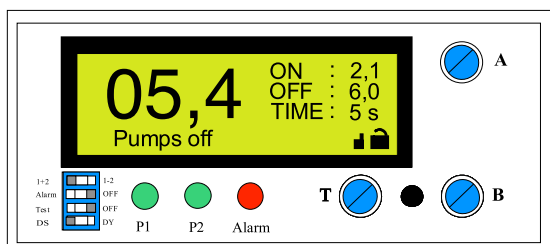


Instruction manual

MAD with EDS-2 (40/25/10bar) with optional GSM modem



Pump-Controller :

Type: _____

S-No.: _____

A pressure control system for pump

MAD-EDS-2-GSM Software Version 7.01 [xx]

20,11,2012

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1. Safety Precautions

Before installing and commissioning of the pump controller, please read the product manual carefully and observe all warnings and safety instructions. Keep this manual is always easily accessible in the vicinity of the frequency converter controller.

Definition of Information



Warning !

In disregard of the safety instructions may lead to serious and life-threatening bodily injury or property damage occur, a significant!



Caution!

Failure to observe these instructions may lead to serious and life-threatening bodily injury or property damage occur, a significant!



Notice!

Failure to observe these instructions may lead to malfunction of the plant!

Warning !

The pump - regulator contains dangerous voltages and controls dangerous rotating mechanical parts. The installation, commissioning and maintenance of these drives may only by qualified personnel familiar with the operation familiar, is carried out. Have you taken if the automatic restart is enabled. to injuries by possibly unintentional restart of the pump - regulator to prevent after a power failure, turn off the Doubt, the automatic restart. For repair and maintenance of the equipment, ensure that the system can not be turned on by other again! The pump controller with soft starters have always network connection, the only through the mains supply is switched off no dangerous voltages. Therefore wait after disconnecting power at least 5 minutes before working on equipment. It is important to ensure that no live parts are touched, when power is applied. Do not work on the check wiring and no signals when power is applied. The pump - regulator with soft starter has a leakage. Ground the pump - regulator at the designated Connections.

The customer-supplied fault protection switch must at **MAD-EDS-2 - control** with a **RCCB type B** Be tripping current **30 mA**

It is recommended that the pump - regulator fuse separately.

Caution !

All pumps - regulators are tested for dielectric strength and insulation resistance. Before the insulation test on the Pump system, for example as part of the inspection, the pump - regulator to be disconnected!

Observe the regional regulations for electrical installation!

Make sure that the input voltage of the registered on the nameplate voltage. Environmental conditions such as high temperatures, high humidity must be avoided, such as dust, dirt and corrosive gases. The installation should be a well-ventilated, place exposed to direct sunlight. Put it no mains power to the sensor terminals or to the control terminals. Enter the operating signals H/0/A via the selector switch or. About driving the external contacts and not by switching on and off of a power or motor contactor To ensure that your pump - regulator is safe and reliable, all relevant safety regulations, such as safety regulations, trade association regulations, VDE regulations, etc. are observed. As this will be handled differently in the German-speaking, the user must follow the applicable requirements in each case for him. The manufacturer can not absolve the user from the obligation to comply with the latest safety regulations.

Notice!

The specifications and descriptions in this guide are correct to the best of my knowledge. Product improvements are carried out constantly - so the manufacturer reserves the right to make such changes without prior notice. The manufacturer be liable for errors in the user not be held liable.

Warranty is given in the Federal Republic of Germany and within the statutory warranty period, and applies only to the product itself and not for any consequential loss or damage or costs, the one by entering

Warranty claim arise in other plants or plant parts. The operator must in all cases to ensure that a failure or malfunction of the product may not lead to further damage.

2. General / Mode of Operation

2.1 Pressure switch module EDS-2

Congratulations on purchasing this high-quality pump control. This product is state of the art and is constantly being developed and improved. The device has been subjected to an extensive review of the production and therefore functions properly. To ensure optimum performance, observe and read the operating instructions.

The electronic pressure switch EDS-2 is a complete electronic control unit for operation of single-and double-pump systems in the application as: booster station or level controls. It can pump all kinds such as: use centrifugal pumps, piston pumps, submersible pumps. The pumps are switched on and off depending on demand. The pumps are changed after each run. The pressure monitoring, which is active when the fill mode is 50% of the starting value and delayed by 3 minutes when switched off! The sensor is monitored for the function

The electronic pressure switch EDS-2 is configurable and can be adapted to the particular operating conditions. The parameters are displayed in **plain text**. **Start-up is easy**. When commissioning, some data must be set to ensure a smooth operation of the pump system. An adaptation of the specific parameters (expert mode) requires a specialized knowledge of pump technology. It should be performed by a competent person or the manufacturer.

2.2 Functionality of the pressure switch control

The pressure switch EDS-2 monitors the pump on the set operating values.

The upper switch-off "B" after the delay time "T" active.

The lower starting value "A" is activated immediately.

The pump operates in automatic mode automatically.

In manual mode, the pump is switched on permanently.

