for the matching Watt transducer. Subsequently values for output are entered according to the entered range values. Please note that the output value in the field attached to the field Value 1 has been entered as 20mA. 20mA is also entered in the Output field for end value. This procedure ensures that the dynamic range of the transducer is not exceeded. Please note that in this configuration form the limit value for output is always identical to the value in the field for end value. Alternatively, if the output is configured to a  $-x...0...x$  range, the value for limit is also identical to the value in the field for start value. At  $\pm x$  output the function Triple slope must be selected in connection with the above-mentioned configurations. In the shown example the input current for the Watt and *var* transducer is calculated and internally configured to 5.7735A. If the *var* transducer was configured to 1Mvar instead, the input current would be calculated and internally configured to 2.8868A, and in that way there would only be “room” for 104% overcurrent against normally 200% overcurrent. The reverse case may also occur where the input current is less than 0.375A. Here the programme will transmit an error message – contrary to the above case. The same procedure as described above can be applied to avoid this.

**TAS-331DG - Main data**

Measurement type:

Input/output Transfer curve:

---

**TAS-331DG - Type data**

Coupling:

Range:  ...  ...

Ratio VT:  kV /  V L - L

Ratio CT:  A /  A

Input:  var

Output:  ...  ...

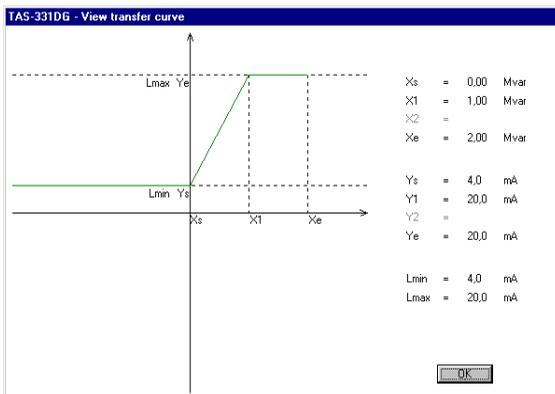
Limit:  ...

Load:  Ohm  Secondary data

In the example the function Dual slope alternatively Triple slope is used to ensure that the dynamic range of the transducer is not exceeded. In addition to that Dual slope, Triple slope transfer curve is particularly well suited if the output as a function of input is to have different slopes. For example, if a certain range of the input is desired to be strengthened so that small variations will be strengthened in this range.



It is possible to see the input/output transfer curve by clicking the symbol



Click OK to return to the entry field.

It is possible to save the configuration data together with ID data as a file or a hard copy. If the field Secondary data is activated, the following extra display will appear,

see the example below. Please note that these extra data are stored in the transducer. (Effective as from interface version 1.02).

**TAS-331DG - Secondary data (only for later reference)**

|                  |        |             |         |
|------------------|--------|-------------|---------|
| DEIF Order No.   | 123456 | Supply      | 100 VAC |
| Distributor's ID | myself | Other info. | sample  |

Please note that on configuration of more transducers it is recommended to configure all Watt or *var* transducers first and subsequently vice versa. The reason is that if the coupling is changed from a Watt coupling to a *var* coupling or vice versa, all the data entered in the fields will be deleted and must thus be re-entered.

### Configuration of TAS-311DG

The configuration of TAS-311DG follows the same procedure as described for the configuration of TAS-331DG (see this section).

#### Voltage

The example below illustrates the configuration of a TAS-311DG for voltage.

Select TAS-311DG from the pull down menu.

**New Configuration**

Select transducer type from the list or read the type from an connected transducer.

TAS-311DG  
TAS-321DG  
TAS-331DG

Read type

Press OK and select Voltage from the pull down menu.

**TAS-311DG - Main data**

Measurement type

Input/output Transfer curve

U: Voltage  
I: Current  
F: Frequency  
Phi: Phase angle

The display shown on the next page will appear.

**TAS-311DG - Main data**

Measurement type: U: Voltage

Input/output Transfer curve: Single Slope

---

**TAS-311DG - Type data**

Coupling: [Dropdown]

Range: [ ] ... [ ] V

Ratio VT: [ ] kV / [ ] V L-L

Ratio CT: [ ] A / [ ] A

Input: [ ] V

Output: [ ] ... [ ] mA

Limit: [ ] ... [ ]

Load: [ ] Ohm  Secondary data

Click the arrow key off Coupling, the pull down menu shown below will now appear.

**TAS-311DG - Type data**

Coupling: [Dropdown]

Range: Star (L-N) / Delta (L-L) [ ] V

Ratio VT: [ ] kV / [ ] V L-L

Ratio CT: [ ] A / [ ] A

Input: [ ] V

Choose between Star or Delta connection. Star coupling is applied where the input of the transducer is connected to phase and neutral, Delta coupling is applied where the transducer is connected between 2 phases. For further information about Star and Delta connection, please see the installation instructions which are enclosed with the product or can be downloaded from our homepage [www.deif.com](http://www.deif.com).

