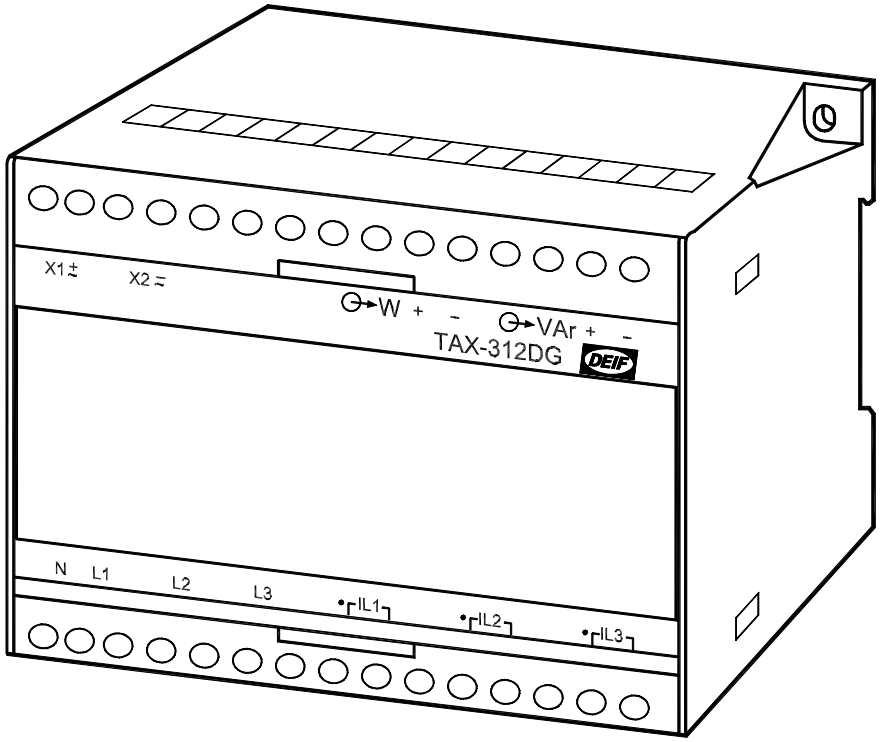
DEIF A/S

TAX-312DG/1

4189340216C

REPLACEMENT



Customisation manual

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Introduction

Why customise the TAX-312DG/1?
To reduce the time of delivery to the customer.
To ensure a quick service.
To minimise the stock.

Which equipment do I need in order to customise a TAX-312DG/1.
Calibration modules for current.
Calibration modules for voltage.
Auxiliary voltage modules.
Clips for mounting of auxiliary voltage module.
A small screwdriver.
A big screwdriver.
A water resistant pen.
A normal digital voltmeter.

Which training do I need to be able to customise the TAX-312DG/1?
General experience of electric installation is sufficient.

How long time does it take to customise a TAX-312DG/1?
Typically 5 minutes for each customisation.

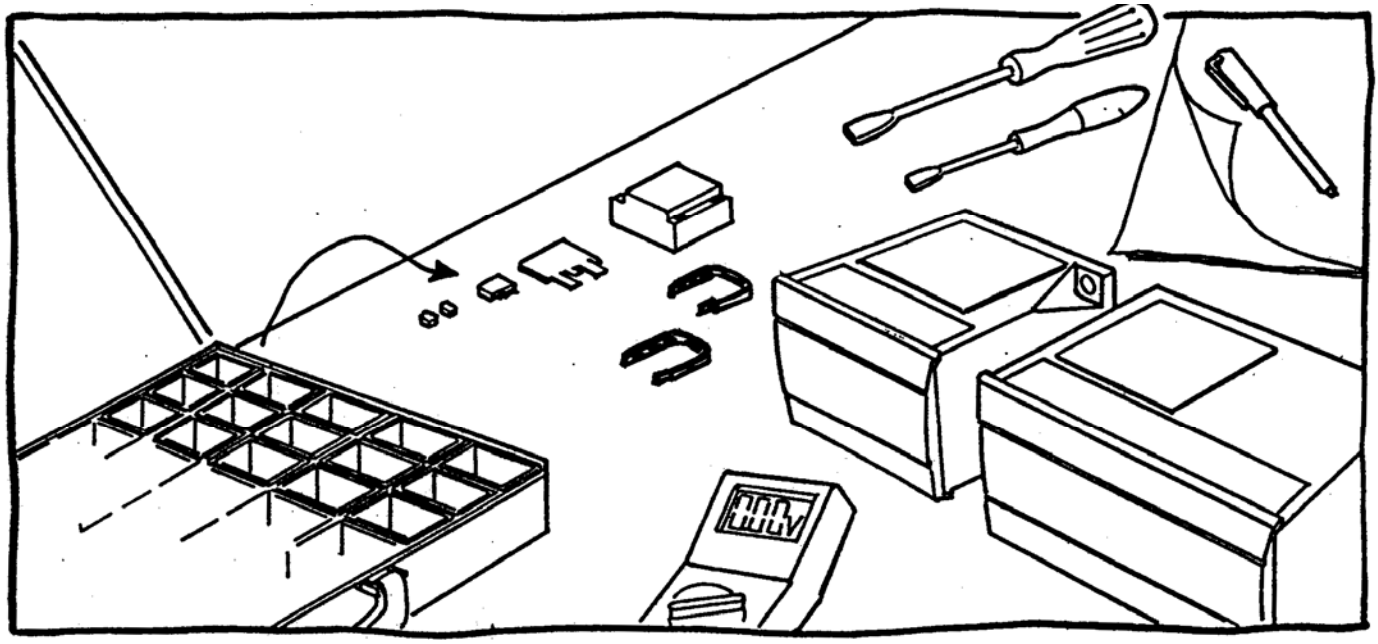
How is the traceability of customised TAX-312DG/1 ensured?
DEIF A/S has printed an order number on the type label identifying “the not-customised unit”. In connection with the customisation the other fields on the type label are filled in.

