

XP Terminal (Demo-Software)

Power Supply Device Software Manual

Operating instructions

(Translated from German)

Version 1.0

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1.Introduction

The XP Terminal offers our customer an easy way to communicate with our power supplies via USB, Ethernet, Profibus und IEEE488 without having to develop their own software. First and foremost, it should enable a quicker introduction to test the command set of our devices or to use their full range of functions.

2. Safety

These operating instructions refer exclusively to the XP Terminal software. Detailed operating instructions are supplied with every DC power supply from XP Power FuG. Commissioning and working on this DC power supply is only permitted if you belong to the target group mentioned and have read the operating instructions completely and carefully.

DANGER

Incorrect handling can result in death or serious injury!

3. Test the connection with the XP Terminal

The XP demo terminal program can be used to test the connection to the power supply unit. This can be downloaded under the Resources tab on each XP Power FuG high voltage product page.



4. GUI

4.1. Connection

To communicate with an XP Power supply unit there has to be a working connection to the device. The following interfaces are supported:

- RS232
- USB
- Ethernet
- Profibus
- IEEE 488

Connection options depend on the chosen interface. Example Ethernet:

XP xpterm v1.0.17.12 File Help			-
Connection Control Control RS252 USB © Ethernet Profibus IEEE 483	Timed Log Settings Contact	Connect Disconnect Refresh	XP Power (4)
		× .	~
			Send
			disconnected 🖉 🧭 🖉 TX RX MPowerLine

Figure 1 GUI part 1

- 1. Interface selection.
- 2. Connection settings depending on the chosen interface.
- **3.** Connect to, disconnect from, or look for new devices.
- 4. Company logo including a hyperlink to our homepage.



4.2 Input/Output

xpterm v1.0.17.12	- 🗆 X
Connection Control	Timed Log Settings Contact
O RS232	
O USB	Device IP: Port:
Ethernet	192.168.2.223 2101 Disconnect
O Profibus	Local IP: 192.168.0.99 V
IEEE 488	Refresh
	FUG Power Supply: MPowerLine V
0 >m0 ?	7
	(1) (2)
>m0 ? 3	Send
Connecting to LAN Host IP: 192.168.2.223	^
Host PORT: 2101 Connected	(5)
Connected to (Ethernet).	
	Connected to: 192.168.2.223 (port 2101) 🔗 🖉 🖉 TX RX MPowerLine
	Figure 2 GUI part 2

1. List of sent commands (up to a thousand).

- 2. List of received commands (up to a thousand).
- 3. Command line input.
- 4. Transmits the command to the connected interface.
- 5. Debug window showing notifications.
- 6. Notification panel showing connection status and running timers.



5. Types of interfaces

5.1 RS232

File Help	
Connection Control Timed Log Settings Contact	
R S232 US8 COM port: COM baud rate: COMs 9600 Data bits: Party: Stop bits: Flow control: Profbus IEEE 488 FuG Power Supply: MPowerLine	P Power
	~
	Send
	×

Figure 3 RS232

RS232 connection options:

- COM port.
- Baud rate (default value: 9600).
- Data bits/Parity/Stop bits/Flow control (default values: 8 NONE 1 NONE). To change these values, the advanced connection settings option in the settings tab, has to be enabled



5.2 USB

🗶 xpterm v1.0.17.12				- 🗆 X
File Help				
Connection Control	Timed Log Settings Contact			
 RS232 USB Ethernet Profibus IEEE 488 	USB port: FT232R USB UART (A104T7CV) V USB baud rate: 115200 V	Connect Disconnect Refresh	XP	Power
	FuG Power Supply: MPowerLine v	^	 	^
		· · · ·		Sand
USB port found: FT232R U	S8 UART (AI04T7CV)			Sera V
			disconnected 🖉 🦉	🖉 TX RX MPowerLine

Figure 4 USB

USB connection options:

- USB device.
- Baud rate (default value: 115200). To change this value the advanced connection settings option in the settings tab, has to be enabled.