The example shows a complete configuration with activated Dual slope function, so the input range 0kV...8kV can be shown in the output range 0...4mA and 8kV...12kV can be shown in the range 4...20mA. Please note that if there is no external Vt, no secondary value must be entered.

**TAS-311DG - Main data**

Measurement type U: Voltage

Input/output Transfer curve Dual Slope

---

**TAS-311DG - Type data**

Coupling Star (L-N)

Range 0,0 ... 8,0 ... 12,0 kV

Ratio VT 10,0 kV / 100 V L - N

Ratio CT A / A

Input 0,0...80,0...120,0 V

Output 0,0 ... 4,0 ... 20,0 mA

Limit 0,0 ... 22,0

Load < 500 Ohm  Secondary data

---

**TAS-311DG - Secondary data (only for later reference)**

DEIF Order No. 123456 Supply 110 VDC

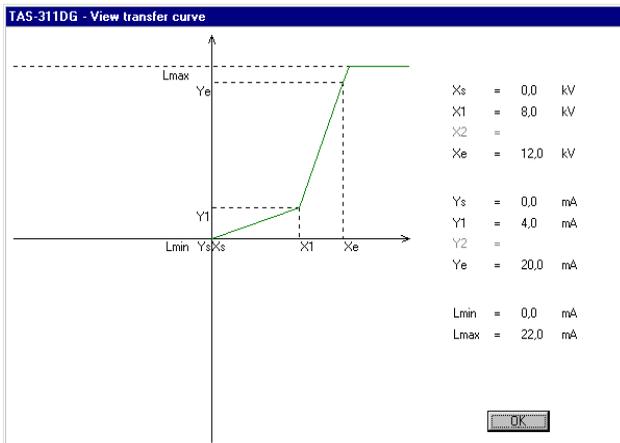
Distributor's ID myself Other info. sample

Clicking Secondary data allows you to enter other configuration data.

From the pull down menu Supply you can select information on the supply unit.

It is possible to see the input/output transfer curve by clicking the symbol 

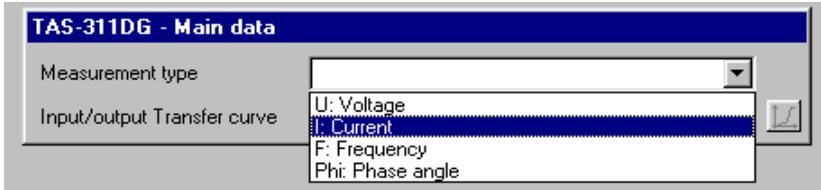
The illustration shows the input/output function with the selected values.



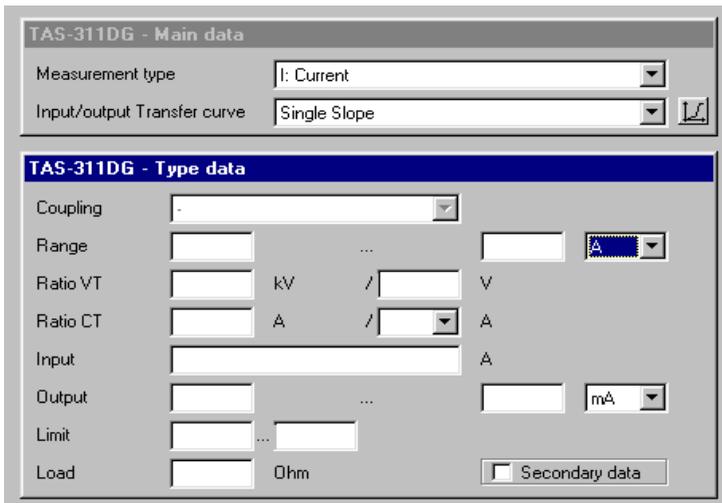
## Current

The example below illustrates the configuration of a TAS-311DG for current.

Select TAS-311DG from the pull down menu, and then select Current from the pull down menu.



The display shown below will appear.



The example shows a complete configuration. Please note that if there is no external Ct, nothing must be entered/selected in the fields for Ratio Ct.

**TAS-311DG - Main data**

Measurement type:  ▼

Input/output Transfer curve:  ▼

---

**TAS-311DG - Type data**

Coupling:  ▼

Range:  ...   ▼

Ratio VT:  kV /  V

Ratio CT:  A /  A ▼

Input:  A

Output:  ...   ▼

Limit:  ...

