

# ENERGIC Plus

## NOTES

### BATTERY CHARGER

#### MVD MVX

(former/creation battery)

#### MVD-F MVX-F



## USER'S MANUAL

v.170 January 2011

# 1. START to CHARGING

**1 – Connect the battery to the charger, the display shows:**

BATTERY  
CONNECTED

22.6 V FL 500 Ah  
EL= 12 PROG.1

if the operator doesn't touch button every 15 secs the display shows:

Prss ENTER->to PROG  
PrssUP&DOWN->toCharg

this means that if the operator press for 2 secs ENTER, the operator can change the value

22.6 V  FL 500 Ah  
EL= 12 PROG.1

The cursor lamps, at the value that the operator can change.

FL – battery type

500 Ah – amperehour of the battery

EL=12 – Number of elements

PROG.1 – Specific curve of charging.

The operator uses button UP and DOWN to change these values, for example the operator knows that there are 11 elements.

22.6 V FL 500 Ah  
EL=  11 PROG.1

And the operator can change the specific program charging curve .

22.6 V FL 500 Ah  
EL= 11 PROG.2

## 2 – Create new curve

Unplug the battery, or Turn OFF and Turn ON the charger without the battery connected. The display shows, the start up cycle or



BATTERY  
DISCONNECTED



SYSTEM READY  
MODEL / DATETIME ..

The operator press button DOWN few secs and he insert a password UP\_DW\_UP\_DW\_UP



EDIT PASSWORD



MOD. USER

In this menu the operator can turn with button UP and DOWN,



PRG N.01  
SETTING

\*\*\*\*\*



PRG N.08  
SETTING

If the operator want to change a existent curve or create a new curve.  
See PROGRAM EXAMPLES page 14 in specific .

## 2. SETTING CURVE

### **MENU PRG N. 1 – 8 (1-20 OPTIONAL) : PROGRAM SETTING CURVES**

For each program, it's possible set at maximum 6 different STEP, and for each step it's possible set the TYPE of STEP (current constant, voltage constant, pause cooling), MAXIMUM TIME of the single STEP (0-65350 minute), CURRENT (constant current or minimum limit current), VOLTAGE (maximum voltage or holding voltage).

For each program, the display shows this setup page:  
for example:

```
PRG N.XX
SETTING
```

Press ENTER to modify this particular program:

```
1.A    I=K    T= 240m
      I=18%Ah    V=2.40 V
```

#### **PROGRAM and STEP INDICATOR-settings**

1.A – 1(nr. of program [1..8..20]) A (step of the program [A.B.C.D.E.F])  
f.e 2.C (program nr.2 and step C (third))  
f.e 5.B (program nr.5 and step B (second))

#### **TYPE of CHARGING CURVES (Programmable values)**

I=K – [I=K] current constant  
[V=K] voltage constant  
[PAU] pause/cooling

#### **MAXIMUM TIME of the SINGLE STEP (Programmable values)**

T= 240m [DIS,5,..,65350] - 240minutes after this time the charger close the actual step and will begin the next step.

#### **CURRENT SETTING/LIMIT (Programmable values)**

I=18%Ah [DIS,1,..,99] – for every 100 Ah of the battery capacity the charger put 18 Amps.  
If you have a battery of 500 Ah → 18%Ah = 18 \* 5 = 90 Ampere  
If you have a battery of 750 Ah → 25%Ah = 25 \* 7.5 = 187.5 Ampere  
If you have a battery of 1100 Ah → 10%Ah = 10 \* 11 = 110 Ampere  
In TYPE of CHARGING CURVES → (I=K) I value is the current constant during this step  
In TYPE of CHARGING CURVES → (V=K) I value is the minimum limit of current before to end this step of program.

#### **VOLTAGE SETTING/LIMIT (Programmable values)**

V=2.40 [DIS,2.20,..,2.80] V/Cell – limit voltage for single elements.  
In TYPE of CHARGING CURVES → (I=K) V value is the maximum limit of battery voltage before to end this step of program.  
In TYPE of CHARGING CURVES → (V=K) V value, the charger compensation the current to hold voltage value.

