APR48 Programmer Quick Start Guide

Firmware Version 2.n

The APR48 programmer can be used to read out, modify and save key operating parameter of an EATON APR48-3G power supply unit.

The programmer is connected to a PC via a COM interface. Any terminal program, e.g. PUTTY, is suitable for operation. No special software is required on the PC.

Disclaimer

Changes to the operating parameter of the power supply unit are at your own risk!

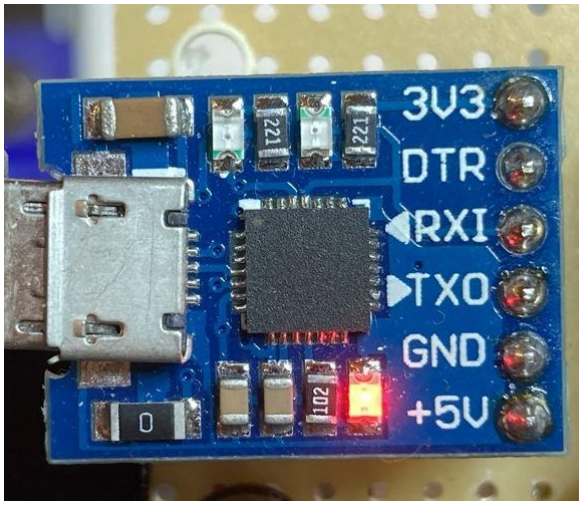
I accept no liability for damage caused by the use of the programmer!

Start

The programmer is normally connected to a PC via a CP2102 USB to USART TTL module. This is also used to power the programmer.

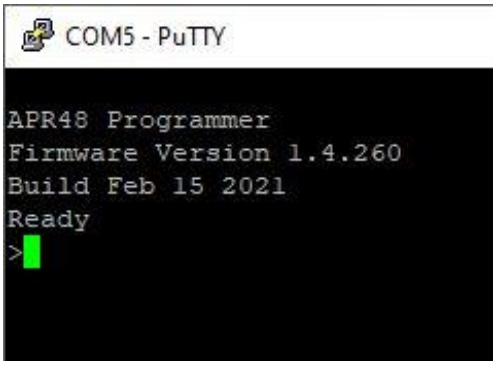
The programmer's data interface is set to 38400Bd, 8N1. The terminal program used must be configured accordingly.

The CP2102 VCP driver may need to be installed on the PC.
https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers



The connection is established by entering **#** on the terminal. The programmer responds with READY.

If EEPROM data is already stored in the programmer, a corresponding message is displayed at this point.



APR48 Programmer Quick Start Guide

Firmware Version 2.n

Operating

The following commands are available:

A - About Programmer
H - Help (this List)
E - Enter Programming Mode
R - Read APR48 EEPROM
L - List Parameter
U - Alter Output Voltage
U nn.mm
U nn.m
U nn
I - Alter Current Limit
I nn.mm
I nn.m
I nn
I n
W - Write APR48 EEPROM
S - Save APR48 EEPROM Data
T - Take (Restore) saved EEPROM Data
C - Clear saved EEPROM Data
X - Exit Programming Mode

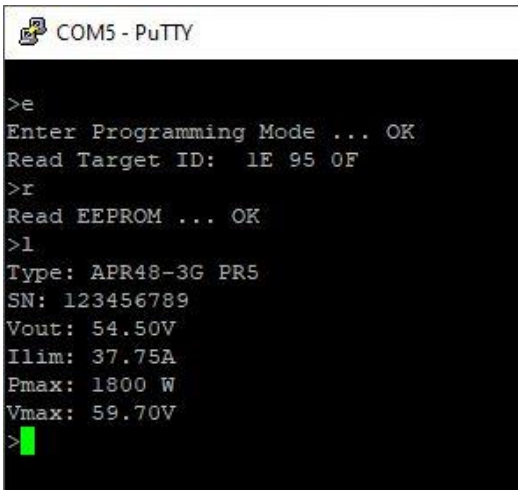
All commands are executed with **RETURN**.

The operating parameter of the power supply unit are stored in the EEPROM of the power supply controller. To gain access to them, the controller must be set to programming mode. In this mode, it is not possible to process the control program of the power supply unit.

The power supply unit must be disconnected from the mains before using the programmer!

After initiating programming mode with **E**, the parameters are read out with **R** and can be displayed at any time with **L**.

After reading out the unchanged data from the power supply unit for the first time, it is recommended to save them permanently in the programmer with **S**. (see below)

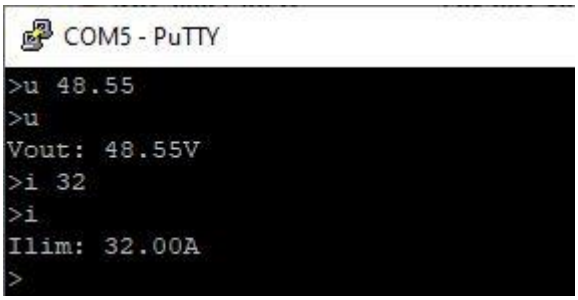


APR48 Programmer Quick Start Guide

Firmware Version 2.n

Modify Parameter

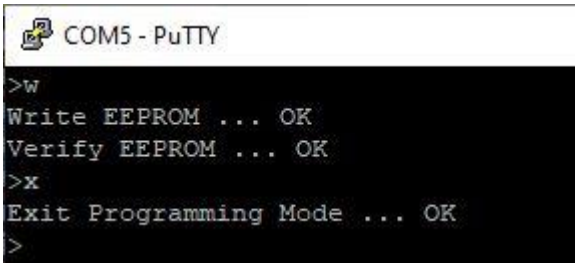
With the commands **U** or **I** the parameters for the output voltage or the current limitation of the PS can be changed.