Load:  Ohm  Secondary data

---

**TAS-311DG - Secondary data (only for later reference)**

DEIF Order No.  Supply:  ▼

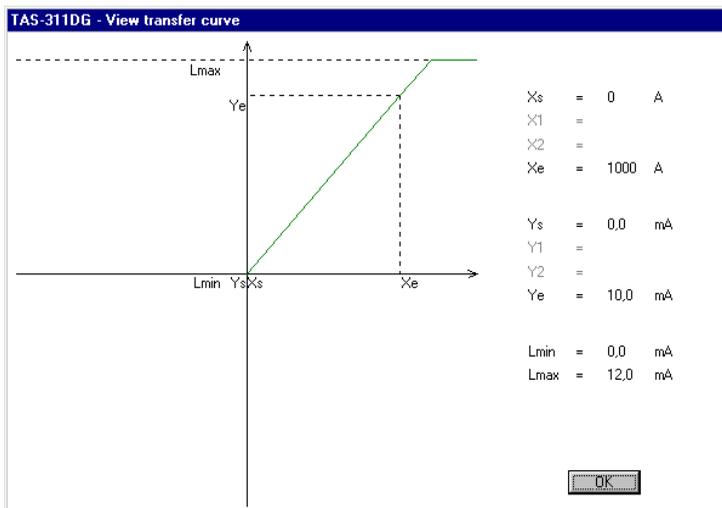
Distributor's ID  Other info.

Clicking Secondary data allows you to enter other configuration data.

From the pull down menu Supply you can select information on the supply unit.

It is possible to see the input/output transfer curve by clicking the symbol

The illustration shows the input/output function with the selected values.

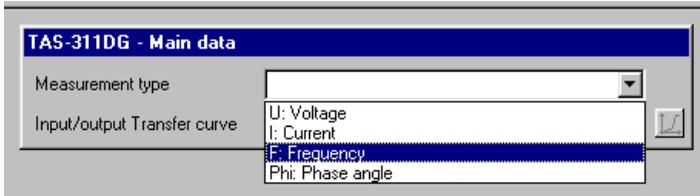


## Frequency

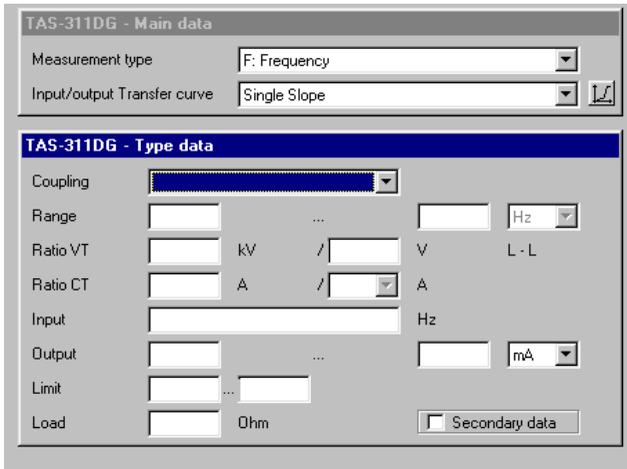
The example below illustrates the configuration of a TAS-311DG for frequency.

Select TAS-311DG from the pull down menu.

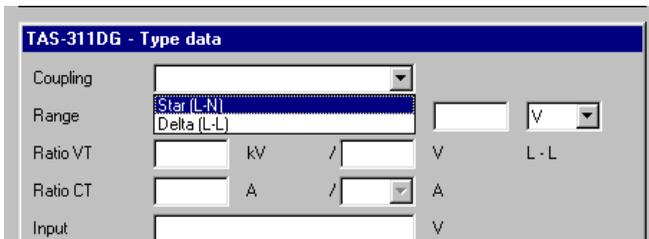
Press OK and select Frequency from the pull down menu.



The display shown below will appear.



Click the arrow key off Coupling, the pull down menu shown below will now appear.



Choose between Star or Delta connection. For further information about Star and Delta connection, please see the section TAS-311DG – voltage.

The example shows a complete configuration. Please remember to enter information about the measuring voltage in the field of secondary voltage (in the example 400V). If external  $V_t$  is applied and you want this to be included, the secondary voltage must always correspond to the actual input voltage. If this is not the case (for example, 10kV/100V – measuring voltage 12kV), 120V must be entered instead of 100V in the field of secondary voltage.

| TAS-311DG - Main data                                 |                                                                                                |             |                                                    |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------|
| Measurement type                                      | F: Frequency                                                                                   |             |                                                    |
| Input/output Transfer curve                           | Single Slope  |             |                                                    |
| TAS-311DG - Type data                                 |                                                                                                |             |                                                    |
| Coupling                                              | Star (L-N)                                                                                     |             |                                                    |
| Range                                                 | 45,0                                                                                           | ...         | 55,0 Hz                                            |
| Ratio VT                                              |                                                                                                | kV / 400    | V L - N                                            |
| Ratio CT                                              |                                                                                                | A /         | A                                                  |
| Input                                                 | 45,0...55,0                                                                                    |             | Hz                                                 |
| Output                                                | 4,0                                                                                            | ...         | 20,0 mA                                            |
| Limit                                                 | 4,0                                                                                            | ...         | 21,5                                               |
| Load                                                  | < 500                                                                                          | Ohm         | <input checked="" type="checkbox"/> Secondary data |
| TAS-311DG - Secondary data (only for later reference) |                                                                                                |             |                                                    |
| DEIF Order No.                                        | 123456                                                                                         | Supply      | 220 VDC                                            |
| Distributor's ID                                      | myself                                                                                         | Other info. | sample                                             |