It's possible to scroll between each programs using the buttons UP/DOWN, and press ENTER to modify or skip each single parameter.

**Name: Standard Iula – with Initial Free Voltage WarmUp**

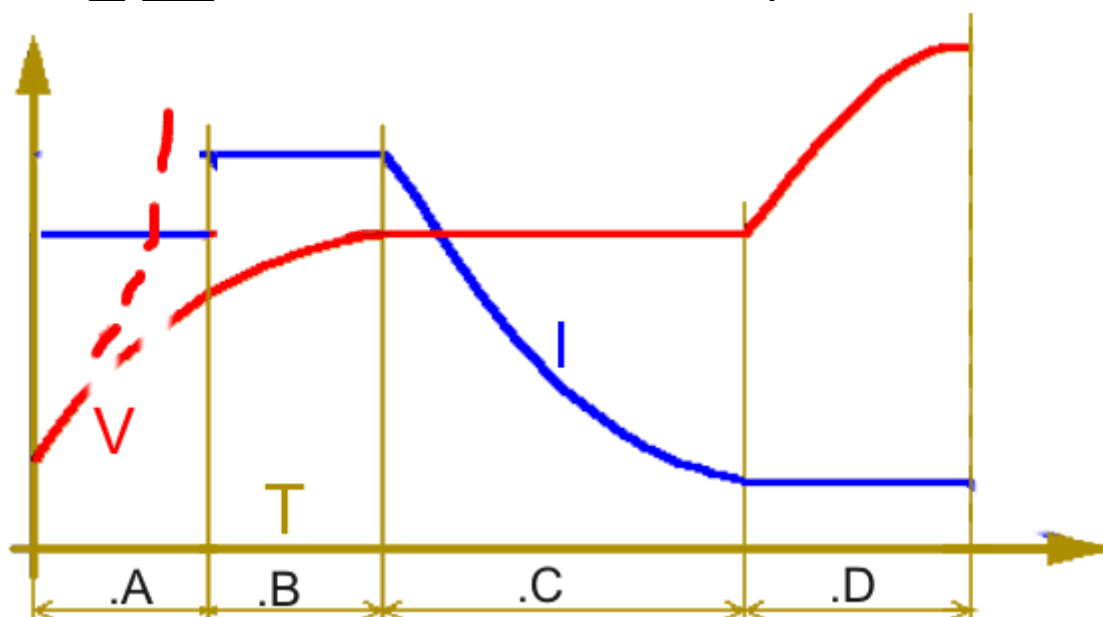
**Description: Initial free voltage and low current step**

**Comments: Low Desulphated Battery, .., Standard battery**

**Program. Nr: \_\_1\_\_**

**DateTime: 01/01/2010**

**Operator: MANUFACTURER**



**notes:**

pr.A I=K T=20 min  
I=4%Ah V=DIS.

pr.B I=K T=220 min  
I=16%Ah V=2.40V/el

pr.C V=K T=480 min  
I=5%Ah V=2.40V/el

pr.D I=K T=180 min  
I=5%Ah V=2.65V/el

**Extra charging limited at 2.65 V/el**

pr.E . T= .  
I= . V= .

pr.F . T= .  
I= . V= .

