



Mini Computer Master Clock with DCF 77 radio or GPS control for up to 20 slave clocks

Model HN 60&61 / HN 60i&61i

The "mini" master clock is a device used to control small-scale systems of unified time, with up to 20 pieces of slave clocks and up to 8 pieces of school bell (signaling devices). The clock is mounted to the DIN rail or into the 19" rack

and is finding its use mostly in schools and plants of reduced size. One slave line 24 V / 150 mA, one programmable relay contact, switching program with a weekly cycle up to 399 programable lines. Integrated GPS receiver (HN 61 only).



TECHNICAL DESCRIPTION

Basic properties

- LCD display with 2x16 characters
- easy operation using 6 keys located on the front panel
- well-arranged user menu
- multi language support
- monitoring quality of DCF 77, WWVB, MSF or GPS signal
- · possibility of configuration for any time zone
- USB for connection of flash memory drive with saved switch programs
- powered by mains 115 or 230VAC or by DC power 12 or 24 VDC

Switching channel

freely configurable for switching based on:

- weekly program cycle with up to 399 programmable lines
- astronomical calendar with sunrise and sunset time calculation based on entry of geographical coordinates
- striking function
- manual switching with various modes (ON/OFF, push-button, timer)

Time base

The clock is controlled by a microprocessor and locked to its own precise crystal time base.

Local time calculation with automatic DST:

· entry of desired zone from standard timezone table

Design

conventional type

plastic box of IP 20, for mounting on a DIN rail - 6M width

for indoor use

- mounting to a wall, IP 40
- 19" rack mount type 1U height (for HN 60&61 only)

for outdoor use

• mounting to a wall, IP 65

Slave line

freely adjustable for the transmission of:

- MOBALine (for HN 60&61 only)
- MOBATIME serial code
- polarized minute impulses
- polarized half-minute impulses
- polarized second impulses

The impulse length, gap length and cycle type can be set for all types of impulse lines.

Other I/O

- input for the connection of DCF, WWVB, MSF receiver or GPS receiver (with DCF output)
- SMA connector for external GPS antenna and synthetic passive DCF output on HN 61
- output 24 VDC with adjustable current limit to 200 mA (for powering of bells or other devices), can serve as 24VDC power input alternatively
- terminal for connection of external backup battery with adjustable current limit

Operation reserve

passive

- internal backup battery for RTC in case of power loss
- as soon as the power becomes resumed the slave clocks adjust automatically and in an accelerated mode to the proper time, the channel state correspons to the actual time

active

- internal circuit for charging the external backup batteries
- optional external backup maintenance-free lead-acid batteries or dry cells



design IP 65



design IP 40



19" rack mount

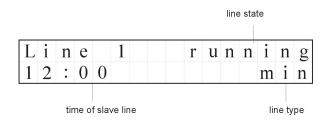


TECHNICAL DATA

Model		HN 60	HN 61	HN 60i	HN 61i
Slave clock line	number			1	
	type	MOBALine, polarized minute, half-minute or second impulses, MOBATIME serial code polarized minute, half-minute or second impulses, MOBATIME serial code			
	electrical parameters	24V, max. 150 mA			
	number	1			
Switching relay contact	weekly program	with up to 399 switching commands			
	astronomical calendar	with entry of geographical coordinates for sunrise/sunset calculation			
	manual switching	selection of different control modes			
	electrical parameters	max. 250 VAC, max. 6 A, 1500 VA			
Other I/O	input of DCF signal	✓	-	✓	-
	output of DCF signal (synthetic passive)	-	✓	-	✓
	GPS input for external antenna	-	✓	-	✓
	USB	√			
	output 14 and 24 VDC, max. 200 mA summary current	✓			
Back-up at power failure	passive for RTC	about 5 years by lithium battery			
	active for full functionality	internal circuit for charging the external battery			
Power supply	AC (mains)	115 or 230 VAC ±5 %, 50-60 Hz			
	DC	12 or 24 VDC ±10 %			
Accuracy (at about 20°C)	without synchronisation	± 0,1 s per day			
	synchronised	± 10 ms			
Environment	operating temperature	from -30 to + 70°C			
	relative humidity	max. 95% without condensation			
	IP 20	106 (6M) x 90 x 58 mm / 0.6kg			
Dimensions (mm) /	IP 40	146 x 180 x 82 mm / 0.9kg			
Weight (kg)	IP 65	146 x 240 x 111 mm / 1.3kg			
	19" rack mount	483 x 44 (1U) x 127 mm / 1.5kg			
Option / Accessories					
DCF 77 radio receiver	AD 650	✓	-	✓	-
GPS magnetic antenna	standard cable length 5m	-	✓	-	✓
BP 60/50 12V	back-up battery pack Lead battery 0,8 Ah, 12 V	✓			
HN 6x IP 40 case	for indoor wall mounting	✓			
HN 6x IP 65 case	for outdoor wall mounting	Y			

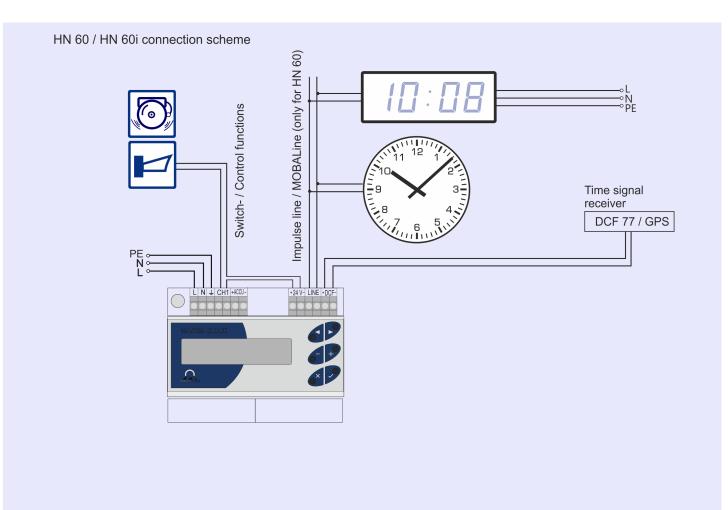
Master screen

Slave line screen





CONNECTION SCHEME



HN 61/ HN 61i connection scheme