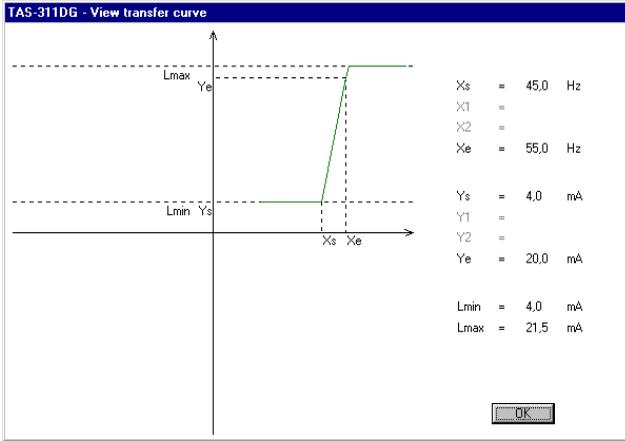
Clicking Secondary data allows you to enter other configuration data.

From the pull down menu Supply you can select information on the supply unit.

It is possible to see the input/output transfer curve by clicking the symbol



The illustration on the next page shows the input/output function with the selected values.

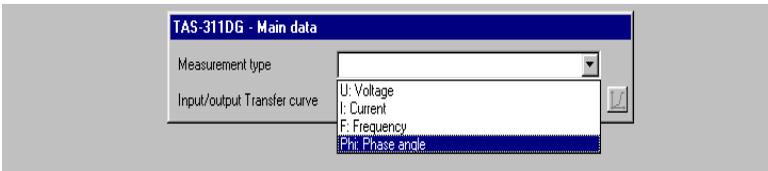


## Phase angle

The example below illustrates the configuration of a TAS-311DG for phase angle measurement.

Select TAS-311DG from the pull down menu.

Press OK and select Phase angle from the pull down menu.



The display shown on the next page will appear.

**TAS-311DG - Main data**

Measurement type:

Input/output Transfer curve:

---

**TAS-311DG - Type data**

Coupling:

Range:  ...  deg

Ratio VT:  kV /  V L - L

Ratio CT:  A /  A

Input:  deg

Output:  ...  mA

Limit:  ...  ZCI:

Load:  Ohm  Secondary data

Click the arrow key off Coupling, the pull down menu shown below will now appear.

**TAS-311DG - Main data**

Measurement type:

Input/output Transfer curve:

---

**TAS-311DG - Type data**

Coupling:

Range:  deg

Ratio VT:  V L - L

Ratio CT:  A /  A

Input:  deg

Output:  ...  mA

Limit:  ...  ZCI:

Load:  Ohm  Secondary data

Use the mouse or the arrow keys to select the desired coupling from the menu. The selected coupling depends on the phases applied for the voltage measurement. If the external current transformer is not placed in phase L1, please refer to the installation instructions which are enclosed with the product or can be downloaded from our homepage [www.deif.com](http://www.deif.com).

The example shows a complete configuration of the transducer for input 0.5cap...1...0.5ind. Please note that the measuring range is to be entered in electrical degrees.

TAS-311DG - Main data

Measurement type:

Input/output Transfer curve:

---

TAS-311DG - Type data

Coupling:

Range:  ...

Ratio VT:  kV /  V L - L

Ratio CT:  A /  A

Input:  deg

Output:  ...

Limit:  ...  ZCI:

Load:  Ohm  Secondary data

Especially for the phase angle measurement it must be considered which output is desired when the current in the input circuit is less than 10% of the nominal current (in the shown example  $I_{nom} = 1A$ ). In the example an output of -10V is selected. Please note that you are free to select this value within the selected output limits. The entry field is named ZCI (Zero Current Indication).

TAS-311DG - Main data

Measurement type:

Input/output Transfer curve:

---

TAS-311DG - Type data

Coupling:

Range:  ...

Ratio VT:  kV /  V L - L

Ratio CT:  A /  A

Input:  deg

Output:  ...

Limit:  ...  ZCI:

Load:  Ohm  Sec

Zero Current Indication. Type the output value correspond



By clicking the symbol , the selected ZCI output is converted to the corresponding input value in electrical degrees, please see the example below. If you cannot activate the field by clicking the symbol, please press enter first.

**Transducer Configuration Software** [X]

A Zero Current Indication on -10,0V corresponds to a measured angle on -60,00deg

**TAS-311DG - Main data**

Measurement type:

Input/output Transfer curve:

---

**TAS-311DG - Type data**

Coupling:

Range:  ...