2.3 Benefits of speed control with EDS-2:

- simple compact design
- Continuous adjustment of pump performance to the changing operating conditions
- no large Pressure vessel is more necessary
- low mechanical wear of the pump
- maintenance-free

2.4 Principles of pressure switch control

Thus, a pressure switch control can operate accurately and effectively, the following points should be noted:

- the pump (s) must be construed in accordance with the plant / Requirement
- with submersible pumps must be based on an output reduction of about 5. .10%

2.5 Construction of a pressure switch system

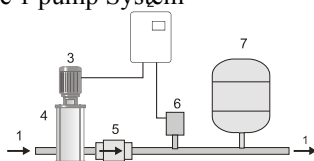


Caution!

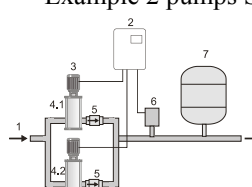
Non-return valve preventer is imperative and must be in the pressure behind the Pump will be installed! The expansion tank is to be fitted if required.

1 Flow direction	2 Controller
3 Motor	4 Pump
5 Non-return valve	6 Pressure Transducer
7 Pressure vessel	

Example 1 pump System



Example 2 pumps System



2.6 Note for the operation of the system with Pressure vessel!

If the plant is operated with a pressure vessel, the vessel must be pre-pressed in normally state.

The pre-squeezing pressure should be checked regularly. The amount of pre-squeezing pressure is: Start pressure bar minus 0.50.

e.g.: Nominal System Pressure:: 14.00 bar
 Vessel Air Pressure: 13.50 bar

2.7 Booster Sets



Notice!

Booster sets are ready plumbed and wired pump systems. For them, the installation cost is minimal - connection to the existing network of pipes, mains, and commissioning. The regulator is factory set at these plants.

This manual applies only to the electrical control of the system, so if the user of the pump (s) involved / considered.

3. Installation and Mounting



Caution!

Environmental conditions such as high temperatures, high humidity should be avoided as well as dust, dirt and corrosive gases. The installation should be a well-ventilated and not exposed to direct sunlight location.



Warning!

Because of the heat convection, the pump - regulator during installation least 15 cm can be installed side by walls or other devices removed.

The allowable temperature range of +5 ° C to +30 ° C must not be under-or exceeded.

Do not install the Inverter controller near heat-radiating bodies.

3.1 Mounting the MA.... Controller

Metal box:

In the rear contains holes for wall mounting of the cabinet.

The sole assembly recommended hung stud to the electrical cabinet.

Mounting Dimensions: See manufacturers data sheet MAD.

4. Wiring and Connections



Warning!

Make sure that the input voltage of the registered on the nameplate voltage.



Caution!

Safety information supply voltage and terminal connections!

The installation, commissioning and maintenance of the drives may only be a professional who is familiar with the pump system performed.

Put it no mains power to the transducer - or control terminals.

Make any manipulation of the transducer signal!

No other consumers connect to the 24V supply!



Warning!

The pressure transducer (4 to 20 mA), is connected to the respective terminals!

Its port assignment, please refer to the wiring diagram.

With double-pump systems, only one 4 to 20 mA sensor is used.



Notice!

The pin assignment, refer to the wiring diagram.

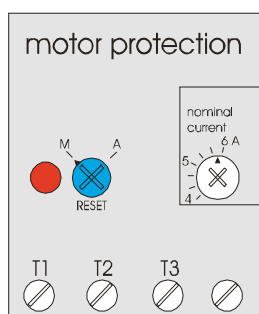
At soft starter operation, the motor cable must be no longer than 200 meters.

Check the correct connection of power, transducer, and control lines.

4.1 Motor Protection

The MAD - EDS-2 has a monitoring role for the motor current. The motor current is set on the motor protection relay or soft starter. As a special version thermistor to monitor temperature can be used.

Contactor



Soft Starter 3RW40



4.2 Connecting the inputs and outputs

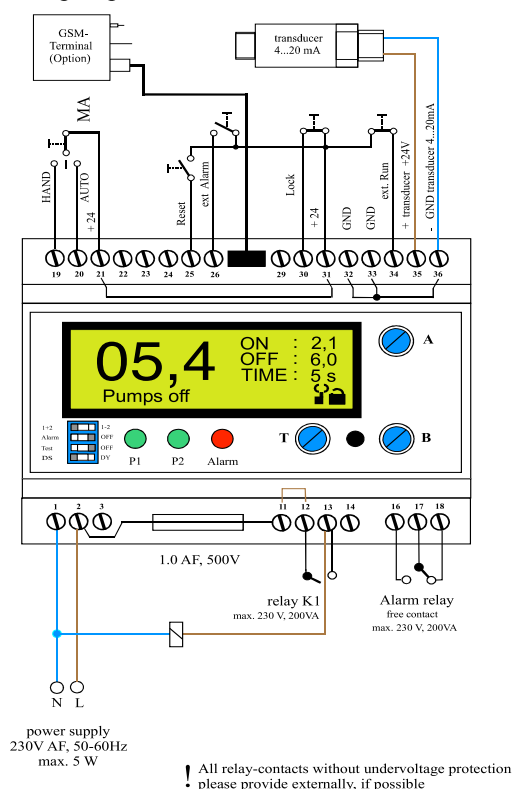
In the lower area of the enclosure MAD is the terminal strip.

The line to the pump, the sensor cable and the cables for the external contacts will be connected with a suitable cable. A shield is not required.

