EUROLUBE
LUBRICATION EQUIPMENT

LUBE-MASTER R10

PM MANUAL

PRINTER MODULE

53402

EUROLUBE EQUIPMENT
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SWEDISH RELIABILITY

English Manual for PM-Module 53402, R10, 181008

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2. Introduction

The PM (Printer Module with database) is complement to the LUBE-Master monitoring system. With a PM connected it is possible to have printouts of dispensed volume, see who made a dispense, type of fluid and on which JOB a dispense was made.

NOTE! The LUBE-Master Installation guide should be available when installing and configuring a PM.

3. Mechanical installation

The PM is delivered mounted in a metal box.

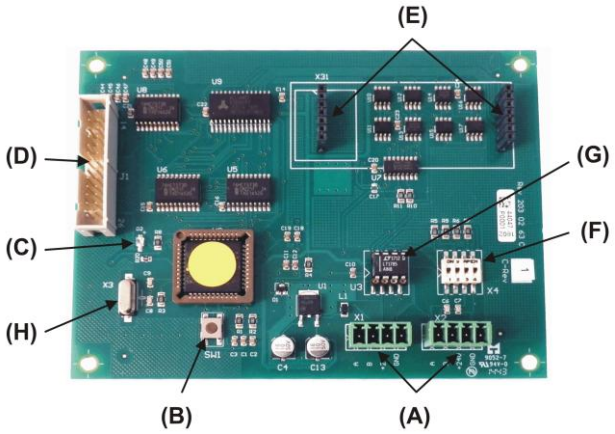
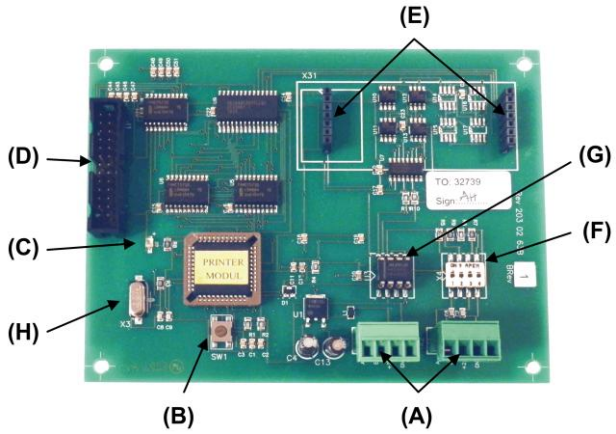
Complete PM in a box is mounted on a wall or other suitable place using the four-ø5 mm holes in the bottom corners of the box. The ticket printer (Eurolube part number 53354 or other Centronic parallel printer) should be placed protected and secure not too far from the module. The printer cable is 2.5 meters.

If a small and compact system is needed the PCB version can be mounted in a MPDM. The chassis-connector on the flat cable of the printer module is mounted in the "cut-out" hole on the side of the MPDM. See chapter 4.10.

4. Electric installation

The PM has two 4-pin connectors **(A)** marked **A**, **B**, **+24 V** and **Gnd**, which are used for the LUBE-Master communication. Follow the cable recommendations in the LUBE-Master Installation guide. A PM normally gets its power supply through the communication cable. If the module is placed far away from an MPDM it is possible to apply an external power-supply to **one** of the connectors **(A)**.

NOTE! +24VDC may only be applied to one of the connectors.

203 02 63 C (From May 2018)	203 02 63B (To May 2018)
	
PM200 / 201	PM100 / 101

The RESET button **(B)** can be used to reset the module or reset the module address.

If the LED **(C)** flashes it indicates that the MPDM is working. If it is unlit or lit all the time something is wrong.

The short flat printer cable is connected to the parallel port connector marked **(D)**.

Use the two connectors **(E)** when installing a clock module, pn 53405.

DIL switches for termination and BIAS are marked **(F)**.

Communication driver **(G).**

Processor speed crystal **(H).** PM200 / 201 = 25MHz. PM100 / 101 = 4MHz

OBSERVE! To be able to see and configure PM200 / PM201 from a LUBE-Master graphic layout LUBE-Master R10 must be used. If an older LUBE-Master software version is used it can be updated by replacing the Engine, adding PM200.ocx and PM201.ocx and then register the PM200.ocx by the Windows "regsrv32.exe".

A PM200 and PM201 will work in the system exactly as a PM100 or PM101 even without updating.

5. Configuration

An LUBE-Master configuration sheet ***should*** always be filled or altered during the configuration.