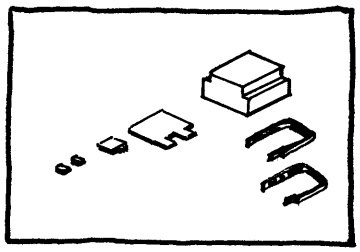
Who can I contact if problems occur in connection with a customisation?
You can contact DEIF A/S via internet, telephone or fax.

Structure of this manual

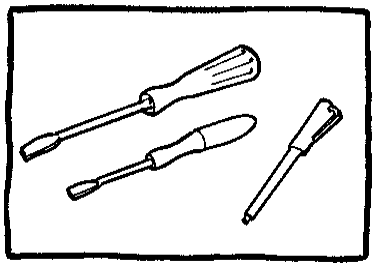
This manual indicates step by step how to perform a customisation. When further information is necessary, we refer to an appendix.

Modules for customisation

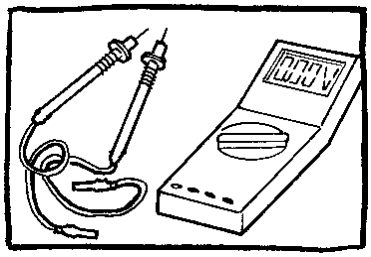




Jumpers, current module, voltage module, auxialiary voltage module. The voltage module is coded in a way which allows no wrong mounting. The orientation of the current module is arbitrary.

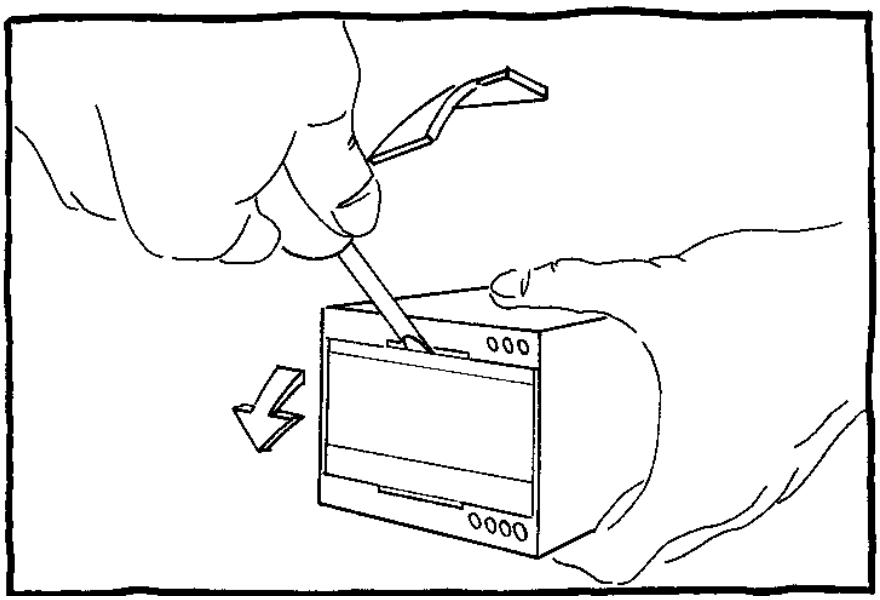


Tools necessary for customising. A big and a small screwdriver plus a pen.

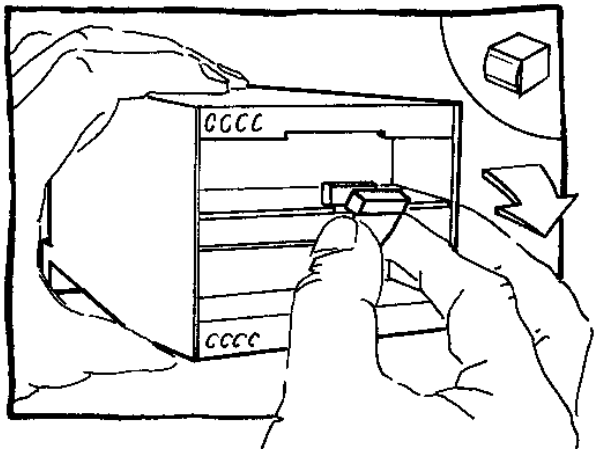


Meter for scaling. The measuring accuracy of the instrument must be min. class 0.3 of the read value.

