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23. Service guide

DELOMATIC modules

General information

Please notice that all I/O address switches are of a turning knob type and are set with a small screwdriver. All turning knob switches have 16 positions (zero to F (Hex)). All other DIP switches are jumpers. All DIP switches are placed in a way, so it is necessary to remove the board from the rack to operate them. Before removing any board, disconnect the supply to the PCM module, and if the board is supplied separately, remove this supply too.

Before handling the boards

Before handling the boards there is a few, but important instructions:

Throughout the whole process of manufacture and test the products have been kept in static shielding bags, and all personnel handling the products have been protected against static electricity and the subsequent ESD (electrostatic discharge).

Consequently we ask you to observe certain instructions when handling our products - otherwise our efforts may be wasted:

- Be sure to carry a connection to earth when handling our PCBs. If the correct equipment (bracelet) is not available, you must improvise. You can e.g. place a wire, from which the insulation has been removed, under your watch and connect this to earth via a heavy resistor (1 M Ω).
- As to finding earth connection, it should be possible to use the rack frame or the cabinet.
- Please notice that the limit for registration of static electricity for a human being is considerably higher than the limit above which electronics and electronic components are damaged.



Be aware of static electricity when handling the boards!

When handling the boards

When handling the boards there are a few, but important instructions:

In order to ensure the best possible service for our customers, and according to the requirements stated in the ISO9001, DEIF A/S keeps track of all vital parts in a DELOMATIC installation.

This way we are able to keep records updated on exact hardware and software versions operating in a specific installation.

During the final test performed by DEIF A/S, before the goods are leaving for use at customers' premises, a form is filled in with all relevant data:

General data:

- Project no. (which is unique)
- Order no. (which is unique)
- DGU no. (a unique no. is given every single DGU in an application - that is, if an application includes more than one DGU, they will be designated DGU1, DGU2 etc.)
- Date and initials for the test
- Version of tested software

Specific data:

- Stock no. for every module included in the specific application
- Hardware version
- Module designation (i.e. IOM)
- No. of modules (if more than one module of that specific type is included in one DGU)
- PO no. (Production Order no., which is unique for every single module)
- Versions of software used in specific modules

Version of the application specific software is recorded separately.

Whenever a problem may occur and a customer calls DEIF A/S for assistance, we immediately know the exact hardware and software combination included in that specific installation. We even know in what DGU a specific module is incorporated. If it should happen that we experience general problems either in specific combinations of hardware and software or in specific single modules or types of applications in general, we are able to trace which installations may be affected and in that way make the right decisions.

In order to keep these records valid, it is of vital importance that our customers respect the following guidelines:

- Please do not switch over modules from one DGU to another before consulting the documentation provided by DEIF A/S, and preferably consulting DEIF A/S.

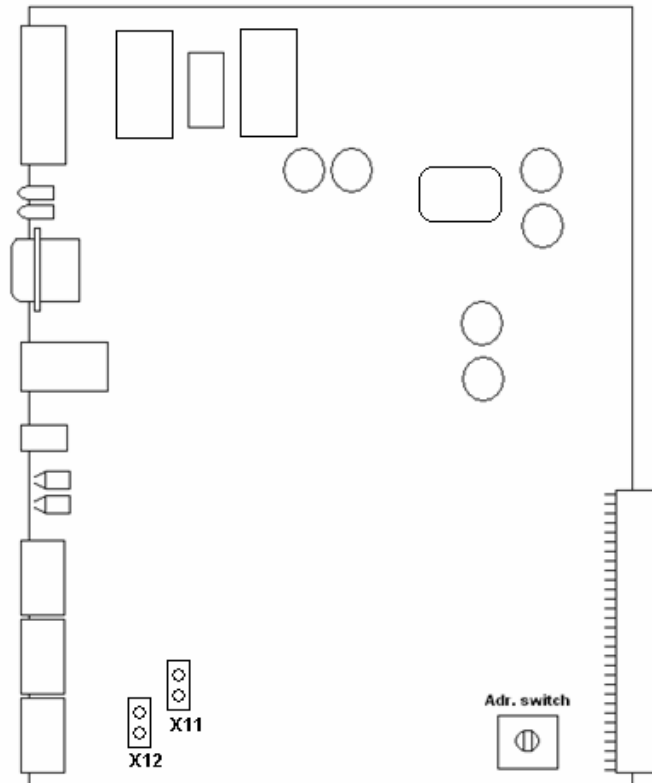
Two IOM modules (or others) may be different, depending on the specific configuration. DELOMATIC is a very flexible system, but not regarding uncritical switch of modules!

