
# Analog, Digital and Wireless Clocks

## *TIME SYSTEMS*

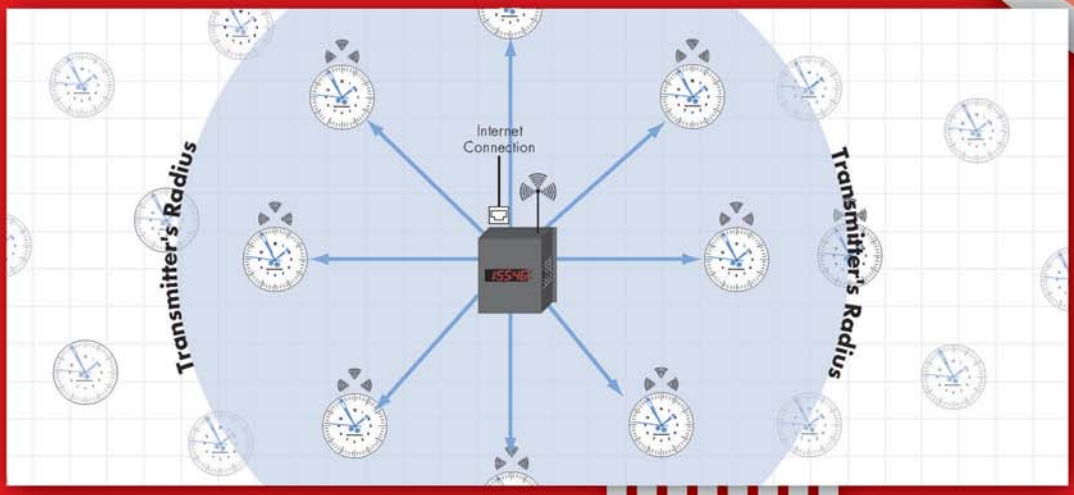
BOGEN TIME SYSTEMS

BOGEN®

# TABLE OF CONTENTS

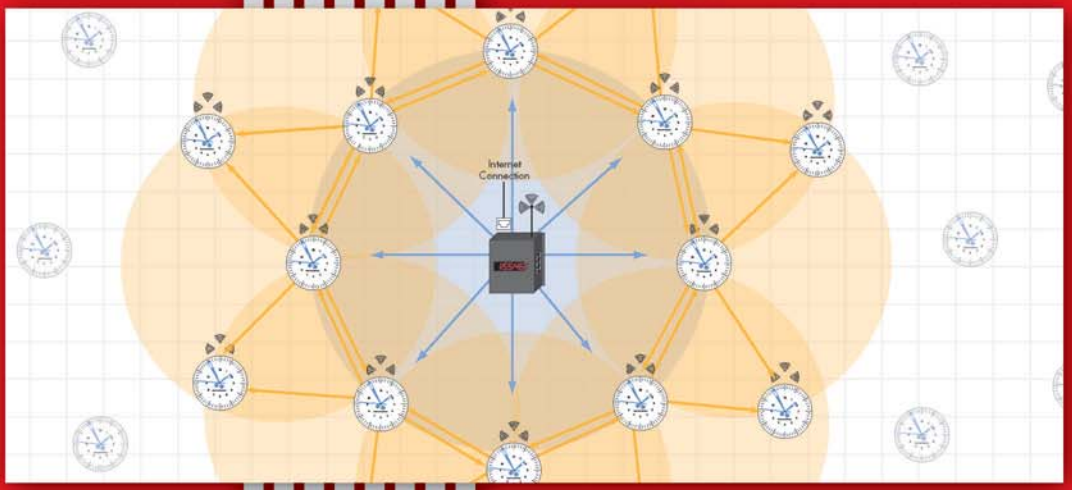
# WIRELESS SYSTEMS

BOGEN



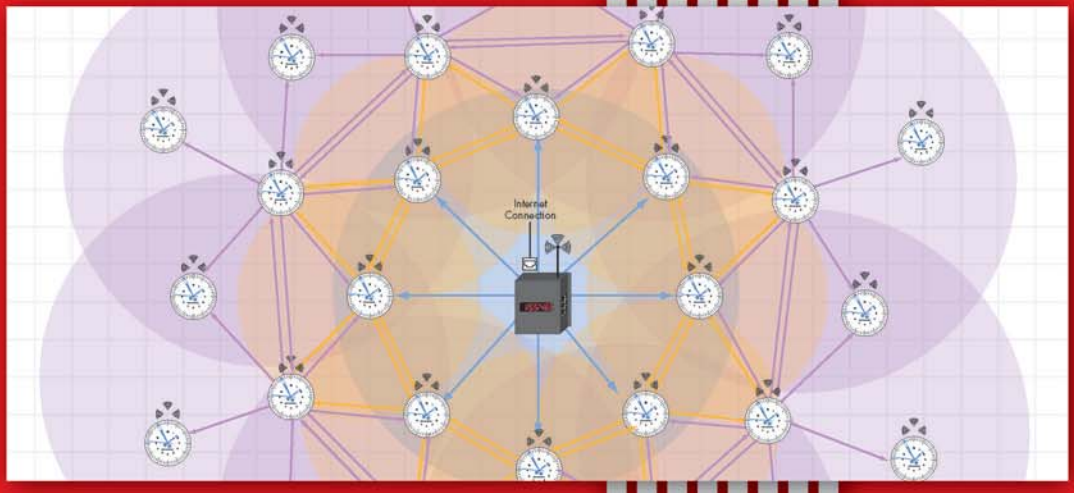

**I**

**Transmitter transmits to surrounding clocks**




**II**

**Transmitter and surrounding clocks continue transmission**




**III**

**More clocks continue to receive and transmit**

# WIRELESS SYSTEMS

## BCAL Series Wireless Analog Clocks

HIGHLIGHTS

- Each clock acts as a repeater and transmitter
- 915 - 928 MHz frequency hopping technology
- Receiving and transmission rate every four (4) hours for battery operation. Receiving and transmitting rate of once a minute for 110V or 24V
- Internal antenna
- Automatic calibration
- Built-in diagnostic mode for easy maintenance
- Quick correction for time change (max. five (5) minutes)
- Ideal for renovation projects using existing wiring, or for new installations
- Hour, minute and second hands
- Energy efficient:
  - 5 year battery life (2 "D" cell)**
  - 20 mA @ 24V AC (voltage)
  - 15 mA @ 110V AC (voltage)
- Wide dynamic range for input voltage
  - Battery powered (2 "D" cell)
  - 7V AC - 28V AC (24V model)
  - 85V AC - 135V AC (110V model)
- Does not require custom back box
- Plug-in Molex connectors (in 110V or 24V model)
- Smooth surface black ABS case and polycarbonate crystal
- FCC Compliant, part 15 Section 15,247

**With good reception


DESCRIPTION

*Bogen's innovative new BCAL Series wireless clocks incorporate multi–function software. Every clock is capable of receiving and transmitting a signal. This type of system provides significant advantages because it is not limited to the distance or the signal path between the transmitter/receiver and the clock. Since each clock acts as a repeater and transmitter, the significant factor is the distance between one clock to another. The innovative 915–928 MHz frequency–hopping technology allows for a better and clearer signal even if there is interference in one of the frequencies. The BCAL Series wireless clocks are designed to automatically work together without causing interference with each other. In fact, a large number of clocks in a specific area would increase the quality of the signal to each unit. These clocks include automatic calibration, as well as diagnostic functionality that allows the user to view the quality of the signal, how long since the last time the clock received a signal, and a comprehensive analysis of the clock itself. Bogen wireless clocks transmit a stream of data every four (4) hours (battery operated model only), or every minute (24V and 110V models). The BCAL Series wireless clocks are compact, energy efficient and reliable. The clocks are available in 12" and 16" models. The BCAL Series wireless clocks are FCC Compliant, part 15 Section 15,247.*