5.3 Ethernet

xpterm v1.0.17.12		- 0 X
File Help		
Connection Control	Timed Log Settings Contact	
 RS232 USB Ethermet Profibus IEEE 488 	Device IP: Port: 192.168.2.223 2101 Local IP: 192.168.0.99 V	Connect Disconnect Refresh
	FuG Power Supply: MPowerLine v	
		Send
Connecting to LAN Host IP: 192.168.2.223 Local IP: 192.168.0.99 Host PORT: 2101		
		disconnected 🔗 🔗 🖉 TX RX MPowerLine

Figure 5 Ethernet

Ethernet connection options:

- IP address of the device.
- Local IP address (the list will show all recognized IPs).
- Port of the device (default value: 2101). To change this value the advanced connection settings option in the settings tab, has to be enabled.



5.4 Profibus

XP xpterm v1.0.17.12 File Help			- 0	×
Connection Control	Timed Log Settings Contact			
 RS232 USB Ethernet Profibus IEEE 488 	Board number: 0 \$ Master: Slave: • 0 • • • Master baud rate: • • • 150000 • • •	Connect Disconnect Refresh	XP Power	
	FuG Power Supply: MPowerLine V			<
USB port found: FT232R US	58 UART (AIOHTZCV)	× 11.	34	ad
			disconnected ⊘ ⊘ Ø TX RX MPowe	rLine

Figure 6 Profibus

Profibus connection options:

- Board number: Depends on your connecting adapter settings
- Master address: Depends on your connecting adapter settings
- Slave address: Has to be the same as the Profibus interface of the power supply (1 to 126)
- Master baud rate: Refers to the connection PC <-> Profibus adapter. This is not the baud rate of the ADDAT.



5.5 IEEE488

XP xpterm v1.0.17.12				- 🗆 X
File Help				
Connection Control	Timed Log Settings Contact			
 RS232 US8 Ethernet Profibus IEEE 488 	GPIB device found: Address: Address: ALL_SAD NO_SAD Primary: Secondary: 96 C FuG Power Supply: MPowerLine	Connect Disconnect Refresh	X	Power
		× ×		~
				Send
US8 port found: FT232R U	S8 UART (AL04T7CV)			~
			disconnected 🖉	🖉 Ø TX RX MPowerLine

Figure 7 IEEE488

IEEE 488 connection options:

- This interface only works with the National Instruments (NI) GPIB-USB converter.
- The connected device will be found automatically, the setting "manual address input" has no meaning for XP Power FuG standard devices.
- Remark: If no GPIB device appears in the list, it is possible to search again for GPIB devices connected to PC by clicking the "Refresh" button.



6. Control



Figure 8 Control

- 1. Start and pause automatic communication
- 2. Optional address mode.
- 3. Type value of the connected device. This value will be queried automatically from the software.
- 4. Set value that can be changed via slider, percentage buttons or custom value.
- 5. Settings for ramp control. Note that this is not supported by every device.
- 6. Display status information of the connected device.
- 7. Command line

NOTE

The XP Terminal is a demo program. For this reason, HV ON/OFF cannot be activated in the GUI. In the command line (7), corresponding commands can be entered and activated by the Send button.

The command reference in the appendix lists all the necessary information and the commands.



7. Timed functions

7.1 Periodic commands

XP xpterm v1.0.17	7.12				>	<
File Help						
Connection (Control Timed Log Settings Contact					
Timer: Timer (ms): Command:	1 100 € 100 €		3		XP Power	
246	>DLOC?	^	246	>DLOC:1		^
247	>CS0T?		247	>CS0T:5.000000E+04		
248	>CS1T?		248	>CS1T:2.000000E-02		
249	> \$0?		249	> S0:0.000000E+00		
250	>\$1?		250	>S1:0.00000E+00		
251	> S0A?		251	> S0A:0.000000E+00		
252	>S1A?		252	>S1A:0.000000E+00		
253	> M0?	~	253	>M0:2.355587E+00		~
					Send	
USB port found: F Connecting to LAN Host IP: 192.168. Local IP: 192.168. Host PORT: 2101 Connected Connected to (Eth	T222R USB UART (A104T7CV) L 2.223 0.99 emet).					~

Figure 9 Periodic sending

1. Periodic sending of single commands.

Start: The given command will be sent periodically, timings are set by the timer value in ms, to the connected interface. This timer will run until it is stopped.

