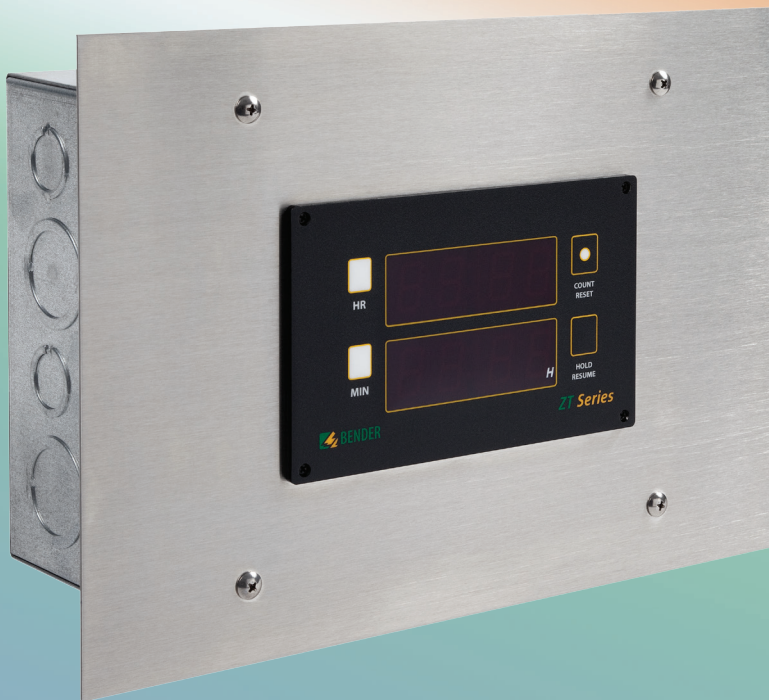BENDER
The Power in Electrical Safety©

# Clocks and Timers

Digital Clocks and Timers, Surgical Chronometers,
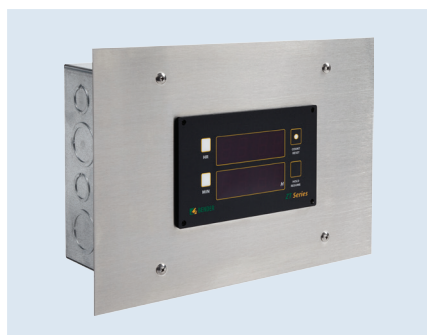and Clock and Timer Remotes for Healthcare Facilities

# Digital Clock and Timer
# ZT1590

## Features

- 12/24 hour clock time
- Elapsed time in minutes/seconds automatically carried over to hours/minutes
- All device features and setup carried out either by onboard pushbuttons or connected MK1550 clock remote
- Plugable connectors for simple installation
- Utilzes external class 2 power supply for low voltage power
- Power outage backup for at least 24 hours, no batteries required
- ZT1590RS features complete assembly of clock and power supply, preinstalled in front trim with backbox

## Approvals

c ⓤ us
LISTED

## Description

The ZT1590 digital clock and timer is a complete, microprocessor-based device that displays both time of day and elapsed time information. The ZT1590 has a dual-row, 7-segment display with large, red LED characters, easily read in high ambient light. All features, as well as the device setup, may be carried out with the four, onboard pushbuttons, or on an optionally connected MK1550 clock remote. No DIP switch configuration is required.

## Clock

The digital clock on the ZT1590 may be set to 12 hour or 24 hour mode. The time is displayed on the top display. If power is lost to the device, the clock will continue to run (with the display inactive) for at least 24 hours, without loss of time.