Ratio VT:  kV /  V L - L

Ratio CT:  A /  A

Input:  deg

Output:  ...

Limit:  ...  ZCI:

Load:  Ohm  Secondary data

---

**TAS-311DG - Secondary data (only for later reference)**

DEIF Order No.  Supply:

Distributor's ID  Other info.

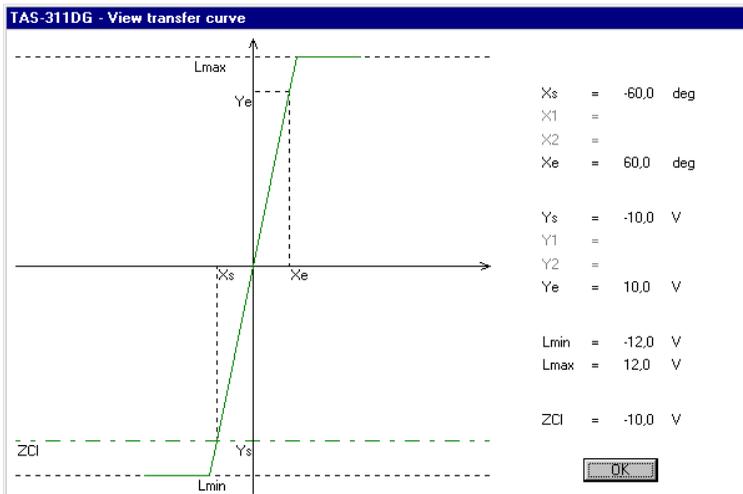
Clicking Secondary data allows you to enter other configuration data.

From the pull down menu Supply you can select information on the supply unit.



It is possible to see the input/output transfer curve by clicking the symbol

The illustration shows the input/output function with the selected values.

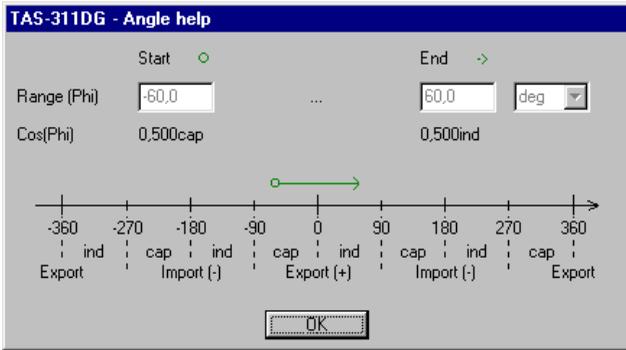




As the measuring range in the new TAS transducer is to be entered in electrical degrees, and not as in previous DEIF transducers to be indicated in cos phi values, an extra function has been introduced in connection with the configuration. This function illustrates the coherence between the selected degrees and the corresponding cos phi value.



The function is activated by clicking the symbol



On the above illustration it can be read what the selected input corresponds to in cos phi values. Start and End refer to the output start value and end value in relation to the input, marked with a green circle and a green arrow respectively. At the bottom of the illustration you can get a total view of the selected input and the selected measuring direction.

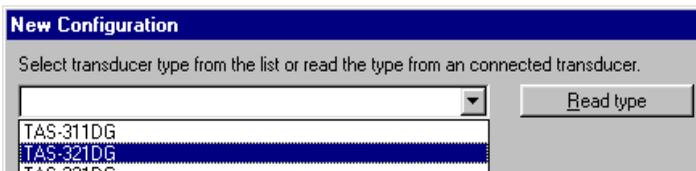
### Configuration of TAS-321DG

The configuration of TAS-321DG follows the same procedure as described for the configuration of TAS-331DG (see this section).

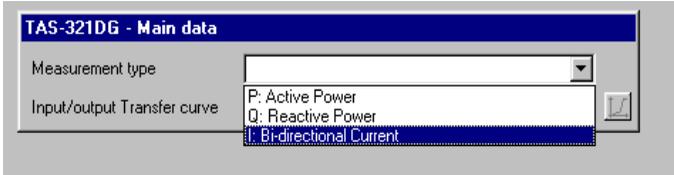
### Measurement of current with indication of the direction

The example below illustrates the configuration of a TAS-321DG for measurement of current with indication of the "current direction".

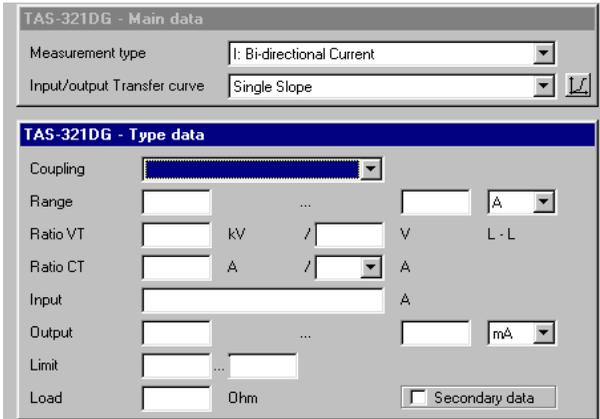
Select TAS-321DG from the pull down menu.