2. Send commands from a given .txt file line by line.

Start: The content of the text panel on the right will be sent line by line. Between every sent line is a time delay defined in the Line delay panel. The contents of the text panel can be typed in manually or loaded from a text file. The Path button opens up a file selection dialog. The timer can be stopped at any time by clicking on the Stop button (Start will change to it after the timer is started). If the timer is started again its current line position will be reset. Example text files can be found in the installations subfolder /examples.

3. Editable text panel showing content from given .txt file.



7.2 Data logging

le Help					- 🗆 🗙
Connection	Control Timed Log Settings Contact				
File path:					- N//er
	Start Stop Open file				Jvvei
Elapsed t	time: 00:00:00				
			1		
		<u>^</u>	372	> DVB-0	
2	>DVR?		512	> D1100	
	> DVR? > DIR?		373	>DIR:0	
2	>DVR? >DIR? >DMAINS?		373 374	> DIR:0 > DMAINS:1	
2 8 8	>DVR? >DIR? >DMAINS? >DHWR?		373 374 375	>01R0 >DIR0 >DMAINS1 >DHWR0	
2 3 4 5	> DVR? > DIR? > DMAINS? > DHWR? > DLOC?		373 374 375 376	>DIR0 >DMAINS1 >DHWR0 >DLOC1	
2 3 4 5 6 7	 > DVR? > DIR? > DMAINS? > DH/WR? > DLOC? > CS0T? 		373 374 375 376 377	>DIR:0 >DMAINS:1 >DHWR:0 >DLOC:1 >CS0T:5.00000E+04	
2 3 4 5 6 7 8	 >DVR? >DIR? >DMAINS? >DH/WR? >DLOC? >CS0T? >CS1T? 		373 374 375 376 377 378	>DIR:0 >DMAINS:1 >DHWR:0 >DLOC:1 >CS0T:5.00000E+04 >CS1T:2.00000E-02	
2 3 4 5 6 7 8 9	 >DVR? >DIR? >DMAINS? >DHWR? >DLOC? >CS0T? >CS1T? >S0? 		373 374 375 376 377 378 379	> DIR:0 > DIR:0 > DHWR:0 > DLOC:1 > CS0T:5.00000E+04 > CS1T:2.00000E+02 > S0:0.00000E+00	
2 3 4 5 6 7 8 9	 >DVR? >DVR1 >DMAINS? >DHAWR? >DLOC? >CS0T? >CS1T? >S0? 		373 374 375 376 377 378 379	> DIR:0 > DMAINS:1 > DHWR:0 > DLOC:1 > CST5.000000E+04 > CST12.00000E+02 > S0:0.00000E+00	Send
2 3 4 5 6 6 7 8 9 9	 > DVR? > DIMAINS? > DHMAINS? > DLOC? > CS1T? > CS1T? > CS1T? 	~	373 374 375 376 377 378 379	> DIR:0 > DMAINS:1 > DHWR:0 > DLOC:1 > CS0T:5.00000E+04 > CS1T:2.00000E+00 > S0:0.000000E+00	Send
2 3 4 5 6 6 7 8 9 9 8 8 9 9 8 8 9 9 8 8 9 9	> DVR? > DIR? > DMAINS? > DH-WR? > DLOC? > CS1T? > CS1T? > CS1T? = CS1T? = CS1? = FT23R USB UART (AL04T7CV) IAM_	v	373 374 375 376 377 378 379	> DIR:0 > DIR:0 > DHAINS:1 > DHWR:0 > DLOC:1 > CST:5.00000E+04 > CST:2.00000E+00 > S0:0.000000E+00	Send
2 3 4 5 6 6 7 8 9 9 58 port found somecting to 1 88 trit 19:021. 01 10:01 trit 19:01 10:01 trit 19:01 trit 19:	> DVR? > DIR? > DMAINS? > DH-WR? > DLOC? > CS0T? > CS0T? > CS0T? > S0? =	v	373 374 375 376 377 378 379	>DIR0 >DMAINS1 >DHWR:0 >DLOC:1 >CSIT5.000000E+04 >CS1T2.00000E+00	Send
2 3 4 5 6 7 8 9 5 5 8 9 5 5 8 9 5 5 5 8 9 5 5 5 9 5 5 5 5	> DVR? > DIR? > DMAINS? > DH/WR? > DLOC? > CS01? > CS01? > CS01? = CS01? = FT232R USB UART (AI04T7CV) K-FT232R USB UART (AI04T7CV) 68.2.223 680.099 01		373 374 375 376 377 378 379	> DIR:0 > DMAINS:1 > DHWR:0 > DLOC:1 > CSTTS.00000E+04 > CS1T2.00000E+02 > S0:0.00000E+00	Send
2 3 4 5 5 6 7 8 9 9 8 8 8 9 9 8 8 9 9 8 8 9 9 8 8 9 9 8 8 9 9 8 8 8 9 9 8 8 9 9 8 9 8 8 9 9 8 8 8 8 9 9 8 8 9 8 8 9 9 8 8 8 9 9 8 8 9 8 8 9 8 9 8 8 9 8 9 8 9 8 8 9 8 8 9 9 8 8 9 8 8 8 9 8 8 8 9 8 8 8 9 8 8 8 9 8	> DUR? > DIR? > DMAINS? > DHWR? > DLOC? > CS07? > CS07? > CS17? > S0? :: FT232R USB UART (AI04T7CV) AM		373 374 375 376 377 378 379	> DIR:0 > DMAINS:1 > DHWR:0 > DLOC:1 > CSTT:5.000000E+04 > CSTT:2.000000E+02	Send
2 3 4 5 6 7 8 9 8 8 9 8 8 9 8 8 9 8 9 8 9 8 9 9 8 9	> DVR? > DIR? > DMAINS? > DHWR? > DLOC? > CS017 > CS017 > CS17? > S09	v	373 374 375 376 377 378 379	> DIR:0 > DMAINS:1 > DHWR:0 > DLOC:1 > CSTT5.00000E+04 > CSTT2.00000E+00 	Send