NOTE! To obtain technical support a copy of the configuration sheet for the complete installation must be sent to Alentec & Orion AB at

E-mail: lubemaster@alentec.se

Post: Alentec & Orion AB
LUBE-Master Support Team
Grustagsvägen 4
SE-138 40 Älta
SWEDEN

5.1. Check before configuration

Check that the PM is working and communicating with the system according to the

LUBE-Master Manual chapter "Testing modules".

NOTE! Do not forget to check and adjust the termination and BIAS according to LUBE-Master Manual.

5.2. Addressing the new module

A new module has no address on delivery. To address a new module or one with an unknown address you press and hold the RESET-button for 5 seconds. This will give the module a temporary address. Next, enter SET-UP-mode on a KeyPad and press 0 + ENTER to access the Main menu of the module. Find the menu to change module-address (see below).

NOTE! You can only install one module at a time using this method. If you hold the RESET-button on multiple units simultaneously only the most recently activated is active.

TIP! Follow preferably ”Recommendation for setting addresses” when setting addresses.

5.3. Important information for modules equipped with FLASH chip.

When we changed from OTP chip (One Time Programmable, white label) to FLASH chip technology we also added functions that could not be used with OTP chip.

5.3.1. Reports based on a time period.

If you have a printer module already equipped with a FLASH chip or is updating an old one to FLASH chip you should also add the choices for setting Start Date and End Date in the Fast Menu of a suitable key pad. Fast menu codes for this can be found in chapter “10. Fast Menu Codes”.

To be able to have report print out the Start Date and End Date must be set so the report period contain something to print.

The Start Date and End Date could also be set from the basic PM graphic symbol on the PC.

5.3.2. Full report customisation possibility.

The possibility for report customisation was rather limited in the OTP chip version due to lack of program memory. The FLASH version has a much larger program memory so for printer modules with FLASH chip the support for report design has been improved a lot.

To make use of this the foundation for the report design must be initialized properly. Clicking the “Load default” button of the basic PM graphic symbol on the PC does this.

5.4. SET-UP mode

Type the word ”**SETUP**” on a Keypad and press **ENTER**.

Type the password and press **ENTER**.

Type the address of the LED you want to configure and press **ENTER** to access its main menu.

You can add the 4-digit menu code to go directly to the desired menu.

```
Reel:SETUP      ‡
EXIT STOP CE ENT
```

```
PASS:_          ‡
Enter password
```

```
Adr:2???_       ‡
Address[code]
```

```
PM:             ‡
PM MainMenu
```

Scroll through the module sub menus by pressing ↑ or ↓. When the desired menu is shown press **ENTER** and so on.

5.5. Change address [*PM//Address]*

Enter the **[KP//Address]** by pressing ENTER

Press **ENTER** to show the cursor.

```
PM:                ‡
PM MainMenu
```

Type the **desired address** confirm with **ENTER**.

```
Adr:2XXX           ‡
Set Address 3???
```

When the cursor disappears you are finished.

```
Adress:2XXX        ‡
Set Address 2???
```

Press **EXIT twice** to exit set-up.

```
Adr:2XXX           ‡
Set Address 2???
```

NOTE! If two or more modules get the same address the system will not work. In that case you have to change address again.

TIP! Follow preferably "Recommendation for setting addresses" when setting addresses.

5.6. Recommendation for setting addresses

Each module demands a unique 16 bit hexadecimal address. There are some forbidden and some reserved addresses but it is possible to use all addresses between 0001 and 9999. To make it easier to support the system we recommend you follow the table to the right.

This means for example that the first PM should have the address 2001 and the next one 2002. . It is a good idea not to use the default address 2000, it makes it easier to add new PM's.

NOTE! Do not forget to write all used addresses in the Configuration sheet to avoid collisions.

NOTE! Addresses 0000 to 0FFF is forbidden and addresses larger than 9999 are reserved for the system.

Address	Module
0000 – 0FFF	Forbidden
1000 – 1xxx	MPDM
2000 – 2xxx	PM with database
2999	Pcdatabase (reserved)
3000 – 3xxx	KeyPad
4000 – 4xxx	LED-display
5000 – 5xxx	PLC-Modules
6000 – 6xxx	*Reserved*
7000 – 7xxx	*Reserved*
8000 – 8999	TCM, TSM
9000 – 9xxx	*Reserved*
A000 – FFFF	Forbidden

6. Administrate users

Stored user information in the database. With the default chip the database can store up to 32 users. (64 if the optional chip with version 1.01.XX or 2.01.XX is used.))