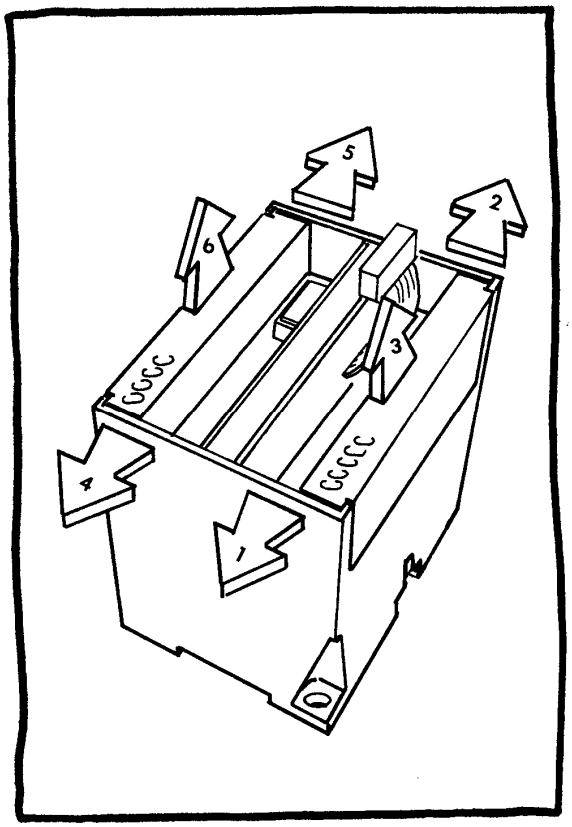
Opening of the unit



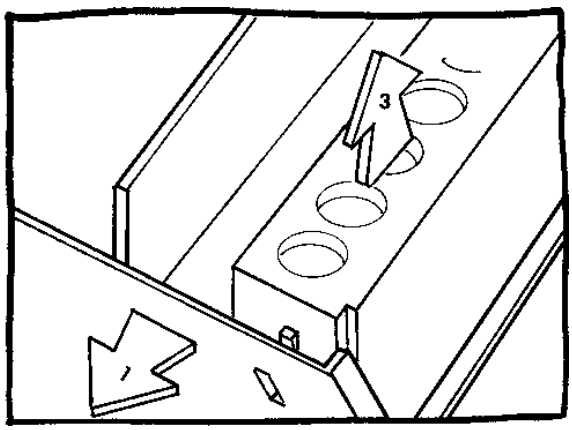
The front panel is removed by means of a screwdriver. The front cover may be loosened in the right side first and is then totally demounted by moving the screwdriver towards left.



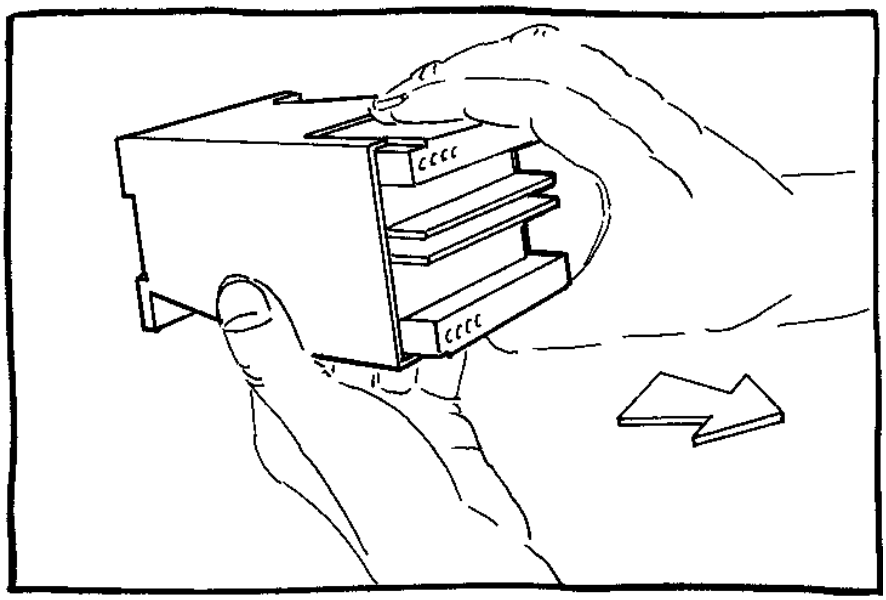
Before the printed circuit boards (PCBs) can be pulled out of the box, the indicated connector must be demounted.



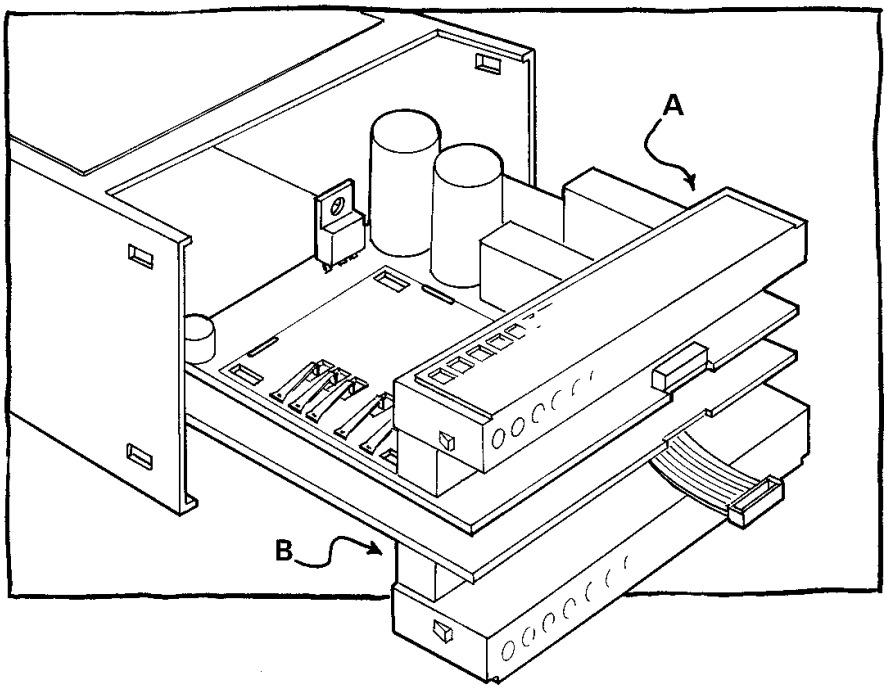
The PCBs are prepared for removal from the box by pulling at the ends of the box (1 and 2) and pushing the screw terminal block with the thumb as indicated by the arrow (3). Then pull at the ends (4 and 5) and the other PCB is prepared for removal in the same way.



The terminal block is fastened in the box.