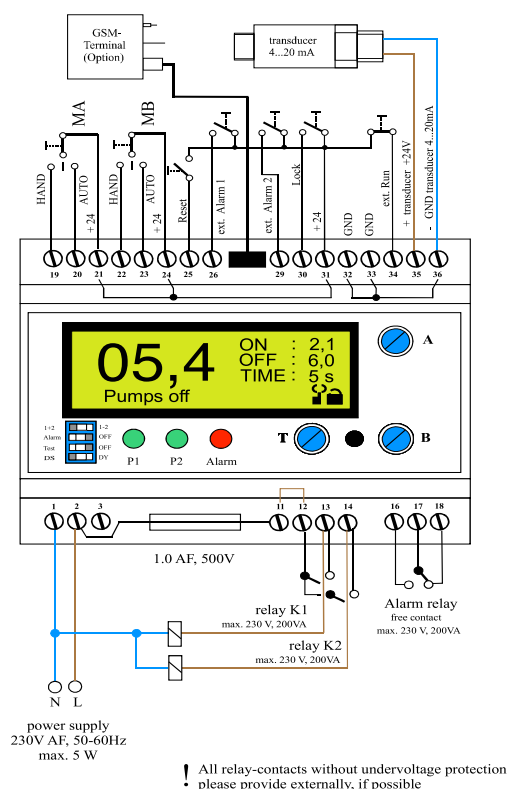
Only with proper installation, trouble-free operation is guaranteed!

4.3 Wiring diagram EDS-2 module

One pump unit



Two pump unit

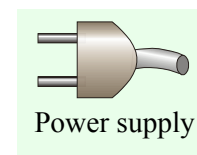


4.4 Terminals

The power connector, alarm relay, signal relay (option) External inputs (option) External outputs (option), sensor (s), pump (s), they look at the particular diagram, schematic or terminal image of each pump - regulator: MAD / MAG to.

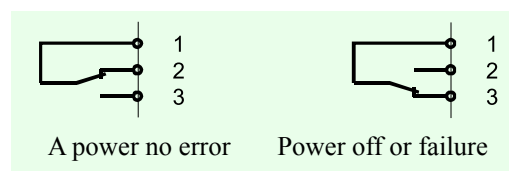
4.5 Power supply function

Clamp	Function	description
PE	Power supply	PE Ground
L1		L1 Phase
L2	see	L2 Phase
L3	wiring diagram	L3 Phase
N		N Leiter
oder:		
PE	Power supply	PE Ground
L1	see	L1 Phase
N	wiring diagram	N Leiter



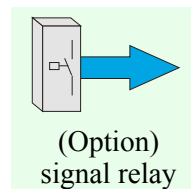
4.6 Connection for the alarm relay

Function	description
Potential free	alarm contact AL 1 (17)
Fault relay	alarm contact AL 2 (18)
230V 1 A maximal	alarm contact AL 3 (16)



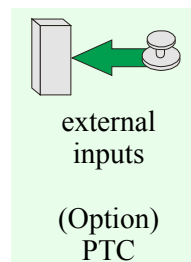
4.7 Port for an alarm relay (option)

Function	description
Potential free	contact 4 (24) (Option)
signal relay	contact 6 (26) (Option)
Run signal	



4.8 Connector for the external inputs on MAD / G

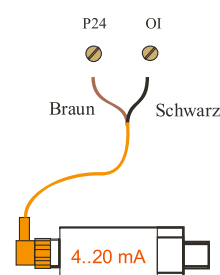
Clamp	Function	description
7 / 13	tank low / external on /off	Ext. 34
10	Start/Stop/Reset (only MAG)	Ext. 25
10	Reset (only MAD)	Ext. 25
81	reference voltage	P24 VDC +
87	reference voltage	OI VDC -
18 / 82	PTC (Option)	PTC 1
38 / 82	PTC (Option)	PTC 2



Caution!

Use suitable cable in the cabinet and connect!
The maximum length of the control lines must not exceed 20 meters.

Ext. 34:	External error input	„tank low“.
Ext. 25:	External input	„limit Function“ (only MAG)
Ext. 25:	External input	„Reset“ (only MAD)



4.9 Transducer connection

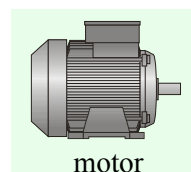
Function	description	(z.B.: Danfoss transducer)
reference voltage	P24 VDC +	
Transducer signal	OI 4-20mA	

Caution!

Note terminal assignment (see transducer plate)!

4.10 Connection for the motor / pump: 3 phases

Clamp	Function	description
U	Three-phase motor	U
V	see	V
W	wiring diagram	W

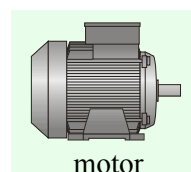


Caution!

The motor must be connected according to the output voltage:
star or delta. The nameplate of the engine note!

4.11 Connection for the motor / pump: 1 phases

Clamp	Function	description
U	Single-phase motor	U
V	See wiring diagram	V



Caution!

Check the correct connection of power, sensor, and control lines.
Before turning on the power supply again all connections are correct!