Figure 10 Data logging

The XP Terminal allows the user to log all responses received from a device. After pressing the Start button the user is asked to select or create a *.log file to store the data. To show the user how long the log function is already running, a timer is started at the same time. At the start of every data collection the user will be asked to select a file to prevent accidental loss of data.



8. Program settings

XP xpterm v File Hel	1.0.17.12 .p			_	- ×
Connection	Control Timed Log Settings Contact dvanced connection settings de debug output hecksum mode (2-8VTE) t connection settings: Reset			XP Powe	ər
519	>DLOC?	^	518	>DHWR:0	^
520	>CS0T?		519	>DLOC:1	
521	>CS1T?		520	>CS0T:5.000000E+04	
522	>\$0?		521	>CS1T:2.000000E-02	
523	>\$1?		522	> S0:0.000000E+00	
524	>SOA?		523	>S1:0.000000E+00	
525	>S1A?		524	>S0A:0.000000E+00	
526	>M0?	~	525	> \$1A:0.000000E+00	~
					Send
USB port fou Connecting t Host IP: 192 Local IP: 192 Host PORT: 1 Connected Connected to	nd: FF2232 USB UART (AI04T7CV) 0.1AN .168.0.233 .168.0.99 .201 0 (Ethernet).				~ ~

Figure 11 Connection settings

- Advanced connection settings: Enables the advanced connection settings in the connections tab.
- Hide debug output: Show or hide the debug output window.
- Checksum mode: Appends a 2-Byte checksum to every sent command.
- Reset connection settings: Reset all connection settings to their default values.