**notes:**

**Name: Standard Iula**

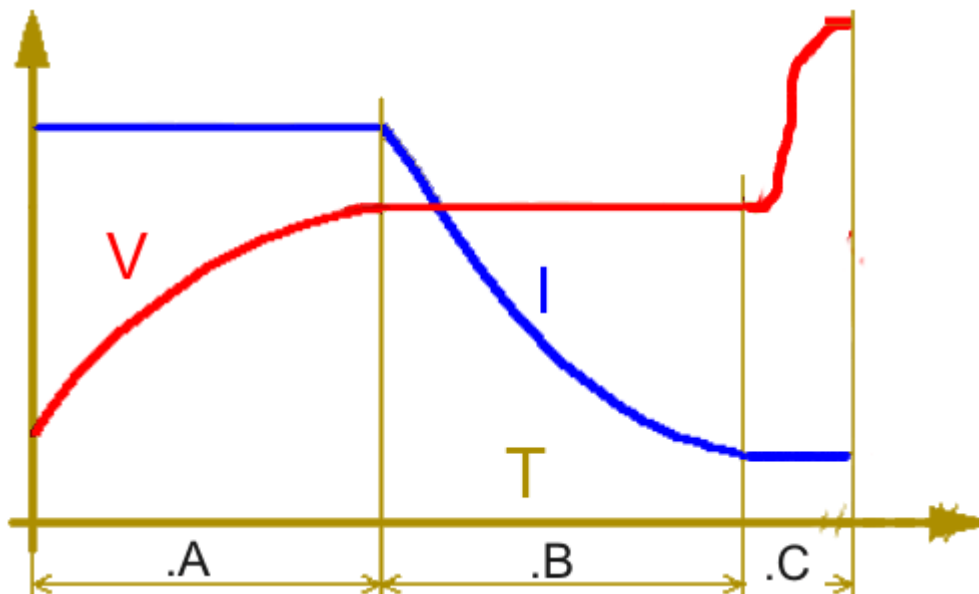
**Description:**

**Comments: Standard battery**

**Program. Nr: \_\_2\_\_**

**DateTime: 01/01/2010**

**Operator: MANUFACTURER**



**notes:**

pr.A I=K T=240 min  
I=16%Ah V=2.40V/el

pr.B V=K T=480 min  
I=5%Ah V=2.40V/el

pr.C I=K T=180 min  
I=5%Ah V=2.65V/el

**Extra charging limited at 2.65 V/el**

pr.D . T=  
I= . V= .

pr.E . T=  
I= . V= .

pr.F . T=  
I= . V= .

**notes:**

**Name: Initial Free Voltage WarmUp + Standard lula + Refresh**

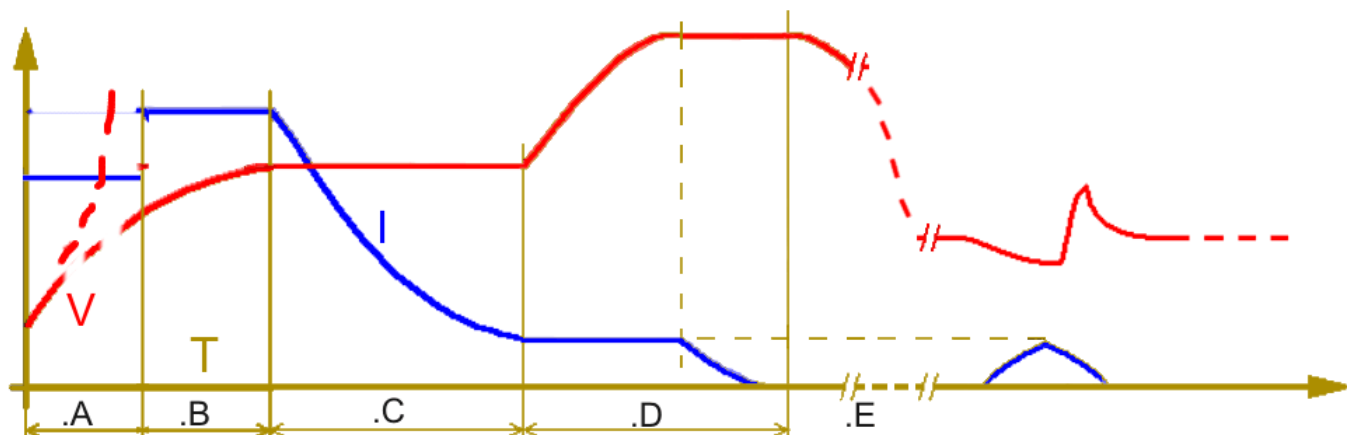
**Description:**

**Comments: Standard battery**

**Program. Nr: \_\_3\_\_**

**DateTime: 01/01/2010**

**Operator: MANUFACTURER**



**notes:**

pr.A I=K T=20 min  
I=4%Ah V=DIS.