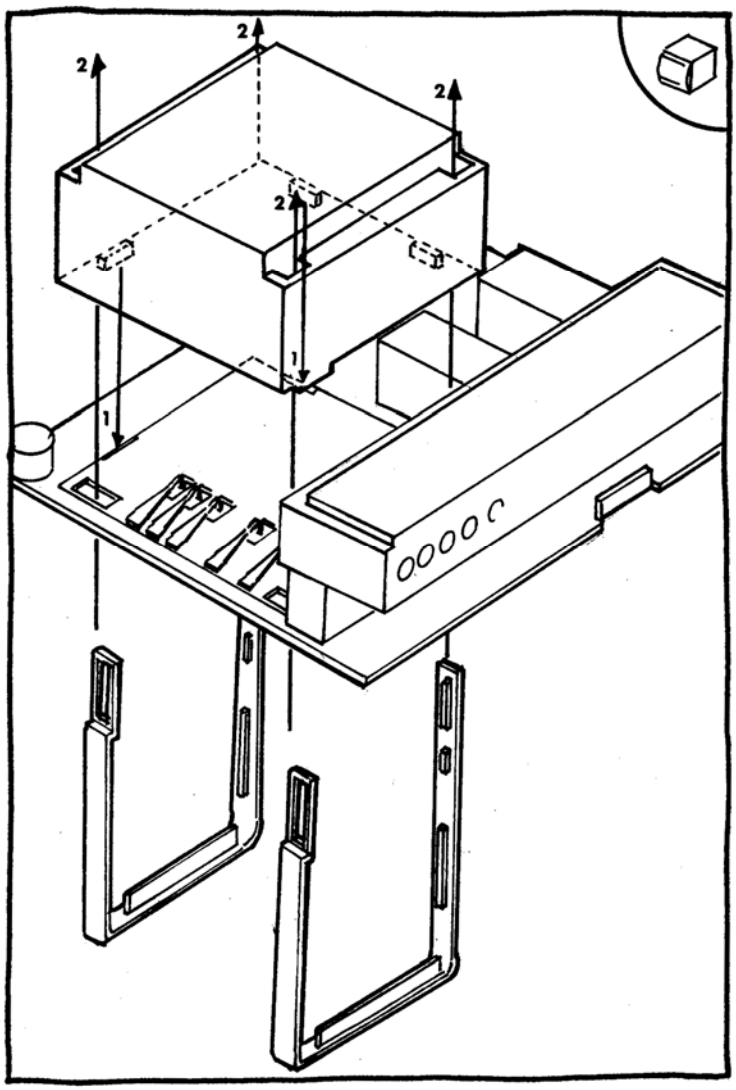
Both PCBs are now pulled out simoultaneously.



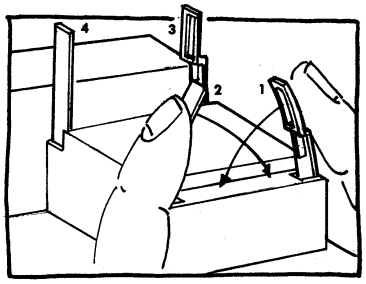
The upper print card (A) contains outputs and an auxiliary voltage transformer. The lower PCB contains the input circuits.

Note that the type label is situated by PCB “A”.

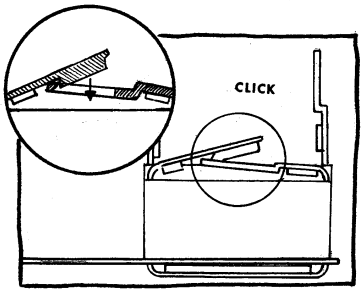
Mounting of the auxiliary voltage module in the small box



Before mounting the module the 2 shown clips may be placed in each of the 2 clips 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.

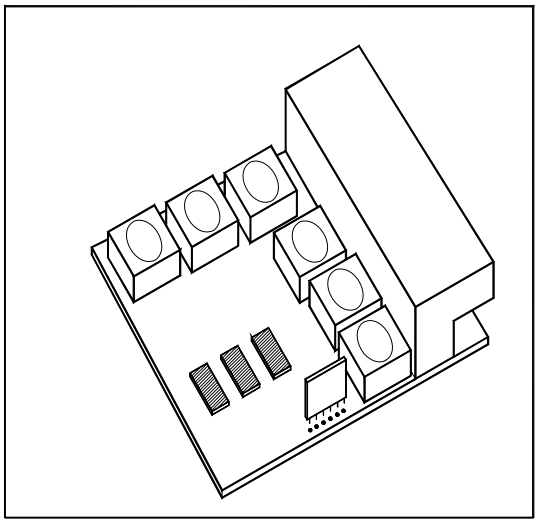


The clips are set into position for locking.

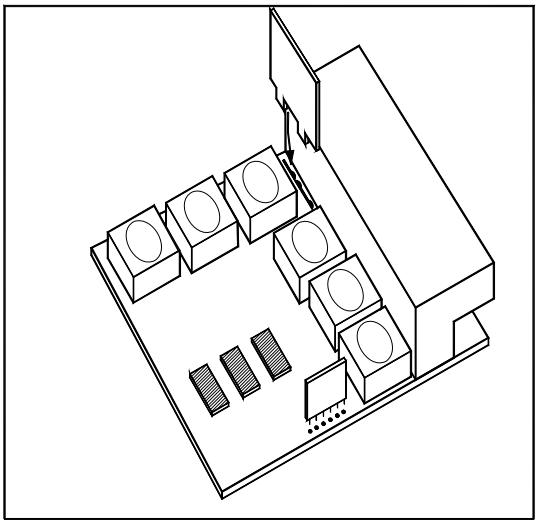


Push hard on the top of the clips until a clear ”click” sounds.