## BCBL 1000 Series Wireless Digital Clocks

HIGHLIGHTS

- Receives and transmits the signal once a minute
- External antenna
- Each clock acts as a repeater and transmitter
- 915-928 MHz frequency-hopping technology
- Immediate correction for time change
- Microprocessor based clock
- Clocks will not deviate from each other
- Available in 2.5" display and 4.0" display
- 12 or 24 hour format
- Two (2) levels of adjustable brightness
- Loss of communication alert
- Bright LED display
- Anti–glare red or blue display
- No battery backup required
- Dynamic range for input voltages
  - 12 - 30V DC (24 Volt model)
  - 12 - 30V AC (24 Volt model)
  - 78 - 130V AC (110 Volt model)
- Compatible with the BCAL series analog clocks
- Designed to work in conjunction with the Bogen Transceiver
- Plug-in Molex connectors
- Available in red or blue displays
- FCC Compliant, part 15 Section 15,247


DESCRIPTION

*Bogen's new BCBL 1000 Series wireless digital clocks are available with either 2.5" high characters or 4.0" high characters in a four (4) digit display. The BCBL 1000 Series digital clocks are reliable slave clocks designed to work in conjunction with the Bogen Transceiver (part number BCTR–200–056–1). The innovative 915–928 MHz frequency–hopping technology allows for a better and clearer signal even if there is interference in one of the frequencies. Not only can each clock receive the wireless signal, it also transmits the signal which eliminates the need for many repeaters. The BCBL 1000 Series clocks are designed to automatically work together without causing interference with each other. In fact, a large number of clocks in a specific area would increase the quality of the signal to each unit. The BCBL 1000 Series has a high efficiency, bright LED display. The clocks implement immediate correction upon receipt of the digital signal. The BCBL 1000 features many options including 12 or 24 hour format, as well as two (2) brightness settings. The BCBL 1000 Series digital clocks can be mounted in a surface or double mount housing. The BCBL 1000 Series clock also features LEDs on the board to show if the clock is receiving data, making it easier to maintain and install. The unique, specially molded anti–glare bezel gives a smooth, clean look with no visible external screws. The BCBL Series wireless digital clock is FCC compliant, part 15, section 15,247.*