In a smaller system it is possible to store 16 local users in a MPDM

6.1. Add a user *[PM//DB/AddUser]*

A user can be a member of eight different groups named A-H. It is possible to make advanced and complex user rights for dispense points.

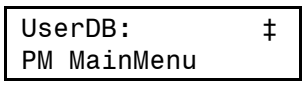
Group	Value
A	1
B	2
C	4
D	8
E	16
F	32
G	64
H	128

EXAMPLE: "Bob" is a member of groups AB, user "Stan" is a member of groups BC and the dispense points is divided into three bays A, B and C. In this case both users can open dispense points in bay B but only "Bob" can open dispense points in bay A and only "Stan" can open dispense points in bay C.

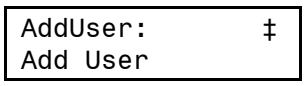
Each group is represented by a value shown in the chart to the right. The group value is calculated by adding the values for each desired group. Group A and E give a group value of (1+16) which are 17.

Enter menu **[PM//UserDB]** by pressing ↓ twice.

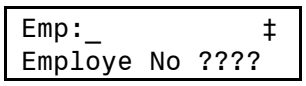
At UserDB: press ENTER.



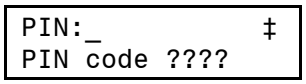
At AddUser: press ENTER.



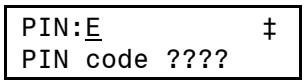
Type in the **employee number** (4 digits) and acknowledge by pressing **ENTER**.



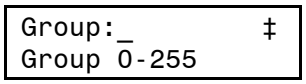
Type in a **PIN code** (4 figures) and acknowledge by pressing **ENTER**. If this PIN is already in use the display will show the letter E (Error).



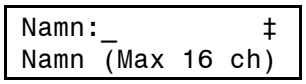
Type in a **group number** (0-255) and acknowledge by pressing **ENTER**.



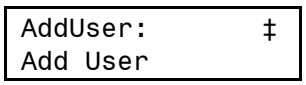
Type in a **name** (16 letters) and acknowledge by pressing **ENTER**.



Press **EXIT three times** to leave set-up mode.

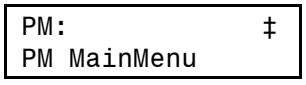


NOTE! No confirmation is shown. Test it by opening a dispense with the new PIN codes.

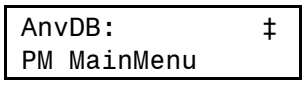


6.2. Remove a user *[PM//UserDB/DelUser]*

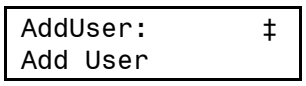
Enter menu **[PM//UserDB]** by pressing ↓ two times.



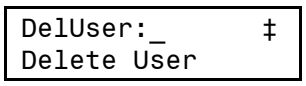
At userDB: press ENTER.



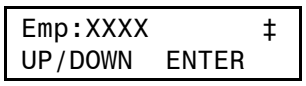
At **AddUser:** press ↓.



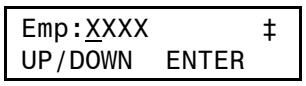
Press **ENTER** to get the cursor.



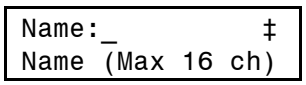
Select a user to remove using ↑ or ↓ and press **ENTER** to acknowledge.

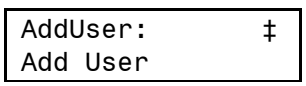


Select the next user and press **ENTER** or press **EXIT** three times to exit



NOTE! No confirmation is shown. Test it by opening a dispense with the deleted PIN codes.

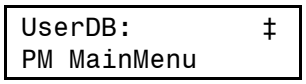




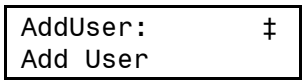
6.3. Remove all users *[PM//UserDB/DelAll]*

Enter menu **[PM//UserDB]** by pressing ↓ two times.

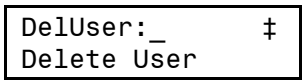
At UserDB: press ENTER.



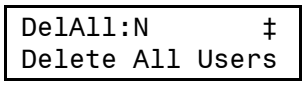
At **AddUser:** press ↓.



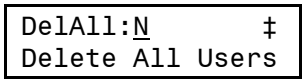
At **DelUser:** press ↓.



