Program Rain 10-12

User manual

Short hand manual

Place machine

```
SPEED          30.0m/h
DOSE             22 mm
TIME  7:28 STOP 7:28
STATUS STOP SENSOR
```

Place machine at hydrant.
Display shows the same start and stop time.
Pull out hose to the end of field. (ex 250m)

Select Speed

```
SPEED          30.0m/h
DOSE             22 mm
TIME  7:56 STOP16:16
STATUS STOP SENSOR
```

Display now shows hosereel stops after 8h20m.
Press "+" or "-" keys for the right speed, or dose.
Speed can be changed during Irrigation.

```
SPEED          25.0m/h
DOSE             26 mm
TIME  7:58 STOP17:58
STATUS STOP SENSOR
```

SPEED has decreased, **DOSE** and **STOP** has increased.

Start Irrigate, Select PRE- and POST Irrigation

```
SPEED          25.0m/h
DOSE             26 mm
TIME  7:58 STOP17:58
STATUS STOP SENSOR
```

Press **START** for starting.
For PRE- and POST- irrigation, press **PRE-** and/or **POST-** irrigation key's. STOP time will increase when pressing PRE- and POST- irrigation.

Starting

```
SPEED          25.0m/h
DOSE             26 mm
TIME  8:00 STOP18:38
STATUS RUNNING
```

Turbine will start to turn as soon as water arrives.
After a short while the PR10 finds the correct speed. Irrigation will continue until the hose is fully retracted and **STOP SENSOR** is activated.

PRE Irrigation

```
SPEED        25.0m/h
DOSE           26 mm
TIME  8:02 STOP18:38
STATUS PRE IRRIGATE
```

If PRE irrigation is activated, the turbine will stop again immediately and PRE- irrigation takes place.

When PRE- irrigation time has elapsed, turbine starts and state changes to **Running**

POST Irrigation

```
SPEED        25.0m/h
DOSE           26 mm
TIME 18:20 STOP18:38
STATUS POST IRRI
```

If POST- irrigation is activated, the turbine will stop at end of run.

When stop sensor is activated, POST- irrigation will take place.

Stop

```
SPEED        25.0m/h
DOSE           26 mm
TIME 18:38 STOP18:38
STATUS STOP SENSOR
```

The stop sensor is activated, the turbine and irrigation are shut down.

Machine is ready for disconnection and transport to a new lane.

MENU's

The transition from one menu to the next is done by pressing the Menu key.

When the sign █ is shown in the display, it means that this function is on.

Standard menu:

```
SPEED          30.0m/h
DOSE             22 mm
TIME 14:10 STOP 7:43
STATUS RUNNING
```
Standard readout

SPEED   The speed can be changed at any time during the irrigation, using "+" and "−" keys.

ZONE   Actual zone 1 to 4, with corresponding speed. Speed cannot be changed.
This message appears if the zones have been programmed (See Menu 5)

DOSE   The dose is calculated by means of constants (Constants 11 and 12), and shows the actual application in mm for irrigation. When **SPEED** increases, **DOSE** decreases.

TIME   To set the time: first set the speed to 11.1 m/h, and then press the *PROG* key 3 times, showing <**CONST 1 TIME**>, the time can then be set with the "+" and "−" keys. When the battery has been removed the time is 00:00, and remains at zero until it is set.

STOP   Time when the irrigation is finished including PRE- and POST- irrigation.

STATUS   Status of Irrigating: **< Stop Sensor   >**
                                          < Running   >
                                          < PRE Irrigate   >
                                          < POST Irrigate >
                                          < LOW Pressure >

        See explanation in **STATUS** chapter (See page 9)

If the display shows **LOW BAT** instead of **SPEED**, the battery voltage is lower than 11.8 V and the battery needs to be charged.

Menu 2

```
DISTANCE       123m
BATTERY        12.8V
CHARGE  ON    0.231A
PRE   0:45 POST 0:45
```

DISTANCE   The remaining length of the pipe. Distance can be changed immediately after pressing *PROG* key 3 times, with the "+" and "−" keys.

BATTERY   Battery voltage.