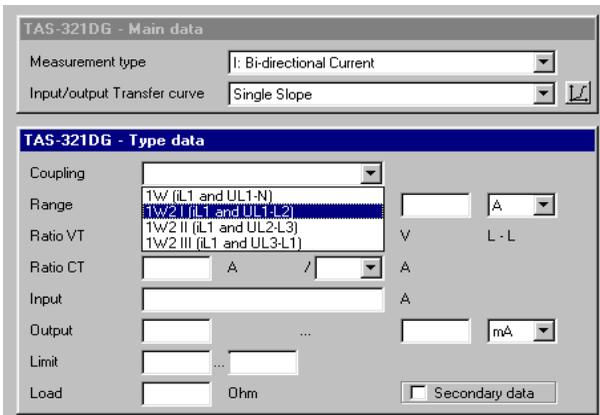
Press OK and select Bi-directional current from the pull down menu.



The display shown below will appear.



Use the mouse or the arrow keys to select the desired coupling from the menu. The selected coupling depends on the phases applied for the voltage measurement. If the external current transformer is not placed in phase L1, please refer to the installation instructions which are enclosed with the product or can be downloaded from our homepage [www.deif.com](http://www.deif.com).



The next example shows a complete configuration.

**TAS-321DG - Main data**  
 Measurement type: I: Bi-directional Current  
 Input/output Transfer curve: Single Slope

**TAS-321DG - Type data**  
 Coupling: 1W2 I (IL1 and UL1-L2)  
 Range: -100 ... 100 A  
 Ratio VT: kV / V L - L  
 Ratio CT: 100 A / 1 A  
 Input: -1,000...1,000 A  
 Output: -20,0 ... 20,0 mA  
 Limit: -22,0 ... 22,0  
 Load: < 500 Ohm  Secondary data

**TAS-321DG - Secondary data (only for later reference)**  
 DEIF Order No.: 123456    Supply: 100 VAC  
 Distributor's ID: myself    Other info.: sample

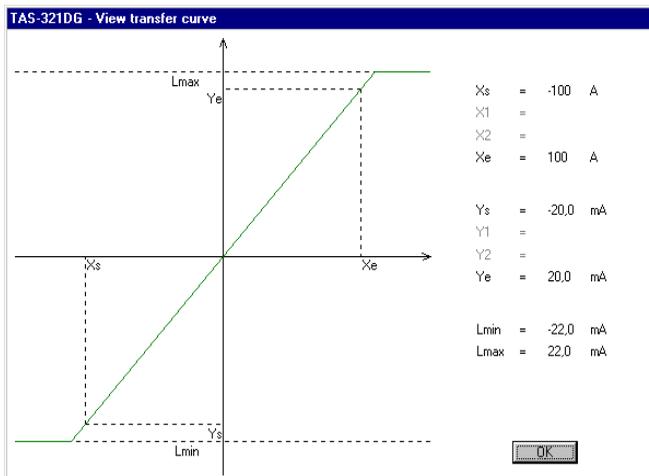
Clicking Secondary data allows you to enter other configuration data.

From the pull down menu Supply you can select information on the supply unit.

It is possible to see the input/output transfer curve by clicking the symbol



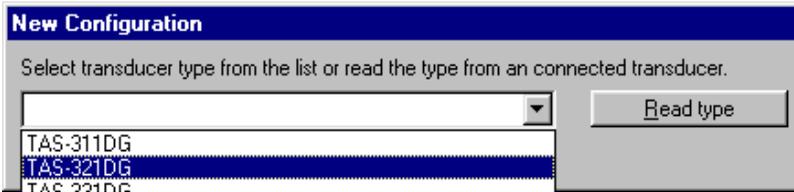
The illustration shows the input/output function with the selected values.



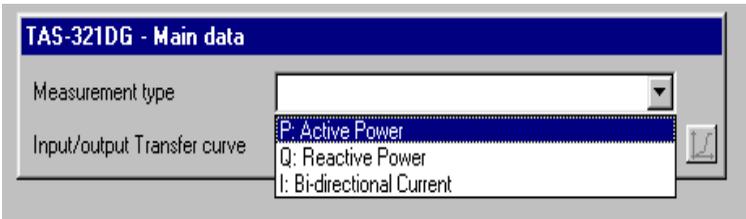
**Active/reactive power measurement on a 3-phase network where only 2 phases are available for the measurement**

TAS-321DG is internally equipped with a phase shifter network which turns the phase between the current measurement and the voltage measurement 30°, so it is possible to measure the power on a 3-phase network where only 2 of the phases are available.