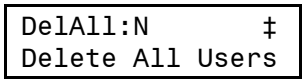
Press **ENTER** to get the cursor.



Type **Y** or **1** and then **ENTER** to acknowledge.



Press **EXIT** three times to leave Set-Up mode.



NOTE! No confirmation is shown.

6.4. Change user information

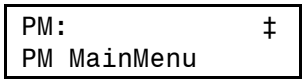
It is not possible to change user information in a LUBE-Master system without PC. The user with wrong data has to be deleted and then added with the correct data.

7. Transaction database

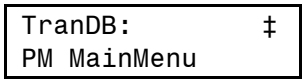
The transaction database can store information about the last 940 transactions. When the database is full the oldest transaction will be replaced by the new, FIFO.

7.1. Delete transaction database *[PM//TranDB/DelTran]*

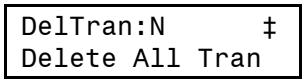
Enter menu **[PM//TranDB]** by pressing ↓.



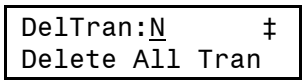
At TranDB: press ENTER.



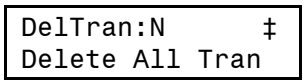
At DelTran: press ENTER.



Type **Y** or **1** and then **ENTER** to acknowledge.



Press **EXIT** three times to leave SET-UP mode.

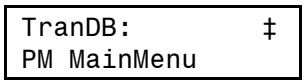


NOTE! This will take about 10 seconds. During this time the PM will not answer to calls on the communication line.

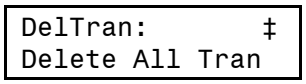
7.2. Print all transactions *[PM//TranDB/PrnTran/All]*

Enter menu **[PM//TranDB]** by pressing ↓.

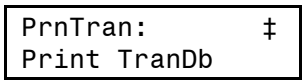
At TranDB: press ENTER.



At **DelTran:** press ↓.



At PrnTran: press ENTER.



At **All:** press **ENTER**.

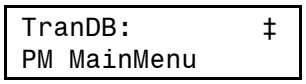
Type **Y** or **1** and then **ENTER** to acknowledge.

Press **EXIT** three times to leave SETUP mode.

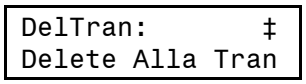
7.3. Print by transaction *[PM//TranDB/PrnTran/Tran]*

Enter menu **[PM//TranDB]** by pressing ↓.

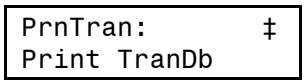
At TranDB: press ENTER.



At **DelTran:** press ↓.

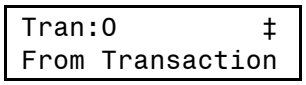


At PrnTran: press ENTER.

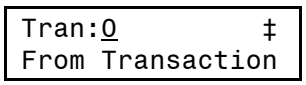


At **All:** go to **Tran:** by scrolling with ↑ or ↓.

At **Tran:** press **ENTER**.

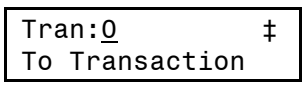


Type the first transaction number and acknowledge with **ENTER**.

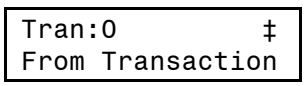


Type the last transaction number and acknowledge with ENTER. If you want to print only one transaction press ENTER immediately.

EXAMPLE: Typing 50 as first transaction and 100 as last transaction will print all transactions between 50 and 100.



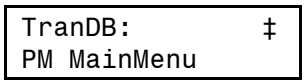
Press **EXIT** three times to leave SET-UP mode.



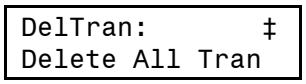
7.4. Print by Job number *[PM//TranDB/PrnTran/Job]*

Enter menu **[PM//TranDB]** by pressing ↓.

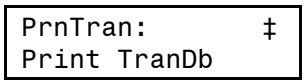
At TranDB: press ENTER.



At **DelTran:** press ↓.

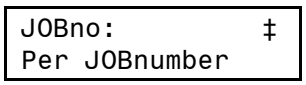


At PrnTran: press ENTER.

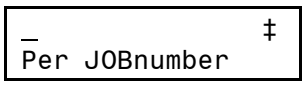


At **All:** go to **Job:** by scrolling with ↑ or ↓.

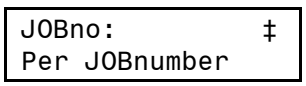
At **Job:** press **ENTER**



Type the **Job number** and then **ENTER** to acknowledge.

