Technical Description

Special Programs FG685580-83
(for System 6855)

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1 General Information

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

It is based on the standard description.

- for the special program FG685580-82 from version 04.00.
- for the special program FG685583 from version 05.02

2 Time Offset

2.1 Time Offset with Special Software FG685580

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 FG685581

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 FG685582

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 will never exist in the future. 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. Also 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

2.4 Time Offset with Special Software FG685583

This special program can be used to move the current time information between ± 0 and ± 14999 days.

Entering Difference Days

The information is entered in the **"SET Menu"**

selection picture

> **SET DIFFERENCE**
> **DAYS   Y/N _**

entry picture

> **D-DAYS: _**

Here the difference days between ± 00000 and up to ± 14999 days can be entered. The maximum time offset is about ± 41 years.

The entry is completed by **ENT**.

Please note!

The entry must always have 5 digits and direction plus or minus

> e.g. plus 2 days offset entry +00002 .

The **SHOW** menu allows control over the entry. **"Y"** confirms the menu item and then the difference is displayed:

> **SHOW DIFFE-**
> **RENCE DAYS Y/N**

3 System Settings

The time offset is set by means of the special byte.

3.1 General Settings

These settings are valid for all special programs.

Bit no.:	switched on	switched off
7	at present without function	at present without function
6	time display with time offset	time display without time off-set
5	DCF77-simulation with time offset	DCF77-simulation without time offset
4	serial interface 2 with time offset	serial interface 2 without time offset
3	serial interface 1 with time offset	serial interface1 without time offset

3.2 Settings for Time Offset

Settings with Bit 6

This bit can be used to show the time offset in the LCD display. When bit 6 is activated the display shows **DZ** (DT) for difference time before the time information.

The local time is the time basis for the display of the difference time.

Settings with Bit 5

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 regardless of the entered simulation time. An infinite DCF77-simulation time is the result.

Settings with Bit 4

This bit is used to switch the time offset to the serial interface2.

Settings with Bit 3

This bit is used to switch the time offset to the serial interface1.

Settings for Special Software FG865580

bit 3	bit 2	bit 1	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 FG865581

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 FG865582

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

Settings for the Special Software FG685583

Bit 2	Bit 1	Bit 0	select time offset
off	x	x	status local time
on	x	x	status standard time

The offset of the days is calculated from the current date. There may be a problem with the clock status in some data strings during the serial transmission or during the DCF77 simulation. The status must be taken from the real date. Some data strings include a daylight saving / standard time bit. An offset by e.g. 500 days leads to a standard time date with a daylight saving time bit in the status or a summertime changeover will be carried out in the offset standard time.

BIT 2 can fix the daylight saving / standard time bit to standard time. But there is a time leap if there is one in the current time information.

Bit 2   Status

off   in the status the daylight saving / standard time bit is adapted to the current date

on   in the status standard time is always put out

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.