Apart from a formal format check, there is no further plausibility check of the entered values! It is the user's responsibility to ensure that the values entered are meaningful and undangerous!

Once all the desired changes have been made, they can be transferred to the EEPROM of the PS using **W**. This process may take a few seconds.

Exit from the programming mode with **X**.



The power supply can now be turned back on.

With the command **S**, a parameter set previously read from the PS can be stored permanently in the programmer. This can be used, for example, to preserve the original state of the power supply data. (**Recommended!**)

The **T** command can be used to reactivate the saved record. The data can then be edited and saved back to the PS in the same way as data read with **R**. The command **C** discards the data in the programmer.

Due to space limitations, only one data set can be stored. Re-saving overwrites the previous data without prompting!

Operating Indications

Red LED	lights up when programmer is powered.	
Green LED	flashes every 3 seconds.	Sleep mode, programmer waits for terminal
	flashes every 1200 mSec	Active, connected to terminal
	flashes every 600 mSec	Programming mode active
	flashes every 300 mSec	Access to NT Active, Read, Write or Verify

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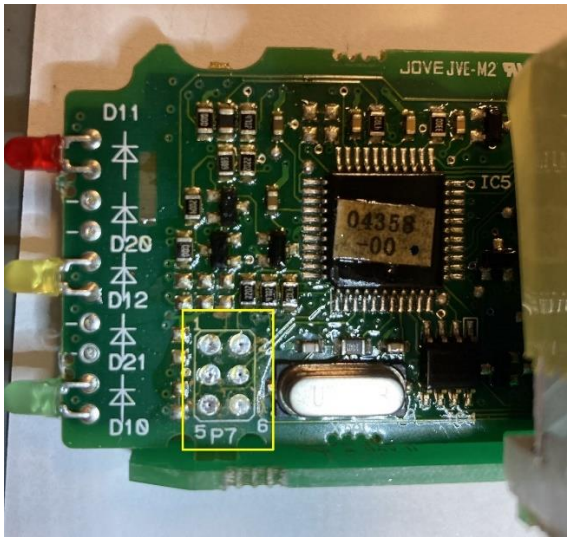
Firmware Version 2.n

Access to the PS programming interface

The programming interface is located on the control unit of the NT. To gain access, the power supply must be opened and the electronics removed. Information on this can be found on my website .

The programming interface complies with the AVR-ISP specification of ATMEL (now Microchip).

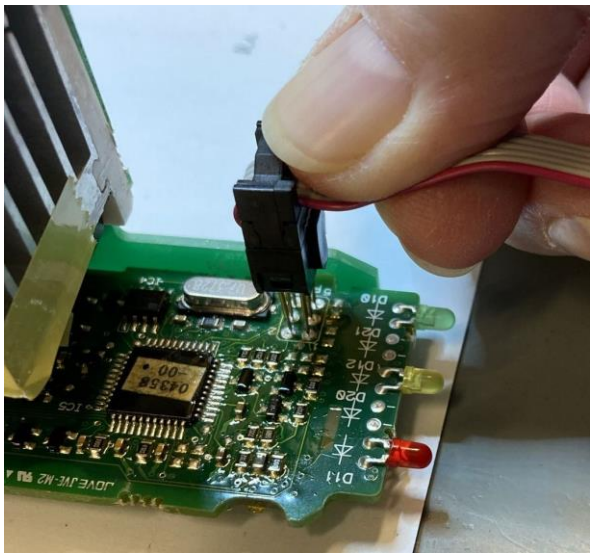


The ISP Connector is designed to be contacted with a spring needle adapter (Flying-Probe).

Alternatively, you could of course solder wires to the six contact points and move the ISP connection outside.

The six contact points may be covered with a layer of varnish that must be removed before use.

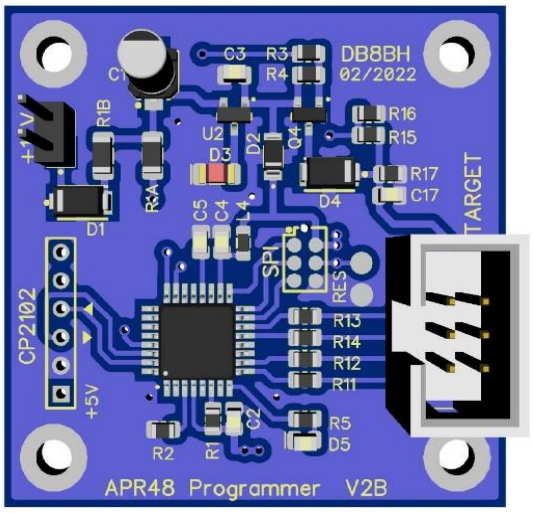
Contact between NT and programmer must be uninterrupted as long as the programming mode is active!



Interruption of the connection during writing can lead to damage to the power supply !!

The cable to the ISP connector of the power supply is connected to the target interface of the programmer.

This is available as 6 pol box header designed in 2.54mm increment.



This guide to the APR48 Programmer was written by me, Hartmut Krowka, DB8BH, and published on the website https://db8bh.ddns.net .

The manual describes how to use the programmer I developed for the APR48-3G power supply from EATON.