CHARGE ON   Shows if the battery is charging from the solar panel.
The battery is charged when the voltage is below 14.0 volt.

PRE   PRE irrigation time

POST   POST irrigation time

                  PRE- and POST- irrigation time can be changed immediately after pressing ***PRE-*** or ***POST-*** with the "+" and "−" keys

Menu 3

```
PRESS SENSOR       ▉
STOP SENSOR        ▉
SPEED SENSOR    ▉ ▉
MOT1 0.0A MOT2  1.8A
```

PRESS SENSOR   Shows if the pressure is high, the marker ▉ is on when the water pressure is high.
                            The machine can only work when the pressure is high.
                            There is only this function if machines are equipped with a pressure switch.

STOP SENSOR   Shown if the stop switch is activated, the marker ▉ is on when the stop switch is on (gearbox engaged).
                            The machine can only work when the stop switch is on.
                            The stop switch has 3 functions:
                                  1: Resets the distance counter.
                                  2: Post-irrigation.
                                  3: Inhibits the pulses to the regulator-motor.

SPEED SENSOR   For testing the speed sensor, the markers ▉ is on when the magnets activates the speed sensors. The speed sensor is equipped with 2 sensors that allow to know the direction of rotation.

MOT1, MOT2   The actual current used by motor.

Menu 4

```
ACTUAL SPEED   22m/h
START           0:00

WORKING HOURS  123h
```

ACTUAL SPEED   Shows the actual speed that means the speed of the machine is running now. This can be used to check the maximum running speed for the machine, if the Program Rain is set to a much higher speed than the machine can run.

                            The actual speed can differ from the set speed, especially in the start; this is not an error because the Program Rain ensures that the mean speed over 10 m is correct.

START   The starting time, it is a time delay, so the machine will start up to 24 hours later.
                            To set the starting time, press the "PROG" key 3 times and the time can be set with the "+" and "−" keys.

WORKING HOURS   The total working hour since the electronic was started the first time.

Menu 5

```
0m      30.0m/h      0m
0m      30.0m/h      0m
0m      30.0m/h      0m
0m      30.0m/h      0m
```

This is for irrigation with 4 different speeds in the retraction.
Press the "PROG" key 3 times for programming the zones.
See later in this paper for more details.

Menu 6

```
SIGNAL  23
NETWORK HOME
A: +45123456
B: +45234567
```

SIGNAL	GSM signal strength
NETWORK	GSM network type
A:	First phone number on "SMS" list.
B:	Second phone number on "SMS" list

Detailed explanations in chapter Option GSM

FUNCTIONS

START:

The turbine can only start if the magnet activates the stop sensor (see menu 3 for controlling the stop sensor). When the **START** key is pressed, the main valve opens. Next the by-pass valve closes and the turbine starts. If the magnet does not activate the stop sensor, it is only the main valve that opens; this is used if the pressure should be released before disconnecting the hose at the hydrant.

DELAYED START TIME OF IRRIGATION:

First press **STOP** key to close the inlet valve. Next press **PROG** key 3 times (Menu 4) and you can set the start time. After this, choose PRE– and POST– irrigation if desired.

STOP:

When the magnet is removed from the stop sensor, the turbine stops and the main valve closes (opens at low-pressure stop).
If POST- irrigation is chosen, the turbine stops and after the POST- irrigation time, the main valve closes. If the key **STOP** is pressed the turbine stops and the main valve closes, regardless of POST- irrigation.

SUPERVISION:

The PROGRAM RAIN has a built in system for supervision. The supervision starts to work, if for some reason the machine irrigates at the same place longer than a specified time. This time is factory adjusted to 20 minutes (See Constant no.4). If it is set to 0 there is no supervision.

SPEED:

The speed is adjusted with the "+" and "-" keys, the speed first changes by steps of 0.1 m/h, then after 10 steps it changes by 1.0 m/h. The speed can be changed at any time, even while the machine is running. If the speed is changed, the new time for the remaining irrigation is shown.

