



# SERVICE MANUAL

## DRAUGHT BEER AND WINE FLOW METER

FM-16

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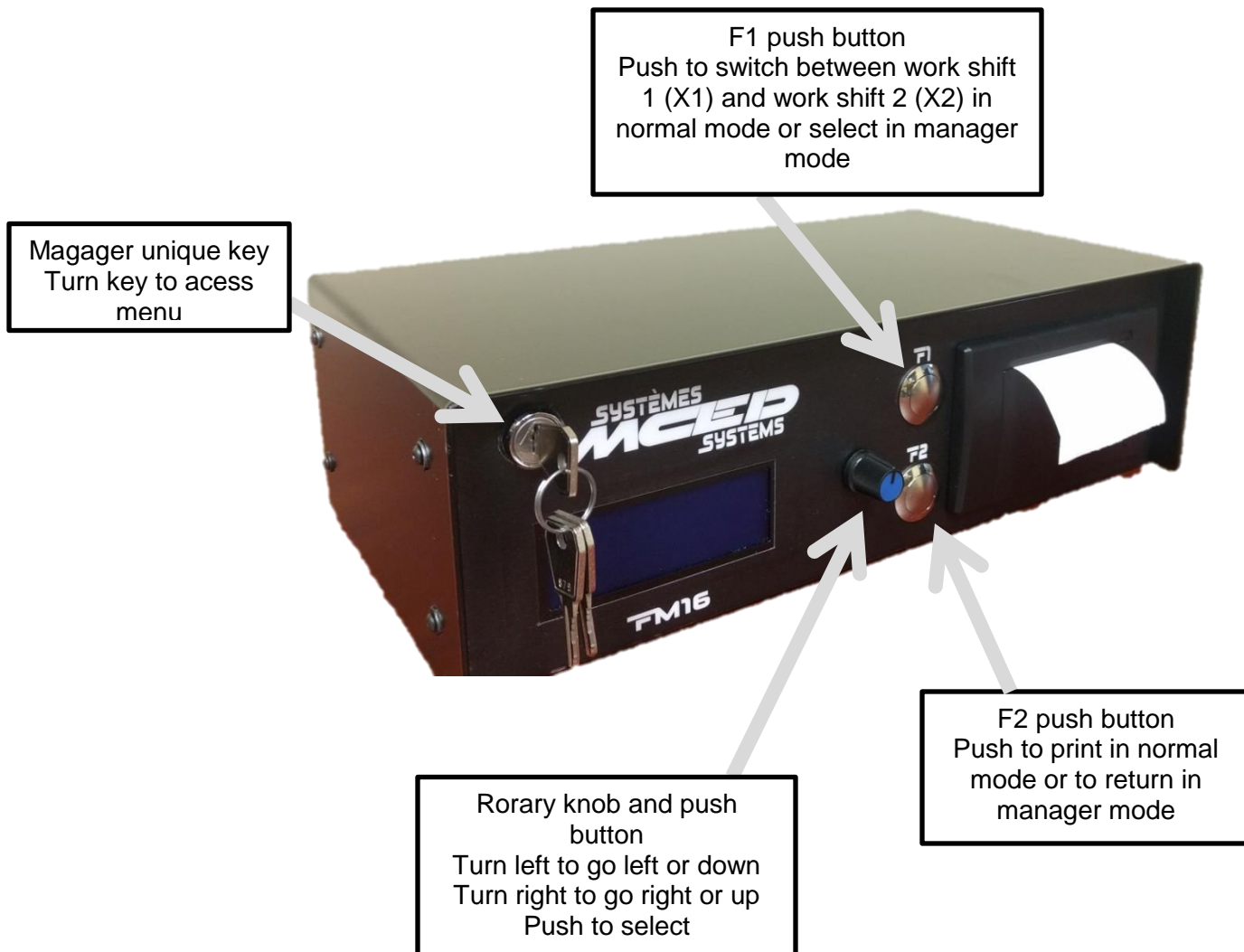
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**1. SPECIFICATION**

<b>SPECIFICATIONS</b>	
<b>Model</b>	FM-16
<b>Number of channels</b>	16
<b>Number of formats</b>	6
<b>Voltage (V)</b>	115v
<b>Plug Type</b>	NEMA 5-15P
<b>Amps (Running)</b>	0,1A
<b>Dimensions W x D x H Including pump and motor</b>	12" x 6,5" x 3,5"
<b>Weight (lbs)</b>	4.4
<b>Thermal printer paper</b>	2,25" x 50'

## 2. INTERFACE NOMENCLATURE



### **3. HANDLING AND PLACEMENT**

1. Remove the unit from its box carefully and inspect it visually for any transportation damages.
2. Cautiously place the unit into the wanted location. Ensure the unit is installed on a straight and level surface.