pr.B I=K T=220 min  
I=16%Ah V=2.40V/el

pr.C V=K T=480 min  
I=5%Ah V=2.40V/el

pr.D I=K T=180 min  
I=5%Ah V=2.65V/el

**Extra charging limited at 2.65 V/el**

pr.E V=K T=FULL  
I=DIS V=2.25V/el

**Refresh at 2.25 V/el**

pr.F . T=  
I= . V=

**notes:**

**Name: SOFT Desulphation**

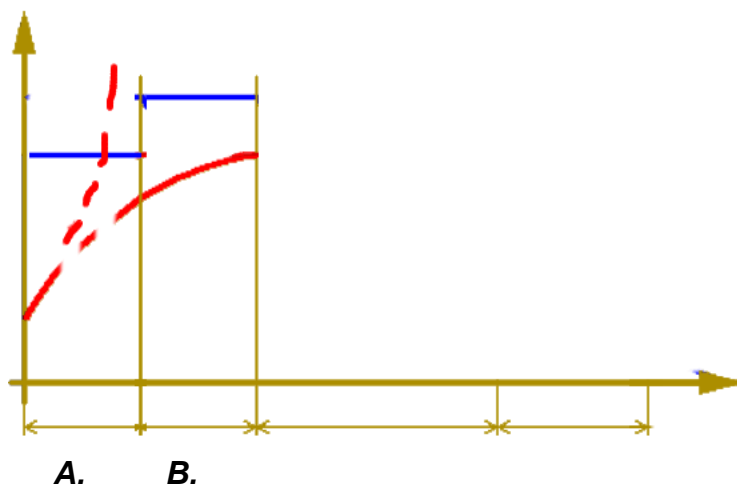
**Description:** \_\_\_\_\_

**Comments:**

**Program. Nr: 4**

**DateTime: 01/05/2012**

**Operator: MANUFACTURER**



**notes:**

pr.A	I=K	T=360 min
	I=4%Ah	V=DIS

pr.B	I=K	T=360 min
	I=6%Ah	V=2.8V/el

pr.C	.	T=
I=	.	V=

pr.D	.	T=
I=	.	V=

pr.E	.	T=	.
I=	.	V=	.

pr.F	.	T=	.
I=	.	V=	.

**notes:**

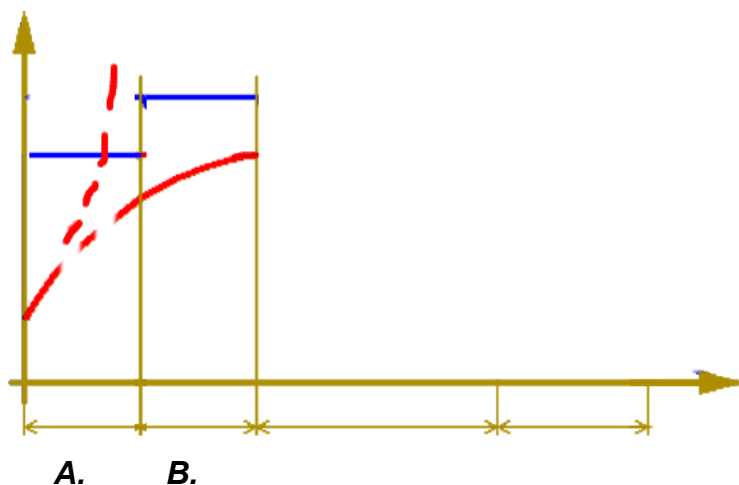
In case that the battery is very sulphated, you need also set the parameter:

MAX VOLTAGE
2.80 V/el

----->

MAX VOLTAGE
DISABLED



**Name: MEDIUM Desulphation****Description:** \_\_\_\_\_**Comments:****Program. Nr:**   5  **DateTime:** 01/05/2012**Operator:** MANUFACTURER**notes:**

pr.A	I=K	T=360 min
	I=4%Ah	V=DIS

pr.B	I=K	T=720 min
	I=6%Ah	V=2.8V/el

pr.C	.	T=
I=	.	V=

pr.D	.	T=
I=	.	V=

pr.E	.	T=	.
I=	.	V=	.

pr.F	.	T=	.
I=	.	V=	.