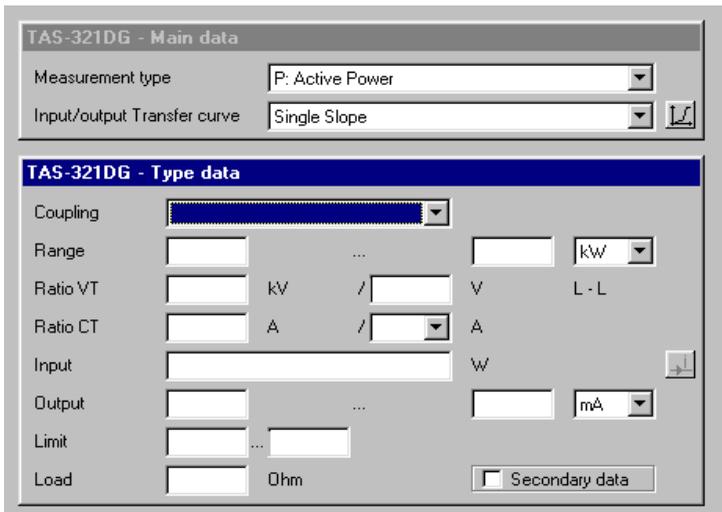
Select TAS-321DG from the pull down menu.



Press OK and select Active or Reactive power from the pull down menu.



The display shown below will appear.



Use the mouse or the arrow keys to select the desired coupling from the menu. The selected coupling depends on the phases applied for the voltage measurement. If the external current transformer is not placed in phase L1, please refer to the installation instructions which are enclosed with the product or can be downloaded from our homepage [www.deif.com](http://www.deif.com).

| TAS-321DG - Main data                   |                          |
|-----------------------------------------|--------------------------|
| Measurement type                        | P: Active Power          |
| Input/output Transfer curve             | Single Slope             |
| TAS-321DG - Type data                   |                          |
| Coupling                                | 1W2 I (IL1 and UL1-L2)   |
| Range                                   | 1W2 I (IL1 and UL1-L2)   |
| Ratio VT                                | 1W2 II (IL1 and UL2-L3)  |
| Ratio CT                                | 1W2 III (IL1 and UL3-L1) |
| Input                                   | W                        |
| Output                                  | mA                       |
| Limit                                   |                          |
| Load                                    | Ohm                      |
| <input type="checkbox"/> Secondary data |                          |

The next example shows a complete configuration.

| TAS-321DG - Main data                                 |                        |
|-------------------------------------------------------|------------------------|
| Measurement type                                      | P: Active Power        |
| Input/output Transfer curve                           | Single Slope           |
| TAS-321DG - Type data                                 |                        |
| Coupling                                              | 1W2 I (IL1 and UL1-L2) |
| Range                                                 | 0 ... 500 kW           |
| Ratio VT                                              | ... / 400 V L - L      |
| Ratio CT                                              | 1000 A / 5 A           |
| Input                                                 | 0..2500 W              |
| Output                                                | 0,00 ... 5,00 V        |
| Limit                                                 | -6,00 ... 6,00         |
| Load                                                  | > 250 Ohm              |
| <input checked="" type="checkbox"/> Secondary data    |                        |
| TAS-321DG - Secondary data (only for later reference) |                        |
| DEIF Order No.                                        | 123456                 |
| Supply                                                | 110 VAC                |
| Distributor's ID                                      | myself                 |
| Other info.                                           | sample                 |

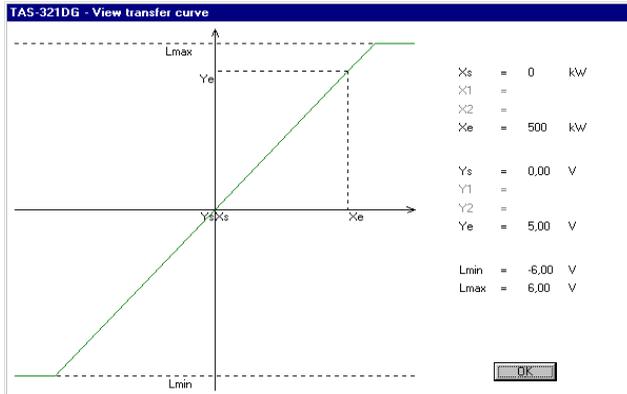
Clicking Secondary data allows you to enter other configuration data.

From the pull down menu Supply you can select information on the supply unit.

It is possible to see the input/output transfer curve by clicking the symbol

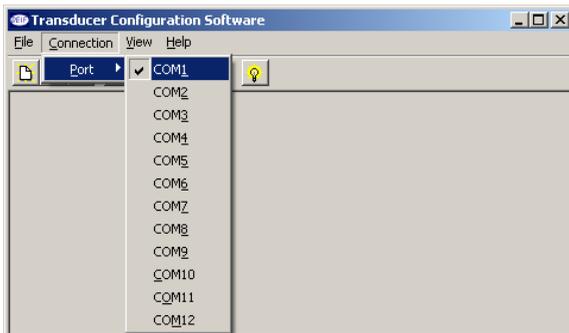


The illustration shows the input/output function with the selected values.