# WIRELESS SYSTEMS

## BCTR 2000 Series Wireless Transceiver

HIGHLIGHTS

- Can act as a transmitter or repeater for Bogen Wireless systems
- TCP/IP internet connection
- Frequency tuning circuit to allow for time correction with changes in temperature
- Field-enabled Daylight Savings Time (when used as a primary master clock)
- Can be used as a wired or wireless transceiver/repeater to Bogen Wireless systems
- Transmits the Bogen wireless signal to the BCAL and BCBL series wireless clocks
- 915-928 MHz frequency-hopping technology
- Can transmit up to 1000 meters in open space
- Power output: 30 dBm (1 watt)
- Programmable relay output
- Input for interfacing with other systems such as 59-minute, 58-minute correction and other manufacturers
- LED display for a clear, accurate readout
- Self-testing mode allows the user to test the real-time clock, output relay, LED segments, and inputs
- Simple interactive menu system
- Slim design makes the Transceiver versatile for mounting
- Analog and digital wireless clocks can be mixed on the same system
- RS485 input and output
- 85-265V AC input voltage making it accessible for American or European use
- Compact design makes the BCTR 2000 ideal for mounting in hallways
- FCC Approved, part 15 Section 15,247


DESCRIPTION

*Bogen's innovative multi–functional transceiver is designed to wirelessly transmit data to the BCAL analog wireless clock and the BCBL digital wireless clock while receiving the time signal from an atomic clock web site via the Internet. Upon connection of the LAN cable, the atomic clock web site will start up automatically. The transceiver is also capable of receiving signals from all of the Bogen Master Clocks, as well as 59-minute correction, 58-minute correction and other manufacturers' clocks. By utilizing one of the above mentioned inputs, the transceiver can transform a wired system to a wireless system. The transceiver comes equipped with a programmable auxiliary relay that can be programmed anywhere from 1- 99 seconds. By utilizing this relay, interfacing with other systems via once-a-day closure and interfacing with intercom systems becomes effortless. In addition to the aforementioned features, the transceiver can act as a repeater while receiving a signal wired or wirelessly from the main transmitter. The transceiver has a temperature controlled time base allowing calibration of the time base during variants in temperature. The BCTR 2000 is very user friendly and easy to operate via two (2) switches. The transceiver has diagnostic capabilities which makes it easy to maintain. The BCTR 2000 can also interface with the BCAM Series via the converter box, as well as the BCBD 1000 digital clock and the BCRM analog clock via RS485 communication. The transceiver works on 915 - 928 MHz frequency–hopping technology that allows for a better and clearer signal even if there is interference in one of the frequencies. The BCTR 2000 is powered using 110 volts / 60 Hz and 220 volts/50 Hz. The transceiver is FCC approved, part 15 Section 15,247.*

## BCTR 1000 Series Wireless Repeater

HIGHLIGHTS

- Transmits the Bogen wireless signal to the BCAL and BCBL Series wireless clocks
- 915–928 MHz frequency–hopping technology
- Can transmit up to 1000 meters in open space
- Wirelessly receives and transmits data
- Loaded, half wave antenna
- Power input sensitivity: –103 dBm
- Power output: –27 dBm
- No need for custom back box
- Slim design makes the Wireless Repeater versatile for mounting
- Compact design
- Analog and digital wireless clocks can be mixed on the same system
- LEDs for indication of transmission or receipt of RS485 signal
- 85-265V AC input voltage making it accessible for American or European use
- Receives signal once a minute
- Transmits and repeats signal every minute
- FCC Compliant, part 15 Section 15,247

DESCRIPTION

*The new Bogen Repeater is the perfect way to transmit and receive the Bogen wireless signal. The repeater is an ideal choice for extending the wireless signal to the slave clocks when long distances are involved. The repeater works on 915–928 MHz frequency–hopping technology. Due to its high-powered module, the repeater can transmit up to 1000 meters in open space, making it perfect for installations where there are large distances between clocks. The signal is transmitted and repeated once a minute. The repeater distributes the signal to the BCBL Series digital clocks and the BCAL Series analog clocks. This versatility makes it simple to add analog and digital clocks on the same system. The repeater runs on 110 volts/60 Hz or 220 volts/50 Hz making it ideal for American or European systems. The repeater has a slim, compact design making mounting effortless. The housing for the repeater has knockouts, making it easy for conduit to run to it. The repeater is also FCC compliant, part 15 Section 15,247.*

