

Operating instructions

WinPP8 test program

Receiving, testing, filtering, saving, displaying, printing, transmitting and simulating SINAUT 8-FW DPDM/PCM messages.

In this description, SINAUT 8-FW refers to the telecontrol protocol of the SINAUT 8-FW microcomputer telecontrol system developed by Siemens AG.

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1 Installation

Note: For the driver installation you must log on as Administrator.

System Requirements: Windows 7, Vista or XP, Pentium, 100 MB RAM, 100 MB Disc, VGA or better, at least one COM (USB-Serial is possible) and USB for dongle.

The setup program of WinPP8 is delivered on CD. On the CD the program is in the folder "Programme".

The file name is SetupW8vvv.exe, vvv stands for program version.

Par example: SetupW81100.exe = Setup program for WinPP8 Version 1.1.0.0.

Insert the CD into the drive and start the program "SetupW8vvv.exe", then follow the instructions on the screen.

The program makes an entry in the Program directory of the Start Menu for starting WinPP8. You can deinstall WinPP8 via the dialogue field "Properties of Software" (Menu: *Start | Settings | System Control | Software*).

After installation the following files are in the chosen directory:

WinPP8.exe	Test program
W8Text.ger	Program texts in German
W8Text.usa	Program texts in English
W8Ger.chm	German Online Help
W8Usa.chm	English Online Help
Bed8Ger.pdf	German operating instructions
Bed8Usa.pdf	English operating instructions
CbSetup.exe	Auxiliary program, installs the dongle driver
ExText8.csv	Example file for plain message text.
8Version.txt	Versions log of WinPP8 (German).
Log.lg8	Standard Log file for WinPP8
SeTel.st8	Standard file for transmission messages and lists

You can also save Log files, and the files for transmission messages and lists, under your own choice of name for reloading later. Do not add the file extensions ("lg8" or "st8") as the program automatically appends them.

On exiting the program it saves the configuration specific to your PC in the file W8.cfg.

2 Overview

2.1 Function

WinPP8 is a test program for the SINAUT 8-FW telecontrol protocol developed by Siemens AG. The messages are Pulse Code Modulated (PCM) or Digit Pulse Duration Modulated (DPDM is called PDM in the following). For PDM messages, a message converter (TeKo) is required additionally. It converts PDM messages to PCM messages and vice-versa. WinPP8 receives, tests, filters, saves, prints and transmits SINAUT 8-FW messages. For test purposes, you can also use it as a pulse recorder. In this case, it records pulses between 0.04 ms and 20 s with and without test.

The program can be used without administrator rights.

Upon the first start, the program creates the "Data Directory" under "C:\MyDocuments\Users\User Data\PPFink\WinPP8\" and copies the "Log.lg8" and "SeTel.st8" files into the directory. The "Data Directory" is used for saving the log, send and configuration data. You can change the directory with the menu „Parameterize | General | Data directory“.

Interfacing to the telecontrol equipment is done via the serial interface COM. The program supports two COM interfaces. It is possible to run the program several times simultaneously and thus support several COM interfaces.

For PCM, the interfacing to the telecontrol system is performed via a serial interface COM. For PDM, it is performed via a message converter. The program supports one or two COM interfaces (PDM or PCM). You can start the program several times on a PC to use several serial interfaces.

You can monitor the messages of an existing connection or simulate the center or the station. During simulation, the MSC is transmitted properly and tested and acknowledged upon reception. During point-to-point traffic, it transmits and acknowledges the test messages. To listen the control and monitoring direction simultaneously, one COM interface is required for PDM, whereas two COM interfaces are required for PCM. A COM interface must be available for simulation.

The following elements can be parameterized (amongst others):

- Ø Telecontrol protocol (PDM, PCM, pulse recorder, system operation)
- Ø Traffic mode (Point-to-point, Multi-point)
- Ø Program function (monitoring, master, substation)
- Ø COM port
- Ø Baud rate, modulation ratio, Hamming distance
- Ø Blocking time duration / polarity
- Ø Pulse tolerance, digital filter
- Ø Plain texts and colors of the SINAUT messages (csv file)

You can define the plain texts of the SINAUT messages per transmission direction, data type and message address in the csv file. Format: "Transmission direction; data type; message address; color code; plain text" (refer to the example file "ExText8.csv" in the program directory). Select a csv file via the "File | Message texts load" menu. The currently used file is indicated in the status bar. During message output, the plain texts are displayed in the first line after the time of day. In this way, you can also determine the color of the message output.

