LED CLOCKS, CLOCK SYSTEMS & THERMOMETERS

Manufactured in the EU with innovative Prestige Line and Hermetic Technologies these fully weatherproof (IP66) Digital Clocks with accurate GPS or NTP (LAN) time sources, automatic brightness sensors, built-in relays (operates factory sounders, school bells or other external equipment at desired times), count up and count-down timers & and optional Temperature Sensor offer the perfect solution for any indoor or outdoor application.

Typical Indoor and Outdoor Applications:

- schools, colleges and universities, manufacturing and production areas, laboratories, distribution centres
- offices and receptions, fitness centres and swimming pools, workplaces, halls, corridors, waiting rooms
- hospitals, emergency services control rooms, power generation plants
- over building entrances (as an element of the façade raising the prestige), open sports facilities
- stations, platforms, airports, passenger information, logistics centres
- inside public transport vehicles
- in pylons, welcome signs and advertising totems

SERIES COMPARISON

Each series offers identical functionality, but differ in the time display format and the housing technology.

Parameter	ZA Series	ZB Series	ZAH Series	ZBH Series
Time display format	HH:MM	HH:MM:SS	HH:MM	HH:MM:SS
Housing technology	PrestigeLine	PrestigeLine	Hermetic	Hermetic
Resistance to adverse weather conditions	IP66	IP66	IP66	IP66
Front	Polycarbonate	Polycarbonate	Anti-reflection surface	Anti-reflection-surface

FEATURES and BENEFITS

(subject to options selected)

- Clock
- Calendar
- Thermometer
- Lightweight
- High energy efficiency
- Automatic brightness control
- Built-in scheduling relay
- Weather resistant (IP66)
- GPS satellite time synchronisation
- NTP Internet time synchronisation
- Remote operation via web browser or IR remote control
- Built-over power supply units
- Readability in bright sunlight
- Easy to keep clean
- Master clock function

MODELS AVAILABLE

PrestigeLine

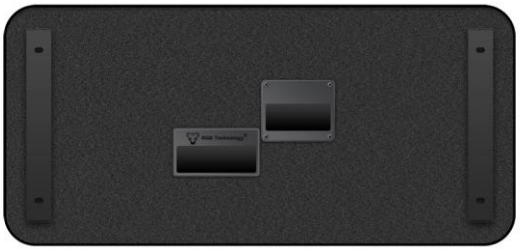
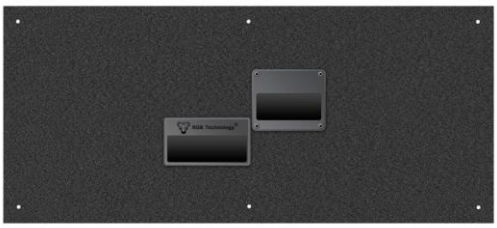
Digit height 50 mm	
ZA5	**ZB5**
	
Digit height 100 mm	
ZA10	**ZB10**
	
Digit height 200 mm	
ZA20	**ZB20**
	

Hermetic

Digit height 100 mm	
ZAH10	**ZBH10**
	
Digit height 200 mm	
ZAH20	
	

HOUSINGS TECHNOLOGIES

Mechanical differences between the housing technologies provide a choice of an option appropriate for the mounting location and the method of installation.

	PrestigeLine (based on ZA20)	Hermetic (based on ZAH20)
Front		
Side		
Back		

LED COLOURS

Standard LED colour options for all series is red, yellow and amber.
Blue, green and white LEDs are available at a premium. Please contact us for details.

TIME SYNCHRONISATION, CLOCK SYSTEMS

The time is set manually or automatically in one of two ways:

1. GPS Time Synchronisation

Although GPS was originally created for positioning purposes (i.e. defining locations), it is also used for other purposes. Embedded within a received GPS signal is information about the current time and date. This time is highly accurate, because it is determined based on atomic standards. Typically, any variation from absolute is maximum one millionth of a second per month.

Advantages of GPS synchronisation:

- provides precise time synchronisation from the GPS satellites, based on atomic standards,
- does not require any configuration,
- does not require any connection to the Internet,
- operates in every location on Earth,
- confirmation of correct signal reception is visibly displayed by an LED embedded in the receiver.

To take advantage of satellite time synchronisation, a clock must be equipped with the optional **GPS Receiver.**



2. NTP Time Server Client

NTP (Network Time Protocol) – is a communication protocol supporting precise, stable and safe synchronisation of clocks with any time server through a computer network. A great advantage of this solution is the possibility of simultaneous synchronisation of a large number of devices. The synchronisation may be executed:

- from your own local time server – Internet access is not required for this configuration,
- from a public remote time server – Internet access is required for this configuration.

Every clock can be configured as a local NTP time server – as described below.

The advantages of NTP synchronisation:

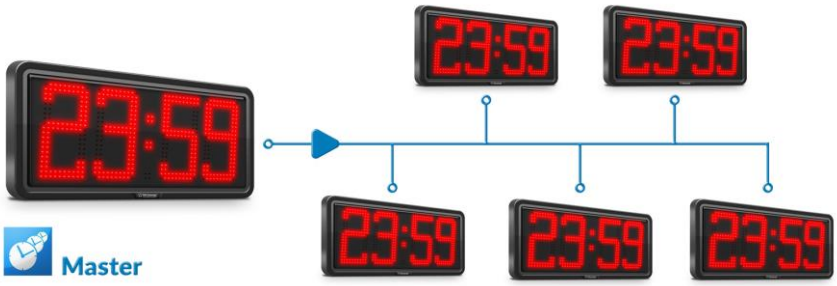
- provides precise time synchronisation with NTP servers,
- gives possibility of simultaneous synchronisation of many clocks from the same server,
- allows operation of five different time servers (1 primary and 4 alternative) provides reliable synchronisation,
- permits changing the time server from the primary to an alternative automatically when a failure is detected.