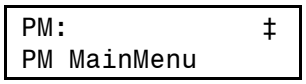


Press **EXIT** three times to leave SET-UP mode.

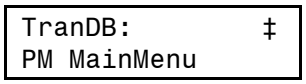


7.5. Print by employee number *[PM//TranDB/PrnTran/Emp]*

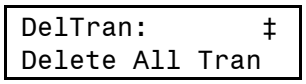
Enter menu **[PM//TranDB]** by pressing ↓.



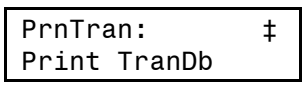
At TranDB: press ENTER.



At **DelTran:** press ↓.

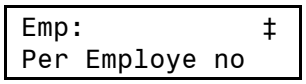


At PrnTran: press ENTER.

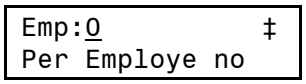


At **All:** go to **Emp:** by scrolling with ↑ or ↓.

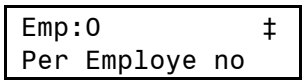
At **Emp:** press **ENTER**



Type the **employee number** and then **ENTER** to acknowledge.



Press **EXIT** three times to leave SET-UP mode.



8. JOB database

The system can be set up to use JOB number validation. This is used to restrict oil dispensing to valid jobs only.

8.1. Add Job number *[PM//JobDB/AddJob]*

Enter menu **[PM//JobDB]** by pressing ↓ three times.

```
PM:                ‡
PM MainMenu
```

At **JobDB:** press **ENTER**.

```
JobDB:             ‡
PM MainMenu
```

At AddJob: press ENTER.

```
AddJOB:            ‡
Add JOB number
```

Type the **JOB number** (max 8 characters) and then **ENTER** to acknowledge.

```
_                  ‡
Add JOB number
```

Press **EXIT** three times to leave SET-UP mode.

8.1.1. Using wildcard characters.

If the printer module is equipped with a FLASH chip (yellow label) the use of wild card characters are possible. This feature can be used to make the system to only accept JOB numbers with a certain layout.

The wild card feature supports three different wildcard placeholders.

?	Accepts any alphanumeric character in this position
#	Accepts any numeric character in this position
@	Accepts any alphabetic character in this position

Below there are some samples of how to use wildcards.

ABC###	results in ABC123 valid but not ABC1234 or ABC12D
???????	7 signs must be typed
SE@@@@	6 characters is OK as long as it the 2 first are SE
#### #####	4 or 5 figures are OK

8.2. Delete Job number *[PM//JobDB/DelJob]*

Enter menu **[PM//JobDB]** by pressing ↓ three times.

```
PM:                ‡
PM MainMenu
```

At **JobDB:** press **ENTER**.

```
JOBDB:             ‡
PM MainMenu
```

At **AddJob:** press ↓.

```
AddJOB:            ‡
Add JOB number
```

At DelJob: press ENTER.

```
DelJOB:            ‡
Delete JOB no
```

Type the **JOB number** (max 16 characters) and then **ENTER** to acknowledge.

```
JOB:XXXXX          ‡
Up/Down ENTER
```

Press **EXIT** three times to leave SET-UP mode.

```
XXXXX              ‡
Up/Down ENTER
```

```
JOB:XXXXX          ‡
Up/Down ENTER
```

8.3. Delete all Job numbers *[PM//JobDB/DelAll]*

Enter menu **[PM//JobDB]** by pressing ↓ three times.

```
PM:              ‡
PM MainMenu
```

At **JobDB:** press ENTER.

```
JOBDB:           ‡
PM MainMenu
```

At **AddJob:** press ↓.

```
AddJOB:          ‡
Add JOB number
```

At **DelJob:** press ↓.

```
DelJOB:          ‡
Delete JOB no
```

At DelAll: press ENTER.

```
DelAll:          ‡
Delete all Jobs
```

Type **Y** or **1** and then **ENTER** to acknowledge.

```
DelAll:N         ‡
(Y / 1)  ENTER
```

Press **EXIT** three times to leave SET-UP mode.

9. Tank database

The tank database in the printer module is contains 8 virtual tanks, each with a separate set of data.

Every time a dispense is made the dispensed volume is subtracted from the volume in the corresponding tank. When the tank is filled the volume filled must be added to the corresponding volume stored in the tank database.