**notes:**

In case that the battery is very sulphated, you need also set the parameter:

MAX VOLTAGE
2.80 V/el

-----&gt;

MAX VOLTAGE
DISABLED

**Name: HARD Desulphation**

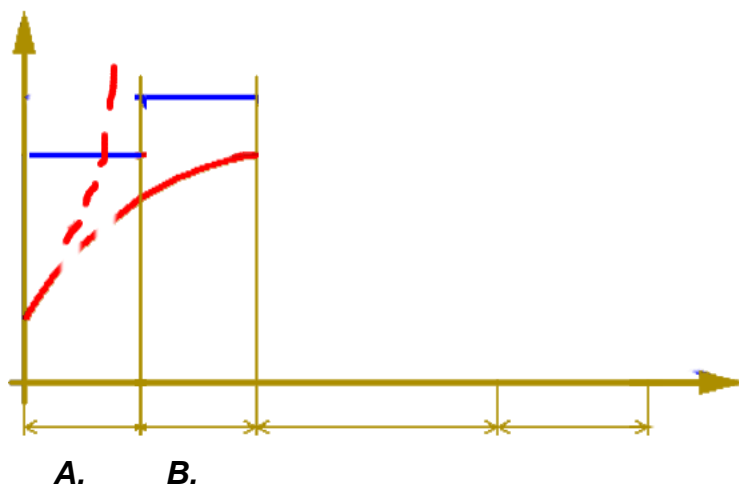
**Description:** \_\_\_\_\_

**Comments:**

**Program. Nr:**   6  

**DateTime:** 01/05/2012

**Operator:** MANUFACTURER



**notes:**

pr.A	I=K	T=360 min
	I=4%Ah	V=DIS

pr.B	I=K	T=1080 min
	I=6%Ah	V=2.8V/el

pr.C	.	T=
I=	.	V=

pr.D	.	T=
I=	.	V=

pr.E	.	T=	.
I=	.	V=	.

pr.F	.	T=	.
I=	.	V=	.

**notes:**

In case that the battery is very sulphated, you need also set the parameter:

