



MPU-R-TC204P-NET

19" Master clock with Ethernet Interface, modern operation via network

- + Two independent slave clock lines
- + Connection of up to 2x 50 impulse controlled or up to 2x 50 self-correcting Time Code slave clocks (max. output current 0.5 A each line)
- + Polarised 24 V DC outputs for minutes-, ½ minutes - or seconds impulses respectively time code for operation of self-correcting and self-setting slave clocks
- + Mixed operation of slave clocks and self-correcting clocks possible
- + Impulse length adjustable
- + Impulse to break rate programmable
- + Automatic adjustment of slave clocks after mains failure
- + Electronic impulse memory for min. 5 years
- + Automatic summer-/winter daylight-saving time programmable
- + Everlasting calendar
- + Automatic free programmable holiday calendar with or without holidays depending on Easter
- + Electronic short-circuit protection
- + Electronic low voltage cut-off (18 V)
- + Multi-functional display (LCD) with two lines (20 characters per line, digit height 6 mm)
- + Indication of weekday, hours, minutes, seconds, date, summer-/winter time and DCF reception
- + Synchronisation through:
 - + DCF-77 (for time and summer-/winter time changes)
 - + GPS system (for time and summer-/winter time changes)
 - + 24 V DC polarised minute impulses (master/slave operation)
- + Text message on display in case of missing DCF/GPS synchronisation after adjustable time
- + Error text message in case of short-circuit on a slave line
- + Accuracy ± 0.1 s/day at 25 °C (without DCF synchronisation)

Signalling device

- + Four potential free switchover contacts
- + 99 day programs with max. 99 program steps each
- + Period table with 99 program lines
- + Copy function for day programs

- + Switching times per second
- + On/Off- and timer-functions with 1 s ... 59 min. run time
- + 32 different timer lengths programmable
- + Checking of programming via display
- + Single-, partial- and complete deletion of programs
- + Program memory for 99 day programs with totally 9801 (=99x99) program steps
- + Alarm relay function: The relay switches off in case of an alarm condition (short-circuit on slave line or missing DCF/GPS synchronisation).
- + Relay function depending on summer-/winter time status: The relay is only active either at current summer time or winter time.
- + Contact rating 250 V / 4 A (ohmic load)

NTP-Interface

- + The master clock is fitted with a 10/100 Base-T Ethernet Interface, which enables to act as NTP time server in a TCP/IP v4 network (RJ45 connection)
- + NTP (Network Time Protocol) protocol for synchronisation of computers in a PC network = international standard for PC time transmission in internet
- + NTP is also used in smaller networks (LAN) for synchronisation of PC server and PC work stations
- + Alarm messages per e-mail at NTP errors possible
- + Input (RJ45) for use of master clock as net client in a TCP/IP network
- + This interface supports following protocols:
- + NTP and SNTP:
 - + Network Time Protocol (NTP) v2, v3 and v4 in Unicast, Broadcast and Multicast
 - + Simple Network Time Protocol (SNTP) v3 and v4 in Unicast, Broadcast and Multicast
- + Network accuracy:
 - + Synchronisation typically within 10ms...100ms of MPU-TC-NET time base, depending on network delay and jitter (NTP)
- + Comfortable remote control of complete master clock via web interface:
 - + no additional software necessary, handling via standard web browser possible
- + Export of master clock configuration as file
 - + Re-establishment at any time
 - + Selection of data options which shall be imported
- + Alarm message by e-mail
 - + at synchronisation failure
 - + at short-circuit of slave lines
 - + Supervision of a 24VDC alarm input
- + Software-Update if necessary
- + Remote maintenance and -programming

Technical specifications:

Power supply:	110...240 V AC, 50/60 Hz
Current consumption:	< 0.4 A @ 230 V AC
Data storage:	> 1 year (the battery stores data during mains failure)
Case:	19" rack, 1 HE Width 483 mm x Depth 245 mm x Height 44 mm
Weight:	approx. 2 kg
Operating temperature:	0 ... 50 °C
Rel. humidity:	0 % to 90 % (non-condensing)

Options:

DCF-ANT02:	DCF-77 radio synchronisation antenna
GPS-ANT8:	GPS reception antenna with DCF output