Don't use the file names "BspText8.csv" and "ExText8.csv". These files are overwritten during each installation.

The program checks the received messages for transmission errors, link faults and ASDU faults. Faulty messages are marked as such. Every transmitted and received message is allocated a time stamp and is stored in a Log file.

The maximum size and the log file directory can be defined via the related parameters. As a rule, the program uses the "Log.lg8" log file. If the user activates the "Use new log file every day ..." option (see Parameterize | Options), a new log file will be created for each day of the month. The number of the day (01 - 31) is indicated in the file name.

During reception, the user can page up and down the messages saved in the log file and shown on screen. A message of 20 bytes takes up 50 bytes of Log file space. The log file can be printed or saved as a text file or log file.

Start options

If no start options have been defined, the program loads the default log file and the transmit message / plain text file used last. Afterwards, it starts in the same mode in which it was terminated before. The start can be influenced by setting appropriate start options. The user can specify one or several options in a freely definable order. The options must be separated by at least one blank. The following options are supported:

Option	Example
Online	online
Offline	offline
Transmit message file	d:\east\SeTel.st8
Message text file	d:\east\ObjText.csv
Log file	d:\east\Ga.lg8

When using the "Name Log File" option, it must be considered that this file will be also used on online mode.

A convenient method for the definition of start options is to extend the link on the Desktop by the options (click with the right mouse button on the link | Properties | "Destination: ..." extension with blanks and options). Specify directory and file name. Example:

```
"c:\Programs\WinPP8\WinPP8.exe online d:\east\Texts.csv d:\east\SeTel.st8"
```

The parameters used last (Baud, COM number, function, ...) are also saved in the transmit message file and in the log file.

The Log file is organised as a circular buffer. When the file is full then the newest message overwrites the oldest message. You can prevent this by deleting (Ctrl+D) the old messages, before you start testing or increase the maximum size of the Log file or limit the time for message storage or the number of stored messages via Filter.

If you start the program several times the following log files are used: Log.lg8, Log2.lg8, Log3.lg8, etc.

The message colors may be modified in one of the following ways:

Per receiver, transmitter - refer to the "Parameterize" menu.

Per message address - refer to the ExText8.csv file.

While saving and displaying the messages, you can filter them according to the following criteria: Time, station number, data type, message address, etc. By means of the time filter, you can, for example, specify that you only want to save messages received between 2.00 and 8.00 a.m.

The transmission messages are parameterized logically. 12 messages and 12 lists are available, also refer to the "Parameterize | Messages or lists" menu. You can parameterize 400 objects (messages) in a list. The request to send for messages and lists is performed via operator action, time or event. In this context, an event can be the reception of a certain data message or polling command.

In this way, you can transmit a general interrogation, automatically respond to a general interrogation, transmit commands, simulate command feedbacks, cyclically transmit measured values or simulate an avalanche of messages.

The parameterized messages and lists can be saved and loaded via operator action. You can either save/load each message or list in an individual csv file or all messages and lists together in the program-specific st8 file.

You can transmit erroneous messages for test purposes. For example: Don't increase MSC, don't acknowledge MSC, simulate protection block error and transmit messages with pulse faults and/or interference pulses, refer to the "Mode | MSC test Receive/Transmission 1" menu.

2.2 Telegram Converter

Note: The Telegram Converter is ready for operation if the green 'LED Aktive' is flashing.

The WinPP8 test program requires a telegram (message) converter for SINAUT 8-FW DPDM messages. The telegram converter (TeKo) converts digitally pulse-duration modulated messages (DPDM, designated as PDM in the following text) to pulse-code modulated (PCM) messages and vice-versa. During conversion, it tests if the pulses and the blocking time are correct. The setpoints are predefined by WinPP8. The message converter is equipped with a PDM interface and a PCM interface. Via the PDM interface, it is connected to the telecontrol system to receive and transmit PDM messages. Via the PCM interface, it is connected to the PC (WinPP8) to receive and transmit PCM messages.

