WIRED / WIRELESS CLOCK SYSTEMS

Keeping your facility running **effortlessly**, **on-time** and **in-sync**.

CareHawk® clock systems deliver **accurate**, **reliable**, **flexible**, **user-friendly** and **cost-effective** timekeeping and communication.

Accurate
Relay precise NTP or GPS time-code signals throughout a wired or wireless network via the central Master Clock.

Reliable
Employing a wireless cascading network enables each clock to repeat the signal to other clocks in the system allowing for continuous self-correction and consistent timekeeping throughout the entire facility.

Flexible
CareHawk Master Clocks easily interface to paging and intercom systems such as the CareHawk CH1000(LT) and legacy Dukane StarCall and MCS350 communication systems for tone generation and audible signaling of bell schedules.

They also conform to the open communications standard adopted by the ZigBee Alliance of manufacturers, giving them compatibility with a wide range of wireless automation platforms available today and in the future.

Choose a wired system for new installations, a wireless system for retrofit installations or a combination of both for complete flexibility.

A wide selection of analog and digital clocks are available with a range of mounting and installation options.

Power digital clocks via a plug-in transformer or centralized power supply. Power analog clocks via a plug-in transformer, centralized power supply and/or with batteries for total wireless flexibility.

User-Friendly
CareHawk clocks are easy to configure thanks to CareHawk's exclusive browser-based Master Clock setup. Simply log in to the Master Clock for intuitive on-screen configuration.

Easily operate digital clock count-up/count-down timers and messages with a simple wall button.

Cost-Effective
The wireless cascading network reduces system setup and installation costs, thanks to the relatively low signal strength that is necessary for it to function efficiently. This eliminates the expense and time required to obtain an FCC license, install a radio antenna or run wires.

Wireless Synchronization

In a wireless cascading network each clock in the system is capable of receiving and transmitting the wireless signal, enabling it to be used as a repeater while boosting the data stream along the system. With this dual capability, there is no limit to the number of clocks that can be installed throughout high-rises, sprawling facilities, and small buildings alike.

Because the signal fans out and is repeated by a cascading number of devices, a single clock will typically receive its data from a number of different angles. This dramatically reduces the effect of obstructions, noise sources, or long distances on the reliability of the system. Furthermore, if an individual clock loses its signal, it will link to a nearby clock and automatically synchronize with that new source.

The CareHawk 2-inch and 4-inch digital secondary clocks (24ZB20/24ZB40) provide a highly visible, even-intensity, long-life display of time. They can be operated in either 12 or 24-hour format and at either Bright or Normal intensity levels.

These cost-effective digital clocks can be used in a wired time-keeping system or a wireless system with the addition of a ZigBee Wireless Sync Module.

The CareHawk 12-inch analog secondary clocks (24ZBP12R / 24ZBP12R-DBLM) ship wireless ready with the ZigBee wireless capabilities built-in.