9.1. Change name for a tank *[PM//TankDB/TankX/Name]*

Enter menu **[PM//TankDB]** by pressing ↓ four times.

```
PM:              ‡
PM MainMenu
```

At TankDB: press ENTER.

```
TankDB:          ‡
PM MainMenu
```

At **Tank1:** choose the desired tank by scrolling with ↓ or ↑ and then press **ENTER** to acknowledge.

```
Tank1:           ‡
Up/Down  ENTER
```

At Name: press ENTER.

```
Name:Oil 1       ‡
Oilname
```

Type the **name** (max 16 characters) and then press **ENTER** to acknowledge.

```
Oil 1            ‡
Oilname
```

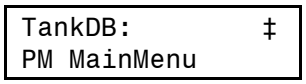
Press **EXIT** three times to leave SET-UP mode.

```
Name:Olja1       ‡
Oilname
```

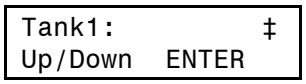
9.2. Change volume in a tank *[PM//TankDB/TankX/Vol]*

Enter menu **[PM//TankDB]** by pressing ↓ four times.

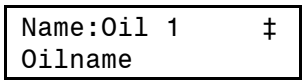
At TankDB: press ENTER.



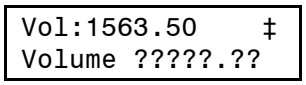
At **Tank1:** choose the desired tank by scrolling with ↓ or ↑ and then press **ENTER** to acknowledge.



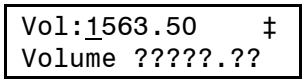
At **Name:** go to **Vol:** by scrolling with ↓ or ↑. The content of the tank is shown.



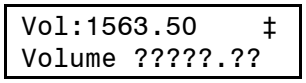
At **Vol:** press **ENTER** to show the cursor.



Type the **new volume** (max 99999.99) and then press **ENTER** to acknowledge.

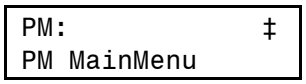


Press **EXIT** three times to leave SET-UP mode.

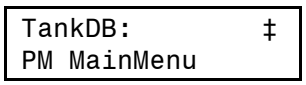


9.3. Change reorder volume for a tank *[PM//TankDB/TankX/RVol]*

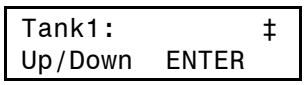
Enter menu **[PM//TankDB]** by pressing ↓ four times.



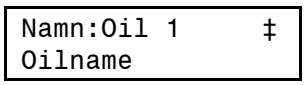
At TankDB: press ENTER.



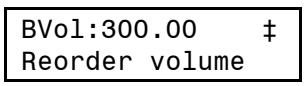
At **Tank1:** choose the desired tank by scrolling with ↓ or ↑ and then press **ENTER** to acknowledge.



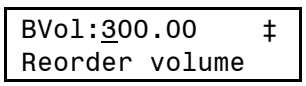
At **Name:** go to **RVol:** by scrolling with ↓ or ↑.



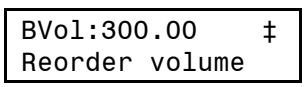
The present value is shown. At **RVol:** press **ENTER** to show the cursor.



Type the **new reorder volume** and then press **ENTER** to acknowledge.



Press **EXIT** three times to leave SET-UP mode.



9.4. Change stop volume for a tank *[PM//TankDB/TankX/SVol]*

Enter menu **[PM//TankDB]** by pressing ↓ four times.

```
PM:                ‡
PM MainMenu
```

At TankDB: press ENTER.

```
TankDB:            ‡
PM MainMenu
```

At **Tank1:** choose the desired tank by scrolling with ↓ or ↑ and then press **ENTER** to acknowledge.

```
Tank1:             ‡
Up/Down  ENTER
```

At **Name:** go to **SVol:** by scrolling with ↓ or ↑.

```
Name:Oil 1         ‡
Oilname
```

The present value is shown. At **SVol:** press **ENTER** to show the cursor.

Type the **new stop volume** and then press **ENTER** to acknowledge.

```
SVol:100.00        ‡
Stop volume
```

```
SVol:100.00        ‡
Stop volume
```

Press **EXIT** three times to leave SET-UP mode.

```
SVol:100.00        ‡
Stop Volume
```

9.5. Print tank status *[PM//TankDB/Prn]*

Enter menu **[PM//TankDB]** by pressing ↓ four times.

```
PM:                ‡
PM MainMenu
```

At TankDB: press ENTER.

```
TankDB:            ‡
PM MainMenu
```

At **Tank1:** go to **Prn:** by scrolling with ↓ or ↑ and then press **ENTER** to acknowledge.

```
Tank1:             ‡
Up/Down  ENTER
```

At PrnTankDB: press ENTER.