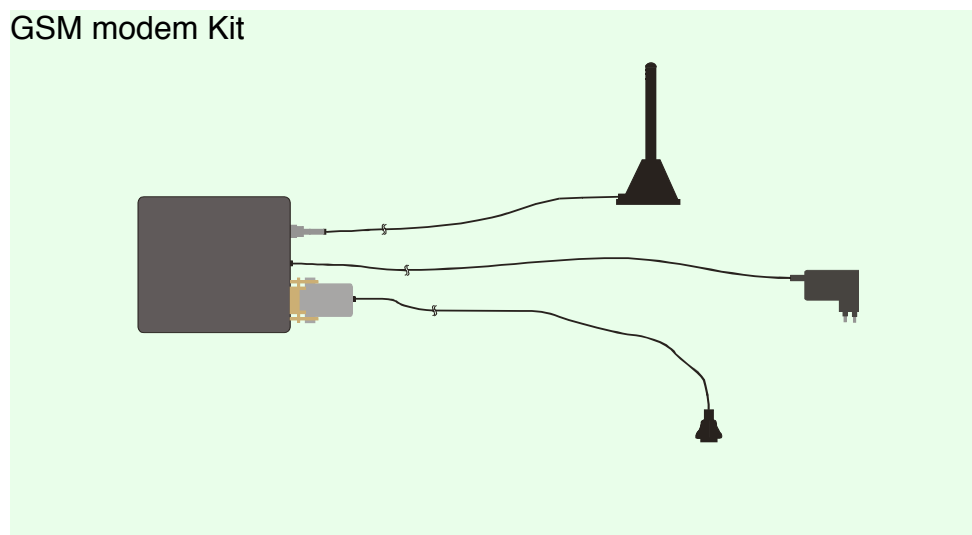
4.12 Errors that occur frequently in the assembly

- Transducer is not connected correctly (pin assignment)
- Transducer is not in the pressure line downstream of the non-return valve
- Back-flow preventer is installed missing or incorrect
- System is not vented properly
- Wrong direction of rotation
- Bridges on the motor terminal board incorrectly (Voltage: Y or D?)

Troubleshooting Please refer to the notes below 9.2 Troubleshooting!

4.13 Connecting the GSM modem

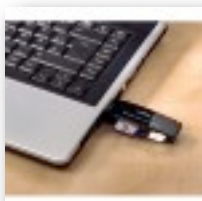
Connect the EDS-2 module with GSM modem (terminal) with the appropriate cable. Connect the antenna and power cord. Look for a good orientation of the antenna for proper cellular network connection. Make sure that the power is always active together with the EDS-2.



4.14 SIM card

You need a default SIM card or a SIM card reader.

The SIM card is the simplest set with a SIM card reader. We recommend simple USB SIM / multi-card reader from Hama type: 00104,53. This costs in the trade or the manufacturer about 25 €. Operation with a PC is very simple.



Type in the phone book:

The plant name, plant number,
phone number and the phone number of User 1 User 2 and User 3 a.
If you only have one user, simply enter the phone number.



Notice!

There are 3 users are permitted as phonebook entry.

User 3 has the authorization for remote adjustment. A remote adjustment of setpoints is possible only if the EDS2 stands on lock. A separate manual for the Card reader is included with the GSM modem. At any time you have a SIM card from the manufacturer be preset. For questions or custom solutions, please contact the manufacturer.



Caution!

As you set your SIM card, make sure you disable the PIN code!

An incorrect entry of data, the SIM card is not recognized properly!

The power supply of the GSM modem at all times with the EDS2 be active together!

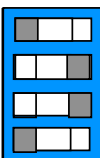






Eat a proper wireless network connection!!

See separate operating MAG GSM2, Part 1: SIM and Part 2: SMS

5. Panel Description

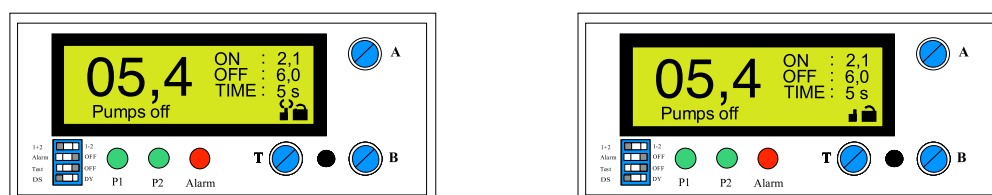
5.1 Block Rocker and rotary switch

(Rocker, standing up, gray side is active!)

1+2		1-2	Rocker:	1+2	1-2
Alarm		OFF	Rocker:	Alarm	OFF
Test		OFF	Rocker:	Test	OFF
DS		DY	Rocker:	DS	DY
		A	rotary Switches A:	target	ON 0-40 bar / 25 bar / 10 bar (depending on the sensor / module)
		B	rotary Switches B :	target	OFF 0-40 bar / 25 bar / 10 bar (depending on the sensor / module)
		T	rotary Switches T:	Run on time	0-99 sec. (5-99 sec.)
		P1	Lamp P1:	Pump 1 on	operation
		P2	Lamp P2:	Pump 2 on	operation
		Alarm	Lamp Alarm:	active fault	

Relay K1: on pump P1, K2 relay: switch pump P2, alarm relay: switches at fault

5.2 Display icons



Lock on: The settings are manually adjustable
Bridge 30/31 closed (yellow).