ZigBee Wireless Sync Module

Wired / Wireless Multi-Clock Systems

Secondary Clock	Master Clock	Single Mount(s)	Dual and Specialty Mount(s)	Power Supplies	Wireless
Digital Secondary Clocks					
2-Inch Digital Secondary Clock (24ZB20) *See Pg.5*	o *CareHawk CH1000(LT)* o Master Clock (24ZBMC100). *See Pg.8*	o *New install (flush mount):* 4-gang masonry backbox (RACO #693 or RACO #698) o *Retrofit install (surface mount):* CareHawk backbox (8A225) o *Repair (replace 24D20 clock):* 6-gang masonry box (RACO #960)	o 2-Inch Dual Digital Clock Wall Mount Enclosure (110-1674). *See Pg.9* o 2-Inch Dual Digital Clock Ceiling Mount Enclosure (110-1675). *See Pg.9* o 2-Inch Digital Clock/Speaker Baffle (DC802) with 8-inch speaker w/transformer mounted to recessed backbox (RE1175) or Surface backbox (SE1275). *See Pg.9*	o DC Power Adapter[1] (PS-24VDC-05A-2.5RA) o DC Clock Power Supply[2] (AL600ULPD8). *See Pg.8*	ZigBee Wireless Sync Module (24ZB2040)
4-Inch Digital Secondary Clock (24ZB40) *See Pg.5*	o *CareHawk CH1000(LT)* o Master Clock (24ZBMC100). *See Pg.8*	o *New install (flush mount):* 4-gang masonry backbox (RACO #693 or RACO #698) o *Retrofit install (surface mount):* CareHawk backbox (8A425) o *Repair (replace 24D40 clock):* 6-gang masonry backbox (RACO #960)	o 4-Inch Dual Digital Clock Housing (110-3902) *See Pg.10*	o DC Power Adapter[1] (PS-24VDC-05A-2.5RA) o DC Clock Power Supply[2] (AL600ULPD8). *See Pg.8*	ZigBee Wireless Sync Module (24ZB2040)
Analog Secondary Clocks					
12-Inch Analog Secondary Clock - *Plastic* (24ZBP12R) *See Pg.6*	o Master Clock (24ZBMC100). *See Pg.8*	N/A	N/A	o Batteries (24ZBDCELL-2) o DC Power Adapter[3] (PS-12VDC-05A-S) o DC Clock Power Supply[2] (AL600ULPD8). *See Pg.8*	ZigBee Wireless Sync Module built-in
14-Inch Analog Secondary Clock - *Metal* (24ZBM14R) *See Pg.7*	o Master Clock (24ZBMC100). *See Pg.8*	N/A	N/A	o DC Power Adapter[3] (PS-12VDC-05A-S) o DC Clock Power Supply[2] (AL600ULPD8). *See Pg.8*	ZigBee Wireless Sync Module built-in
12-Inch Dual Face Clock with Mounting Kit (24ZBP12R-DBLM) *See Pg.7*	o Master Clock (24ZBMC100). *See Pg.8*	N/A	o 12-Inch Dual Face Ceiling-Mount with Extension Bar and Adapter (included)	o DC Power Adapter (included)	ZigBee Wireless Sync Module built-in

1) The PS-24VDC-05A-2.5RA supplies power to one clock and requires an AC power outlet.
2) DC Clock Power Supply (AL600ULPD8) provides distributed power from a central location for multiple clocks. Number of clocks per power supply will vary based on system configuration.
3) The PS-12VDC-05A-S supplies power to one clock and requires an AC power outlet. Use the PS-12VDC-05A-S when mounting the clock over a recessed electrical backbox. Note: Align the adapter with the open cavity in the back of the clock.

Retrofit Digital Clock Sync Module

Module	Master Clock (Controller)	Secondary Clocks	Termination
Digital Clock Sync Module (CLKDUK)	o CareHawk CH1000(LT) o Dukane StarCall with 110-3521A CPC-E card o Dukane MCS350 with 110-3521A CPC-E card	o CareHawk 2-Inch Digital Secondary Clock (24ZB20) o CareHawk 4-Inch Digital Secondary Clock (24ZB40) o 2-Inch Digital Secondary Clock (Dukane/Edwards 24D20A) o 4-Inch Digital Secondary Clock (Dukane/Edwards 24D40A)	o Five pin and three pin terminal strips accepting 26 to 16 AWG

2-Inch Digital Secondary Clock (24ZB20)

- Highly visible 2-inch LED display
- Selectable LED display intensity
- 12 or 24-hour format
- High efficiency
- Can replace the Dukane 24F750A or Dukane/Edwards 24D20(A) digital clocks for easy upgrades
- ESD-hardened
- Wireless capable with ZigBee Wireless Sync Module (24ZB2040)
- 24VDC operation

The CareHawk 24ZB20 2-Inch Digital Secondary Clock provides a highly visible, even-intensity, long-life display of time in selectable formats. It can be operated in either 12 or 24-hour format and at either Bright or Normal intensity levels. The time display on the secondary clock updates to the Master Clock time at one-minute intervals. This ensures that all system clocks are in precise synchronization and that every clock in the system is as accurate as the Master Clock. The high-efficiency design allows many clocks to be operated at great distances from low-cost 24VDC power supplies.

