Model 9035 - Battery Charger/UPS

Introduction

Option 9035, Battery Charger/UPS has the following main functions:

- Is used as an reserve power system in EXOflex together with Main Power PIFA EP1011 and two external 12 volt lead accumulators connected in series.
- Power supplies one or more EXOflex units for continuous operation even after failure in the Main power supply.
- Temperature compensated battery-charging regulator for optimum life span of the battery.
- Automatic disconnection of the battery at low battery voltage, which prevents the battery from being damaged.
- LED indication via EP1011, and status indication in EXOreal variables of battery failure, low battery voltage, and interruptions in the main power.
- Is connected to an external, sealed, lead acid battery, of arbitrary size, see below.

Specifications

Power Supply

Powered via EP1011.

Requires that an EP1011 is connected to a power supply with generating 20-30 V.

Internal power consumption

5 V ..... 140 mA
12 V ..... 10 mA
-12 V ..... 10 mA

Other parameters

Charging voltage ..... temperature compensated, 26,5-28,5 V
Temperature compensation, interval ..... 0-50 C
Charging current ..... max 0,3 A
Max current outtake on +C on EP1011 ..... 24VDC, internally fused to 3 A
The battery is disconnected when the battery voltage reaches ..... 20 V
Indication of low battery voltage ..... < 22 V

Battery

type ..... 2 12 V lead accumulators connected in series
recommended type ..... sealed lead acid
capacity ..... 1,2-24 Ah
recommended capacity, price/performance ..... 7 Ah

Hard- and software requirements

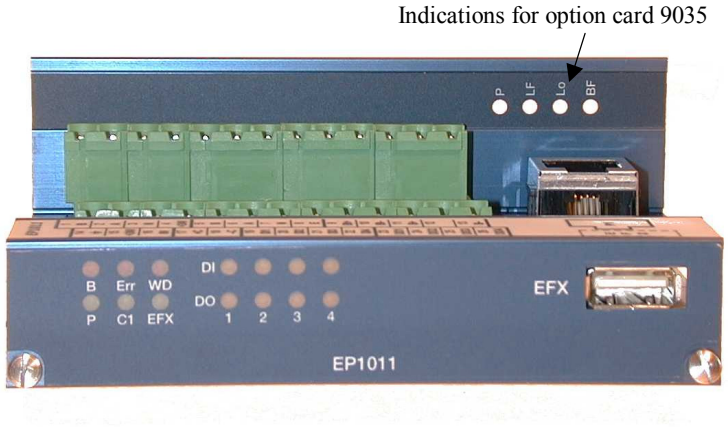
EP1011 ..... 174-0125-05 or later
Base circuit board, one section ..... 234-0010-01 or later
Base circuit board, two sections ..... 234-0020-01 or later
Base circuit board, three sections ..... 234-0030-01 or later
Base circuit board, four sections ..... 234-0040-01 or later
EXOreal ..... 2.8-1-13 or later

Function

Gives continuous power supply to all internal electronics, mounted in the same housing as Option 9035, and normally is powered by EP1011. Other option cards and the internal parts of all the PIFA units in the housing will thus be powered by the battery in case of a failure in the Main power supply. PIFA units, other modules and expansion units that are to be served by the reserve power system are connected to "+C" on EP1011.

Temperature compensation of the charging voltage is either made with an internally or externally connected thermistor. If the battery is placed in the same cabinet as Option 9035, there is normally no need for using the external thermistor. The external thermistor is available as an option.