MAX VOLTAGE  
2.80 V/el



MAX VOLTAGE  
DISABLED

**Name: MEDIUM Desulphation + Cooling + Standard Charging**

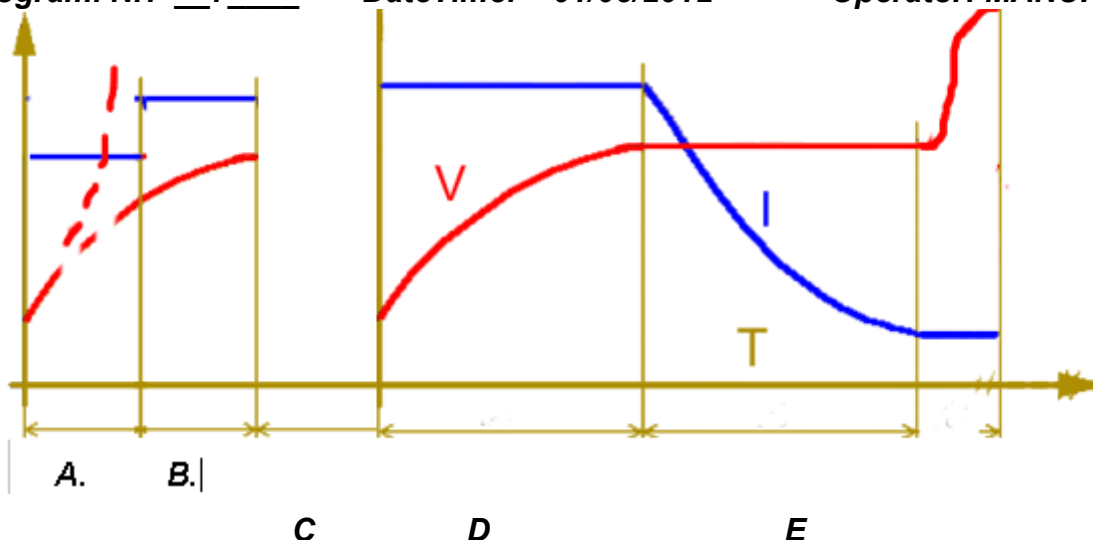
**Description:** \_\_\_\_\_

**Comments:**

**Program. Nr: 7**

**DateTime: 01/05/2012**

**Operator: MANUFACTURER**



**notes:**

pr.A I=K T=360 min  
I=4%Ah V=DIS

pr.B I=K T=720 min  
I=6%Ah V=2.8V/el

pr.C PAU T=240 min  
I=DIS V=DIS

pr.D I=K T=220 min  
I=15%Ah V=2.4V/el

pr.E V=K T=240 min  
I=5%Ah V=2.4V/el

pr.F . T= .  
I= . V= .

**cooling\_4 hours**

**notes:**

In case that the battery is very sulphated, you need also set the parameter:

MAX VOLTAGE  
2.80 V/el

----->

MAX VOLTAGE  
DISABLED

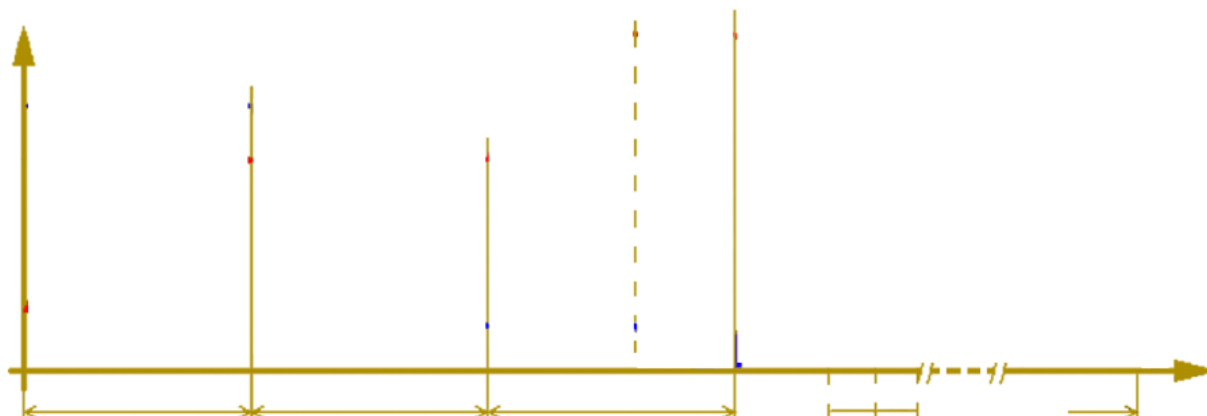
**NOTES:**

Name: \_\_\_\_\_

Description: \_\_\_\_\_

Comments: \_\_\_\_\_

Program. Nr: \_\_\_\_\_ DateTime: \_\_\_\_\_ Operator: \_\_\_\_\_

**notes:**

pr.A	.	T=	.
I=	.	V=	.

pr.B	.	T=	.
I=	.	V=	.

pr.C	.	T=	.
I=	.	V=	.

pr.D	.	T=	.
I=	.	V=	.

pr.E	.	T=	.
I=	.	V=	.

pr.F	.	T=	.
I=	.	V=	.

**notes:**

---

---

---

---

---

---

---