Locking to: The settings are not manually adjustable
Bridge 30/31 open (yellow).



GSM is active: A mobile network connection.



GSM is inactive: There is no mobile network connection..

In addition, the alarm lamp lights up and the display we "no network" appears.

5.3 Rocker: mode 1 +2 / 1-2

With this switch you can set the status of the system

- 1+2: Operation of the system with base-load and peak-load pump.
In this mode, the pump knob "A"-a
and connected with the rotary switch "B" off.
With the rotary switch "T" they set the delay time. the
Pumps are changed after each run.
The second pump is switched on automatically as needed.
- 1-2: In this mode, the base load pump with knob "A"
switched on and with the rotary switch "B" is turned off.
With the rotary switch "T" they set the delay time. the
Pumps are changed after each run.
The second pump is not switched on. automatic
Changeover at fault to the other pump.

5.4 Rocker: Alarm ON / OFF

With this switch to set the alarm mode. **“tank low“**
If the alarm is "ON", the alarm relay is switched on "tank low".
The pressure monitoring, which is active when the **fill mode** is,
50% of the starting value and delayed by **3 minutes** when turning off



Caution!

Caution!

If the slide switch "dry run" mode, the system switches off whenever the system pressure of 0.5 bar is not reached in 60 seconds.

Fill mode!

When the system is switched "power on" the lack of water is only active when the pump system has shut down for the first time on the set pressure.

If the alarm is "OFF", the alarm relay is in "Water" not disabled.
The "OFF" is used in fire fighting operation in order to prevent disconnection of the pumps.
The alarm relay is not at fault.

Rocker: Alarm ON / OFF

With this switch to set the alarm mode. **"Switching"**

Error switching!

The pump system is monitored for switching! Each pump can switch up to 30 times per hour.



Notice!

If the alarm is "ON", the alarm relay is switched on "Error switching".

The alarm relay switches at fault.

If the alarm is "OFF", the alarm relay will be in "error switching" not disabled.

The "OFF" is used in fire fighting operation in order to prevent disconnection of the pumps.

Alarm relay switches not at fault.

5.5 Rocker: Test ON / OFF

With this switch to set the 24-hour test run.

This function is used in order to prevent seizing of the pump.
This feature is set on fire extinguishing operation.

5.6 Rocker: DS / DY

With this switch you can set the status of the system

DS: Operation of the system with pressure vessel.

In this mode, the pump is by knob "A" is activated and after rotary switch "B" off.

With the rotary switch "T" they set the delay time.

The pressure vessel is in pre-pressed at 0.5 bar above cut-in.

The pumps are changed after each run. The second pump is switched on automatically as required or switched at fault.

DY: Operating the system without pressure vessel.

In this mode, the pump is by knob "A" is activated and after rotary switch "B" off promotion at zero.

With the rotary switch "B" is the threshold (0,1 - 1 bar / 0.1 to 2.5 bar / 0.1 to 4.0 bar).








With the rotary switch "T" they set the delay time.

The pumps are changed after each run. The second pump is switched on automatically as required or switched at fault.

6. Application examples








Single pump system or double-pump system **with** expansion tank, alarm and test run "OFF"

6.1 Pressure switch operation

1+2		1-2	Selecting the operating mode	1+2	1-2
Alarm		OFF	Alarms mode	ON	OFF
Test		OFF	Test run enable	ON	OFF
DS		DY	DS - Set operation	DS	DY
		A	rotary Switches A: set point	ON	z.B. 12,5 bar
		B	rotary Switches B: set point	OFF	z.B. 22,5 bar
		T	rotary Switches T: Run on time	0-99 sec.	z.B. 13,0 sec.

Single pump system or double-pump system **without** expansion tank, alarm and test run "OFF"

6.2 dynamic pressure switch operation

1+2		1-2	Selecting the operating mode	1+2	1-2
Alarm		OFF	Alarms mode	ON	OFF
Test		OFF	Test run enable	ON	OFF
DS		DY	DY - Set operation	DS	DY
		A	rotary Switches A: set point	ON	z.B. 11,5 bar
		B	rotary Switches B: set point	OFF	z.B. 0,4 bar
		T	rotary Switches T: Run on time	5-99 sec.	z.B. 10,0 sec.

7. Switching / operation / startup messages

7.1 General Operation of the EDS-2 with GSM modem



Notice!

The pump control MA EDS-2, by setting various functions and operating in a particular case can be adapted to all possible operating conditions. The system is preset at the time of delivery to minimize the effort required for installation on site to a minimum. To set the necessary data for each operating parameters can be changed, a selector switch. The menu items are called as described above. For each parameter includes a setting in which either select an option or a range of values can be set.

7.2 Requirements for commissioning the MA regulator

Before the controller is put into operation, the following requirements must be met:

- Plant / pump is connected suction and pressure side to the pipe!
- Piping and pumps are vented!
- Electrical connection is made and checked!

7.3 Initial power of the MAD-EDS-2 with GSM modem

Caution!

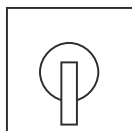
If the alarm is set to "Off" are water protection and

Operating cycle monitoring is not active! The plant protection must be made externally!

If the alarm is set to "On" is the lack of water protection only active when off the pump system for the first time pressure has (fill mode)!