For new installations, the 24ZB20 can be flush mounted in a standard 4-gang backbox and can be operated from a 24VDC power supply.

For retrofit installations, the 24ZB20 can be surface mounted using the 8A225 surface mount backbox and can be operated from 24VDC.

Compliance with FCC Part 15 Class A emissions rules has been verified. As a result, the 24ZB20 clock meets the requirements for installation in educational, institutional, and commercial sites. The installed clock is ESD-hardened to IEC 801-2 Standards.

4-Inch Digital Secondary Clock (24ZB40)

- Highly visible 4-inch LED display
- Selectable LED display intensity
- 12 or 24-hour format
- High efficiency
- Can replace the Dukane 24F750A or Dukane/Edwards 24D40 digital clocks for easy upgrades
- ESD-hardened
- Wireless capable with ZigBee Wireless Sync Module (24ZB2040)
- 24VDC operation

The CareHawk 24ZB40 4-Inch Digital Secondary Clock provides a highly visible, even-intensity, long-life display of time in selectable formats. It can be operated in either 12 or 24-hour format and at either Bright or Normal intensity levels. The time display on the secondary clock updates to the Master Clock time at one-minute intervals. This ensures that all system clocks are in precise synchronization and that every clock in the system is as accurate as the Master Clock. The high-efficiency design allows many clocks to be operated at great distances from low-cost 24VDC power supplies.

For new installations, the 24ZB40 can be flush mounted in a standard 4-gang backbox and can be operated from a 24VDC power supply.

For retrofit installations, the 24ZB40 can be surface mounted using the 8A425 surface mount backbox and can be operated from 24VDC.

Compliance with FCC Part 15 Class A emissions rules has been verified. As a result, the 24ZB40 clock meets the requirements for installation in educational, institutional, and commercial sites. The installed clock is ESD-hardened to IEC 801-2 Standards.

12-Inch Analog Secondary Clock – Plastic (24ZBP12R)

- Black ABS plastic housing
- 12-inch round
- 12-hour face
- Wall mounted
- Battery operation and/or DC power adapter or optional 12VDC central power supply
- Wireless capable with built-in ZigBee Wireless Sync Module

The 24ZBP12R Wireless Analog Clock is a 12 in. (30 cm) round, wall-mounted, secondary clock available with a standard 12-hour face. The clock runs on battery and/or DC power and is accurate to within ±0.2 seconds per day.

When on battery power the clock synchronizes with the 24ZBMC100 Master Clock at 2:00 a.m. each night to gain its time setting. When hardwired it synchronizes continuously. It only takes a few seconds to receive the signal and to adjust the time to the synchronized setting. Should a clock fail to receive the Master Clock signal, it continues running until the next synchronization cycle. If a clock loses power, it stops running. When power returns, the clock resynchronizes with the Master Clock to regain its time setting.

The clock automatically adjusts for daylight savings time (DST) through the Master Clock. On the DST change date, the clock synchronizes with the Master Clock at 2:00 a.m. and adjusts the time forward or back as required.

14-Inch Analog Secondary Clock - Metal (24ZBM14R)

- Metal housing
- 14-inch round
- 12-hour face
- Wall mounted
- DC power adapter and/or optional 12VDC central power supply
- Wireless capable with built-in ZigBee Wireless Sync Module

The 24ZBM14R Wireless Analog Clock is a 14 in. (35.56 cm) round, wall mounted, secondary clock available with a standard 12-hour face.

The clock synchronizes with the 24ZBMC100 Master Clock continuously to gain its time setting. It only takes a few seconds to receive the signal and to adjust the time to the synchronized setting. Should a clock fail to receive the Master Clock signal, it continues running until the next synchronization cycle. If a clock loses power, it stops running. When power returns, the clock resynchronizes with the Master Clock to regain its time setting.