Both interfaces process RS232 signals. They are electrically isolated from each other and from the power supply unit. The PDM interface is equipped with two receivers and one transmitter. The receiver and the transmitter are electrically isolated from each other.

The message converter is equipped with the following LEDs:

- ∅ Active Ready for operation, green, flashing. The LED starts to flash approx. 15 seconds after power ON.
- ∅ RxD₁ PDM receiver 1
green, lights up for positive voltage
red, lights up for negative voltage
- ∅ RxD₂ PDM receiver 2
green, lights up for positive voltage
red, lights up for negative voltage
- ∅ TxD PDM transmitter, only green, lights up for positive voltage

Housing and connections

PDM interface:	9-pole DSUB male connector
Connector assignment:	2 Receiver 1
	4 Receiver 1 ground
	6 Receiver 2
	9 Receiver 2 ground
	3 Transmitter
	5 Transmitter ground
PCM interface:	9-pole DSUB female connector
Connector assignment:	2 Transmitter
	3 Receiver
	5 Ground
	1-8-7 and 4-6 and 5-9 are jumpered
Power supply:	Via DIN 45323 (NEB R 1) integrated interfacing for NES 1 plug-in connectors, 6,0/1,98 mm, 5 VDC, +-5%
Power consumption:	Typically 700 mA DC
Electrical isolation:	Min. 2 kV insulation voltage between supply voltage and serial interface
Housing:	Aluminum
Dimensions:	160 x 110 x 45 mm,
Weight:	Approx. 800 g inclusive power supply unit

Scope of supply

- 1 PDM ó PCM telegram converter
- 1 100-240 VAC, 50-60 Hz, 5VDC plug-in power supply unit
- 1 cable, 1.8 m, 9-pole DSUB male-female connector, 1 to 1 wired
- 1 adapter unit, 9-pole DSUB female connector to banana plug



2.3 Initial start

Plug the dongle into the parallel (LPT) or USB interface and start the program. Via the "Parametrieren | Sprache" menu, you can select the English or German user interface. With the **PDM** protocol, you must use the message converter (TeKo). **Note:** Before you enable the "Online" option, you must connect the message converter (TeKo) with the PC by means of the cable included in the scope of supply, see below. The "Receive/Transmit parameters" depend on the protocol. Specify the following parameters after the initial start:

General parameters

Telecontrol protocol

Traffic mode

Parameterize Rec/Trans 1

Function

Station number

Receiver/transmitter with station number

COM port...

Baud

Modulation ratio

Hamming distance

Message with station number

Save the parameters each time by clicking "OK".

Select the "On-line message display" (Menu: View).

Next, go online (Menu: Mode). With PDM, the program transmits the current parameters to the message converter.

Watch the LEDs at the top of the window and the status bar at the bottom of the window.

When the partner station transmits you should see the received messages. If the simulation feature is enabled, the program responds to messages.

With the Menu View or the keypad shortcut "1 to 7" you can change the output format of the messages. The current output format is displayed in the heading.

WinPP8 saves the current parameters, Log file and messages when you exit from the program.

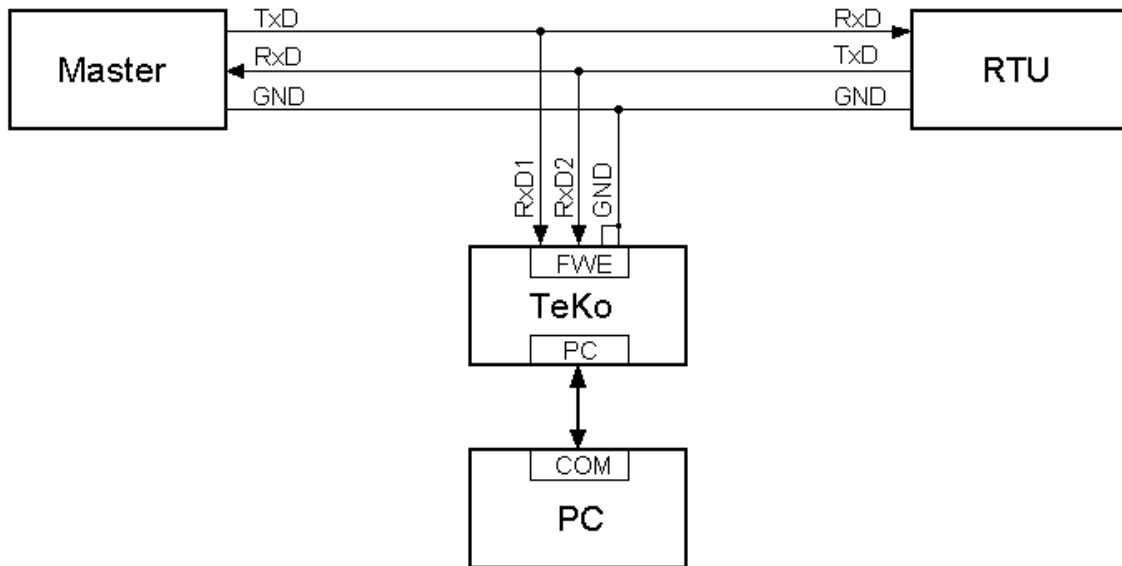
If you receive the message "e.n.n.n Dongle missing/wrong" after entering the online mode then check please:

- Was the program installed with administrators' right?
- Is the dongle on LPT or USB present?
- Is the LPT-Interface enabled (BIOS-Setup)?
- Test another LPT Mode, for example: EPP, ECP or Output only, don't use bi-directional (BIOS-Setup).

The error code e.n.n.n has the following meaning:

2, 1011 or 1034.n.n.n	Dongle not found.
1004, 1005 or 1006.n.n.n	Device driver not installed.

Monitoring PDM wiring diagram

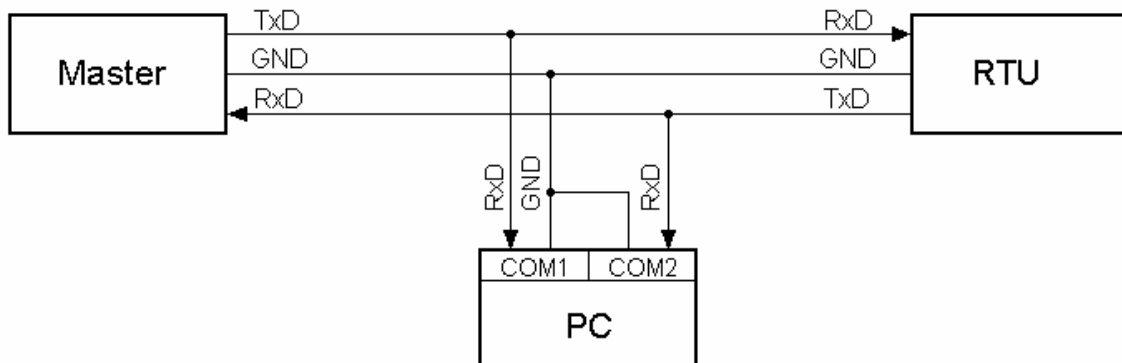


Note: The "FWE" DSUB connector on the message converter (TeKo) has no standard assignment. The Receiver 1, Receiver 2 and the transmitter have their own grounding. As for the pin assignment, refer to the message converter.

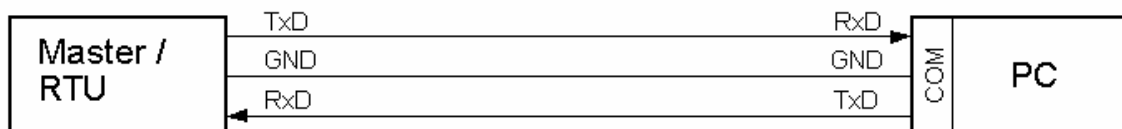
Simulation PDM wiring diagram



Monitoring PCM wiring diagram



Simulation PCM wiring diagram



2.4 Operating Instructions

The usual Windows operations apply for program start, maximising, minimising and closing the program window.

The program WinPP8 uses menus for setting values and operation. You call the on-line Help for any main menu and for the dialogue fields via the key "F1" (e.g. select the menu and press F1).

You can select menus and input fields with the mouse or keypad. Keypad selection takes place via the "Alt" key and a "**Hotkey**". "Hotkey" is the underlined character in the menu text (e.g. "F" in File Menu) or in the label of an input field. Some operating systems display the Hotkey in the menu text only after menu selection (Press the Alt key).