PRE-IRRIGATION:

Pressing the key **PRE-** will activate PRE-irrigation. The time for PRE-irrigation is calculated by the Program Rain as 8 x the time for running 1 metre at the actual speed.
The constant "8" (Constant no.2) can be changed (See programming). If the PRE- irrigation is on, the machine starts and run 1/2 metre, then it stops for the PRE-irrigation time.
⚠ By pressing the key **START** the PRE- irrigation is cancelled. The magnet at the stop sensor should be in place, before activating the PRE- irrigation.

POST-IRRIGATION:

POST- irrigation can be activated by pressing the key **POST-** The time for POST- irrigation is calculated by the Program Rain as 8 x the time for running 1 metre at the actual speed. The constant «8» (constant no.3) can be changed (See programming). The POST- irrigation starts to count down when the magnet is removed from the stop sensor. When the magnet is removed, the motor for speed regulation stops the turbine, after the POST-irrigation time the main valve closes, (opens at machines with stop for low pressure). At machines with only one motor for speed regulation, the turbine starts after the POST- irrigation time.
⚠ By pressing the key **START** the POST- irrigation is cancelled. The magnet at the stop sensor should be in place, before activating the POST- irrigation.
If Early stop (Constant no.8), is selected, this function is activated. Shutdown will take place when distance is reached.

PROGRAMMING OF 4 DIFFERENT SPEEDS:

The display should be set to the 5'Th menu.
The pipe should be pulled out before programming, so the PR10 knows the distance of the field to be irrigated.
In the following it is assumed that the field length is 400 m.
Press the *PROG* key 3 times and the display will show:

```
400m   30.0m/h  0m
 0m   30.0m/h  0m
 0m   30.0m/h  0m
 0m   30.0m/h  0m
```

The desired speed can now be set, here 25.0 m/h, then press the *PROG* key once, and the display will show:

```
400m   25.0m/h  0m
 0m   30.0m/h  0m
 0m   30.0m/h  0m
 0m   30.0m/h  0m
```

The desired distance can now be set, here 300 m, then press the *PROG* keys once, and the display will show:

```
400m   25.0m/h 300m
300m   30.0m/h  0m
 0m   30.0m/h  0m
 0m   30.0m/h  0m
```

Now the first zone is programmed, and the procedure is continued for all 4 zones.
Zone 4 automatic ends at 000m.
When zone 4 is programmed press again the *PROG* key and the display will show:

```
DELETE PRESS  MENU
SAVE PRESS    PROG
```

If the *PROG* key is pressed the program is saved and the watering is carried out according to the program.
If the *MENU* key is pressed the program is deleted and the speed is the same for the whole field.
When the program is used it is saved so it can be reused after the machine is moved to a new field.
The program can always be checked at the 5'Th menu.

Status messages in display

RUNNING: Machine is irrigating, everything is working properly.

LOW PRESSURE: Water pressure is below pressure switch threshold.

START DELAY: Machine is waiting for start delay to elapse (See menu 4).

START PRESSURE: Machine has started due to pressure rise.

STOP USER: Machine has stopped due to operator *STOP*.

STOP REMOTE: Machine has stopped due to an *SMS.*

STOP SENSOR: Machine has reached end and is stopped by *STOP SENSOR.*

STOP DISTANCE: Machine has reached distance for stop. (See constant for early stop)

SUPERVISION TIME: Machine has stopped due to supervision time elapsing. Machine has not moved in xx minutes. (See constant for supervision time).

FORCE LOW PRES: Machine opens valve, to force pressure drop, to stop main pump. After 2 minutes, valve closes to prevent draining of pipes.

PRE IRRIGATION: Machine is performing pre irrigation.

POST IRRIGATION: Machine is performing post irrigation.

SETTINGS

There are different constants that can be set by the user: The constant (Const.) and the machine data (M.Data)
These constants will be saved for years even if the battery is disconnected.

Programming procedure:
The speed should be adjusted to **11.1 m/h** to reach the constants.
Press rapidly the *PROG* key 3 times to gain access to change the constants.
By subsequent pressing on the *PROG* key the constant no. will step forward. With the "+" and "-" keys the constant value can be changed.
The PROGRAM RAIN goes back to normal and saves the constant by pressing the key MENU.
If the key *MENU* is not pressed the Program Rain switches back to normal after 1 minute, and the changes of the constants are not saved.