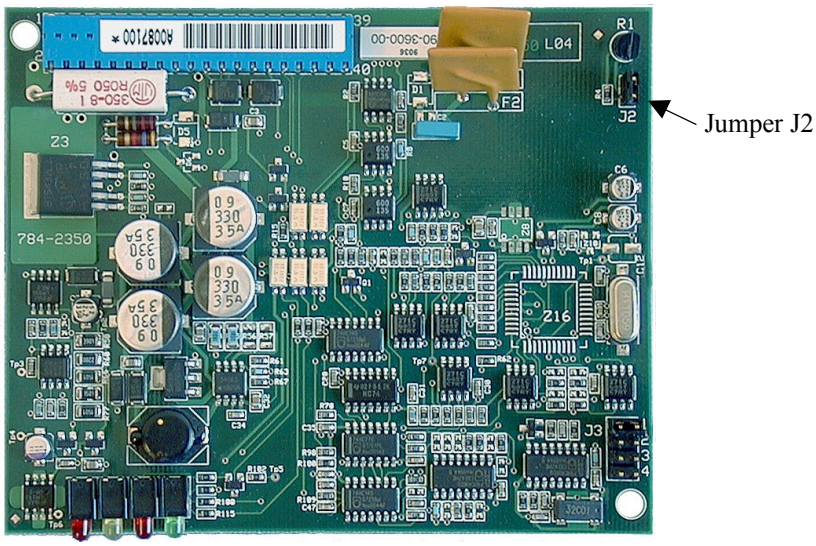
Figur 2. Statusindication for Option 9035 in the EP1011 panel



LED indication	Function
P	Normal function
LF	Main power supply down, Line Failure
Lo	Low battery voltage, Low Battery
BF	Battery malfunction, Battery Failure

Battery malfunction, Battery Failure

Figur 3. 9035 with jumper J2 for choosing internal or external battery temperature measuring.



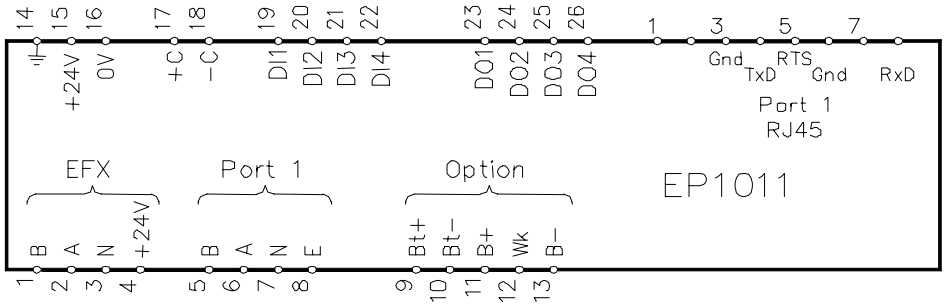
For instructions on how to put Option 9035 in and out, see ***Chapter 26 Installing Processors and Option Cards***.

Jumper J2 is mounted on delivery. This causes the internal battery charging voltage is temperature compensated with the internal thermistor. If one instead wishes to use the external thermistor terminal, jumper J2 must be removed. The external thermistor is connected as described below.

Connections and Wiring

Since a battery is a current source with low resistance and possibilities for extreme current output, both battery connection cables should be fitted with suitable fuse holders and fuses according to the maximum needed current output.

Figur 4. Battery connection for EP1011.



The positive 24 V pole on the battery is connected to terminal 11 (B+). The negative pole on the battery is connected to terminal 13 (B-).

An external thermistor (option) for exact measurements of the battery temperature for charging voltage regulation is connected to Bt+ and Bt-. The polarity of the thermistor holds no significance. It is recommended that the thermistor is attached to side of the battery with a long-term stable adhesive tape. External modules and units that are to be served by the reserve power setup, are connected to C+, from where they are powered without interruptions.

Maintenance and Service

Normally, no maintenance of Option 9035 is necessary. Changing the lead accumulator should however be a planned activity and in accordance with the manufacturer's recommendations.

Option 9035 has built-in protection for some types of erroneous connection. If you for example by mistake change the polarity, the built-in protection in Option 9035 will be activated and prevent a current rush. When the over-current protection for some reason has been activated, at least one of the battery poles must be disconnected for a short while. After removing the external cause for the error, the battery can be connected again.

If you use an external thermistor, you can check its operation by measuring the DC voltage between Bt+ and Bt-. This should be somewhere between 0.85-1.2 V if the battery temperature is 0-50ºC. At a battery temperature of 25ºC the voltage is approximately 1.0 V.

EXOreal and Option 9035

See section ***External Battery (Option 9035)*** on page 58.