**Wharton**

4500x.05

4510x.05

The 4500x and 4600x series of digital calendar clocks provide a precise and elegant display of time using red, green, yellow/amber, blue or white LED display characters with an unrivalled flexibility of operation in the most demanding timekeeping and stopwatch applications.

Synchronisation of the 45xxN & 46xxN series products is primarily via NTP/SNTP from a remote timeserver located on the customers TCP/IP Ethernet network. 45xxE, 45xxNE, 46xxE & 46xxNE units can be configured for over 25 different types of secondary clock operation, included GPS, MSF and DCF radio time code synchronisation when used with the approprate option module or radio receiver.
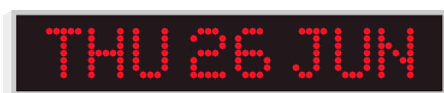
4520x.05
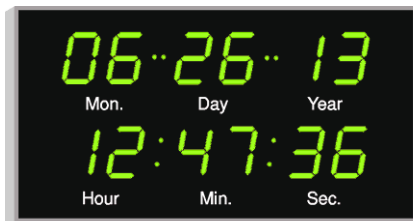
4551x.05

4570x.05

4600x.05

4610x.057

4670x.05

Model No.	Case Size	Character height	Viewing distance	LED Display Colour Options
4500x.05	550 x 90 x 58mm	50 & 30mm	20m (60 ft)	.R, .G, .Y, .B
4500x.12	1450 x 180 x 66mm	120 & 100mm	50m (150ft)	.R, .G, .W,
4510x.05	550 x 90 x 58mm	50 & 30mm	20m (60ft)	.R, .G, .Y, .B
4510x.12	1450 x 180 x 66mm	120 & 100mm	50m (150ft)	.R, .G, .W,
4520x.05	480 x 180 x 58mm	50mm	25m (75ft)	.R, .G, .Y, .B
4520x.12	940 x 400 x 66mm	120 & 100mm	50m (150ft)	.R, .G, .W,
4530x.05	480 x 180 x 58mm	50mm	25m (75ft)	.R, .G, .Y, .B
4530x.12	940 x 400 x 66mm	120 & 100mm	50m (150ft)	.R, .G, .W,
4540x.05	300 x 300 x 58mm	50mm	25m (75ft)	.R, .G, .Y, .B
4540x.12	600 x 600 x 66mm	120 & 100mm	50m (150ft)	.R, .G, .W,
4550x.057	450 x 230 x 58mm	57mm	25m (75ft)	.R, .G, .Y, .B
4550x.100	800 x 420 x 66mm	100mm	50m (150ft)	.R, .G, .Y, .B
4570x.05	480 x 180 x 180mm	50mm	25m (75ft)	.R, .G, .Y, .B
4600x.05	460 x 90 x 58mm	50 & 30mm	20m (60ft)	.R, .G, .Y, .B
4600x.12	1130 x 180 x 66mm	120 & 100mm	50m (150ft)	.R, .G, .W,
4610x.057	580 x 90 x 58mm	57mm	25m (75ft)	.R, .G, .Y, .B
4610x.100	1000 x 180 x 66mm	100mm	50m (150ft)	.R, .G, .Y, .B
4670x.05	460 x 90 x 58mm	50mm	25m (75ft)	.R, .G, .Y, .B

Key Features

Automatic synchronisation with remote NTP network timeservers across a TCP/IP Ethernet network (45xxN/NE or 46xxN/NE units).

High visibility LED display with both automatic and manual brightness adjustment.

Time display in 4 digits or 6 digits with multiple time and date display formats.

Seven different display sizes offering a wide range of viewing distances between 20m (60") -> 100m (300')

'Set Once' world time zone configuration allowing digital clock to support all international time zones.

Wireless IR remote control for configuration and multifunction stopwatch operation.

High quality aluminium case with anodised or RAL painted finish.

Remote configuration, management and software update across the Ethernet TCP/IP network using Wharton cMon software (45xxN/NE or 46xxN/NE units).

10/100 Base-T Ethernet interface (45xxN/NE or 46xxN/NE units).

Battery backup for maintaining timekeeping during periods of disconnection.

PoE (Power over Ethernet) Midspan and Endspan support, 100-240V 50-60Hz AC mains and 24V DC power options available.

Operational Features

High visibility 4 digit (hours and minutes) or 6 digit (hours, minutes and seconds) LED display.

Seven different display sizes offering viewing distances from 20m (60") -> 100m (300ft).

User selectable 12 or 24 hour time display. Colons provide AM/PM indication in 12 hour mode.

Automatic and 7 manual brightness settings.