CONSTANTS

Const no.	Min. Value	Max. Value	Description
0	-	-	Enter 111 to reach machine data
1	00:00	24:00	Time in line 3 is set
2	1	15	Pre irrigation
3	1	15	Post irrigation
4	0	99	Supervision time (minutes)
5	1	15	1 English, 2 Danish, 3 German, 4 French, 5 Dutch, 6 Swedish, 7 Spanish, 8 Italian, 9 Polish, 10 Japanese, 11 Hungarian
6	0	2	0 = Stop for high pressure slow shutdown 1 = Stop for low pressure, valve opens and close again after 3 minutes 2 = Motor for stop disconnected
7	0	1000	Actual distance (m)
8	0	1000	Early stop (m) Stop the machine at a distance (m) before the end. To activate this function, press the "POST-" key. However, the stop valve will be driven immediately, without executing the POST- irrigation (* Is only performed when Post Irrigation is selected *)
9	0	99	Post irrigation before stop (m)
10	0	1000	Distance for alarm (m)
11	5	120	Water flow (m^3/h)
12	5	100	Spacing between irrigation lanes (m)

The constant no.0 should be 111 to reach the machine data.
Then press "PROG" and the machine data are shown.

MACHINE DATA

M.Data no.	Min. Value	Max. Value	Description
0	0	1000	Pipe length (m)
1	40	200	Pipe diameter (mm)
2	500	3000	Reel drum diameter (mm)
3	5.00	30.00	Windings pr. Layer
4	50	1000	Large drive sprocket: number of teeth
5	5	40	Small drive sprocket: number of teeth
6	1	20	Number of magnets
7	0.70	1.00	Ovality
8	0	45	First pulse to main valve (sec)
9	0	300	Short pulses to main valve (msec)
10	1	5	Time between short pulses (sec)
11	0	250	Number of short pulses
12	0	1	Shut-down system, 0 = Only regulator motor 1 = 2 Motors
13	1	25	Closing pulse length to the regulator motor (sec)
14	0	2	Pressure switch 0 = No pressure switch mounted 1 = Pressure switch mounted (Start at the pressure rise and stop at the pressure drop) 2= Pressure switch mounted (Start at the pressure rise but do not stop at the pressure drop)
15	0	160.0	Distance between pulses (mm) (62.5 if roller Ø80 mm) 0 = running by the formula (M. data number 0 to 7)
16	0	1	Speed sensor 0 = roller on PE hose 1 = gearbox sensor
17	0	1	Opening of main valve 0 = fast opening 1 = slow opening (same speed as closing)
18	0	1	Pressure switch 0 = Main valve stay open at low pressure 1 = Main valve closes at low pressure
19	0	200	Delay from stop sensor to the regulator motor stops the turbine (sec).
20	0	1	Supervision of the right speed 0 = Supervision off. 1 = Supervision on (50 % of selected speed)
21	0	1	Meter or foot readings in the display 0 = Meter. 1 = Foot
30	0	2	0 = GSM Modem not active 1 = GSM Modem 2 = GSM Modem, only numbers on SMS list
31	-	-	First phone to call " A "
31	-	-	Second phone to call " B "

Constants programmed for PERROT hose reels given their configuration are listed in the following chart:

PR10   PR10 with mechanical shut off
PR10D   PR10 with electrical low pressure shut off
PR10S   PR10 with electrical high pressure shut off
PR10DP   PR10 with electrical low pressure shut off and pressure switch
PR10SP   PR10 with electrical high pressure shut off and pressure switch
PR10DS   PR10 with both electrical high and low pressure shut off
PR10DSP   PR10 with both electrical high and low pressure shut off and pressure switch

Const No.	PR10	PR10D	PR10S	PR10DP	PR10SP	PR10DS	PR10DSP
0	Set to 111 to enter Machine Data menus						
1	Time adjustment						
2	8						
3	8						
4	20						
5	Language						
6	2	1	0	1	0	0	0
7	Pipe length (m)						
8	0						
9	0						
10	0						
11	Hose reel flow rate (m^3/h)						
12	Spacing between two run (m)						