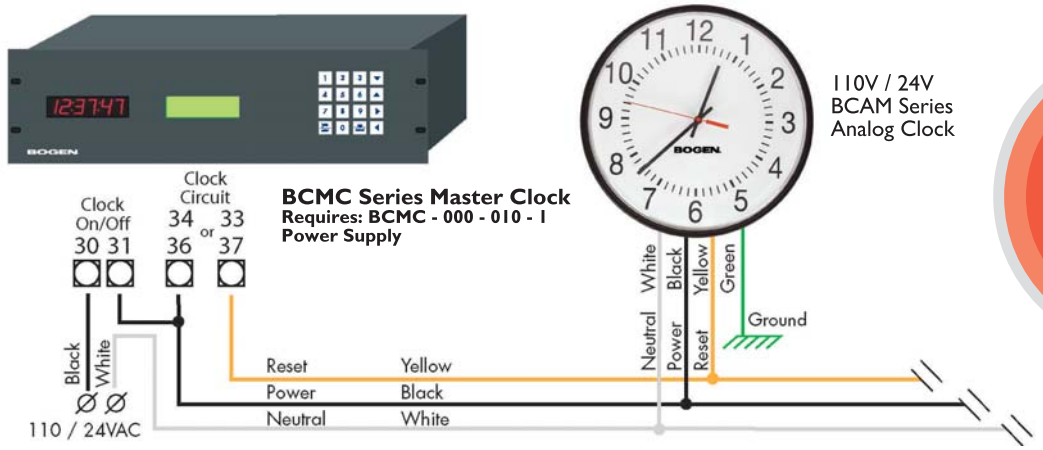
# WIRED SYSTEMS

## 2-Wire Digital Communication: BCSM Series

The Bogen two (2) wire digital communication system provides immediate correction for time changes. It allows the user to mix analog and digital clocks on the same 2 wires. There are an assortment of clocks that work on Bogen's two (2) wire digital communication system. For the analog clock, Bogen's BCAM analog clocks feature automatic polarity detection making installation simple. The BCAM clocks are available in 12" and 16" models. The BCBD 1000 Series digital clock is an ideal choice for a consistent slave clock with its high visibility and immediate time change. The BCBD 2000 Series digital master clock is a cost-effective alternative for a system where the master need only control the system clocks. The BCBD 2000 is fully capable of receiving the two (2) wire digital communication signal. The two (2) wire digital communication system runs on 24 Volt power. In order to generate the necessary voltage, a Bogen converter box (part # BCCB-000-000-1) is required, or if using a BCMC Series master clock, the optional 24 Volt power supply (part # BCMC-000-010-1) must be installed.


## 3-Wire Digital Communication: BCMC Series

The three (3) wire digital communication system provides immediate correction for time changes. This system allows the user to receive immediate time correction while using either 24V AC or 110V AC. This system is compatible with our BCAM Series analog clocks which feature automatic polarity detection, as well as automatic frequency detection and are available in 12" and 16" models. The clocks correct to the right time within a maximum time of five (5) minutes. The extra power supply is required to develop the three (3) wire signal in the BCMC master clock. The part number for the power supply is BCMC-000-010-1.



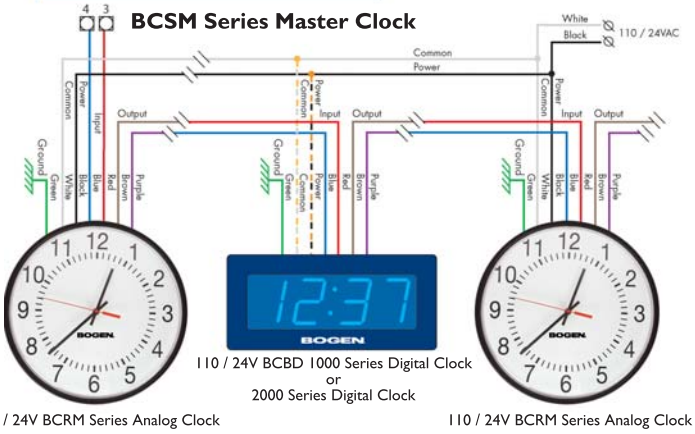

Transformer Part Numbers
**BC35-M015** (6.2A)
**BC35-M020** (10.4A)
**BC35-M025** (20.8A)
**BC35-M030** (31.2A)

# WIRED SYSTEMS

## RS485 Communication

The RS485 system is one of the most advanced time systems in the world. The Bogen RS485 system sends a string of data once a second to insure that all clocks show the same time all the time, and in case of a discrepancy, the slave clocks shall begin correcting themselves within seconds. The Bogen RS485 system has no need for expensive master clocks because a BCBD 2000 series clock can act as a master clock and can drive up to 32 clocks in parallel and an unlimited number of clocks using a daisy chain technique. The RS485 system has two wires for power and two wires for communication. The BCRM Series analog clock is available in 12" and 16" models and is capable of receiving the RS485 signal. The BCRM also has automatic frequency detection and is available in 24V AC and 110V AC models. The BCBD 1000 Series digital clock is an ideal choice for a consistent slave clock with its high visibility and immediate time change. The BCBD 2000 Series digital master clock is a cost-efficient alternative for a system where the master need only control the system clocks. The BCBD 2000 is fully capable of receiving the RS485 signal. In addition to these products, any Bogen master clock can transmit the RS485 signal. There is no need for any external power supplies to run the system. Local power can be used to power the clocks.