The 45xxE/N/NE and 46xxE/N/NE series digital calendar clocks either dot matrix alpha-numeric date displays or seven segment numeric date displays. Each of the two display type allow for different date formats. The 45xxE/N/NE and 46xxE/N/NE series dot matrix style digital calendar clocks can be configuried to display the date in 6 different formats and in one of 22 different languages The 45xxE/N/NE series seven segment style digital calendar clocks can be configured to display the date in one of four different formats.
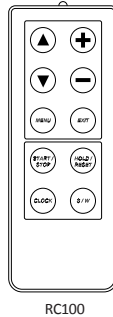
RC100

Multifunction Stopwatch operation with wireless RC100 infrared remote control.

10/100 Base-T Ethernet Interface (4010N/NE and 4200N/NE units).

Fully automatic configuration support when used with DHCP server supporting option 42.

Additional Features for 45xxE, 45xxNE, 46xxE and 46xxNE

User selection from 25 different types of secondary clock operation including synchronising control by alternate polarity impulses, EBU/SMPTE time code, GPS and radio time codes, IRIG-B/Afnor NFS 87 500 time codes, MB serial and MOBALine time codes, serial ASCII messages at RS232 or RS485/422 levels in a wide range of formats and data rates, 48x0 time code and control using w482 time code to display time from one of fifteen different time zones.

Optional low cost internal wBus2 interface cards are required for EBU/SMPTE, IRIG-B/Afnor NF S 87-500, RS232, RS485 and 24V/48V Alternate polarity impulse operation. Time synchronisation from MSF or DCF radio time codes and the GPS or GLONASS satellites requires the appropriate receiver.

Control of standard stopwatch operation 'start/stop' and 'hold/reset' operation using customer supplied external switches or voltage free contact closures.

Alternating time and temperature display in °C and °F when used with optional 406 temperature sensor. User specified hold time for both time and temperature.

Local Synchronisation output, allowing the time synchronisation of up to 5 other 4000E series digital clocks using a simple cable pair.

Timing accuracy

High Quality Quartz Crystal Oscillator

Unsynchronised: 0.1 sec/day @ 20-25°C

Synchronised to NTP/SNTP timeserver:

Typically synchronised within 1-10 milliseconds of master clock timebase depending on network delay and jitter. (NTP)

MSF or DCF synchronisation: ±20mS of UTC *1

GPS/GLONASS synchronisation: ±1mS of UTC *2

*1 4000E & 4000NE only - When used with either a 484.02 (MSF) or 484.03 (DCF) radio receiver.
*2 4000E & 4000NE only - When used with either a 488HS3 or 488HS3-GLONASS receiver.

Case Styles and Colours

The 45xxE/N/NE and 46xxE/N/NE series of digital clocks are available as standard with a wide range of mounting options to ensure ease of integration in all applications.

.S   Surface Mounting case suitable for wall mounting.

.FP   Flush mounting case for use in a panel with rear access.

.FB   Flush mounting case, supplied with back box for use in a solid wall.

.SS   Single sided ceiling suspended case

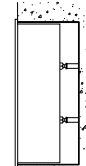.DS   Double sided ceiling suspended case

Digital clocks are supplied as standard with cases finished in black or silver fine brushed anodising. Painted case finishes to any RAL paint colour available at extra cost.
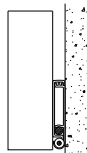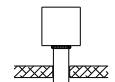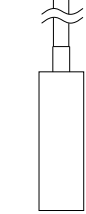

.S
Surface
Mounting
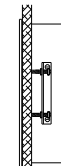
.FP
Flush Panel
Mounting

.FB
Flush Recessed
Mounting

.SS & .DS
Single & Double
Sided Ceiling
Suspended

Power Supply

IEEE 802.3af-2003 Class 3 Midspan and Endspan support (.PoE order code) *1

Internal PSU 110-240V AC. 50/60Hz
Units available with UK, European, US or Australian mains leads. (.UK, .EU, .US & .AU order codes)

DC power options: 24V & 48V DC power options available at extra cost. (Order code .24VDC & 48VDC)

Other power options available on request, please contact our sales team for more information.

Battery Backup: >1 Year. (The battery backup maintains the internal timekeeping during periods of mains failure)

*1 Not available on any 45xxE or 46xxE digital calendar clocks or units with .100 or .12 display type.

Environment

Operating temperature: 0-50°C
Relative Humidity: 0% to 95% (non-condensing.)
Altitude: 0 to 3,000m

Electromagnetic Compatibility, Safety and RoHS2 Directives

4500x and 4600x digital clocks, when used in accordance with our recommendations, comply with the European Community Electromagnetic Compatibility Directive 2004/108/EC, Low Voltage Directive 2006/95/EC and RoHS2 Directive 2011/65/EU and conform to the following standards:

EN 50121-4 : 2006	EN 61000-6-2 : 2005
EN 61000-6-4 : 2007+A1 : 2011	EN 55022 : 2010
EN 55024 : 2010	EN 60950-1 : 2006

Designed and manufactured by:

Specifications subject to change without notice