M.Data No.	PR10	PR10D	PR10S	PR10DP	PR10SP	PR10DS	PR10DSP
0	Pipe length (m)						
1	Pipe diameter (mm)						
2	Drum internal diameter in mm (See the following table)						
3	Number of turn par layer (See the following table)						
4	Number of teeth – Drum crown gear (See the following table)						
5	Number of teeth – Gearbox gear (See the following table)						
6	Magnet number (See the following table)						
7	Ovality of PE hose : 0.89						
8	3				5		
9	160						
10	2						
11	100						
12	0	1					
13	2.2						
14	0	0	0	1	1	0	1
15	0 or 62.5						
16	0 or 1						
17	0	0	0 or 1	0	0 or 1	0	0
18	0	0	0	0	0 or 1	0	0
19	0						
20	0						
21	0						

Number of turns per layer depends on hose reel model. The correct number is given in the following chart:

Ø PE	TR10	TR20	TR25	TR30	TR35	TR40	TR45	TR50	TR55	TR63	TR73	TR80
75	16.08											
82	14.92	14.92										
90	13.40	13.40	13.40	14.295	14.295							
100	12.15	12.15	12.15	12.866	12.866	Lg<465 12.866 Lg>465 13.122	14.58	14.370				
110					11.806	11.806	13.12	13.064	14.37	13.07	14.37	14.8
120								12.025	13.17	12.06	13.27	13.6
125								11.496	12.64	11.51	12.66	13.23

	TR10	TR20	TR25	TR30	TR35	TR40	TR45	TR50	TR55	TR63	TR73	TR80
Drum diameter	1300	1300	1500	1350 or 1430 in Ø110	1430	1430	1430	1700	1700	1625	1625	2100
Drum crown Number of teeth	228	228	216	228	285	285	285	192	192	256 (240 before serial n° 11/220)	256	334
Gear's number of teeth	10	10	11	10	10	10	10	10	10	10	10	10
Magnet number	4	4	4	4	4	4	4	6	6	6	6	6

WIRING

The Program Rain can be adjusted to 2 different types of sensors (See Machine Data no.16)

Roller on PE hose
This sensor is round (Ø 80 mm) and there are 4 sensors inside. This is only for rollers with one magnet rolling directly on the PE.
When the battery is connected the display for 2 sec shows **« VERSION 1.20 »**.

Gearbox sensor
This sensor is square and there are 2 separate sensors. This is usually located behind the gearbox in line with a disk supporting 4, 6 or more magnets.
When the battery is connected the display for 2 sec showed **« VERSION 1.21»**.

Gearbox sensor	**Roller on PE hose**
Program Rain 10 18 Pol Connector **Cable connection Version 1.21**	**Program Rain 10** **Cable connection Version 1.20**
1 + Battery Brown 12 V 2 - Battery Blue 3 + Solar Panel Brown 4 - Solar Panel Blue 5 Motor 1 Speed Regulation 6 Motor 1 Speed regulation 7 Speed Sensor 1 * Blue 8 Speed Sensor 1 * Black 9 Speed Sensor 2 * Yellow/green 10 Speed Sensor 2 * Brown 11 Stop Sensor Blue or Brown 12 Stop Sensor Blue or Brown 13 Motor 2 Stop Motor 14 Motor 2 Stop Motor 15 Pressure Blue or Brown 16 Pressure Blue or Brown 17 BIP - 18 BIP + * If the distance counter count the wrong way, the speed sensor should be turned.	1 + Battery Brown 12 V 2 - Battery Blue 3 + Solar Panel Brown 4 - Solar Panel Blue 5 Motor 1 Speed Regulation 6 Motor 1 Speed regulation 7 Speed Sensor Blue 8 Speed Sensor * Black 9 Speed Sensor * Yellow/green (Red) 10 Speed Sensor Brown 11 Stop Sensor Blue or Brown 12 Stop Sensor Blue or Brown 13 Motor 2 Stop Motor 14 Motor 2 Stop Motor 15 Pressure Blue or Brown 16 Pressure Blue or Brown 17 BIP - 18 BIP + * If the distance counter count the wrong way, the cable on terminal 8 and 9 must be interchange.