**BCSM Series Master Clock**




110 / 24V BCRM Series Analog Clock

110 / 24V BCBD 1000 Series Digital Clock
or
2000 Series Digital Clock

110 / 24V BCRM Series Analog Clock

Transformer Part Numbers
**BC35-M015** (6.2A)
**BC35-M020** (10.4A)
**BC35-M025** (20.8A)
**BC35-M030** (31.2A)

## Synchronous Wire Communication

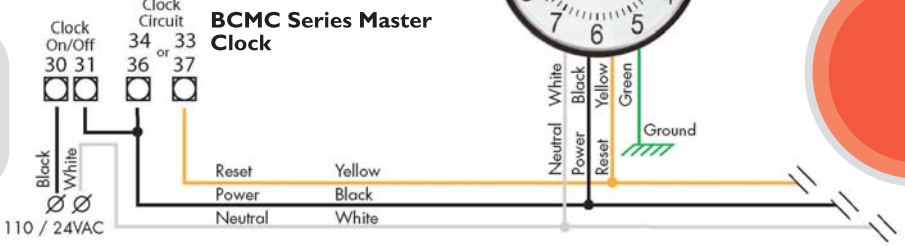
The Synchronous Wire system is the most popular system in the United States. The synchronous wired clocks use the running power as a timebase. The clock receives an hourly correction to synchronize the minute hand and the second hand, and a 12 hour correction to synchronize the hour, minute and second hands. Bogen's BCAM Series clock line are microprocessor based movements which minimize moving parts and increase reliability and is available in 12" and 16" models. The Bogen 2000 Series digital clock has a Sync Wire input that allows the user to mix analog and digital clocks on the same correction line. The Sync Wire system runs on 110V AC or 24V AC and can use Bogen 2000 or 3000 Series master clocks.

59 MINUTE CORRECTION: 110V AC/24V AC 60 Hz is used to run the clock normally. Applying an 8 second reset signal from 59 minutes and 54 seconds will cause an hourly correction. Applying a 14 second reset signal from 5:57:54 will cause a daily correction.

58 MINUTE CORRECTION: 110V AC/24V AC 60 Hz is used to run the clock normally. Applying a 55 second reset signal from 58 minutes and 05 seconds will cause an hourly correction. Applying a 55 second reset signal when hours equal 05 or 17 and minutes equal 03, 07, 11, 15, 19, 23, 31, 35, 43, and 47 and second equals 05 will cause a daily correction.

Other Manufacturers: 110V AC/24V AC 60 Hz is used to run the clock normally. Applying a 25 second reset signal when minutes equal 00 and seconds equal 00 will cause an hourly correction. Applying a 24 minute reset signal when hours equal 06 or 18 and minutes equal 00 and second equals 25 will cause a daily correction.

**BCMC Series Master Clock**




110V / 24V
BCAM Series
Analog Clock

Transformer Part Numbers
**BC35-M015** (6.2A)
**BC35-M020** (10.4A)
**BC35-M025** (20.8A)
**BC35-M030** (31.2A)

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# ANALOG CLOCKS

## BCAM Series Analog Clock

### HIGHLIGHTS

- Microprocessor based movement with automatic frequency detection
- Two (2) wire or three (3) wire system
- Automatic communication protocol identification. The clocks recognize:
  - Three (3) wire digital communication system
  - Two (2) wire digital communication system
  - Sync–wire 59-minute correction
  - Sync–wire 58-minute correction
  - Sync–wire other clock manufacturers
- Diagnostic LEDs for ease of maintenance
- Fully automatic plug and play; No settings required
- Built-in self-test function, as well as remote system diagnosis
- Automatic polarity detection
- Quick correction for time change (max. five (5) minutes) (Digital communication protocol)
- Clocks will not deviate from each other (Digital communication protocol)
- Ideal for renovation projects using existing wiring, or for new installations
- Hour, minute and second hands
- Energy efficient:
  - 20 mA@ 24V AC (voltage)
  - 15 mA@ 110V AC (voltage)
  - 10 mA correction
- Wide dynamic range for input voltage
  - 7V AC—28V AC (24V model, 3 wire system)
  - 85V AC—135V AC (110V model, 3 wire system)
- Low-profile -- one (1) model for flush and surface mount
- No need for custom back box
- Plug-in Molex connectors
- Smooth surface metal case (custom colors available) or smooth surface ABS plastic case
- Side molded, polycarbonate crystal
- Available in 110V AC and 24V AC
- UL, cUL listed and FCC approved

### DESCRIPTION

*Bogen's revolutionary new BCAM Series analog clocks incorporate multi-function software which allows the clock itself to identify communication protocols in the field. The clocks contain built-in test procedures for protocol type and last received communication time, as well as a comprehensive analysis of the clock. BCAM clocks are fully plug and play; there are no settings required. BCAM Series clocks also allow all system clocks to be diagnosed from a remote master clock location. These clocks even contain an automatic polarity detection feature which protects the system in case data is received with reversed polarity. These features provide significant flexibility and responsiveness. The microprocessor based movement automatically identifies anything from a basic sync-wire protocol to a technologically advanced two (2) or three (3) wire digital communication protocol. The BCAM Series incorporates our digital communication protocol, which transmits a stream of data that constantly checks and corrects every clock in the system. This feature prevents the clocks from deviating from each other, while providing five (5) minute (max.) system correction. Bogen BCAM Series analog clocks are compact, energy efficient and reliable. The clocks are available in 12" and 16" round cases. The shallow, low profile metal cases eliminate the need for custom back boxes. By using electronic components, the Bogen BCAM Series analog clocks have a low chance of mechanical failure.*