The clock automatically adjusts for daylight savings time (DST) through the Master Clock. On the DST change date, the clock synchronizes with the Master Clock at 2:00 a.m. and adjusts the time forward or back as required.

12-Inch Dual Face Clock with Mounting Kit (24ZBP12R-DBLM)

- Includes two 12-inch analog secondary clocks.
- DC power adapter (no batteries).
- The 24ZBP12R-DBLM can be ceiling mounted. Optionally, the housing can be suspended further using a conduit extension.
- Wireless capable with built-in ZigBee Wireless Sync Module

The included clocks are 12-inch round, 12-hour face, black ABS plastic housing, powered with a DC power adapter, and are wireless capable with built-in ZigBee Wireless Sync Module.

The clock synchronizes with the 24ZBMC100 Master Clock continuously to gain its time setting.

The clock automatically adjusts for daylight savings time (DST) through the Master Clock. On the DST change date, the clock synchronizes with the Master Clock at 2:00 a.m. and adjusts the time forward or back as required.
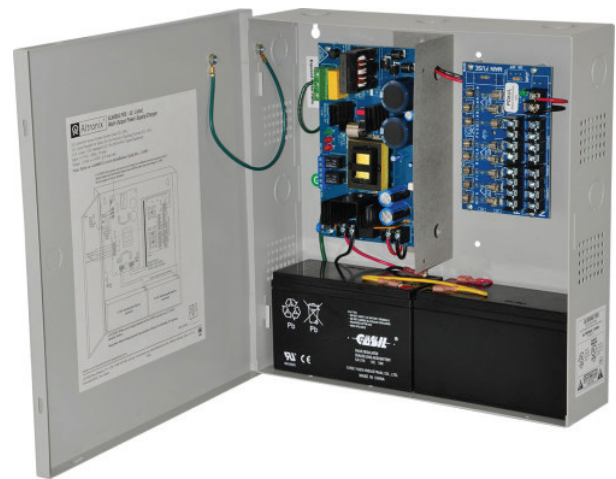
Master Clock (24ZBMC100)

- Configure Master Clock with CareHawk's exclusive browser-based Master Clock setup
- Wired or wireless (ZigBee transmitter/receiver) signal delivery to secondary clocks
- No limit to the number of secondary clocks on a wireless network
- Connect to local area network with a standard Cat5, Cat5e or Cat cable with an RJ45 plug.
- 19VDC power adapter

The Master Clock is an on-site, central rack-mounted controller. It can act as a stand-alone clock or receive highly accurate time codes from an NTP (Network Time Protocol) or GPS (Global Positioning System) source and relays these codes to local secondary clocks via a wired or wireless signal. The Master Clock broadcasts time and date signals to secondary clocks once per second.

The Master Clock easily interfaces to paging and intercom systems such as the CareHawk CH1000(LT) and legacy Dukane StarCall and MCS350 communication systems for tone generation and audible signaling for bell schedules.

The Master Clock supports four dry contact relays for activating bells, lamp controls, or other devices. Each relay can be programmed with up to 48 time-based events.

The Master Clock is configured via a computer connected to the local area network using CareHawk's exclusive browser-based Master Clock setup. Simply log into the Master Clock for intuitive on-screen configuration. Many settings can also be configured using the front panel buttons.

DC Clock Power Supply (AL600ULPD8)

- 12VDC or 24VDC selectable output
- 8 fuse protected outputs
- 12/24VDC @ 6A, 115VAC
- Battery backup (batteries not included)
- Filtered and electronically regulated output
- Short circuit and thermal overload protection
- AC input and DC output LED indicators
- AC fail supervision
- BC300 enclosure

AL600ULPD8 is a multi-output power supply/charger that converts a 115VAC, 60Hz input into eight (8) 12VDC or 24VDC non power-limited outputs.