Customisation of the TAX-312DG/1

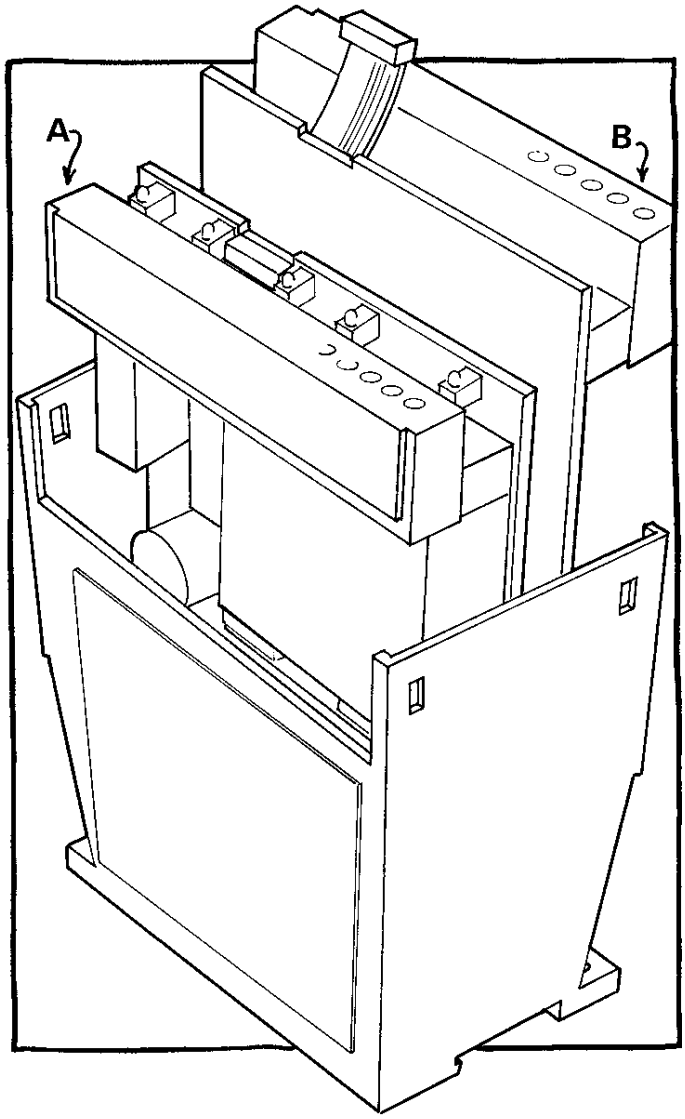


Mount the current module. If the calculated input power does not correspond to standard modules the relay must be scaled (see appendix).

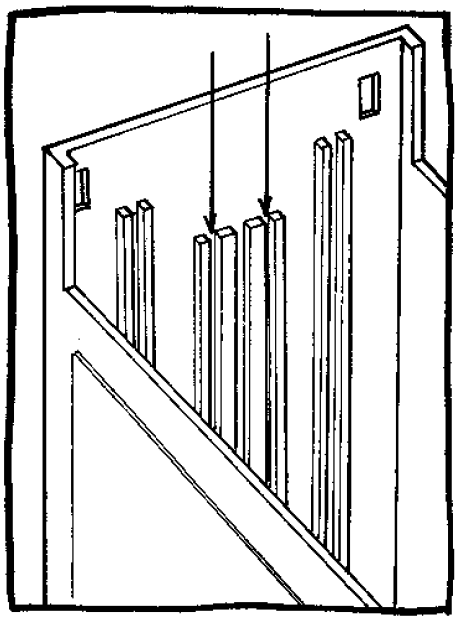


Mount the voltage module. See appendix.

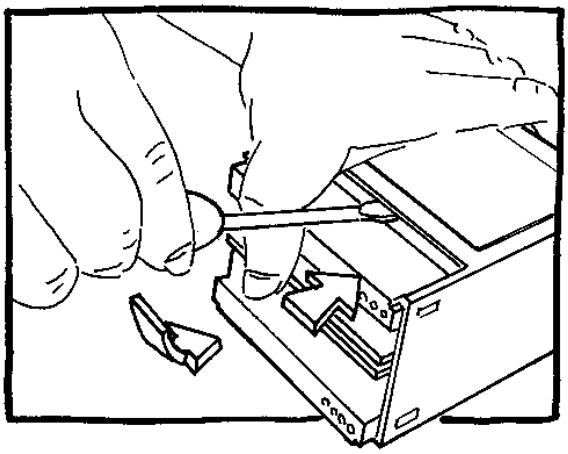
Mounting of the PCB in the box



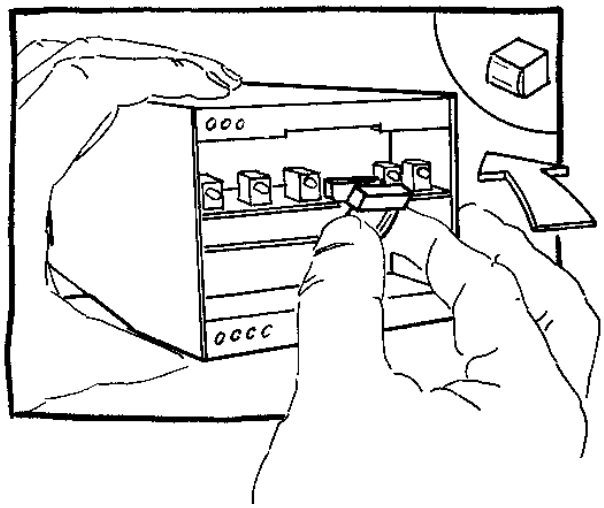
The PCB with the auxiliary voltage module is to be mounted nearer to the type label on the upper part of the unit. The print cards can be inserted one by one. The PCBs must glide in the tracks, otherwise the PCBs are not inserted correctly.



An indication of the two tracks into which the PCBs “A” and “B” are inserted.



Lift the upper and under part alternately by means of a screwdriver and press the print card as indicated by the arrow simultaneously. When a “click” sounds, the print card is inserted correctly.

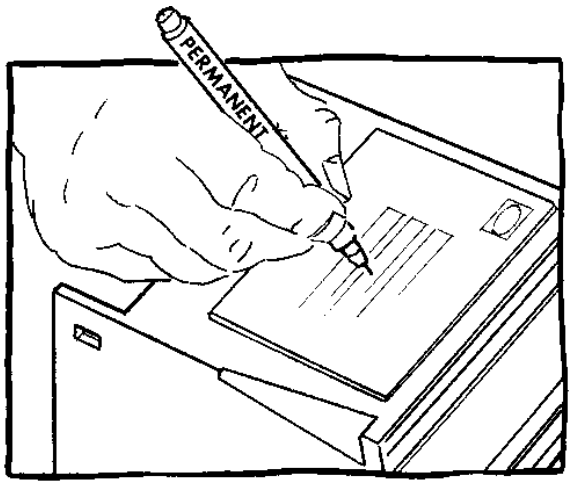


Mount the belted cable.