### Write the information to the transducer

When the entry has been made, all information must be written to the transducer. This is done by selecting Connection in the menu, subsequently select the com port to which the "USB to TTL converter" is connected. Please note that this setup can of course be made before the configuration is started. When the connection is established, the configuration is written to the transducer by clicking the red down arrow key, or by opening File and clicking Write configuration. In connection with writing or saving the file, the programme checks that the configuration is valid. If this is not the case, the programme will send an error message with information of what went wrong. See the example below.





If the transducer has already been configured, the configuration can be read by clicking the red up arrow key or by selecting Read configuration in the menu File. This procedure is used if the configuration data of the transducer are to be changed later on.

### View measurement

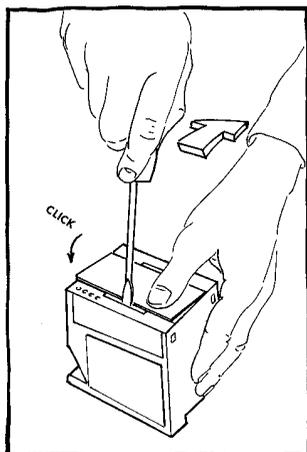
If the measuring inputs of the transducer are connected, it is possible to see the measured value the transducer makes. Click View in the Main menu and select Measurement. The example illustrates a TAS-311DG configured as frequency transducer with the measuring range 45...55Hz.

The image shows two overlapping windows from the TAS-311DG software interface. The top window, titled "TAS-311DG - Main data", has "Measurement type" set to "F. Frequency" and "Input/output Transfer curve" set to "Single Slope". Below it, the "TAS-311DG - Type data" window shows "Coupling" as "Ster (L-N)", "Range" from 45.0 to 55.0 Hz, "Ratio VT" as 400 V, "Ratio CT" as A, "Input" as 45.0...55.0 Hz, "Output" as 20.0 mA, "Limit" as 21.5, and "Load" as < 500 Ohm. A "Secondary data" checkbox is present. The bottom window, titled "TAS-311DG - View measurement", displays a "Measured value" of 50.00 Hz and a "Cancel" button.

This is a close-up of the "TAS-311DG - View measurement" window. It features a blue header bar with the title. Below the header, the text "Measured value" is followed by a digital display showing "50,00" and the unit "Hz". A "Cancel" button is located at the bottom center of the window.

## Mounting of front panel

The front panel of the transducer is mounted as shown in the illustration below.



Press with a screwdriver as indicated by the arrow and simultaneously press the front panel down with your thumb. It is recommended that one side of the front panel snaps into place before the other.

## Label is filled in and mounted on the transducer

When the configuration is done, the label is filled in with all relevant information, see the example below. Please remember to fill in the field DEIF's order ack. no. This can be found on the side of the carton box in which the unit is delivered, and on the paper label on the side of the transducer. This is important in connection with potential service of the transducer later on. Clicking the Print icon in the Main menu allows you to print a hard copy of the configuration and of the input/output function (transfer curve).

|                                  |                         |                                                         |
|----------------------------------|-------------------------|---------------------------------------------------------|
| Coupling                         | Type designation        | DEIF's order ack. no. To be stated when contacting DEIF |
| Measuring range Primary values   | TYPE TAS-331DG          | 123456                                                  |
|                                  | COUPLING 3W3            | Condition of external voltage transformer               |
|                                  | RANGE -2...0...2MW      |                                                         |
| Measuring range Secondary values | RATIO VT 10kV/100V      | Condition of external current transformer               |
|                                  | RATIO CT 100A / 5A      |                                                         |
|                                  | INPUT -1000...0...1000W | Max. output load current output                         |
| Output range                     | OUTPUT 20...0...20mA    | Min. output load voltage output                         |
| Output limited to $\pm 22$ mA    | LIMIT -22...22mA        |                                                         |
| Auxiliary voltage                | LOAD <500 $\Omega$      | Distributor's ID                                        |
|                                  | SUPPLY 100V AC          | Other information<br>If. special product                |
|                                  |                         |                                                         |



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When the label is filled in, it is mounted in the middle of the upper side of the transducer.

To be able to subsequently identify the function of the individual transducer where more transducers are mounted, it is recommended to cut out the unit of the enclosed sheet and attach this label to the front of the transducer – see the illustration on the front page of this manual.

### **Other information**

During configuration of a transducer it is possible to see the following information in the Main menu under the menu point View/Transducer data: Firmware version, interface version and type TAS-311DG, TAS-321DG or TAS-331DG.