2-Inch Dual Digital Clock Housings – Wall or Ceiling Mount (110-1674/110-1675)

- 2-Inch Digital Clock Dual Wall Mount Enclosure (110-1674)
- 2-Inch Digital Clock Dual Ceiling Mount Enclosure (110-1675)
- Mounts on 2-gang backbox.

The CareHawk 110-1674 Dual Wall Mount or 110-1675 Dual Ceiling Mount with two 24ZB20 2-Inch Digital Secondary Clocks makes a single compact unit. Designed for corridors or large rooms, the clocks are equipped with 2-inch digital displays, trim plates constructed of high impact, non-conductive, flame-retardant, charcoal-colored material with a mounting frame finished in white.

2-Inch Surface-Mount Backbox (8A225)

- Designed for CareHawk 24ZB20 2-Inch Digital Secondary Clocks
- Surface wall mount
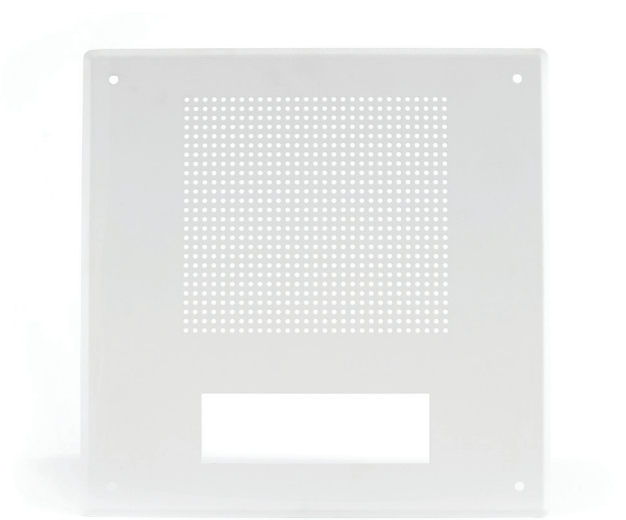- Charcoal gray enamel finish

The 8A225 2-Inch Surface-Mount Backbox is designed for the CareHawk 24ZB20 2-Inch Digital Secondary Clock and included trim plates. The backbox can be surface wall mounted.

4-Inch Surface-Mount Backbox (8A425)

- Designed for CareHawk 24ZB40 4-Inch Digital Secondary Clocks
- Surface wall mount
- Charcoal gray enamel finish

The 8A425 4-Inch Surface-Mount Backbox is designed for the CareHawk 24ZB40 4-Inch Digital Secondary Clock and included trim plates. The backbox can be surface wall mounted.

2-Inch Digital Clock/Speaker Housing

- 2-Inch Digital Clock/Speaker Baffle (DC802)
- 8-inch speaker/transformer
- Recessed backbox (RE1175) or surface backbox (SE1275)

The DC802 2-Inch Digital Clock/Speaker Baffle is an attractive unit when mounted with an SE1275 surface mount backbox. The Clock/Speaker Baffle assembly is a white, perforated metal grille within a white metal frame with overall dimensions of 12.75" in height, 12.75" wide, and 4" deep with the speaker. It can be flush mounted using the RE1175 backbox. The clock and speaker are sold separately.

4-Inch Dual Digital Clock Housing (110-3902) – Wall or Ceiling Mount

- Designed for 24ZB40 4-Inch Digital Secondary Clock(s)
- Adaptable for wall or ceiling mount

The 110-3902 Dual 4-Inch Digital Clock Housing is designed for corridors or large rooms requiring a front and rear digital clock display. The enclosure houses two 24ZB40 4-Inch Secondary Digital Clocks and included trim plates.

The housing can be wall or ceiling mounted. For mounting to a cement or cinder block wall, the housing mounts to a standard RACO 2-gang backbox. Optionally, the housing can be flush mounted to a ceiling or suspended below the ceiling using conduit extensions.