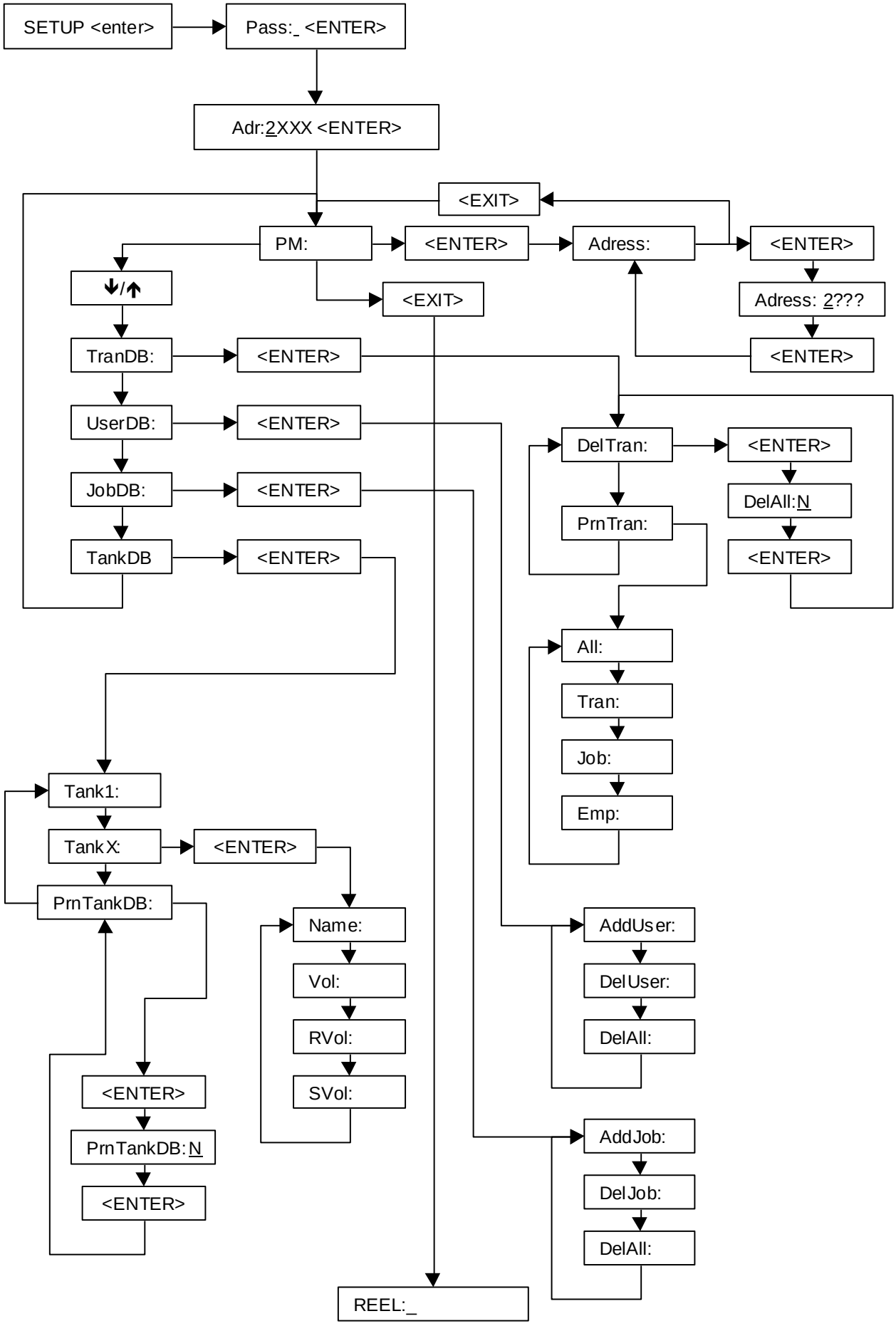
Type **Y** or **1** and then **ENTER** to acknowledge.

```
PrnTankDB:N        ‡
Print TankDB
```

Press **EXIT** three times to leave SET-UP mode.

```
PrnTankDB:N        ‡
Print TankDB
```