For commonly used commands (On-line, Off-line, Transmit Message) you can enable a "**keypad shortcut**", see Menu "Parameterize | Options ...". A "keypad shortcut" is a key combination with which you execute a command directly. For example the key combination "Alt+F1" transmits the first message or "Ctrl+D" deletes the messages in the log file.

Please note that the key Alt activates the Menu selection (a Menu is optically highlighted/raised). If the Menu selection is activated then the shortcuts are **deactivated**. By pressing the Alt key once more you can deactivate the Menu selection again.

If you have selected a table then you are in Navigation mode. Select the desired field with the cursor keys. By a mouse click or by using the key F2 or by pressing "any key" you change to the edit mode. If the "any key" is a valid input then the character entered replaces the previous value. If the input is an invalid key then the current value is retained.

In dialogue windows you can select the next field with the keys "Tab" or "Enter" (Return) or select the previous field with "Shift+Tab". In a drop-down field you can make the list drop down via the key F4 or make a selection with the arrow keys Up/Down or the Spacebar.

In the dialogue windows usually the buttons "OK", "Cancel" and "Help" are displayed. "OK" saves the entered values and ends the input, "Cancel" ends the input **without** saving the values, "Help" calls the on-line Help for the current dialogue field.

You can enter numbers as decimal or hexadecimal numbers, example: 100 or \$64;

2.5 Display Messages

The program displays either the "On-line messages" or the "Log messages". With the Menu "**View**" you select the messages and the output format. The current protocol and the name of the transmitted message file will be displayed in the Title bar. The status bar (lowest line) displays the program status, the kind of displayed message, the status of the filters and the name of the Log file. The kind of messages will also be displayed in the message header. With the Menu "**Filter**" you can filter the On-line messages and the Log messages. The meanings of abbreviations can be found in the online help. Faulty messages are marked with an Error text. For the message time a millisecond timer is used which is always synchronised with the PC time at a change from offline to online. For a received message the message time gives the time of reception of the last byte of the message, for a transmitted message the time of starting transmission. With a right click you call the pop up menu.

Displaying messages online

The status table, the headline and the messages received/transmitted are displayed in the "Online message display" window. The messages will be issued one below the other. The lower most is the newest message.

The status table depends on the protocol (PCM, PDM) and indicates the most important parameters of receiver/transmitter 1 and 2, also refer to **Parameterize receive/transmit**. The columns have the following significance:

Text	Description
Received	Displays the number of messages received and saved since the selection of the online status.
Error	Displays the number of erroneous messages received since the selection of the online status.
Transmitted	Displays the number of messages transmitted since the selection of the online status.
Error	Displays the number of repeatedly transmitted messages since the selection of the online status.
Messages	Displays the number of messages received/transmitted and saved since the selection of the online status.
Errors	Displays the number of erroneous messages received/transmitted since the selection of the online status.
Mod.	Displays the parameterized Modulation ratio.
d	Displays the parameterized Hamming distance.
BITi	Displays the parameterized Blocking time.
Tol.	Displays the parameterized Character tolerance.
COM	Displays the parameterized COM port number. - No COM port allocated.
Baud	Displays the parameterized baud rate.
Function	Displays the parameterized function.
Traffic mode	Displays the parameterized Traffic mode.

The **Header** displays the kind of message, the filter function and the output format. The messages will be issued one below the other (scroll mode). The lower most is the newest message. If you wish to look at the messages received at your own speed, select "Display Log messages" via F9. The program continues to receive/transmit in the background.

Display Log messages

In the "Log Message Display" window will be displayed: the Header, the date and the number of the first message and the number of messages. The output format can be selected via **View**.

With the cursor keys and the scroll bar you can page forwards and backwards. The cursor key Up/Down leafs one message back or forwards. The Page Up/Down keys move five messages backwards or forwards. If you press simultaneously the key Page Up/Down and the Key Shift, Control or Shift and Control then you move 50, 500 or 5000 messages backwards or forwards. The Home key displays the first (oldest) message. The End key displays the latest (newest) message.

If the on-line reception overwrites the messages just being displayed, then the last message received will be displayed the next time that you leaf through the pages.