- Please give us a hint, if you do switch modules permanently, this will keep our records updated.
Call or fax DEIF A/S, attn.: Service Dept.:
Tel.: + 45 9614 9614 Fax: +45 9614 9615
service@deif.com
- When modules are replaced due to updating or due to any malfunctions, please let us know the exact location of new modules.

PCM Power Control Module

DIP switches: I/O address (= DGU ID no.) for the ARC network is to be set. Please notice that all DGUs must have different ID no. The ID no. is set by the ID no. switch. The I/O address reflects the ARC network node ID.

Jumper: Jumpers X11 and X12 are used for selection of 2- or 4-wire RS485 communication.
X11 = 2-wire RS485 communication.
X12 = 4-wire RS485 communication.



Address switch/jumpers on the PCM module

Handle: Disconnect supply before removing the module from the rack.
For replacement, please notice that the new unit is given the same ID no. as the unit to be replaced.

LEDs: POWER OK: A GREEN LED indicates that the internal power supply is OK.

- When the internal 5V DC power supply is OK, this LED is GREEN.

An ORANGE LED indicates that the external power supply is too low.

- When the external power supply is less than 18V, this LED is ORANGE.

If there is no light in the LED, check if there is 24V DC on terminal 1-2.

ARC-NET OK: The LED marked "ARC NET OK" indicates activity on the ARC network.

- If this LED is GREEN, there is activity on the ARC network.

The PCM is furthermore equipped with one binary input and one relay output.

The input can be used to notify DM4/PCM4.1 whether or not another system that communicates with DM4 is working.

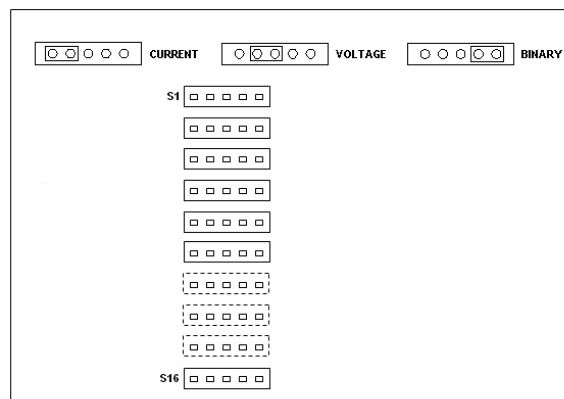
The relay output is a "Status" output, which indicates if the power supply or a system failure has occurred. The relay has closed contacts (coil energized) when the status of the system is OK, and open contacts when a system failure or power supply failure has occurred.

Input/Output Module IOM 4.1

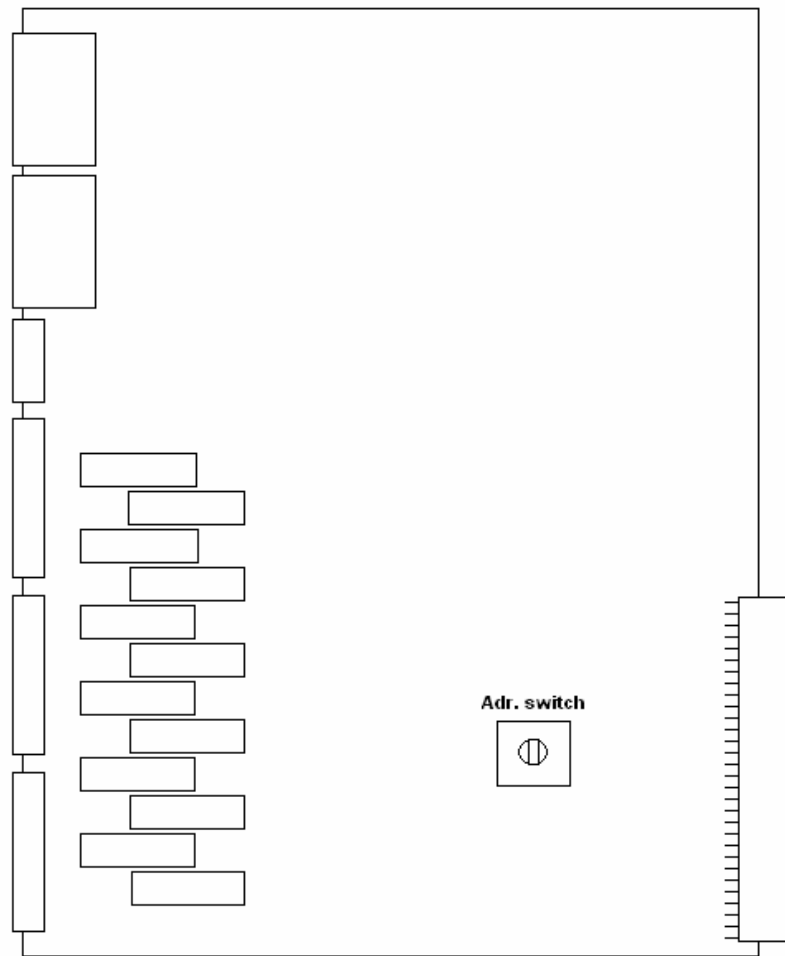
Handle: For replacement, please notice that the replacement unit is given the same I/O address as the unit to be replaced, and all output channels are set to the right format.