ORDERING INFORMATION

Model	Description
2-Inch Digital Secondary Clock, Housing and Associated Equipment	
24ZB20	**2-Inch Digital Secondary Clock**
110-1674	Wall Mount Dual Enclosure for 2-Inch Digital Secondary Clock
110-1675	Ceiling Mount Dual Enclosure for 2-Inch Digital Secondary Clock
8A225	Surface Mount Backbox for 2-Inch Digital Secondary Clock
RACO #693	4-gang masonry box
24ZBM2040	ZigBee Wireless Sync Module
PS-24VDC-05A-2.5RA	DC Power Adapter. Supplies power to one clock and requires an AC power outlet.
AL600ULPD8	DC Clock Power Supply (supplies power to multiple clocks)
24ZBPSCABLE-10	Optional Power Cable - 10 pack (These cables plug onto the 2-pin power header on the clocks and provide pigtail connectivity)
4-Inch Digital Secondary Clock, Housing and Associated Equipment	
24ZB40	**4-Inch Digital Secondary Clock**
110-3902	4-Inch Dual Digital Clock Housing
8A425	4-Inch Surface Mount Backbox
RACO #693	4-gang masonry box
24ZBM2040	ZigBee Wireless Sync Module
PS-24VDC-05A-2.5RA	DC Power Adapter. Supplies power to one clock and requires an AC power outlet.
AL600ULPD8	DC Clock Power Supply (supplies power to multiple clocks)
24ZBPSCABLE-10	Optional Power Cable - 10 pack (These cables plug onto the 2-pin power header on the clocks and provide pigtail connectivity)
12-Inch Analog Secondary Clock - Plastic	
24ZBP12R	**12-Inch Analog Secondary Clock - Plastic**
24ZBDCELL-2	2 alkaline D cell batteries
PS-12VDC-05A-S	DC Power Adapter. Supplies power to one clock and requires an AC power outlet. Use PS-12VDC-05A-S when mounting the clock over a recessed electrical backbox. Note: Align the DC adapter with the open cavity in the back of the clock.
AL600ULPD8	DC Clock Power Supply (supplies power to multiple clocks). The AL600ULPD8 must be configured for 12VDC.
24ZBPSCABLE-10	Optional Power Cable - 10 pack (These cables plug onto the 2-pin power header on the clocks and provide pigtail connectivity)
14-Inch Analog Secondary Clock - Metal	
24ZBM14R	**14-Inch Analog Secondary Clock - Metal**
PS-12VDC-05A-S	DC Power Adapter. Supplies power to one clock and requires an AC power outlet. Use PS-12VDC-05A-S when mounting the clock over a recessed electrical backbox. Note: Align the DC adapter with the open cavity in the back of the clock.
AL600ULPD8	DC Clock Power Supply (supplies power to multiple clocks). The AL600ULPD8 must be configured for 12VDC.
24ZBPSCABLE-10	Optional Power Cable - 10 pack (These cables plug onto the 2-pin power header on the clocks and provide pigtail connectivity)
12-Inch Dual Face Clock with Mounting Kit	
24ZBP12R-DBLM	**12-Inch Dual Face Clock with Mounting Kit**
-	DC Power Adapter
-	Dual Face Ceiling-Mount Kit with Extension Bar and Adapter

Model	Description
Master Clock and Associated Equipment	
24ZBMC100	**Master Clock, NTP/GPS time based, with ZigBee transmitter/receiver, UL Listed, AC Adapter, 650 x 400 x 200 mm / 5.0 kg**
24ZBMCGPS	GPS receiver with 4.5m antenna cable
24ZBMCGPSEXT	50 meter extension cable for GPS antenna
DC Clock Power Supply and Associated Equipment	
AL600ULPD8	**DC Clock Power Supply (12/24VDC @ 6A, 115VAC) - Supplies power to multiple clocks**
Digital Clock Sync Module and Associated Equipment	
CLKDUK	Digital Clock Sync Module for Dukane and CareHawk Clocks
CLKSAP	Digital Clock Sync Module for Sapling Clocks

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