Note :

- It is not advised to place the unit in the cold room.
- Ensure the unit is installed in a dry area where the temperature is between 15°C to 26°C
- Unit must be connected to a ground fault circuit breaker.
- Unit must have it's own dedicated electrical circuit.

## **4. INSTALLATION**

1. Make sure the FM-16 meter is unpowered
2. Install MCED Systems flow meter on the beer line. Make sure the flow meter are installed vertically with the flow as per the arrow on the flow meter. You also must install an anti-return valve before the turbine.
3. Solder a single 30 gauge shielded electronic cable to each cable of the flow meter. Put an epoxy heat shrink over the junction.
4. Take note of the cable color associated with each cable of the flow meter, (+,-,Signal).
5. Repeat steps 3 and 4 for each product.
6. Remove the side screws (4) and then remove the cover.
7. Insert the other side of the shielded cable in the cable connector behind the meter.
8. Connect the shield on the ground screw.
9. Connect all the + cables together with a wire connector and bring a cable to the + screw terminal. If more than 8 flow meters are connected, split them in 2 and connect to the second + screw terminal.
10. Connect all the - cables together with a wire connector and bring a cable to the - screw terminal. If more than 8 flow meters are connected, split them in 2 and connect to the second - screw terminal.
11. Connect each flow meter signal cable to the product screw terminal. The product is associated with the screw terminal order.
12. Once everything is connected, double check to see if all cables are connected to the proper location

## **5. TESTING THE INSTALLATION**

1. Plug the FM-16 meter to put power on it.
2. Insert and turn to manager key
3. Turn rotary knob until you reach the maintenance menu and then select using the F1 button.
4. Turn rotary knob until you reach the part number menu and then select using the F1 button.
5. Once in the part number press F1 and F2 simultaneously for more than 5 seconds to access the manufacturer menu.
6. Turn rotary knob until you reach the test flows menu and then select using the F1 button.
7. Pour product 1 to 4 and ensure that the number is increasing for the product being poured. If not, there is a problem with your connection.
8. Press F1 to go to the next 4 products and repeat steps 7 and 8 for all products.

## 6. SETUP THE FM-16 METER

1. Insert and turn the manager key
2. Turn rotary knob until you reach the maintenance menu and then select using F1
3. Turn rotary knob until you reach the number of products menu and then select using F1
4. Turn rotary knob to select the number of products you want and then select using F1
5. Turn rotary knob until you reach the product names menu and then select using F1
6. Turn rotary knob until you reach the product you want to rename and then select using F1
7. Select first letter number or symbol by turning the rotary and then press F1 to go the the next chararcter.
8. Repeat step 7 until the desired name is completed
9. Repeat steps 6 to 8 for all products you want to rename

## 7. CALIBRATION

1. Insert and turn the manager key
2. Turn rotary knob until you reach the calibration menu and then select using F1
3. Go to the product you want to calibrate by turning the rotary knob then select using F1
4. Presst F1 if you want to calibrate in format or F2 if you want to calibrate in Oz
5. Press F1 to start the calibration as instructed on the screen
6. Poor the desired quantity in a graduated cylinder and press F1 to stop the calibration
7. Enter the quantity poored using the rotary knob and press F1 to confirm
8. If you calibrated in Oz, go to step 12
9. Use the rotary knob to determine how many format you want and then press F1 to confirm
10. Use the rotary knob to determine the quantity of the smaller format and then press F1 to confirm
11. Repeat step 9 for all formats from the smallest to the biggest. Make sure there is more then 40% difference between 2 formats in order to avoid cross counting.
12. Repeat steps 3 to 11 for all products

Note : If a product has already been calibrated, you will have the ability to redefine the product without recalibrating after step 4.



## 8. SPARE PARTS LIST

Component	Part Number
Microcontroller with software loaded	DUE
Shield assembly for the microcontroller	RB-Ard-40
Push button (F1 and F2)	91175
Manager key switch (with keys)	50164
Thermal printer	RB-Spa-508
Thermal paper roll	S-18644
Power supply	500426
LCD screen assembly	2004-LCD-MODULE

RK = Rotary Knob  
RKpb = Rotary knob pushbutton

### 9. MENU

P0 : Start-up page with company name and model number  
Display for 5sec and then display P10

P10: Usager page with meter value (1/page)

P10: product 2

P10: product ...

