Technical Description

Special Software FG446580-82
(for System 4465)

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1 General Information

This program extension serves to place the standard DCF77 simulation and the serial data output into the past or into the future by several years.

It is based on the standard description from version 2.00 onwards. The extended program function requires the use of the latest remote-software, version 2.04 which is part of the standard delivery.

2 Time Offset

2.1 Time Offset with Special Software FG446580

The following settings are available for the time offset into the past:

1. minus 10 years   not   historical
2. minus 12 years   historical
3. minus 20 years   not   historical
4. minus 28 years   historical

This choice covers all the DCF77 decodings or in case of serial data traffic the different plausibility checks.

A date which never really existed in the past is called not historical.

For example if the 29. Feb. 2000 is placed back by 10 years to 29. Feb. 1990 this date has never existed.

If the DCF77 decoding is very good the interpretation may result in an error (i.e. no reception) and the internal clock automatically jumps forward to 1st March 1990. A similar problem arises for the serial data transmission to those computers which partly check the plausibility and therefore do not allow the date 29. Feb. 1990.

The historical time offset is based on a simulated date which really existed in the past. It works under the condition that the time is offset to a leap year. The correct day of the week for that date is calculated and simulated.

2.2 Time Offset with Special Software FG446581

The time can be offset into the past in steps of 4 years up to minus 28 years. These possibilities cover all varieties of DCF77 decodings or plausibility checks in the serial data traffic. The date offset is historical.

The historical date offset simulates a date which really existed in the past, under the condition that the offset is done in steps of leap years. The correct day of the week for that date is also calculated and simulated.

2.3 Time Offset with Special Software FG446582

The time can be offset into the future by +4, +8 or +12 years. You can chose between historical or not historical offset.

These possibilities cover all varieties of DCF77 decodings or plausibility checks in the serial data traffic.

A date is called not historical when it does not exist. Time and date are correct but the day of the week is false.

e.g.	12.34.56	10.March 1999	Wednesday	
	12.34.56	10.March 2003	Wednesday	in reality 10. March 2003 is a Monday

This may lead to errors in some DCF77 decodings i.e. that the DCF77 data string is interpreted as wrong (no reception) and the internal clock is no longer synchronised. A similar problem arises for the serial data transfer to the computers which partly check the plausibility and therefore do not permit 10. March 2003 to be Wednesday.

The historical date offset simulates a date which will really exist in the future, under the condition that the date is offset to a leap year. Then the correct day of the week for the offset date is calculated and simulated.

e.g.	12.34.56	10.March 1999	Wednesday
	12.34.56	10.March 2003	Monday

3 System Settings

The time offset and other functions are set by means of an altered systembyte.

3.1 Operating Mode Settings

This settings are valid for all special software.

bit 8	bit 7	operating mode
off	off	mode 1, operating as crystal clock
off	on	mode 2, operating as DCF77-clock CET
on	off	mode 3, DCF77-clock global

Settings with Bit 7 and 8

These two bits are used to select the operating mode of the clock. The following mode is pre-set:

bit 8 = off and bit 7 = on = mode 2 operating as DCF77 clock CET

In **mode 1** the clock works as a crystal clock only, i.e. there is no DCF77 decoding despite a connected antenna.

Mode 3 serves to operate the clock in time zones other than CET. A different time zone can be selected by **"set difference UTC/Local"**.

Bit no.:	switched on	switched off
6	DCF77-simulation with time offset	DCF77-simulation without time offset
5	serial interface with time offset	serial interface without time offset
4	remote display of time with time offset	remote display of time without time offset

Settings with Bit 6

This bit releases the time offset to the DCF77-antenna simulation.

In the DCF77 mode of the system, when the function time offset has been activated, a simulated antenna signal, where a time offset has been added, is put out via the BNC connector DCF-SIM. This happens in the DCF77 mode not until the clock has been synchronised with the DCF77 signal via the antenna.

In the crystal mode the simulated antenna signal is put out even without a connected antenna independent of the entered simulation time. An infinite DCF77-simulation time is the result.

Settings with Bit 5

This bit is used to switch the time offset to the serial interface.

Settings with Bit 4

The remote software contains a time/date display in the "show menu". For control purposes the display can be changed to time offset by bit 4.

3.2 Time Offset Settings

Settings for Special Software FG446580

bit 3	bit 2	bit 1	choice time offset
off	off	off	no time offset
off	off	on	minus 10 years not historical
off	on	off	minus 12 years historical
off	on	on	minus 20 years not historical
on	off	off	minus 28 years historical

Settings for Special Software FG446581

Bit 3	Bit 2	Bit 1	Time offset
off	off	off	no time offset
off	off	on	minus 4 years historical
off	on	off	minus 8 years historical
off	on	on	minus 12 years historical
on	off	off	minus 16 years historical
on	off	on	minus 20 years historical
on	on	off	minus 24 years historical
on	on	on	minus 28 years historical

Settings for Special Software FG446582

Bit 3	Bit 2	Bit 1	Time offset
off	off	off	no time offset
off	off	on	plus 4 years historical
off	on	off	plus 8 years historical
off	on	on	plus 12 years historical
on	off	off	no time offset
on	off	on	plus 4 years not historical
on	on	off	plus 8 years not historical
on	on	on	plus 12 years not historical

> ***Please note :*** When the system operates without antenna, the crystal mode must be set e.g. to simulate different times. Otherwise the open antenna input may cause a faulty operation of the system.