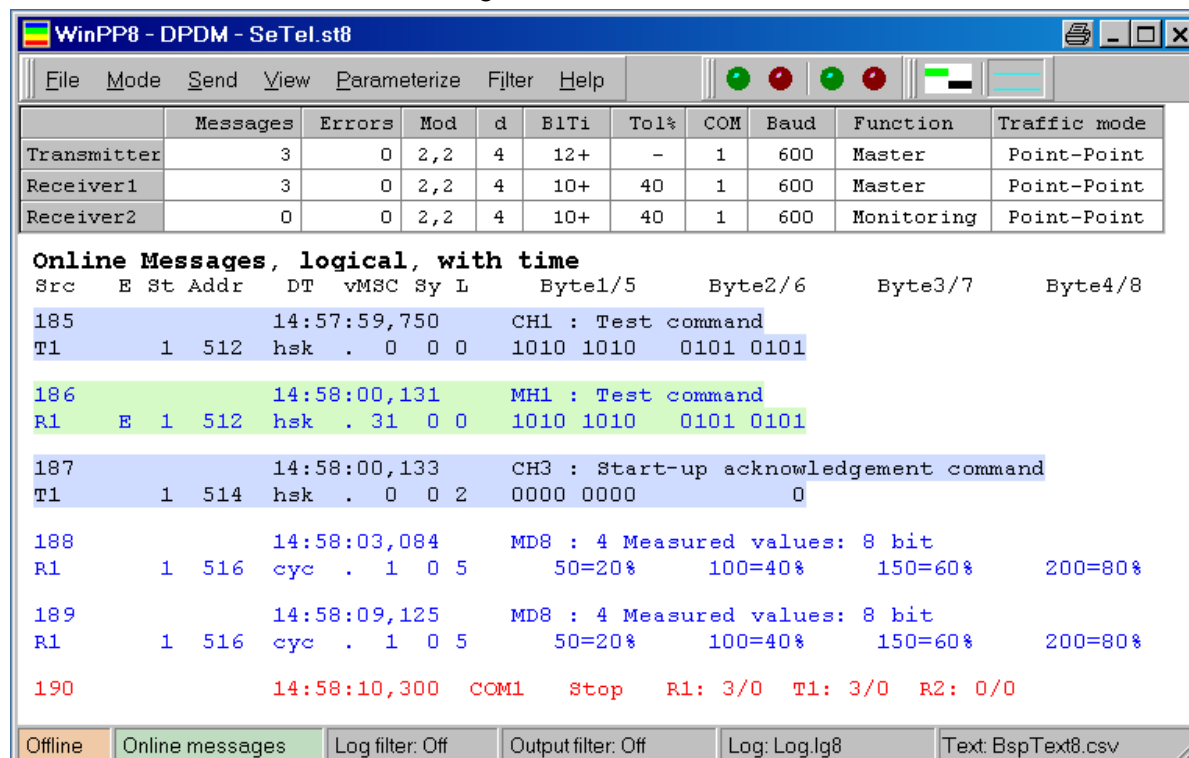Overview

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.

System Requirements: Windows 95, 98, Me, XP, 2000 or NT 4.0, 32 MB RAM, 5 MB Disc, at least 1 COM, LPT or USB for dongle, VGA or better.

Figure 1 WinPP8, Online message display

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.

Functionality

You can monitor the messages of an existing connection or simulate the master 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 monitor the control and monitoring direction simultaneously, one COM interface is required for PDM, whereas two COM interfaces are required for PCM. One 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, station)
- Ø COM port, Baud rate, modulation ratio, Hamming distance
- Ø Blocking time duration / polarity, Pulse tolerance, digital filter

Ø Plain texts of the SINAUT messages (csv file)

The program reads the plaintexts of the SINAUT messages from a csv file. Format: "Transmission direction; data type; message address; color code; plain text;" refer to the example file "ExText8.csv" in the program directory.

The program tests the messages received for transmission errors and marks erroneous messages. All received and transmitted messages are provided a time stamp and are saved in a log file. The size of the log file can be parameterized. During reception, you can display the log file messages and scroll forward or backward. The log file messages can be output on a printer or saved in a text file. The Log file is organized as a circular buffer. When the file is full then the newest message overwrites the oldest message.