Scaling

A scaling is performed when a standard current module does not conform to I_N. Connect the auxiliary voltage to the terminals No. 1 and No. 3 of the relay. Note that measuring voltages must not be connected to the relay during scaling. You may mount an auxiliary voltage module temporarily if the required auxilliary voltage is not available.

Filling in the type label

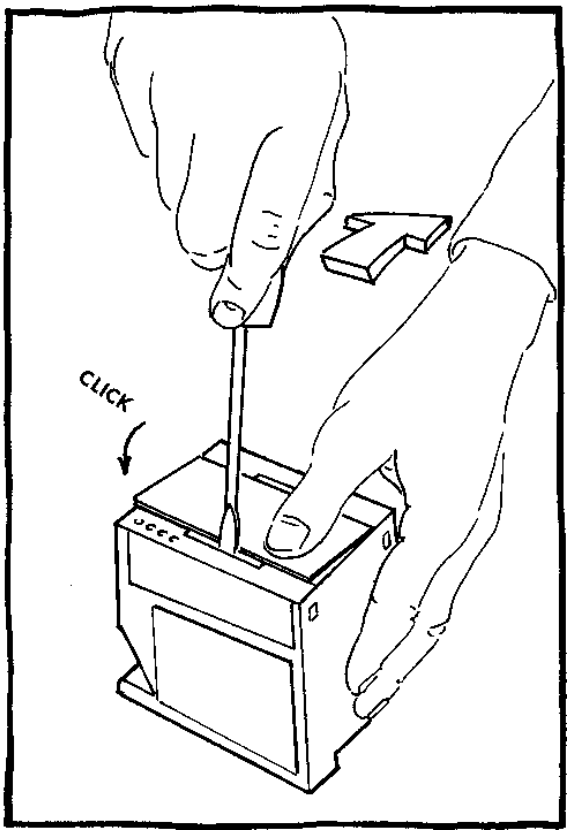


At delivery the order number is filled in by DEIF A/S. After the customisation the type label is filled in with information identifying the customisation of the relay.

COUPL	W/VAr	1W4	1VAr4	123456.789
RANGE	W	0...1MW		
RANGE	VAr	0...0.5MVAr		
RATIO	VT CT	10kV / 100V	100 / 5A	
MODULE	V I	57.7V	3A	
INPUT	W	500W		
INPUT	VAr	250VAr		
OUTPUT	W VAr	4...20mA	0...10V	
LOAD	W VAr	<500 Ω	>500 Ω	
SUPPLY		110V DC		
DEIF CE		⚠ 600V CAT III.		

Example of a filled in type label.

Mounting of the front panel



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

Appendix

Configuration of the output

The TAX-312DG/1 can be configured to the following outputs.

0…1mA (-1…0…1mA), 0…5mA (-5…0…5mA), 0…10mA (-10…0…10mA), 0…20mA (-20…0…20mA), 0…1V (-1…0…1V), 0…10V (-10…0…10V).
0.2…1mA, 1…5mA, 2…10mA, 4…20mA, 0,2…1V, 2…10V (live zero).

The different outputs are chosen by means of 1 dip switch for each output, S1 (output 1) and S2 (output 2). The two dip switches are situated on the PCB with the auxiliary supply unit.

Setting of the dip switches is according to figure 1.