Input channels

DIP switches: For each input channel there is a DIP switch to select the format of the input. There are three different formats: Binary, voltage or current. On the board it is shown how the DIP switches should be placed for the three signal formats.



The I/O address for the backplane bus is to be set. Please notice that all IOM 4.1 modules must have different I/O address starting with zero (null). The I/O address is set by the I/O address switch.



Address switch on the IOM module

Measuring on terminals at normal conditions:

Voltage on a binary input channel is:

- At closed contact: 0V DC
- At open contact: Approx. 11V DC (approx. 1.7V DC with cable supervision resistor mounted)

Output channels

The IOM 4.1 module has 12 output channels, which are all relay outputs with the following contact ratings:

Max. AC: 250V - 8A
DC: 30V - 8A

No DIP switches are to be set on the output channels.

Analogue output channels

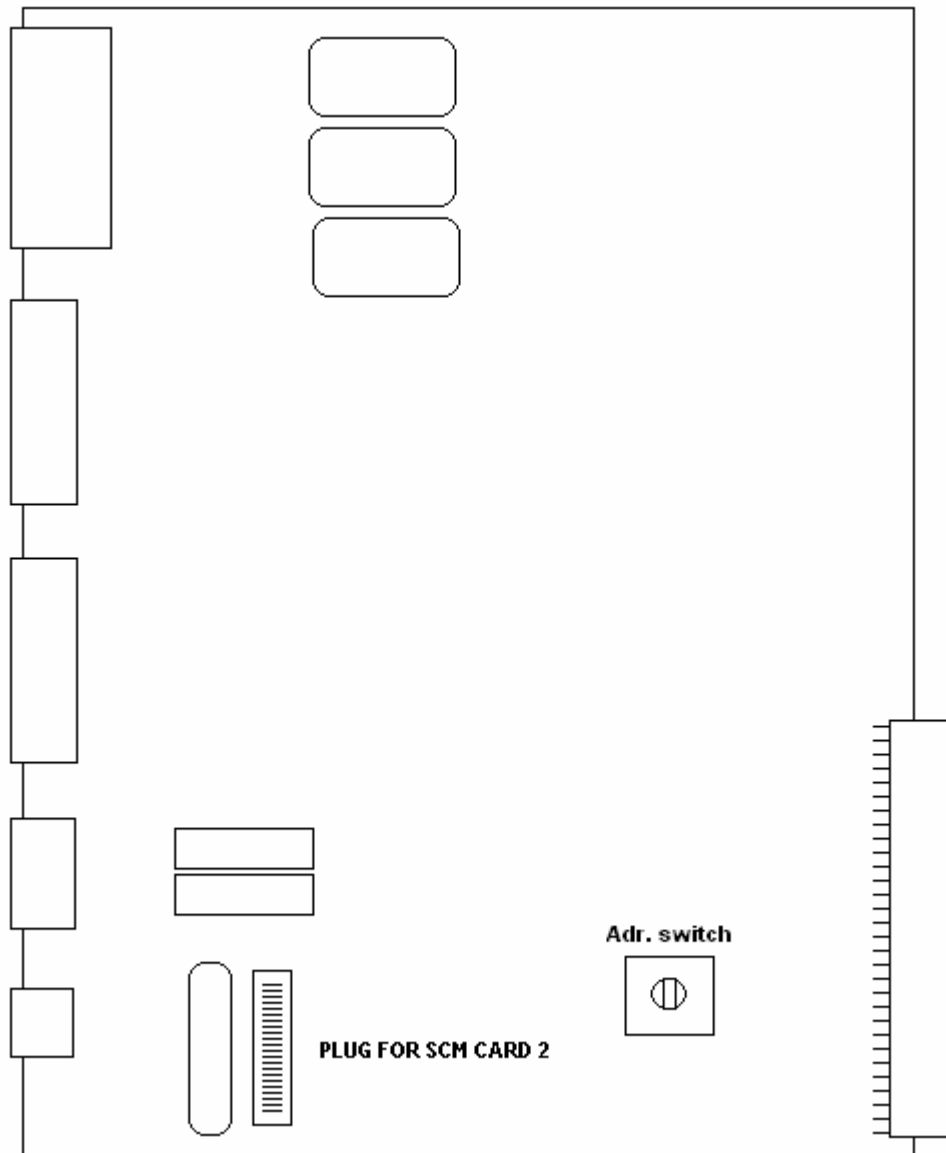
The IOM module has 2 galvanically separated 0-20/4-20mA outputs.