## BCRM Series RS485 Analog Clock

### HIGHLIGHTS

- Uses local power plus two (2) wires for communication
- Comparable to the BCAR series
- Microprocessor-based movement
- Automatic frequency detection
- Diagnostic LEDs for ease of maintenance
- Data LEDs for verifying the transmission and receipt of data
- Unlimited clocks can be run on the same communication line when daisy chained
- Analog and digital clocks can be run on the same communication line
- Does not require an expensive master clock; it can be run off the BCBD 2000 Digital clocks as well as a BCMC 2000 or 3000, BCSM Master Clock or BCGPS
- Built-in self-test function
- Remote system diagnostics
- Quick correction for time change (max. five (5) minutes)
- Clocks will not deviate from each other
- Ideal for renovation projects using existing wiring, or for new installations
- Hour, minute and second hands
- Energy efficient:
  - 20 mA @ 24V AC
  - 15 mA @ 110V AC
  - 10 mA correction
- Wide dynamic range for input voltage
  - 7V AC - 28V AC (24V AC model)
  - 85V AC - 135V AC (110V AC model)
- Low-profile -- one (1) model for flush and surface mount
- Communication line can use up to 22 gauge wire
- No need for custom back box
- Plug in Molex connectors
- Smooth surface metal case and polycarbonate crystal
- UL, cUL listed and FCC approved
- Patents pending

### DESCRIPTION

*Bogen's revolutionary new BCRM Series analog clocks are an excellent, cost-effective way to have a stable, reliable system. The new RS485 clocks use optocoupler technology which isolates the communication preventing damaging lightning strikes or power surges. The clocks contain built-in test procedures for last received communication time as well as a comprehensive analysis of the clock. BCRM clocks can also run self-diagnostic routines and relay the results to the user. By having these diagnostics, the clocks can be locally controlled from a remote master clock location. The clock movement has LEDs which shows the user if and when the communication is received by the clock and transmitted to the next clock, making the system easier to maintain. These features provide significant flexibility and responsiveness. BCRM Series clocks allow the user to interface with our previous RS485 systems. The BCRM Series incorporates our RS485 protocol, which transmits and receives a stream of data that constantly checks and corrects every clock in the system. This protocol prevents the clocks from deviating from each other, providing five (5) minutes (max.) system correction. Bogen BCRM Series analog clocks are compact, energy efficient and reliable. The clocks are available in 12" and 16" round cases. The shallow, low profile metal cases eliminate the need for custom back boxes. By using electronic components, the Bogen BCRM Series analog clocks have a much less chance of mechanical failure.*

# DIGITAL CLOCKS

## BCBD 1000 Series Digital Clocks

HIGHLIGHTS

- Immediate correction for time change
- Clocks will not deviate from each other
- Available in 2.5" display and 4.0" display
- 12 or 24 hour format
- Red or blue display
- "BELL", "FirE" messaging capabilities
- Choice of two (2) wire digital communication protocol or RS485 protocol
- Bright LED display
- Two (2) settings for brightness
- Loss of communication alert
- LEDs for visual representation of the receiving and transmitting of RS485 data
- Diagnostic LEDs for visual indication of the two (2) wire signal and power
- No battery backup required
- Unlimited number of clocks can be run off the same communication line (RS485 only)
- Dynamic range for input voltages
  - 12—30V DC (24 Volt model)
  - 12—30V AC (24 Volt model)
  - 78—130V AC (110 Volt model)
- Analog and digital clocks can be combined on the same power line (two (2) wire) or communication line (RS485)
- Plug-in Molex connectors
- Available in flush, surface and double mount housings
- UL, cUL listed and FCC approved


DESCRIPTION

*Bogen Communications Bar Display (BCBD) 1000 Series digital clocks are available with either 2.5" high characters or 4.0" high characters in a four (4) digit display. The BCBD 1000 Series digital clocks are reliable slave clocks that work on Bogen two (2) wire digital communication or a RS485 protocol. The clocks implement immediate correction upon receipt of the digital signal. The BCBD 1000 has many options such as 12 or 24 hour format, display "BELL" or "FirE" messaging, as well as two (2) brightness settings. The BCBD 1000 Series digital clocks can be mounted in a surface, flush or double mount housing. The 1000 Series clock also feature LEDs, viewable to the user, in order to show if it is receiving and transmitting data, making it easier to maintain and install. The unique, specially molded anti–glare bezel gives a smooth, clean look with no visible external screws.*

## BCBD 2000 Series Digital Master Clock

HIGHLIGHTS

- Microprocessor-based
- Can interface with existing systems
- Master, slave and independent clock with chronograph capabilities
- 58-minute, 59-minute, other manufacturers' clocks, Midnight Reset input, RS485 input and output and two (2) wire digital communication input
- Interface capabilities to most other clock manufacturers' Master Clock/ Intercom systems
- "BELL", "FirE" and addressable messaging capabilities
- Red or blue display
- Automatic daylight savings time (when used as a primary master clock)
- 12 or 24 hour display
- Three (3) levels of programmable brightness
- Capable of alternating time/date in both American and European formats
- Ten (10) year battery backup
- Immediate correction for time change, when used with RS485 or two (2) wire digital communication input
- Ease of maintenance-if input is lost, the colon will flash
- Analog and digital clocks can be mixed on the same line
- Easy programming options via two (2) switches
- Both 110V and 24V AC/DC power input in each clock
- UL, cUL, FCC approved