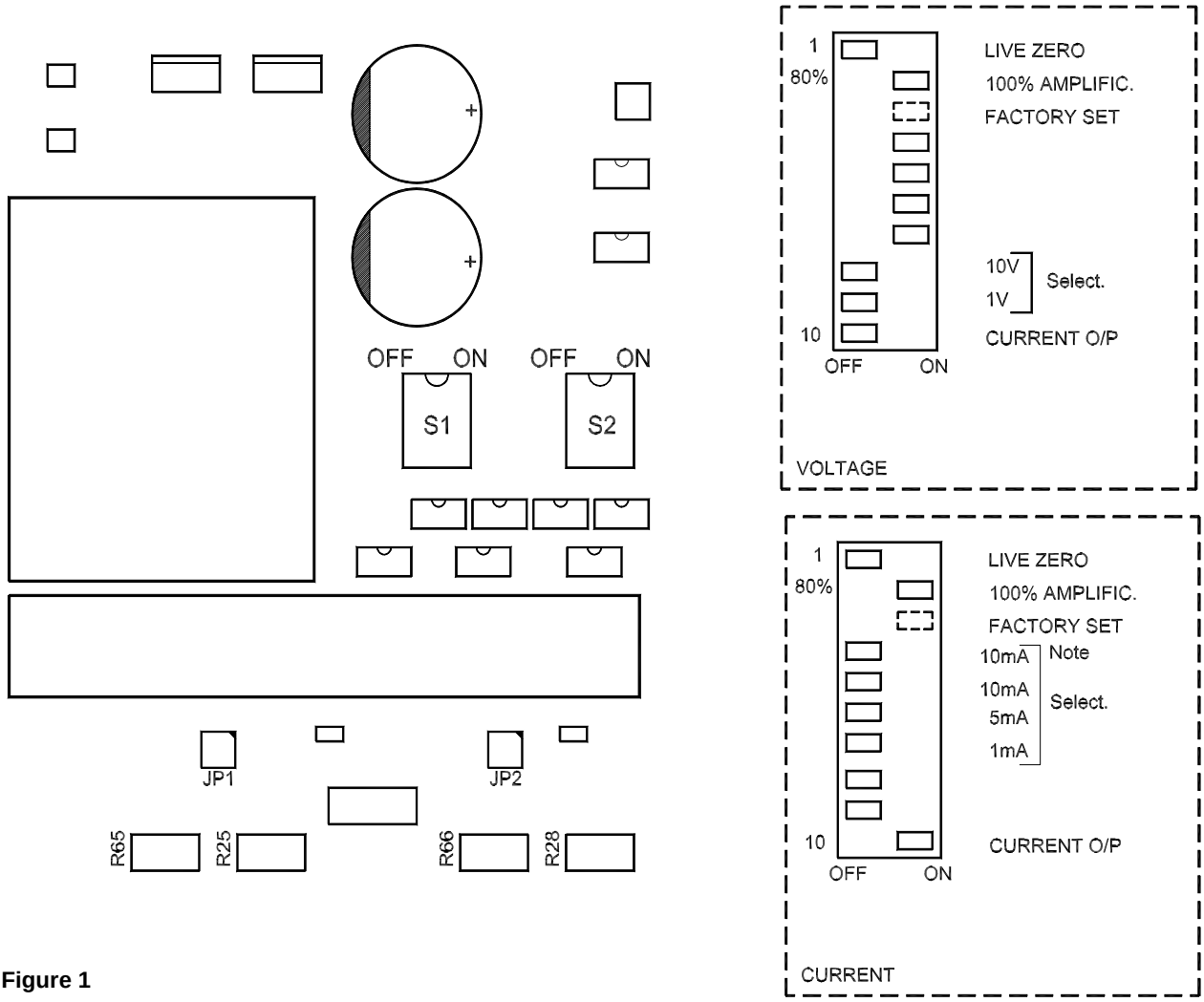


Figure 1

If live zero is chosen (4…20mA) a correction of the min adjustment is necessary. The “min” adjustment is performed by means of the two potentiometers R65 (output 1) and R66 (output 2). See figure 2. Remember to set switch in position 80% when live zero is selected.
The min adjustment is done without any current input connected to the transducer.
Note: 0…20mA is selected by turning on 2 x 10mA

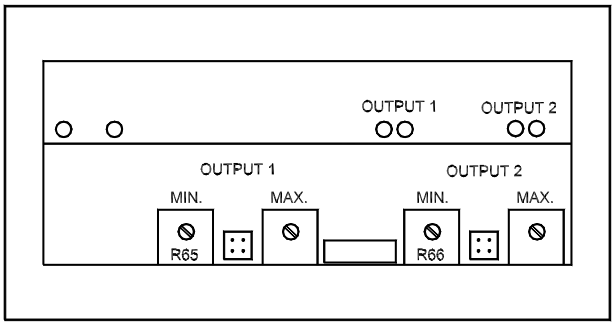


Figure 2

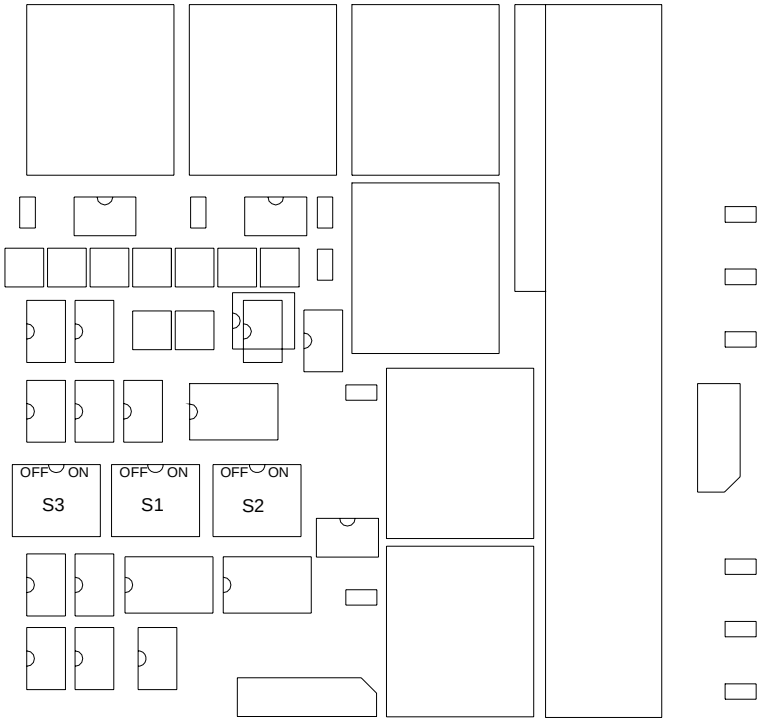
Configuration of the coupling

The TAX-312DG/1 can be configured to the following couplings:

1W (4) /1VAr (4), 1W3 /1VAr3, 2W3 / 2VAr3, 3W3 (4) / 3VAR3 (4).

The different couplings are chosen by means of 3 dip switches. One dip switch for the Watt section (S3) and two dip switches for the VAr section (S1 and S2).

Setting of the 3 dip switches is indicated in figure 3.