No DIP switches are to be set on the analogue output channels.

SCM Measuring/Synchronising Module**SCM 4.1 module:**

The SCM 4.1 module consists of 1 card.

DIP switches: The I/O address for the backplane bus of the rack is to be set. Please notice that all SCM 4.1 and SCM 4.2 modules must have different I/O addresses starting with zero (null) and up to two. The I/O address is set by the I/O address switch.



Address switch on the SCM module

Handle: For replacement, please notice that the replacement unit is given the same I/O address as the unit to be replaced.

LEDs: Breaker ON/OFF: There are 2 yellow LEDs for indication of breaker commands:

- 1 LED will be lit, when the signal for *closing* of breaker is given
- 1 LED will be lit, when the signal for *opening* of breaker is given

Feedback ON/OFF: There are 2 green LEDs for indication of breaker feedback:

- 1 LED will be lit, when breaker position is ON
- 1 LED will be lit, when breaker position is OFF

SCM 4.2 module:

The SCM 4.2 module consists of 2 cards connected by a wired bus on the front side (not the backplane bus).

The card located to the *left* on the SCM 4.2 module is the same card as in the SCM 4.1 module. For detailed information about this card, please refer to SCM 4.1 module.

The card located to the *right* on the SCM 4.2 module is the EM (Engine Module).

Two relay boards, OPR-1, can be mounted:

- One for output for a mechanical speed governor (instead of electronic speed governor)
- One for outputs for mechanical voltage regulation (instead of electronic voltage regulation)

Ordering spare parts and service

General

Please observe a few, but important instructions when ordering spare parts:

Throughout the whole process of manufacturing and testing, the products have been marked with production numbers on each circuit. These numbers have been registered due to assembling of the DGU, to be used for traceability, to make it possible for DEIF A/S to locate every module. Therefore it is important *not* to change any modules between several DGUs.

Ordering spare parts

To order the right spare parts with the right software and configuration it is necessary to give some information when ordering the part.

This information is:

- 1) DEIF project number and application version number
- 2) Module type and I/O address number
- 3) DGU number
- 4) Ordering number

1) The project number and application version number is found in the menu system on the DU.

2) The module type is printed on the front panel of the module.

The I/O no. can be found in the following way:

If there is more than one module of the same type, the first module from the left has the I/O no. "0", the next has no. "1" etc.

If the alarm message for I/O error occurs, the module type and I/O no. can be read in the display on the DU (defective DGU).

3) The DGU no. corresponds to the DG no., but can also be read on the side of the DGU.

4) To find the ordering no. for the module, please see the SPARE PART LIST.

Ordering DEIF service engineer

To order a service engineer from DEIF A/S, please call

+45 9614 9614

which is the main telephone number for DEIF and will provide information on how to make contact outside normal office hours.

When contacting a service engineer, it is important to have all available information regarding the situation ready in order to get the best possible service (e.g. what happens, is it permanent or periodical, which mode is selected, what is the power consumption, what is the error message on the DU and so on).