The PM04 is designed to check in series placed batteries. The PM04 is suitable for 24 and 48 Volt systems. Hence 2 to 4 in series placed batteries can be measured. The PM04 can produce an alarm when an under- or over voltage occurs or an unbalance in the series placed batteries. Also batteries that are charged can be checked (Charge sensing), so in case of a failure the charge alarm is activated.

The PM04 will keep the alarm status. In this way the mechanic can establish the problem. Then the PM04 can be reset.

The PM04 is microprocessor controlled and can be (not free) reprogrammed with different settings.

The PM04 gets its supply from the measured batteries and does not need a separate power supply.

The PM04 has several potential free alarm contacts with which for example a GSM system could be switched on.

Instelling

- Switch the dipswitches 1,2 en 3 to ON with 24V system and OFF at a 48V system. In case of Charge Sensing dipswitch 4 has to be switched OFF.
- First connect the Minus, next the centre connection and finally the Plus connection via a 1A fuse.
- There are 2 options for adjustment of the PM04
- Option 1
 - This option can be used to measure the total deviance of the battery voltage. In this case the
 potentiometer P1 has to be adjusted to the desired maximum voltage deviation. The dial has a range
 from 0 to 3V.
 - ATTENTION! If P1 is adjusted to 0V, the PM04 will not give an alarm.
 - Example. If 1V deviation is allowed, set P1 between to 0.75 and 1.5.
 - Leave P2 to factory settings. This is on exact balance. The PM04 expects the batteries to be exactly equal in this way.
 - The LED's minus and plus side are off.

Option 2

- Set P1 to 0.
- Adjust P2 so the difference in battery voltage is gone. If the LED's for minus and plus side are off you
 have reached the correct setting.
- Adjust P1 to the value of deviance that is allowed to exist.
- ATTENTION! If P1 is set to 0V, the PM04 will not give an alarm.
- Now the batteries are balanced in the PM04. But in this way it is possible that the minus side battery is eg 12.5V and the plus side battery 13.5V. At the start the difference of 1V is set with P2. If P2 is higher than 3 or lower than -3 the voltage difference will be higher than 1V.

The dial of P1 goes from 0-3V. This is for a 24V system. When using a 48V system the values are doubled to 0-6V. The PM04/3 has 2 push buttons. The first (between the connectors) is for resetting the alarm. Under the cover is the second switch with which the alarm can be set to one of the relays programs. There are 4 types of alarm:

- 1. Voltage difference in the battery. (1 buzz)
- 2. Battery voltage too high. (2 buzz)
- 3. Battery voltage too low. (3 buzz)
- 4. Charge alarm (if charger is present). (4 buzz)

For the use of Charger sensing the charger has to be connected as shown in fig.1.

Battery voltage too high or too low is for the complete battery string.

There is a choice out of 4 programs. To program you have to push and hold the PROG button. The red PLUS SIDE LED will blink. The number of blinks says in what program it is. Release the button when the desired program is reached. The program number is repeated by the LED as confirmation.

As shown in the table below relay K1 will be used in all alarms in the standard program Prog.1. In Prog.4 the alarms are divided under the relay outputs.

Pos.	Relais K1	Relais K2	Relais K3
Prog.1	Reacts to all errors Error -> relay = ON	No action	No action
Start condition	.00	.00	.00
Prog.2	No action	Only deviance alarms Error -> relay = off	No action
Start condition	./	./	.00
Prog.3	Voltage difference Error -> relay = ON	All other errors Error -> relay = on	No action
Start condition	.00	.00	.00
Prog.4	Voltage difference & failure Error -> relay = ON	Voltage to high or to low Error -> relay = on	Charger error Error -> relay = on
Start condition	.00	.00	.00

lechnical informat	lion		
Input voltage		20-60V	
Current usage		9mA - Alarm OFF (24 3mA - Alarm ON (24	V) V)
LED's		1 Power (yellow) 2 Alarm (red)	
Switch contact alarm		30V/1A	
		24V system	48V system
Adjustment range	P1	0-3V	0-6V
	P2	+/- 3V	+/-6V
Measurement range		30V max	60V max
String alarm		< 21V of > 29V	< 42V of > 58V
Low voltage alarm		21V	42V
Over voltage alarm		29V	58V
Charge Sense alarm		< 2V	
Alarm delay		30 seconds	
Temperature range		-10 - +70 °C	
Weight		~ 85 gr.	
Measurements		90/100/35 mm (L/B/H)	Powerroopitor 0

#:+

2 pcs. M3



Casing

Mounting