GSM modem on and then turn on the MAD-EDS-2

or MAD-EDS-2 and GSM Modem simultaneously switch!



The EDS-2 reports for yourself! turning on the main switch / the mains voltage with inset with:

First of EDS2 is initialized.

The following message appears:

```
Custom text
Custom text
00000 RH 00000 RH
Version: 7.xx [xx] G.x
```

8. Operating Indicators / commissioning

8.1 Error Messages for a modem connection

EDS2 the logs after the **start screen**! with the GSM query image:
It is attempted to establish a connection with the GSM module.

The wait time is about 30 seconds.

```
-- GSM-INIT --  
  
Wait !
```

Message if no modem is connected!

```
-- GSM-INIT --  
  
No modem  
connected !
```

If no modem connected,
change the EDS-2 on this Main:

```
00,5  ON : 12,0  
      OFF : 22,5  
      TIME: 10s  
Pumps OFF 
```

The wait time is about 30 seconds.

```
-- GSM-INIT --  
  
Wait !
```

Message when an error has occurred!

```
-- GSM-INIT --  
  
Failure  
SIM / phone book !
```

An error occurred with the modem,
change the EDS-2 on this Main:

```
00,5  ON : 12,0  
      OFF : 22,5  
      TIME: 10s  
Error Modem 0 
```

8.2 Proper connection from the modem with / without network coverage

EDS2 the logs after the **start screen**! with the GSM query image:
It is attempted to establish a connection with the GSM module.

The wait time is about 30 seconds.

```
-- GSM-INIT --  
  
Wait !
```

Message when the modem is connected correctly!
The modem transmits the status.

```
-- GSM-INIT -- OK !  
equipment name  
Phone number  
+49160xxxxxxx
```

```
-- GSM-INIT -- OK !  
Mobil 1  
Phone number  
+49150xxxxxxx
```

```
-- GSM-INIT -- OK !  
Mobil 2  
Phone number  
+49170xxxxxxx
```

Is a modem connected to network coverage
change the EDS-2 on this Main:

```
00,5  ON : 12,0  
      OFF : 22,5  
      TIME: 10s  
Pumps OFF  
```

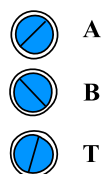
Is the modem connected without network coverage,
change the EDS-2 on this Main:

```
00,5  ON : 12,0  
      OFF : 22,5  
      TIME: 10s  
Pumps OFF  
```

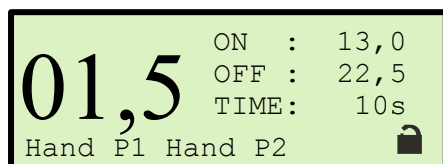
8.3 MAD EDS2 take on EDS2 in operation

The EDS-2 logs **after the start screen!** with the main picture:

The rotary switches **A, B, T** at EDS-2 set.



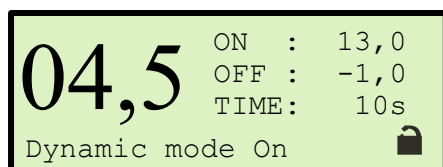
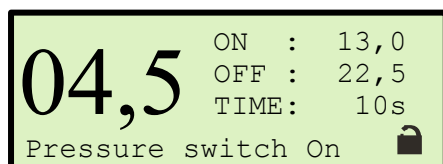
The pump by turning in **"manual mode"** to "Turn" position.



Check direction of rotation!

Is the wrong direction of rotation: mains, replace 2 phases. **Control!**

If the rotational direction is correct; Selector Switch to **"Automatic"**.



In **automatic mode**, the pump automatically controls the pressure according to the sensitivity. **Important: check!**

Caution! In manual mode, the pump will run continuously.

Caution! In manual mode, there is no protection!



The pump control MA EDS-2 GSM SMS command is also adjustable by user 1. Set the EDS-2 on lock. Send an SMS to the pump control.

Notice!

Example: A pressure: 3.0 bar, Pressure Off: 5.5 bar, follow-up time: 10sec..

The SMS data set for this example: **SW:E=13,0/A=23,4/T=10**

This record please send by SMS to the pump control.

The pump system is used for data control respond with a status message.

To query all data current to the pump control send: **STATUS**

Example of an SMS reply to the pump control:

Equipment Name: **STATUS: 4.5 bar, A: 13.0, OFF: 23.4 TIME: 10s, pressure switch**

8.4 Operating Screen displays EDS-2

After the main switch / line voltage, the operating data appears on the display:


Starting message for 20 seconds:

Custom text
Custom text
00000 RH 00000 RH
Version: 7.xx [xx] G.x


Start image on power for 20 sec
Custom text
RH – (Run Hour) Operating hours for each pump
Software Version: 7.xx [xx], GSM Version

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
Pumps OFF 


Mains voltage is a. Lock is not active!
No pump is switched on.
Modem is connected with network reception.
The current pressure is 0.5 bar

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
Pumps OFF 


Mains voltage is a. Lock is not active!
No pump is switched on.
Modem without network coverage is connected.
The current pressure is 0.5 bar

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
Pumps OFF 


Mains voltage is a. Lock is not active!
No pump is switched on.
It is connected to a modem
The current pressure is 0.5 bar

