DPM86xx Series Power Supply Simple Communication Protocol

Autor and Version

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Overview

The power supplies of the DPM86xx series provide two different communication protocols: One is the classical modbus protocol, one is the so-called “Simple Communication Protocol”. This paper describes the “Simple Communication Protocol” as far as it is possible for me. All information is based on various documents from the internet and some reverse engineering (Human, you should be really careful! You are using a random document from the internet which is based on random sources from the internet… Ugly, ugly, ugly!).
However! Corrections welcome. This document is “work in progress”. Please watch out for the latest version. Feel free to contribute any improvements. Don’t rely on any of the information presented in this document. You have been warned. :-)

Write command format

start symbol	address code	function type	function number	equal symbol	value	feedback	end code
:	01~99	w	00~99	=	0~65535	,/.	\r\n

1. Each command starts with a ‘:’.
2. The address code is the local address of the power supply. The valid range is between 01 and 99. For the specific setting operation, please refer to the manual. The command is sent by the PC, and the machine analyses and executes, when the address code is the same, the result is returned to the PC. When the address code is different, no information is returned. This is very suitable for the centralized control of multiple machines.
3. The function type is ‘w’ indicating a write access.
4. The function number is the number of a specific function (see table below).
5. The character “=” separates the function number from the value.
6. The value is the value which will be written to the specified function.
7. Comma: Each operand is distinguished by ",". WRONG!
8. End code: The end of a command is ‘\r\n’, this is actually a return character, and a newline character in ASCII, hexadecimal representation is 0x0d, 0x0a.

function number	description	format	example	explanation
10	set output voltage (V)	w10=VVvv,	:01w10=1234,\r\n	Output set to 12.34V
11	set output current (A)	w11=Cccc,	:01w11=1234,\r\n	Output set to 1.234A
12	turn output on/off	w12=b,	:01w12=1,\r\n	Turn output on.
20	set output voltage (V) and current (A)	w20=VVvv,Cccc,	:01w20=1234,1234,\r\n	Output set to 12.34V and 1.234A

32	set CC or CV status	w32=b,	:01w32=0, :01w32=1,	Constant voltage Constant current

Read command format

start symbol	address code	function type	function number	equal symbol	additional functions to read	feedback	end code
:	01~99	r	00~99	=	0~99	, or .	\r\n

1. Identical to “write command”.
2. Identical to “write command”.
3. The function code ‘r’, indicating a reading access.
4. Identical to “write command” (see table below).
5. The character “=” separates the function number from the number of additional functions to read.
6. One or more consecutive functions can be read with a single read command. The field “additional functions to read” indicates how many additional functions will be read. The value ‘00’ indicates, that only the function ‘function number’ will be read. A value of 01 and above will read the function ‘function number’ and the specified number of consecutive functions.
7. The “feedback field indicates if the power supply should return the feedback immediately (“.”) or if the feedback should be queued until a read command with the feedback field “.” shows up.
8. End code: The end of a command is ‘\r\n’, this is actually a return character, and a newline character in ASCII, hexadecimal representation is 0x0d, 0x0a.

function number	description	return value	explanation/example
00	read max output voltage (V)	:01r00=VVvv.	:01r00=6000. (60V)
01	read max output current (A)	:01r01=Aaaa. or :01r01=AAaaa.	:01r00=5000, (5A – device is a DPM-8605) :01r00=000, (5A – device is a DPM-8608) :01r00=16000, (5A – device is a DPM-8616) :01r01=24000. (24A – device is a DPM 8624)
02	***unknown***	:01r02=8.	:01r02=8.
03	***unknown***	:01r03=11.	:01r03=11.
10	read output voltage setpoint	:01r10=VVvv.	:01r10=1234. (12.34V)
11	read output current setpoint	:01r11=Aaaa.	:01r11=1234. (1.234A)
12	read output status	:01r12=b.	:01r12=0, (output is off) :01r12=1, (output is on)
30	read current output voltage	:01r30=VVvv.	:01r30=1234, (12.34V)
31	read current output current	:01r31=Aaaa.	:01r31=1234 ,(1.234A)
32	read CC or CV status	:01r32=b.	:01r32=0, (constant voltage) :01r32=1, (constant current)

33	read temperature	:01r33=TT.	:01r33=29, (temperature is 29°C)
34	***unknown***, current?	:01r34=nnnnn	:01r34=23552.
35	***unknown***, current?	:01r35=nnnnn	:01r35=18647.
36	***unknown***, current?	:01r36=nnnnn	:01r36=23561.
37	***unknown***, current?	:01r37=nnnnn	:01r37=18653.
50	***unknown***, voltage?	:01r50=nnnn	:01r50=1529. (längere Zeit konst)
51	***unknown***, voltage?	:01r51=nnnn	:01r51=4486. (längere Zeit konst)
52	***unknown***, voltage?	:01r52=nnnn	:01r52=1612.
53	***unknown***, voltage?	:01r53=nnnn	:01r53=4133.
54	***unknown***, voltage?	:01r54=nnnn	:01r54=2111.
55	***unknown***, voltage?	:01r55=nnnn	:01r55=3911.
56	***unknown***, voltage?	:01r56=nnnn	:01r56=2206.
57	***unknown***, voltage?	:01r57=nnnn	:01r57=5049.
71	***unknown***	:01r34=nnnnnn	:01r71=155073.
72	***unknown***	:01r35=nnnnnn	:01r72=584824.