Program Rain 10   6 Pol Connector
1 GSM +   Brown   +12 V   2 GSM -   Blue   3 Reserved   4 Reserved   5 Reserved   6 Reserved

Size (Height x Width x Length)	170 x 140 x 100
Voltage	10-15V dc
Current	6 mA (Idle) 30 mA (with GSM) 80 mA (Light) 5A motor max current
Fuse	5A Fast

FAULT DIAGNOSIS

1. ***The turbine cannot start by pressing START. PRE- and POST- irrigation cannot take place.***

Answer: Magnet for stop-sensor is not on its place, or cable or sensor is damaged.
Stop sensor: The mark █ must be on when the magnet is on place, and it disappears when the magnet is removed (See menu 3).
A damaged cable can be repaired but absolutely watertight. At least encapsulated in epoxy.
But a new sensor and cable is recommended.

If pressure sensor is used there must be pressure on the water. The mark █ for pressure must be on.

2. ***None figure in the display.***

Answer: Battery power is lost. Fuse inside the box is blown. The fuse is for wrong connection of + and - .
From the factory there is an extra fuse on a single fuse-holder on the printed circuit.
Fuse 5 A. Battery electric voltages 12 V (See menu 2).

3. ***The clock shows 00:00.***

Answer: If the power has been interrupted the clock will go to zero. Therefore instead of showing the finish time it is the number of hours and minutes to the irrigator is finish that is showed. Reset the clock to the correct time and the irrigator finish time will be shown (See setting the clock).

4. ***Distance meter is not correct and the speeds not correct.***

Answer: See after damaged cable or sensor. The 2 marks █ █ must during pulling out the tube appear in order from the right as following: The first appear the second appear the first disappear the second disappear. During retraction it must go in opposite order (See menu 3: Speed sensor).
It is the same if a roller running on the tube measures the speed.

5. ***Only maybe the half or 2/3 of the real length is counted up.***

Answer: The stop mechanism can be activated a short time by the PE hose jumping or if the windings around the drum are loose. It can cause the magnet to move from the stop sensor for a short moment. It will set the counter to zero.
Even if the metered distance is shown is not correct, the irrigator will run to the end and stop as normal. However the hosereel will run at an incorrect speed until reset.
To correct this, the number of metre can be set in (See Constant no.7).

SPECIAL CONFIGURATION

With the constants set at the factory settings the machine will always run. But there are different conditions from farm to farm and there are also different wishes from the user. Therefore some constants can be adjusted for local wishes.

1. **Start up of no.2 machine when no.1 machine reaches the stop. Machine data no.14: Value 2.**

The machine must be equipped with adjustable pressure switch. Adjust the pressure switch to a point between the normal pressure and the pressure when the pump will stop.

For instance: Normal pressure 7 bars and pressure for pump stop is 9 bars. Adjust the pressure switch to 8 bars on both the machines. Start no.1 machine as normal by pressing start. Set up no.2 machine but press stop. When no.1 machine comes to slowly close down no.2 machine will start up when the pressure reach 8 bars. Be aware that 10 m difference on the field level equals 1 bar.

2. **Delay start when the reel runs overpressure. Machine data no.17: Value 1.**

OPTION GSM

PR10-12 can handle external MC52i, GSM Modem from, Cinterion.

Irrigation can be started, stopped or requested for status, only by sending an SMS.

Commands

Start	Starts machine.
Stop	Stops machine.
Speed ###	Set the *Speed* within 3...400 m/h.
	(Ex: **Speed 020** to set the speed to 20 m/h)
Status	Gets the current status of machine.

SMS can be typed in both upper or lower case or mix.