P10: product 16

P15: Qty poured: XXX

Manager key or special internal button

F1: switches from shift 1 and 2  
F2: Prints current shift

P33: Print and Reset Totals?  
F1: Yes, F2: No

P31: Time & Date  
F1: Set, F2: Exit

P20: Manager mode  
Press F1 to access

P25: Manager Menu  
> Prnt & Rst Totals (33)  
Power Losses (50)  
Set Time & Date (31)  
Display Totals (30)  
Reset Totals (35)  
Exit Manager Mode (20)

P50: Power Loses

P32: Set XX  
RK: value  
F1: Set, F2: Save & Exit

P35: Reset Totals?  
F1: Yes, F2: No

P30: Total Y product 1

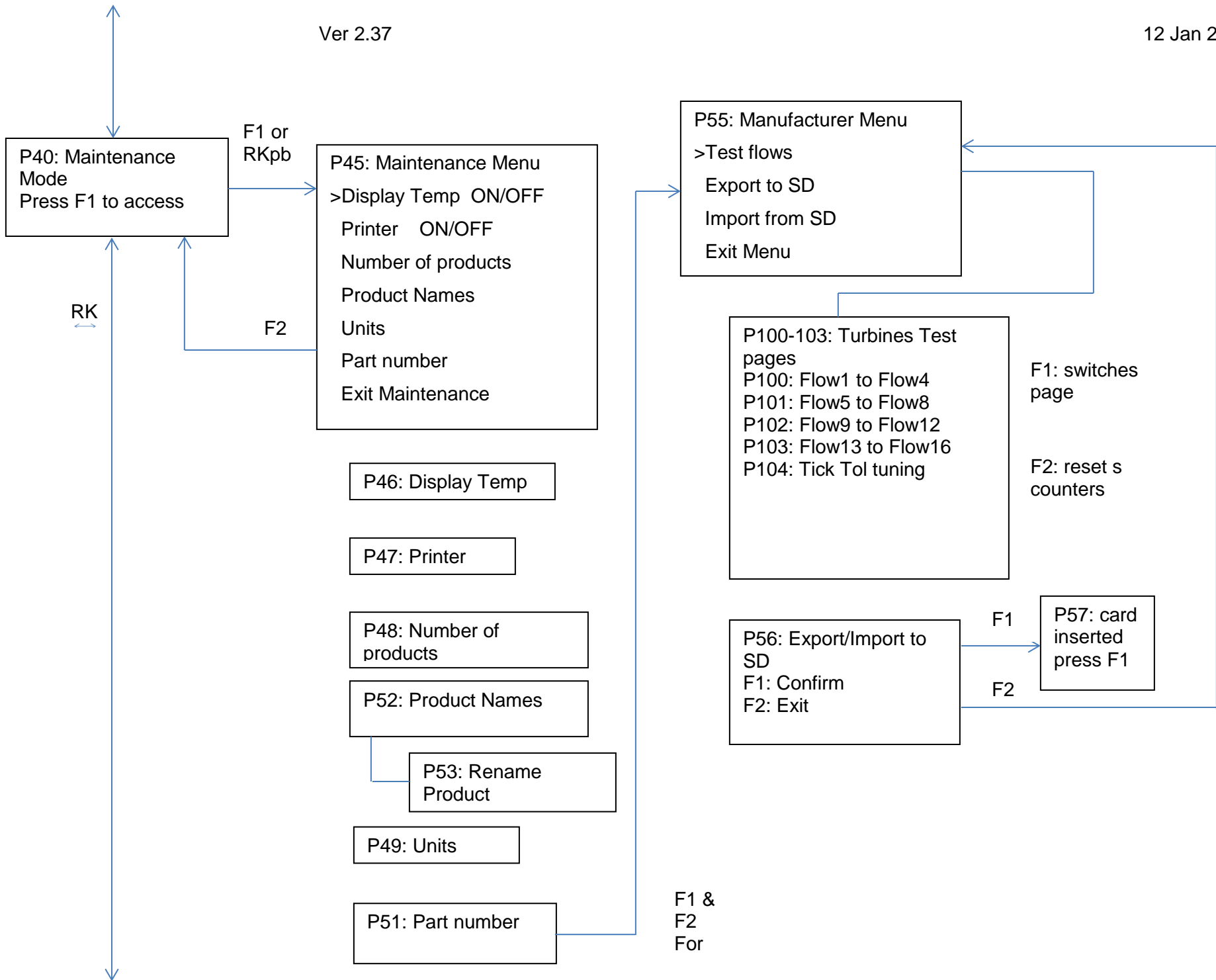
P30: Total Y product 2

P30: Total Y product ...

P30: Total Y product 16

F1: returns to Manager Menu  
F2: Prints Y totals

RK



RK

F1 or RKpb

F2

F1: switches page

F2: reset s counters

F1 & F2 For