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.

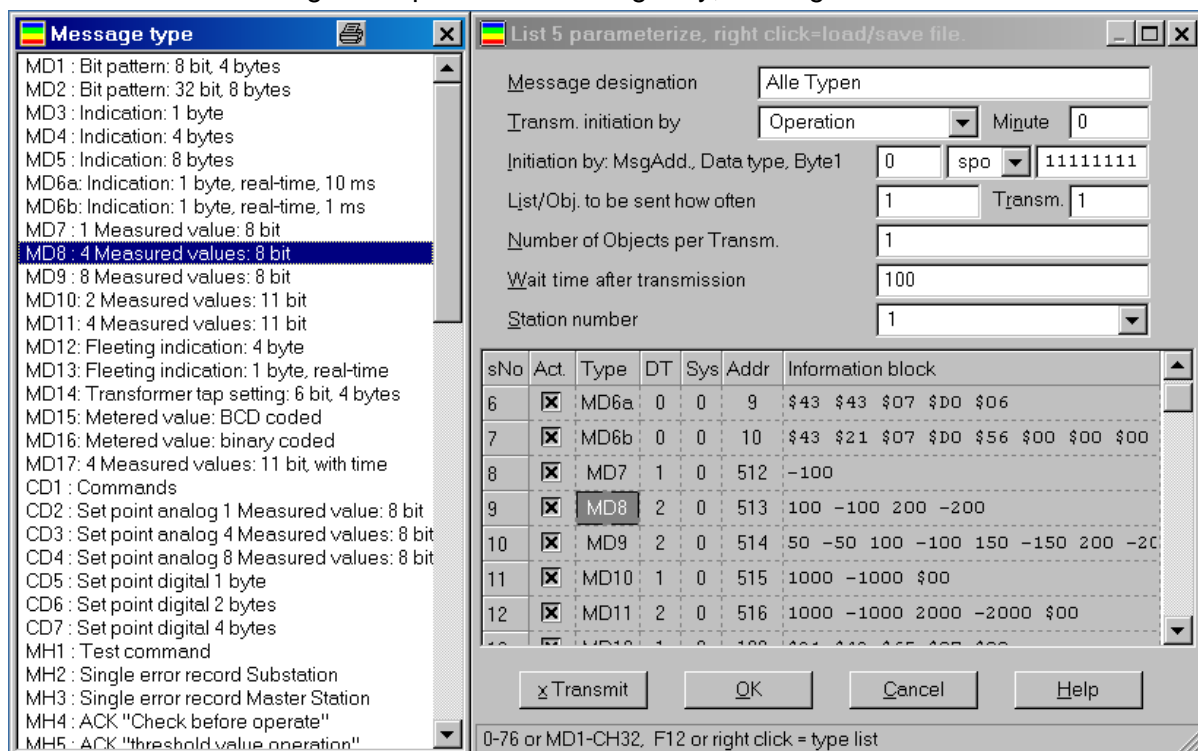The transmitted messages are parameterized logically, see Fig. 2.

Figure 2 Parameterize a message list

The transmission messages are parameterized logically. 12 messages and 12 lists are available. 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 a 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.

Telegram Converter

The WinPP8 test program requires a message (telegram) converter for SINAUT 8-FW DPDM messages, see Figure 3. The message 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 set points 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 approximate 15 seconds after power ON.
RxD_1	PDM receiver 1 green, lights up for positive voltage red, lights up for negative voltage
RxD_2	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:	5 VDC, +-5% via DIN 45323 NEB R 1 integrated interfacing for NES 1 plug-in connector 6,0 / 1,98.	
Power consumption:	Typically 750 mA DC	
Electrical isolation:	Min. 2 kV insulation voltage between supply voltage and serial interface	
Housing:	Aluminium, 160 x 110 x 45 mm	
Weight:	Approx. 800 g inclusive power supply unit	

Scope of supply

1 piece PDM ó PCM message converter

1 piece plug-in power supply unit 100-240 VAC, 50-60 Hz, 5VDC

1 piece cable, 1.8 m, 9-pole DSUB male-female connector, 1 to 1 wired

1 piece adapter unit, 9-pole DSUB female connector to banana plug

Figure 3 Telegram Converter