DESCRIPTION

*Bogen Communications Bar Display (BCBD) 2000 Series digital clocks are available with 2.5" or 4.0" high characters with a four (4) digit display. The 2000 Series clocks are state-of-the-art bar display timepieces. This superior line of digital clocks features automatic daylight savings time correction (when used as a primary master clock), PM indicator, master, slave or independent clock capabilities. The BCBD 2000 Series clocks have chronograph capabilities using the Bogen Control Box Option. The 2000 Series digital clock has a high efficiency, bright LED display. Our specially molded, anti-glare front bezel gives a smooth surface which allows for excellent visibility. The BCBD 2000 can also perform diagnostic capabilities to the BCAM and BCRM Series clocks through programming mode. It also has programmable brightness, alternating time and date display in both American and European formats, as well as "BELL", "FirE" and addressable messaging capabilities. The BCBD 2000 Series is capable of interfacing with existing systems such as 59-minute, 58-minute as well as other manufacturers' clock systems while acting as a master clock for the 1000 and 2000 Series digital clocks, and BCAM Series analog clocks via two (2) wire and RS485 analog slave clocks.*

# MASTER CLOCKS/GPS

## BCMC 2000 and 3000 Series Master Clock

HIGHLIGHTS

- Microprocessor-based
- Easy to program via 16-point waterproof membrane keypad and LCD display
- "BELL" messaging functions
- Automatic daylight savings time (when used as a primary master clock)
- Comes equipped with a temperature controlled timebase allowing calibration of the time during variants in temperature (3000 Series only)
- 800 event capability
- Interfaces with other systems such as 59 and 58 minute correction, and other manufacturers' clocks (3000 Series only)
- LED display for a clear, accurate readout (3000 Series only)
- Contains up to 255 schedules
- Field programmable
- Two (2) levels of programming menus for technicians and end users
- Program up to 50 scheduling changes in advance
- Ten (10) year battery backup for timekeeping
- Non-volatile program memory
- Capable of correcting most clocks in the field
- RS232 connection for interfacing with computers (3000 Series only)
- RS485 input and output for time synchronization
- Four (4) auxiliary relays for programming is standard (up to 12 optional)
- Surface semi-flush and rack mountable

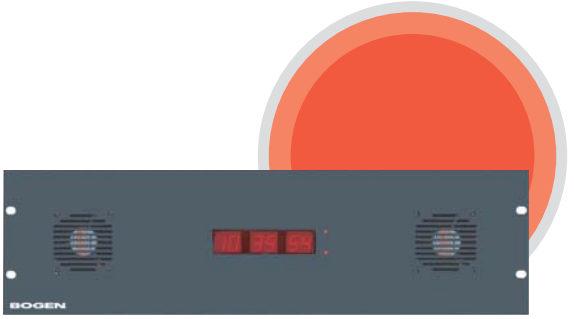
DESCRIPTION

*The BCMC Series master clocks are highly accurate, microprocessor-based multifunctional clock controllers. This state-of-the-art time base is capable of providing automatic and manual operation of auxiliary control circuits. The BCMC 3000 has a temperature controlled time base allowing calibration of the time during variants in temperature. The BCMC Series also provides field-enabled daylight savings time adjustment for automatic bi-annual correction of all auxiliary circuits (when used as a primary master clock). The programming is easily accomplished by using the 16-point waterproof membrane keypad and the LCD display. The master clock is powered by external 110V AC/60 Hz or 220V AC/50 Hz. However, in the event of a power failure, a lithium battery will provide ten (10) years of battery backup for time keeping functions. Non-volatile EEPROM memory is utilized, enabling the BCMC Series to retain all program information for an unlimited period of time even with all power removed. Individual events can be programmed to occur on any or all days of the week. This allows a total of 800 programmable events to be stored in memory. 255 schedules can be programmed into the BCMC Series, and the customer can set up to 50 scheduling changes in advance. Operation of the auxiliary circuits/relays feature second resolution so that programs are set precisely to the second, not the minute. The BCMC 3000 can interface with a computer via RS232. In addition, the BCMC 3000 can interface with other systems.*

## BCSM Series Master Clock and BCGPS Receiver

HIGHLIGHTS

- Comes equipped with a temperature controlled time base allowing calibration of the time during variants in temperature
- Perfect for two (2) wire digital communication and RS485 systems
- Microprocessor-based
- Automatic daylight savings time changes (when used as a primary master clock)
- TCP/IP internet connection that allows for time correction via synchronization with an atomic clock web site (BCSM only)
- Operation of auxiliary circuit for a once-a-day relay closure with precise second resolution
- Eight (8) channel technology (GPS only)
- Synchronized to UTC within 500 nanoseconds (GPS only)
- LED display
- RS232 and RS485 inputs and outputs
- Field programmable via two (2) switches
- Multitude of different inputs such as 59-minute, 58-minute and other manufacturers' clocks, as well as a once-a-day pulse (BCSM only)
- Ten (10) year battery backup for timekeeping
- Converter option allows the master clock to transmit the two (2) wire signal to the secondary clocks
- Diagnostic mode allows the user to maintain and troubleshoot the clock system from the master clock