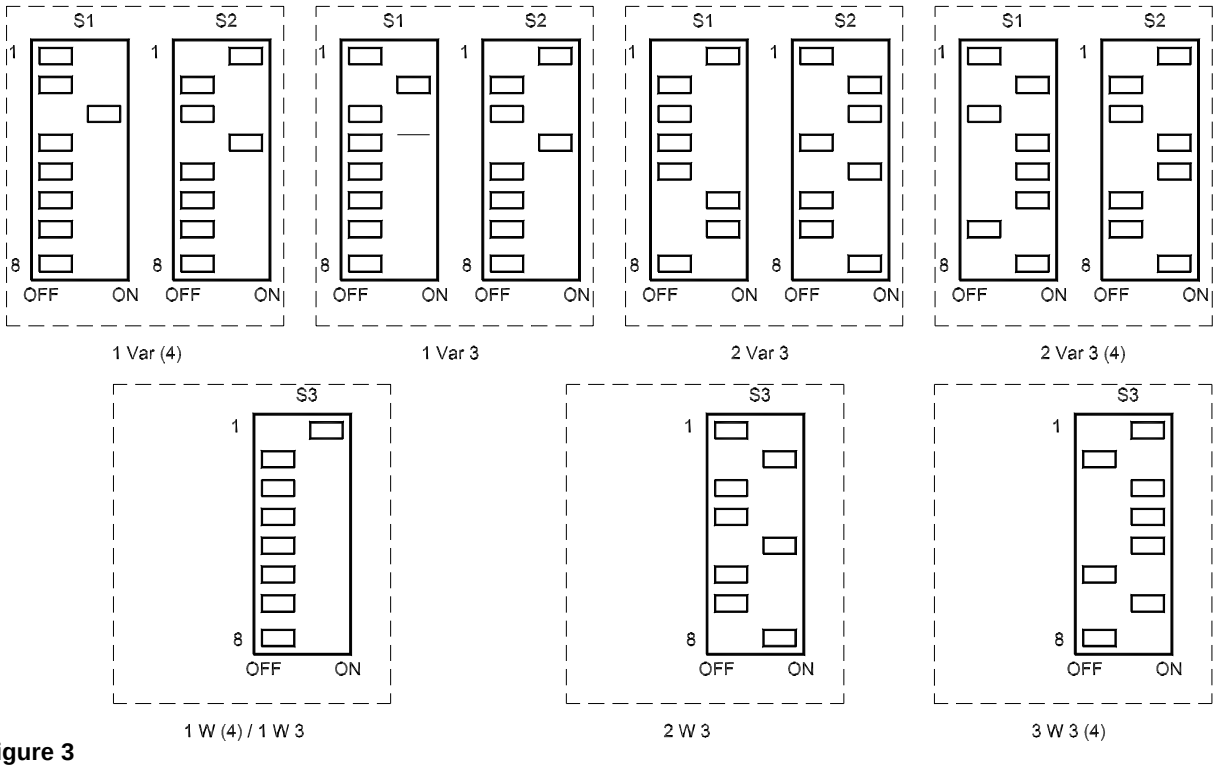


Figure 3

Note: Changing the coupling from or to 2W3 (2VAr3) will affect the calibration up to 5%.

Configuration of the measuring range

Selection of the current and voltage module.

Voltage module:
The voltage module is always identical to the phase to neutral voltage (phase to phase voltage divided with √3).

Example: Phase to phase voltage is 100V, module is 100V / √3 = 57.7V.

Current module:
For all couplings the current module is selected as follows:

First the Pn (the measuring range) must be corrected with the current transformer ratio and maybe also by a voltage transformer ratio to find the input power to the transducer.

Example: Pn = 1MW, current transformer (Ct) ratio =100/5, voltage transformer (Vt) ratio = 10000/100V.

Input power = 1MW divided by (Ct ratio x Vt ratio) = 500W.

Now it is possible to calculate the secondary current input to the transducer.

Single phase network (1W / 1VAr):
Secondary current = input power / voltage module.

3 phase network (1W3 / 1VAr3, 1W4 / 1VAr4, 2W3 / 2VAr3…):
Secondary current = Input power / voltage module x 3

Example of a 3 phase network.

Secondary current = 500W / 57.7V x 3 = 2.89A.

Then select a current module from the below list according to the calculated value of secondary current.

Current modules:

0.5, 0.6, 0.8, 1.0, 1.3, 1.5, 2.0, 2.5, 3.0, 4.0, 5.0A

If the calculated current module is not on the list, the nearest value is selected and the scaling is performed.

Scaling:

Connect an instrument to the output (measuring range setting of the instrument according to the actual output.

Place the jumpers JP1 (output 1) and JP2 (output 2) in position “adjust” (see figure 4).
The reading on the instrument is now identical to full scale (10V, 20mA….).
By means of the potentiometers R25 (output 1) and R28 (output 2) the output reading (max adj.) can be changed (see figure 4).

Before any adjustment is made the following must be calculated.

The above calculation of the secondary current was 2.89A. Select the current module 3A.
Calculate the new scaling.

Scaling = Current module / secondary current x output.

Example with an output of 0…20mA

Scaling = 3 / 2.89 x 20mA = 20.76mA. Adjust the output by means of R25 (output 1) or R28 (output 2) until your reading is 20.76mA.

Example with an output with live zero (4…20mA).

Scaling = (3 / 2.89 x 16mA) + 4mA = 20.61mA.

If you have chosen the nearest lower value to the current module, the calculation will be as follows.

Scaling = 2.5 / 2.89 x 20mA = 17.3mA. Adjust the output until your reading is 17.3mA.

Example of an output with live zero (4…20mA).

Scaling = (2.5 / 2.89 x 16mA) + 4mA = 17.84mA. Adjust the output until your reading is 17.84mA.

Remember to place the jumpers JP1 and JP2 in position run.

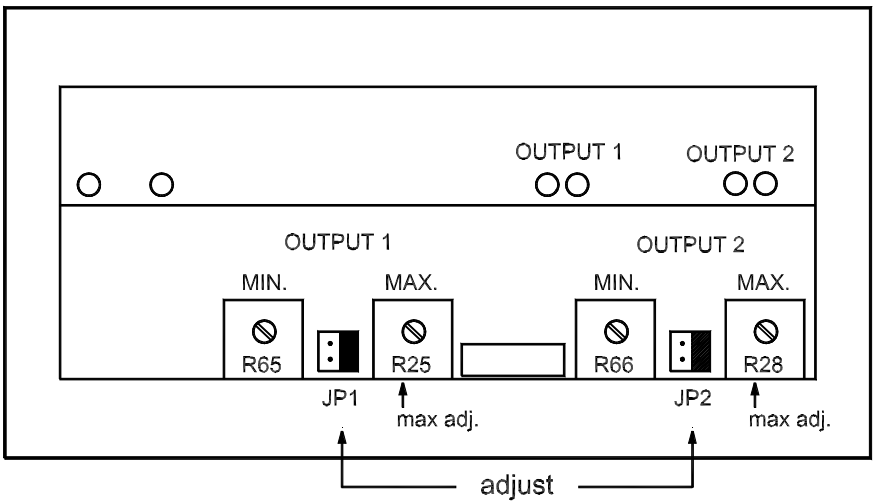


Figure 4

Hint: Checking or correcting the “min. adjust” with input current connected is possible by removing the jumpers JP1 and JP2..