10. Menu tree


SETUP <enter>
Pass:_ <ENTER>
Adr:2XXX <ENTER>
<EXIT>
PM:
<ENTER>
Adress:
<ENTER>
<EXIT>
Adress: 2???
<ENTER>
TranDB:
<ENTER>
UserDB:
<ENTER>
JobDB:
<ENTER>
TankDB
<ENTER>
DelTran:
<ENTER>
DelAll:N
<ENTER>
PrnTran:
All:
Tran:
Job:
Emp:
Tank1:
TankX:
<ENTER>
PrnTankDB:
Name:
Vol:
RVol:
SVol:
AddUser:
DelUser:
DelAll:
<ENTER>
PrnTankDB:N
<ENTER>
AddJob:
DelJob:
DelAll:
REEL:_

11. Fast Menu codes

With a PC, the LUBE-Master WinTools software and a SIO, you can customise the quick menu that appear when you press ”?”. To do this, assign a name to the menu, a module address and then a code. Password is optional. This code can also be used together with the address after you have typed SETUP followed by the password.

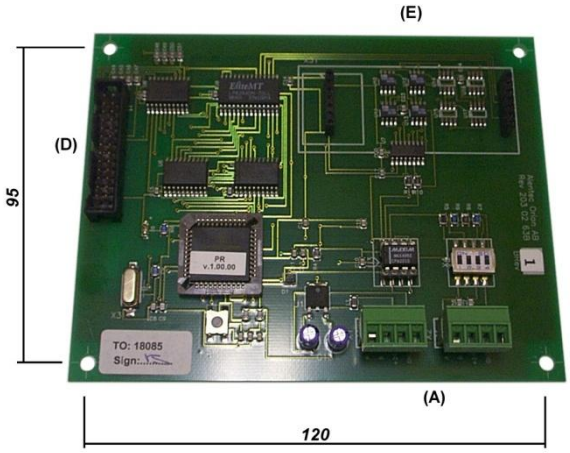
For a PM-module it will look like this,

New user 20000260 YYYYY where YYYYY=password

Part	Function	Address	Code	Comment
Main menu	Change address		0800	
Standard	Print all	2000	0221	On delivery
	Print by transaction	2000	0221	On delivery
	Print by Job	2000	0222	On delivery
	Print by user	2000	0223	On delivery
	Print tank report	2000	0224	On delivery
Set report period	Set report start date		0225	
	Set report end date		0226	
Tank DB	Update tank volume		28X3	Where X is Tank number
	Change fluid name		28X2	Where X is Tank number
	Change order point		28X4	Where X is Tank number
	Change stop-volume		28X5	Where X is Tank number
	Print tank report		0224	
User DB	New user		0260	
	Remove user		0261	
	Remove all users		0262	
JOB DB	New JOB-number		0230	
	Remove JOB-number		0231	
	Remove all JOB-numbers		0232	
Transaction DB	Remove all transactions		0021	
	Print transactions			
	Print all transactions		0220	
	Print by transaction		0221	
	Print by JOB		0222	
	Print by user		0223	

12. Technical specification

Net ports:	2 pieces of LUBE-Master ports (A) for data-communication.
Out ports:	1 piece (D) CENTRONIC for a parallel printer.
Other:	RISC-based microprocessor EEPROM, 64 KB.
Supply voltage:	24 VAC
Max current:	100 mA
Casing:	Strong black powder painted steel box
Outer measures:	23 x 195 x 55 mm.
Mounting:	4 x ø5mm CC = 175 x 140 mm
Weight:	1,6 kg (mounted in steel box)



13. PCB placed in a SIO

In a small system or at limited space it is possible to mount a printer / database module PCB in a SIO. To do this the SIO PCB has to be moved and turned one quarter of a turn, see below:

Make sure the power is turned off.

Turn the SIO PCB a quarter of a turn and place it to the left in the box. Move the plastic distances to the holes that make it possible to place the PCB as shown in the picture to the left. Do not damage the cabling.

SIO standard

SIO moved

SIO+PM

14. Clock module (CM) mounted on PM

An LUBE-Master system can be fitted with a real-time clock (CM) to keep track of date and time. The CM can be mounted either on a PM or a LED in which case it will work as a global clock for the entire system.

NOTE! It is very important to install only one CM in the system

The CM is mounted on a PM by pressing the pins into the corresponding connector on the PM, see below.

Make sure the pins on the bottom are aligned before pressing. The pins can be bent slightly if needed.

Date and time are then set with a keypad. See the KP manual.