If you call the modem, from a GSM telephone, you will receive an SMS containing *Status* as shown below.

```
SPEED         30.0m/h
DOSE            22 mm
TIME 14:10 STOP18:16
STATUS RUNNING
DISTANCE        123m
BATTERY        12.8V
CHARGE ON     0.231A
```

The PR10-12 sends SMS in the following situation:

LOW PRESSURE:	The pressure is low
STOP SENSOR:	The machine is ready to be moved to a new field
STOP REMOTE:	The machine is stopped using SMS
STOP DISTANCE:	The machine has reached stop point
SUPERVISION TIME:	The machine has not moved for xx minutes, due to a malfunction
	Check the machine before continuing

When an SMS is received, following is showed on display:

```
Receiving SMS
#: +45123456
Status

```

Receiving SMS
Incoming phone number
40 character of message
Any SMS can be received, but only known commands are accepted

When an SMS is sent, following is showed on display:

```
Sending SMS
#: +45123456

STATUS RUNNING
```

Sending SMS
Outgoing phone number
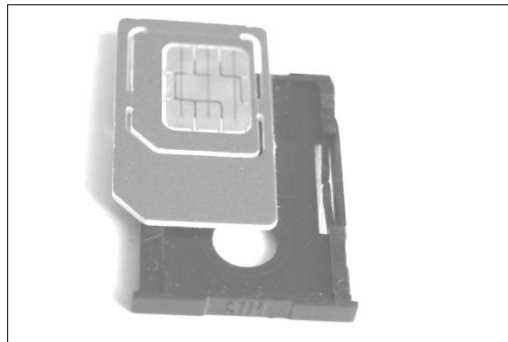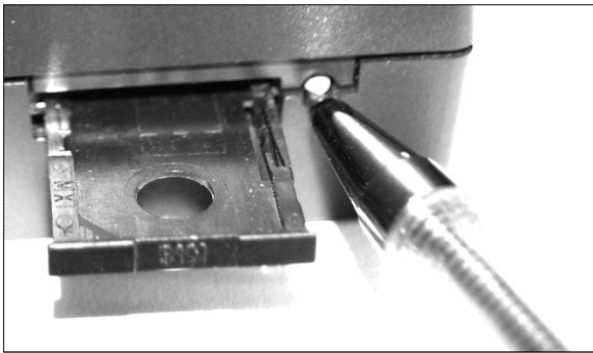Current machine status

Installation:

Disconnect the PR10 from the battery.

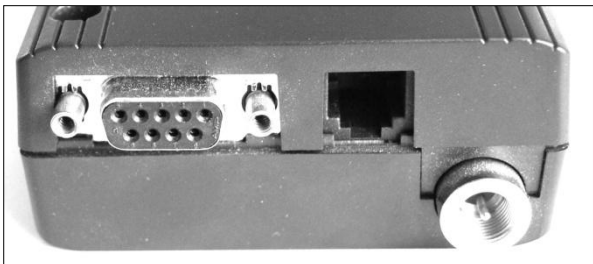Put in the SIM card into an ordinary mobile phone and change the pin code to 1111.
Try to send and receive an SMS, on phone, to verify the SIM card and account is working properly.

Insert the SIM card into the modem.
Operate the eject mechanism (yellow pin next to the card holder) to open the card holder by pressing it down with a pen, for example. Insert the SIM card in the SIM card holder and push it back into the housing.

Connect communication, power and antenna cable.

Setting:

Connect the power and setup machine data no.30

> 0 = GSM disabled
> 1 = GSM enabled, all telephone number is allowed, no *Speed* change.
> 2 = GSM enabled, only telephone number on SMS list, *Speed* change allowed

```
SPEED        11.1m/h
DOSE          22 mm
TIME 14:10 STOP 7:43
M.DATA 30       1
```
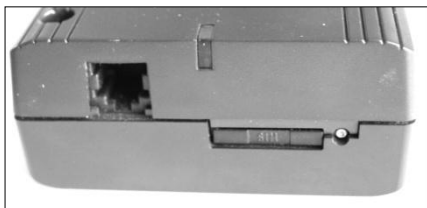
After 30 to 45 seconds, modem should be connected to network.

```
SIGNAL  23
NETWORK HOME
A: +45123456
B: +45234567
```

Signal strength and network should show up in display menu 6
Signal strength at 10 or higher to work properly
Signal strength at 99 indicates signal error

Diode modem

Operating states	LED
POWER DOWN	Off
– Network search or – no SIM card is inserted – no PIN is entered – no GSM network is available	Flashes rapidly
STANDBY (registered in the network)	Flashes slowly
Connection (TALK)	On

NOTES: