Time signal receiver DCF-77 - type AT-513

Manufacturer: ALTEL Wicha, Gołda Sp. J. , ul. Łużycka 107, 30-693 Kraków , Poland www.altel.pl

1. The radio receiver DCF-77 (antenna DCF) is used for time synchronization in different electronic devices - PLC controllers, LED clocks as well as in conventional industry controllers, energy counters etc. The radio signal is emitted at long radio wavelength with 77,5 kHz frequencies and is received and conditioned thru receiver electronics. The transmitter of time signal is situated 25 km South-West from Frankfurt (Germany) and ist controlled thru cesium atomic clock, with precision of 1 second over 1 million years. In standard conditions the transmitter is operating with 50 kW power, which allows the radio signal to be received in all Europe and even beyond. The radio receiver DCF-77 has high signal sensitivity because of used ferritic antenna with 68 x 10 mm dimensions and dedicated quartz resonator. Additional information about radio time signal system, coverage and details about time information coding can be found under the following link: https://www.ptb.de/cms/en/ptb/fachabteilungen/abt4/fb-44/ag-442/dissemination-of-legal-time/dcf77.html

2. Cable colors and signal type:

red:	power „ + ”
black:	power „ – ” (GND)
white:	usable signal output DCF

3. Antenna power supply voltage: from 4.5V to 28V, direct current. The receiver is protected from reverse polarity of power supply and power supply is protected from power surge.

4. Output type and load ability: PNP transistor output with open collector, Imax = 300 mA, output is protected from power surge.

5. The antenna is delivered with 3m long cable. If necessary this cable can be extended for many more meters.

6. Build in LED enables control of the signal reception and the receiver setup: LED blinks in rhythm of signal impulses from DCF radio transmitter.

7. Polarization of the output signal: when DCF transmitter is sending radio signal then LED lights up and in the same time in output (white cable) is set “+” value of receiver power supply voltage. When transmitter sends no signal the output is in high impedance state and LED does not light up.

8. Receiver positioning: the receiver should be always positioned with wide side in direction of Frankfurt (Germany) - direction towards transmitter is indicated with arrows on the enclosure. In practice receiver should be positioned in such a way, that LED blinking is possibly stable and regular. LED should blink every second in rhythm of DCF transmitter signals. The higher the distance to the transmitter the more precisely the receiver should be positioned. When receiver base is firmly connected to the wall it allows to turn freely the receiver in wide range of angles. The receiver base should mounted in such a way that allows the receiver to turn in the horizontal plane.

9. The receiver is designed to be mounted indoors and in a dry place outdoors. The receiver works correctly in a temperature range between -30 °C and +70 °C.

10. In places quite distant from the DCF transmitter, where received signal is weak or interrupted, the correct DCF signal reception can be possible only in the night hours.