DESCRIPTION

*The BCGPS and the BCSM are highly accurate, microprocessor based multi-functional clock controllers. The BCGPS and the BCSM have a Converter option which allows the two (2) wire digital communication output to be integrated into the BCGPS/BCSM which will output 5.5 amps of current to the clock system. The BCGPS/BCSM is equipped with a programmable auxiliary relay that can be programmed anywhere from 1- 99 seconds. In case the signal is not present, the BCGPS will utilize a temperature controlled time base allowing calibration of the time base during variants of temperature. The BCGPS/BCSM is easily programmable via two (2) switches. The BCGPS/BCSM incorporates diagnostic testing which allows the user to view the current and temperature of the Converter (Converter option only), as well as a comprehensive test of the clock. The BCGPS/BCSM also has a RS485 output utilized for interfacing with other Bogen products. The BCGPS/BCSM comes with a RS232 input and output for serial interface in the computer. The BCGPS can be powered with 110V AC/60 Hz or 220V AC/50 Hz. It shall be FCC approved. The BCSM incorporates a TCP/IP LAN connection that receives the time signal from an atomic clock web site via the Internet. Upon connection of the LAN cable, the atomic clock web site will start up automatically. The BCSM Master Clock is capable of receiving signals from all of the Bogen Master Clocks, as well as 59-minute, 58-minute correction and other manufacturers' clocks.*

# ACCESSORIES

## Converter Box

HIGHLIGHTS

- Converts RS485 signal to a 24 Volt, two (2) wire digital communication signal
- Ideal for renovation projects when a limited number of wires are available
- Protects against overloading and shorts, as well as high temperature damage
- Provides a powerful 5.5 amp, ±24V output
- Can drive both analog and digital clocks on the same run
- Quiet operation

DESCRIPTION

*The Bogen Converter Box takes the RS485 signal input and converts it to two (2) wire digital communication protocol, making it ideal for renovation projects. The Converter Box has a 5.5 amp output which allows a large number of clocks to be run off of one single box. The Converter Box can also be used as a booster by accepting the two (2) wire protocol and providing additional power for the system. The Converter Box includes a 22 CFM fan that keeps the Converter Box cool. The Converter Box works quietly, eliminating any excess noise.*

## Transformer

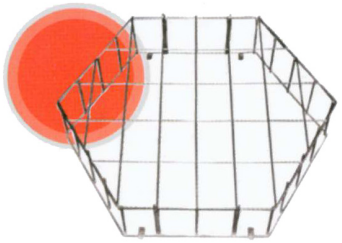
HIGHLIGHTS

- Available in 6.2, 10.4, 20.8 and 31.2 amp sizes
- Multiple knockouts for easily accessible entries
- Ground studs provided for bonding compatibility with both metallic and non-metallic conduit

DESCRIPTION

*Transformers are used in master clock and time systems for reduction of 220V AC/50 Hz or 120V AC/60 Hz to 12 and 24V AC. Bogen uses double wound, isolation type transformers which feature copper windings and copper lead wire terminations throughout. The transformer has a UL Class 105°C (221°F) insulation system with a 55°C (131°F) temperature rise at a maximum ambient of 40°C (104°F). This insures a long life and cool operating temperatures. Multiple knockouts provide convenient conduit entry and exit locations through the front access wiring compartment.*

## Wire Guards



HIGHLIGHTS

- 6 and 9 gauge steel rods
- Available in 4", 12" and 16"
- Zinc plated, epoxy finish
- Fixed tabs for mounting to the wall or ceiling

DESCRIPTION

*Wire clock guards are designed for use with Bogen 12" and 16" round analog clocks, and the 4" digital clock. Each guard is fabricated from 6 and 9 gauge steel rods which are welded together and hot dipped in a zinc coating to protect from corrosion. The wire guards are hinged for convenient access to the analog or digital clocks. The heavy duty wire guards come complete with fixed tabs welded to the guard for mounting directly to wall or ceiling. They are hung independently of the clock for maximum protection.*

## Surface Mount Ring

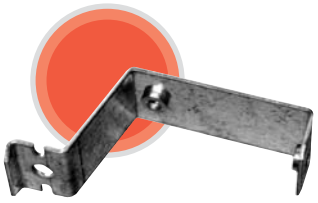
HIGHLIGHTS

- Available in 12" and 16" models
- Perfect for wiring through conduit
- Easy to install

DESCRIPTION

*The surface mount ring is a perfect choice for renovations when wiring cannot be run through the walls. The surface mount ring has a knockout in order to have conduit run right into the housing. The surface mount ring is extremely easy to install, making it an ideal choice for any installation where conduit is utilized.*

## Universal Mounting Bracket



HIGHLIGHTS

- Used for mounting to an existing speaker baffle
- Used for 12" clock
- Slim design

DESCRIPTION

*The Bogen Universal Mounting Bracket is ideally used for mounting to an existing speaker baffle. This bracket provides the user with an easy alternative when the 12" analog clock needs to be mounted inside a speaker baffle. The bracket has a slim design making it invisible when the clock is mounted.*

BOGEN®

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