## Elapsed timer

The elapsed time is displayed on the bottom display of the ZT1590. When the timer is not active, the display will be off. The display will initialize in minutes/seconds time. After reaching 59:59 on the elapsed timer, it will automatically switch to hours/minutes time. If there is a power loss to the device, the timer will continue (with the display inactive) for at least 24 hours, without loss of time. A code blue input can be connected to the ZT1590 to remotely activate the elapsed timer.
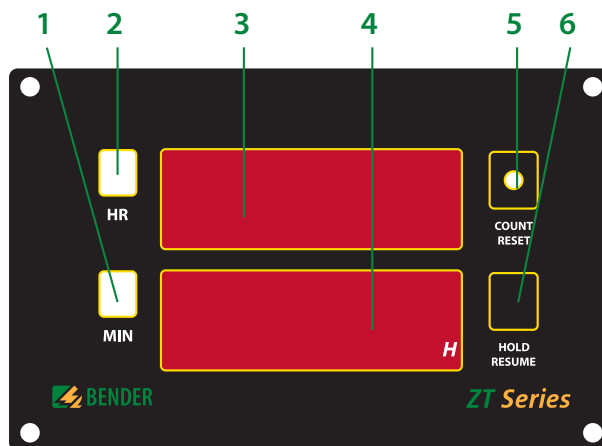
## Power supply

An external class 2 power supply (sold separately or as part of a kit), is available allowing the ZT Series devices to be powered by 100-240 VAC.
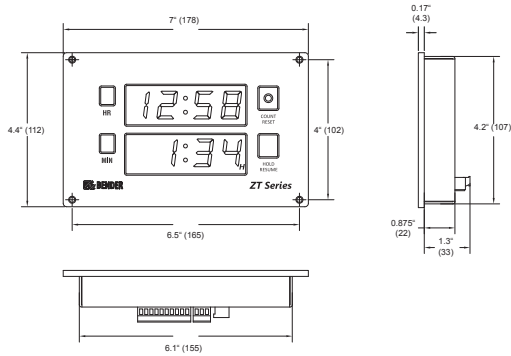
## ZT1590RS clock assembly

The ZT1590RS is a complete assembly of clock and power supply, preassembled in a front trim with backbox for simple installation.

## Displays and controls
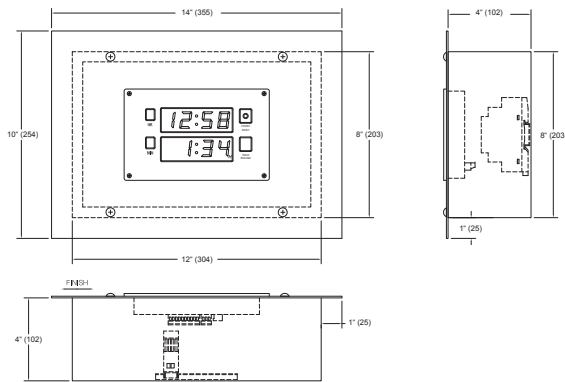


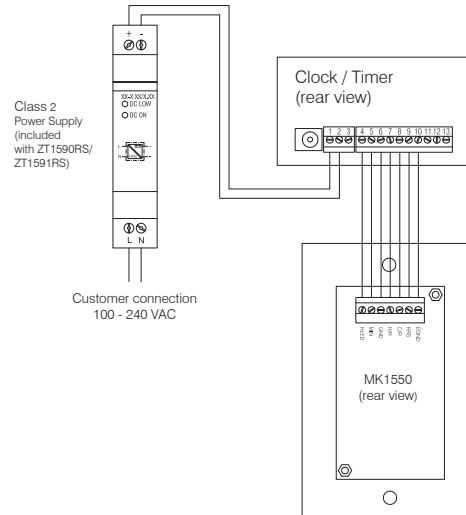| | | |
|---|---|---|
| **1 -** Hours pushbutton | **4 -** Elapsed timer display, four digits |
| **2 -** Minutes pushbutton | **5 -** Count and reset pushbutton |
| **3 -** Clock display, four digits | **6 -** Hold and resume pushbutton |

## Dimensions: ZT1590 clock/timer



## Dimensions: ZT1590RS clock/timer assembly



## Wiring



** Use Earth Ground connection only when required by the power supply.

## Ordering information: Assembly

| Description | Part No. | Ordering No. |
|---|---|---|
| Dual digital clock/timer, pre-assembled with front trim, backbox, and power supply | **ZT1590RS** | **B 5213 00297** |

## Ordering information: Components and accessories

| Description | Part No. | Ordering No. |
|---|---|---|
| Dual display digital clock/timer | **ZT1590** | **B 5111 00012** |
| Clock remote for ZT1590 | **MK1550** | **B 5111 00019** |
| Backbox for ZT1590, 12" x 8" x 4" (305 x 203 x 102 mm) | **B120804** | **B 5213 00367** |
| 304SS front trim for ZT1590, 14" x 10" (356 x 254 mm) | **T1410-LIM** | **P 1030 0003** |
| Power supply with DIN rail 100 - 240 VAC input | **CP-D 12/0.83** | **P 1380 0050** |

## Technical data: ZT1590 digital clock / timer

| | |
|---|---|
| Supply voltage requirements | Class 2 power supply |
| Class 2 power supply, voltage rating | 12 VDC |
| Class 2 power supply, power rating | 3 VA |
| Operating temperature | 0 - +50 °C |
| Storage temperature | -10 - +70 °C |

**Connector**

| | |
|---|---|
| Quantity of connectors | 10-pin / 3-pin |
| Manufacturer | Ria |
| Manufacturer part numbers | 31114110 / 31114103 |
| Conductor sizes | AWG 24 - 16 |

**Other / general data**

| | |
|---|---|
| Mounting | Qty. 4, #4-40 oval head, black oxide finished screws |
| Weight | < 1.3 lb |

## Additional technical data: ZT1590RS clock assembly

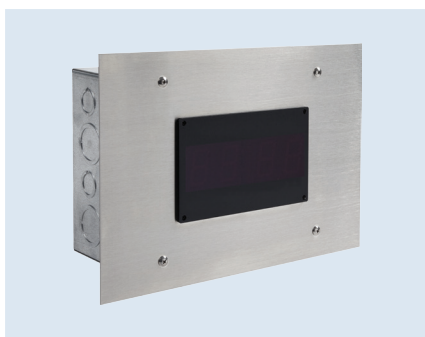| | |
|---|---|
| Backbox dimensions (H x W x D) | 12" x 8" x 4" (305 x 203 x 102 mm) |
| Weight | < 7.9 lb |
| Supply voltage $U_s$ | 100 - 240 VAC |
| Frequency range $U_s$ | 47 - 63 VAC |
| Inrush current (115 VAC / 230 VAC) | < 15 A / < 30 A |

# Digital Clock / Timer
# ZT1591



**ZT1591 digital clock / timer**



**ZT1591RS digital clock / timer assembly**

## Features

- 12/24 hour clock time
- Elapsed time in minutes/seconds automatically carried over to hours/minutes
- All device features and setup carried out connected MK1550 clock remote
- Plugable connectors for simple installation
- Utilzes external class 2 power supply for low voltage power
- Power outage backup for at least 24 hours, no batteries required
- ZT1591RS features complete assembly of clock and power supply, preinstalled in front trim with backbox

## Approvals



## Description

The ZT1591 digital clock and timer is a complete, microprocessor-based device that displays either time of day or elapsed time information. The ZT1591 has a single-row, large 7-segment display with large, red LED characters, easily read in high ambient light. All features, as well as the device setup, may be carried out on a connected MK1550 clock remote. No DIP switch configuration is required.

## Clock

The digital clock on the ZT1591 may be set to 12 hour or 24 hour mode. The time is displayed on the top display. If power is lost to the device, the clock will continue to run (with the display inactive) for at least 24 hours, without loss of time.

## Elapsed timer

When the timer is not active, the display will be off. The display will initialize in minutes/seconds time. After reaching 59:59 on the elapsed timer, it will automatically switch to hours/minutes time. If there is a power loss to the device, the timer will continue (with the display inactive) for at least 24 hours, without loss of time. A code blue input can be connected to the ZT1591 to remotely activate the elapsed timer.

## Power supply

An external class 2 power supply (sold separately or as part of a kit), is available allowing the ZT Series devices to be powered by 100-240 VAC.

## ZT1591RS clock assembly

The ZT1591RS is a complete assembly of clock and power supply, preassembled in a front trim with backbox for simple installation.
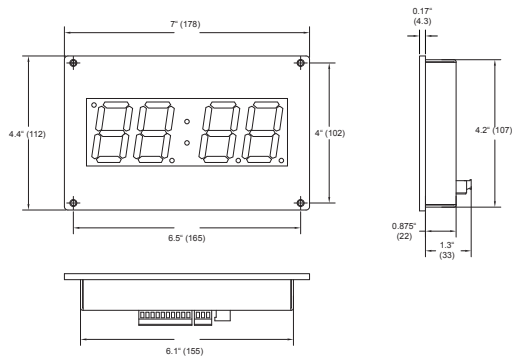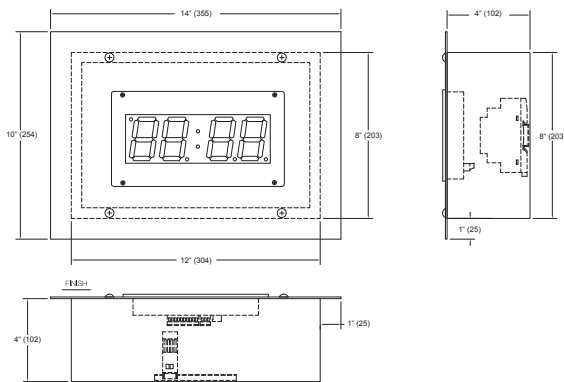
## Displays and controls



All controls and setup are carried out using an externally connected MK1550 clock remote. Refer to MK1550 clock remote for more information.

## Dimensions: ZT1591 clock/timer
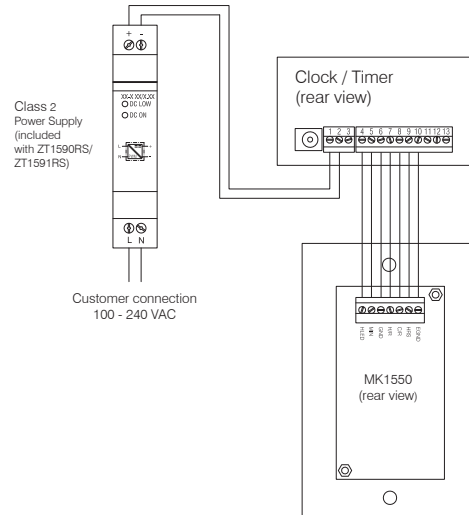


## Dimensions: ZT1590RS clock/timer assembly



## Wiring



** Use Earth Ground connection only when required by the power supply.

### Ordering information: Assembly

| Description | Part No. | Ordering No. |
|---|---|---|
| Digital clock/timer, pre-assembled with front trim, backbox, and power supply | ZT1591RS | B 5213 01416 |

### Ordering information: Components and accessories

| Description | Part No. | Ordering No. |
|---|---|---|
| Dual display digital clock/timer | ZT1591 | B 5213 01417 |
| Clock remote for ZT1591 | MK1550 | B 5111 00019 |
| Backbox for ZT1591, 12" x 8" x 4" (305 x 203 x 102 mm) | B120804 | B 5213 00367 |
| 304SS front trim for ZT1591, 14" x 10" (356 x 254 mm) | T1410-LIM | P 1030 0003 |
| Power supply with DIN rail 100 - 240 VAC input | CP-D 12/0.83 | P 1380 0050 |

### Technical data: ZT1591 digital clock / timer

| | |
|---|---|
| Supply voltage requirements | Class 2 power supply |
| Class 2 power supply, voltage rating | 12 VDC |
| Class 2 power supply, power rating | 3 VA |
| Operating temperature | 0 - +50 °C |
| Storage temperature | -10 - +70 °C |

#### Connector

| | |
|---|---|
| Quantity of connectors | 10-pin / 3-pin |
| Manufacturer | Ria |
| Manufacturer part numbers | 31114110 / 31114103 |
| Conductor sizes | AWG 24 - 16 |

#### Other / general data

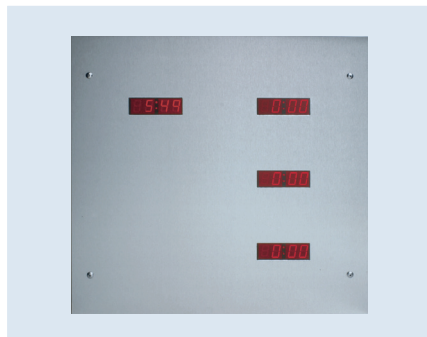| | |
|---|---|
| Mounting | Qty. 4, #4-40 oval head, black oxide finished screws |
| Weight | < 1.3 lb |

### Additional technical data: ZT1591RS clock assembly

| | |
|---|---|
| Backbox dimensions (H x W x D) | 12" x 8" x 4" (305 x 203 x 102 mm) |
| Weight | < 7.9 lb |
| Supply voltage $U_s$ | 100 - 240 VAC |
| Frequency range $U_s$ | 47 - 63 VAC |
| Inrush current (115 VAC / 230 VAC) | < 15 A / < 30 A |

# Surgical Chronometer
# ZT1594



ZT1594 surgical chronometer

## Features

- 12/24 hour clock time
- Elapsed time in minutes/seconds automatically carried over to hours/minutes
- All device setup and features carried out via connected MK1554 chronometer remote
- Plugable connectors for simple installation
- 100 - 240 VAC supply power input
- Power outage backup for at least 24 hours, no batteries required

## Description

The ZT1594 surgical chronometer is a complete, microprocessor based system that displays time of day and three elapsed times. The system has four seven-segment displays with large, red LED characters easily read in high ambient light. All features, as well as device setup, are carried out on the connected MK1554 chronometer remote.

## Clock

The digital clock may be set to 12 hour or 24 hour mode. If power is lost to the device, the clock will continue to run (with the display inactive) for at least 24 hours, without loss of time.
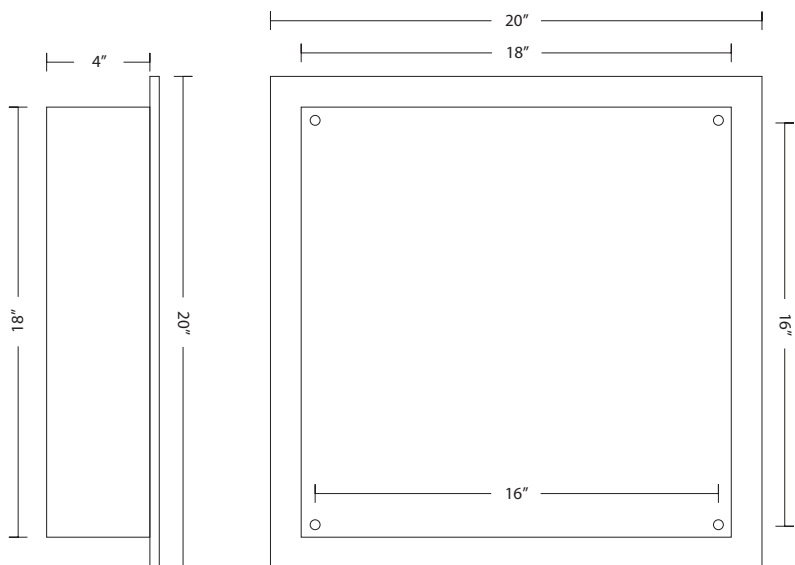
## Elapsed timer

When the timer is not active, the display will be off. The display will initialize in minutes/seconds time. After reaching 59:59 on the elapsed timer, it will automatically switch to hours/minutes time. If there is a power loss to the device, the timer will continue (with the display inactive) for at least 24 hours, without loss of time. A code blue input can be connected to the ZT1594 to remotely activate the elapsed timers.
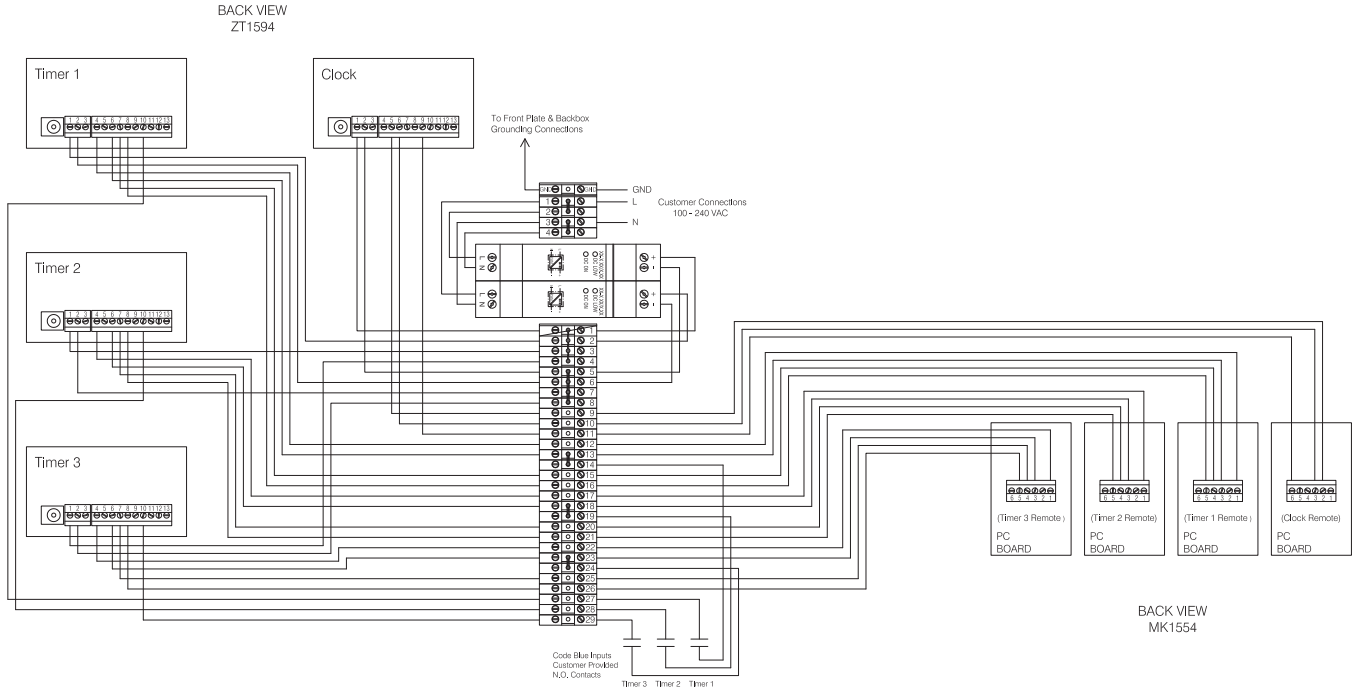
## ZT1594RS assembly

The ZT1594RS is a complete chronometer assembly, installed in backbox with MK1554 remote.

## Dimensions

## Wiring

**NOTE:** Customer connections include 100 - 240 VAC power input to the designated power terminals, as well as connections 9 through 26 for chronometer remote connections. Terminals 27 through 29 are optional customer connections for N/O code blue inputs.



BACK VIEW
ZT1594

Timer 1

Clock

To Front Plate & Backbox
Grounding Connections

GND
L        Customer Connections
N        100 - 240 VAC

Timer 2

Timer 3

Code Blue Inputs
Customer Provided
N.O. Contacts

Timer 3   Timer 2   Timer 1

(Timer 3 Remote )   (Timer 2 Remote)   (Timer 1 Remote )   (Clock Remote)
PC                   PC                 PC                  PC
BOARD                BOARD              BOARD               BOARD

BACK VIEW
MK1554

### Ordering information: Chronometer assembly

| Description | Part No. | Ordering No. |
|---|---|---|
| Digital chronometer, preinstalled in backbox, with MK1554 chronometer remote | ZT1594RS | B 5213 00296 |

### Ordering information: Components and accessories

| Description | Part No. | Ordering No. |
|---|---|---|
| Digital chronometer only | ZT1594 | B 5213 00293 |
| Chronometer remote for ZT1594 | MK1554 | B 5213 00294 |
| Backbox for ZT1594, 18" x 18" x 4" (457 x 457 x 102 mm) | B181804 | P 1020 0063 |

### Technical Data: ZT1594 Chronometer

The ZT1594 chronometer consists of four ZT1590 digital clock and timers. See "Technical Data: ZT1590 Digital Clock and Timer" above for technical data.

# Clock Remotes
# MK1550 and MK1554



**MK1550 clock remote**

## Features

- Duplicates all pushbutton and setup features of connected clocks, timers, and chronometers
- MK1554 provides function for clock and all three timers on one four-gang plate

### Description: MK1550

The MK1550 is a clock remote is required for use with the ZT1591 and optional for use with the ZT1590 digital clock and timer. The remote duplicates all functions of the clock and timer. The clock may also be set up utilizing the MK1550's four pushbuttons. The timer pushbuttons may also be used to pause, resume, or reset an elapsed time when desired. The "HOLD/RESUME" pushbutton is supplied with a red LED, which flashes when the count is paused. The MK1550 mounts in a standard single-gang electrical box.
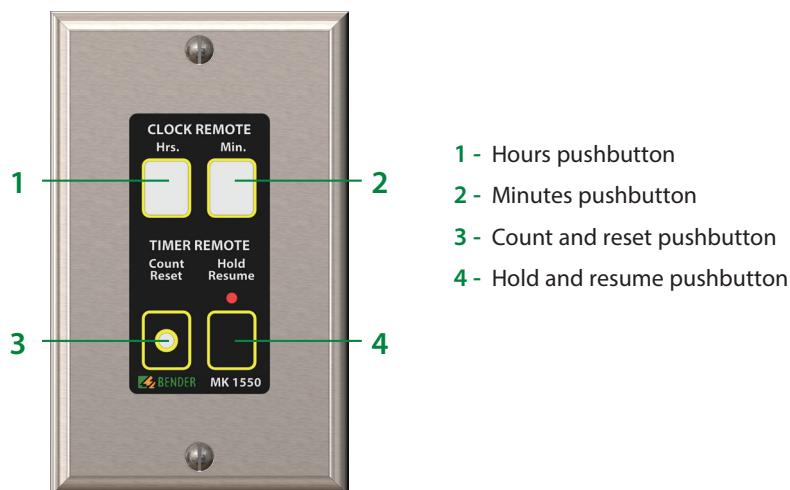
### Description: MK1554

The MK1554 is a required clock remote for use with the ZT1594 surgical chronometer. The remote consists of two pushbuttons for the clock, and two pushbuttons for each of the elapsed timers. Each timer pushbutton may be used to pause, resume, or reset an elapsed time when desired. Each "HOLD/RESUME" pushbutton is supplied with a red LED, which flashes when the corresponding count is paused. The MK1554 mounts in a standard four-gang electrical box.