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
Pumps OFF 


Mains voltage is a. Lock is active!
No pump is switched on.
It is connected to a modem
The current pressure is 0.5 bar

07,5 ON : 12,0
OFF : 22,5
TIME: 10s
Hand P1 Hand P2 


Mains voltage is a. Lock is not active!
Pump 1 or pump 2
or both are turned on manually.
The current pressure is 7.5 bar

02,5 ON : 12,0
OFF : 22,5
TIME: 10s
Pressure switch On 


Mains voltage is a. Lock is not active!
Automatic is switched on.
Pressure switch mode is selected.
The current pressure is 2.5 bar

02,5 EIN : 12,8
AUS : 23,0
ZEIT: 10s
Dynamic mode On 

Mains voltage is a. Lock is not active!
Automatic is switched on.
Dynamic mode is selected.
The current pressure is 2.5 bar

00,5 EIN : 12,0
AUS : 22,5
ZEIT: 10s
External Off 

Mains voltage is a. Lock is not active!
Pump / pumps are off externally.
Float switch is open or missing form.
The current pressure is 0.5 bar

00,5 U-GW: 12,0
O-GW: 19,0
ZEIT: 10M
Clear SIM (11) 

Mains voltage is a. Lock is not active!
Modem is connected with network reception.
SMS memory is being erased.
The current pressure is 0.5 bar

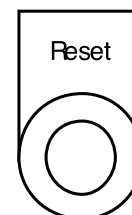
9. Error Messages

9.1 Error indications on the display of the EDS-2

In case of failure on the pressure switch from the pump module and runs down freely.
The error message is displayed in clear text display.

Error messages can be reset by pressing the option "Reset" button.

Error messages can be reset by switching the power supply "On / Off".



00,0 Auto P1
Auto P2
Error
Open Transducer!

Mains voltage is switched
Pump / pumps are off.
The sensor connection is open!
The current pressure is not known.

10,5 Auto P1
Auto P2
Error
Defect Transducer

Mains voltage is switched
Pump / pumps are off.
The transducer is defective!
The current pressure is not known.

00,4 Auto P1
Auto P2
Error
Dry Run!

Mains voltage is switched
Pump / pumps are off.
Electronic dry run is on!
The current pressure is 0.4 bar

00,5 Auto P1
Auto P2
Error
low water!

Mains voltage is switched
Pump / pumps are off.
Electronic Water shortage is active!
The current pressure is 0.5 bar

17,8 Hand P1
Auto P2
Error
limit pressure

Mains voltage is switched
Pump / pumps are off. The confining pressure of
9.9 bar or 39.9 bar or 24.9 bar has been reached!
The current pressure is 17.8 bar

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
trip P1 trip P2

Mains voltage is switched
Pump / pumps are off.
The motor protection has tripped.
The current pressure is 0.5 bar

00,5 Auto P1
Auto P2
Error
Error switching

Mains voltage is switched
Pump / pumps are off.
Too many starts (> 30/60) per hour.
The current pressure is 0.5 bar

00,5 ON : 5,0
OFF : 3,5
TIME: 10s
wrong setting

Mains voltage is switched
Pump / pumps are off.
The threshold is higher than the
Cut-set.

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
Error Modem 


Mains voltage is switched
Error in the modem connection to the EDS-2.
SIM card is missing, SIM Lock is active.
The phone book entries are incomplete.

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
No GSM signal  

Mains voltage is switched
Brief message! (about 20 seconds)
Modem connection without network coverage or the
Network connection has been lost.

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
Modem disconnected 

Mains voltage is switched
Brief message! (about 20 seconds)
Modem connection is lost
The current pressure is 0.5 bar

00,5 ON : 12,0
OFF : 22,5
TIME: 10s
Cable problem 

Mains voltage is switched
Brief message! (about 20 seconds)
Modem cable has been damaged.
The current pressure is 0.5 bar

9.2 Troubleshooting

Displays dark

Mains voltage is present and turned on?

If one or more fuses broken?

System does not start

The start command is not present!

Selector is set to the middle position!

Backups of load circuit check!

System does not start even "Auto" signal appears on the display

Transducer not connected? (Message: „Sensorfehler“)

The actual pressure is reached or cut-over?

The pressure switch is set too low?

Pump is not disconnected

Is the cutoff pressure is too high (pump not create the pressure)?

Is the off set too low?

If the pipe is not properly bled the system?

Return valve installed in the pressure line is not in front of the transducer?

If the check valve leaking?

In short rigid pipes, expansion tank in the fuel lines behind the check valve installed

(check pre-charge: Start pressure - 0.5 bar)!

Pressure indicator does not indicate the actual pressure

Pressure transducer type does not match the used pressure sensor (eg 10 bar - sensor, 25 bar - sensor, 40 bar - sensor)?

Transducer or transducer plug is wet?

Transducer cable is faulty or improperly connected?

Soft starter is too warm

Check ambient temperature! If necessary. provide cooling!

Switching frequency to reduce!

System turns on and off quickly

Switching frequency to reduce!

Check the expansion tank air buffer.

Display any data, and pump does not start

EDS-2 module is defective.

Control fuse in the EDS-2 check.

Display GSM modem error

EDS-2 module to connect to GSM modem check.

No power to GSM modem.