### Power supply

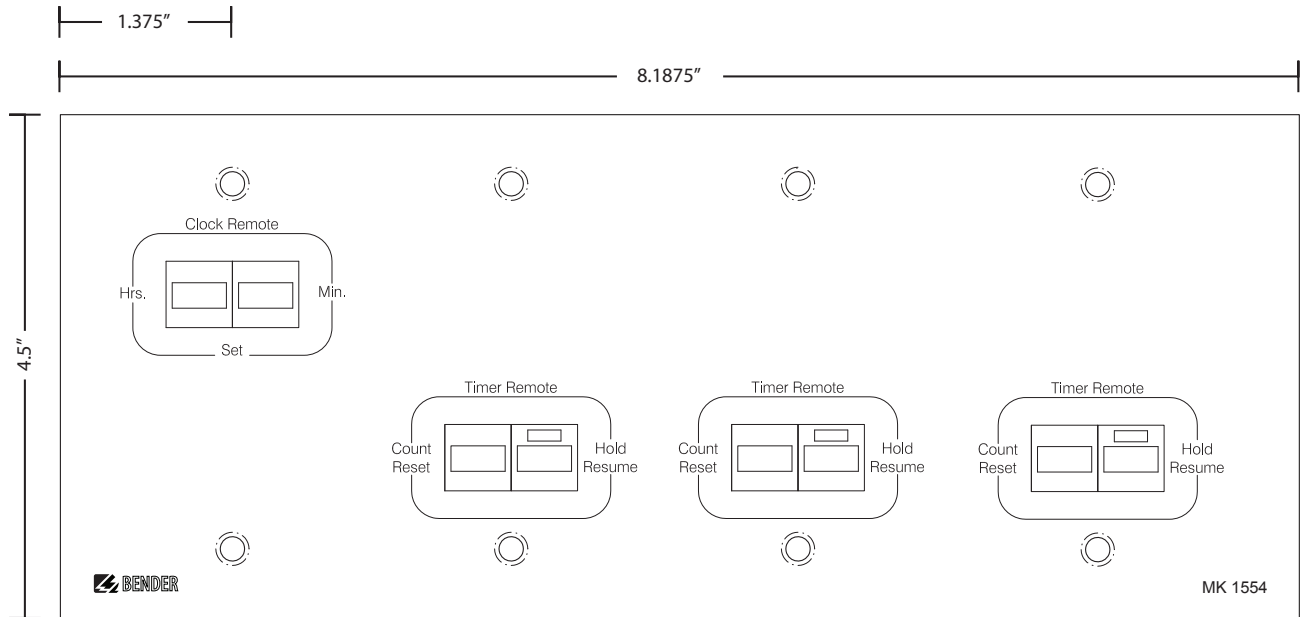Each remote is powered by the connected ZT series device. No additional power supply is required.

### Front plate and dimensions: MK1550

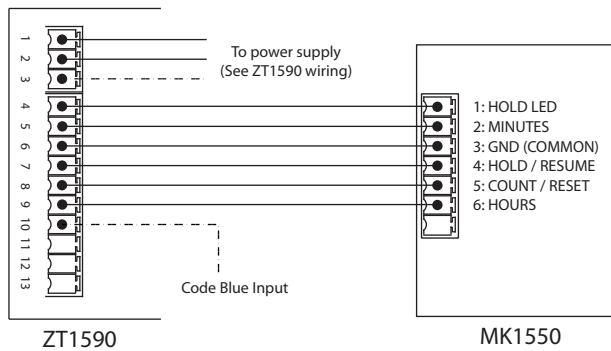The MK1550 uses standard single gang plate dimensions of 2.75" W x 4.5" H (70 x 114 mm).



1 - Hours pushbutton

2 - Minutes pushbutton

3 - Count and reset pushbutton

4 - Hold and resume pushbutton

## Dimensions: MK1554 (Standard Four-Gang Wall Plate)



## Wiring: MK1550



## Wiring: MK1554

See "Wiring," ZT1594 surgical chronometer.

## Ordering Information

| Description | Part No. | Ordering No. |
|---|---|---|
| ZT1590(RS) and ZT1591(RS) | MK1550 | B 5111 00019 |
| ZT1594(RS) | MK1554 | B 5111 00294 |

## Technical Data: MK1550 Clock Remote

| | |
|---|---|
| Operating voltage | 5 VDC |
| Maximum current draw | 20 mA |
| Operating class | continuous operation |
| Ambient temperature | |
| Operation | 0 - +50 ℃ |
| Storage | -10 - +70 ℃ |

### Connectors

| | |
|---|---|
| Number of connections | 7 |
| Manufacturer | Ria |

| | |
|---|---|
| Manufacturer part number | 31114107 |
| Maximum conductor size | AWG 16 |

### Other / general data

| | |
|---|---|
| Mounting | #6 -32 oval head machine screw, stainless steel |
| Weight | < 0.25 lb |

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