Phonebook entries are incomplete or incorrect.

Connection cable between EDS-2 and GSM modem is defective.

10. Expert Settings

10.1 Dry run protection

If the internal slide switch set to "dry run", the pump (s) will be monitored at all times in automatic mode or manual mode to "dry run". **The pump (s) is always stopped when the system pressure of 0.5 bar (10 bar sensor), 1.25 bar (25 bar sensor), is 2.0 bar (40 bar sensor), not reached in 60 seconds.**

The dry run is always active!

10.2 Electronic water shortage

The electronic "water shortage" is a pressure monitor. It monitors the system in the Automatic operation on pressure deficit. The pressure monitoring is active after the fill mode.

The fill mode is active again after each power cut. **The system pressure falls below the Cut-in by 50% for more than 3 minutes on, from the plant.**

10.3 pump replacement

Which the pump starts up first, is not defined. To ensure smooth operation of the pump, **all duty cycles and at least every 5 hours of operation** of the master / slave - operation changed. If a pump is stopped or fails because of a defect, the master status is advanced.

10.4 Forced pump replacement

By briefly opening the external release contact the master and the slave is changed. Now you can proceed with the new master in the same way. If both pumps are on automatic mode and a pump is active, it will change to 5 hours of continuous operation, the master and the slave.

10.5 Dynamic Operation (DY)

The mode "DY" ensures safe shutdown output "0". During operation of the pump system **without conservator** or with a very small expansion tank

In "DY" switches the pump on the pressure (!) And after delivery "0"!

1+2		1-2		A
Alarm		OFF		B
Test		OFF		T
DS		DY		

With the rotary switch **A**, text "ON", set the switch-between 0-100%.

You should adjust the switch pressure as low as possible.

With the rotary switch **B**, text "OFF", set the **sensitivity (!)** Is a switch-off of between 0-10%.

The breaking pressure to form a mathematical combination of the switch-off.

The logic of mathematical combination is:

switch-off = measured pressure measurement + run time - switch = Standby

The cut after each switching cycle "On / Off" **again (!)** Calculated

With the rotary switch **T**, text "TIME", you can set the delay time between 5 sec and 99 sec,

Flow around the "0" to reach safely off point.

The mode "DY" requires some experience in recruitment and detailed knowledge of the functioning of the pump controller. Should the system work satisfactorily, please contact the dealer or the manufacturer.



Notice!

This setting on the display trace.

For the setting of the switch-off specialist knowledge is required!

```

ON : 13,0
OFF : -1,0
TIME: 10s
Dynamic mode On

```

10.6 Resetting the operating hours

To reset the operating hours to **00000**, the following procedure:

Set the (the) manual switch to "0". Print the option "Reset" button or connect the terminal 25 on the EDS-2 module with +24 V for at least 30 seconds.



Caution!

The black button on the EDS-2 module has a different function.

A run-time reset is not possible with the key!

It is this message is displayed:

```

RESET
0 RH    0 RH

```

10.7 Program / processor

The program and the processor from EDS-2 module can be combined with the small black button on the EDS-2 reset module..

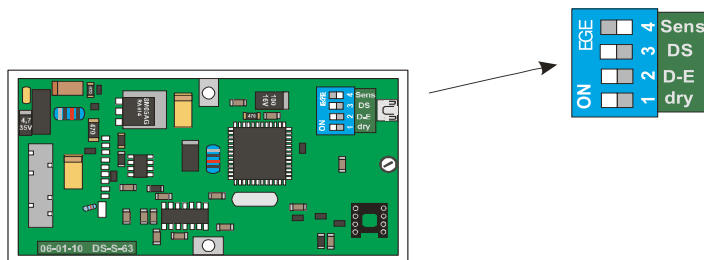


The same causes switching of the power supply "OFF / ON"!

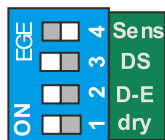
11. Specifications

11.1 Modes in the EDS-2 Setting:

After opening the EDS2 can be set differently on the inner switch block modes:



Switch block inside:



Transducer 40 bar	/	Transducer 25 bar (depending on module)
Transducer 10 bar	/	Transducer 25 bar (depending on module)
Limit switch mode	/	Pressure switch mode
English	/	German
Dry run + limit pressure of	/	Dry run + limit pressure on (active even at hand)

11.2 Technical Data EDS-2

Supply Voltage	230 VAC; max. 5 W
Transducer Connection	24VDC; S: 4..20mA; 20 mA max.
Output Relay	3 x Potential free 230VAC 1A (6A)
Adjustment	Pressure: 0 .. 100% of the sensor value, follow-up time: 0-100%
Ambient temperature	+5...+40 °C
Display	LCD text display with back light
protection	IP 54 (depending on cabinet version)

The cabinet dimensions are different depending on the model and must be asked separately.

12. Institutional Settings

Important customer settings from:

Pressure	On	A	_____ bar
Pressure	Off	B	_____ bar
Run on time		T	_____ sec.
Switch 1	ON / OFF	1+2 / 1-2	_____
Switch 2	ON / OFF	Alarm / OFF	_____
Switch 3	ON / OFF	Test / OFF	_____
Switch 4	ON / OFF	DS / DY	_____
locking	Yes / No		_____
On:	_____	by:	_____