The NTP time synchronisation is carried out via the Ethernet (the interface is included in the standard equipment of every clock).



Function of a local NTP Time Server

Every clock of our ZA/ZB series may be a central clock (MASTER) which, in a LAN, will provide the time source for other clocks (slaves). In consequence, it is easy to create a clock system in which the central clock can receive time from different sources, such as: a GPS receiver, a public NTP server or its own internal clock.
Providing synchronised time to all clocks guarantees that everybody uses the same time source. This is extremely important for workplaces, production facilities, schools, stations, platforms, etc.



SAMPLE CLOCK CONNECTION DIAGRAMS

The clocks synchronised from a local NTP server (LAN):



The clocks synchronised from a remote NTP server (via the Internet):



A MASTER clock synchronised from the GPS, which is, at the same time, a local NTP server for other clocks in the network:

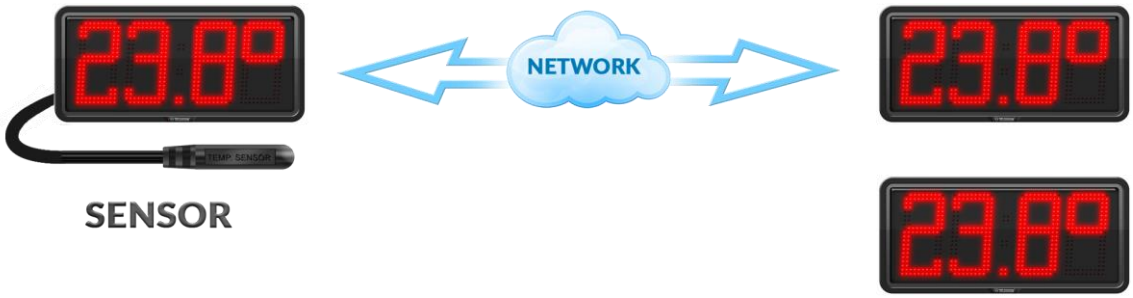


SYNCHRONISATION OF THE DISPLAYED CONTENT

In addition to time synchronisation, our clocks have a function enabling displayed content synchronisation. It means that all devices which operate in one network can display the same information at the same time. It is a very useful function for the installations of two or more clocks located close to each other, e.g.:
- two sides of a pylon with clocks,
- several clocks showing World time,
- public transport stations,
- polygonal (many-sided) information poles.

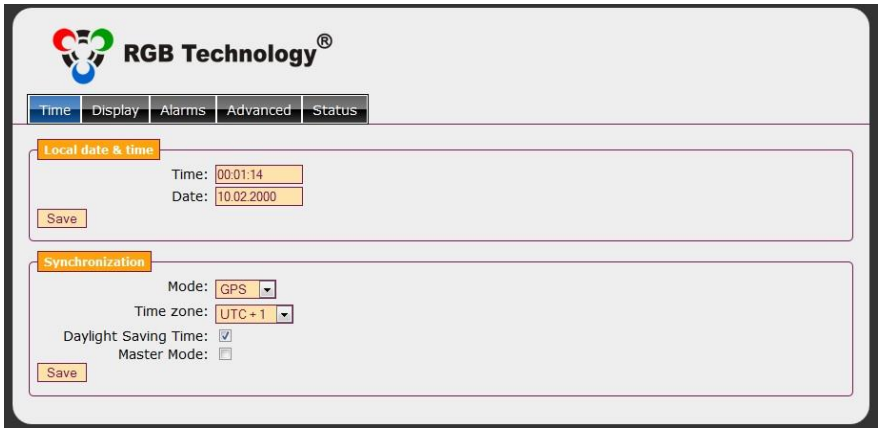


In installations with content synchronisation, a user may activate the function of transferring the value of the measured temperature from the MASTER clock to other clocks throughout the network. This functionality supports, e.g.:
- display of the temperature on several devices at the same time, using only one temperature probe,
- display of the temperature measured by another device (MASTER) in a remote location,
- avoiding the display of divergent measurements, caused by different locations of temperature probes.
- etc.



SETTINGS MANAGEMENT – WEB PANEL

Every device has a built-in **WEB PANEL**, which is available through any computer network using an Internet browser. The management through the WEB PANEL may be carried out using a computer, a tablet, a smartphone or another device providing the Internet browser.



The advantages of this solution:

- embedded functionality,
- clear and tabular preview of the settings (the website),
- possibility of managing many devices from one place via a computer network,
- possibility of remote management via the Internet – from any location in the world.

SETTINGS MANAGEMENT – IR REMOTE CONTROL

To manage the devices a user may use **the IR Remote Control.** Every remote control has a unique code preventing unauthorised individuals from making any changes in it. The remote control is assigned to one or more clocks. It is also possible to assign many remote controls to one clock.



The advantages of this solution:
- operation without a computer,
- no need of installing a computer network,
- direct verification of the applied changes on the device display.

NOTICE:
- For the L (LAN) clocks, the IR remote control is an optional accessory,
- Some functions or settings may be unavailable.

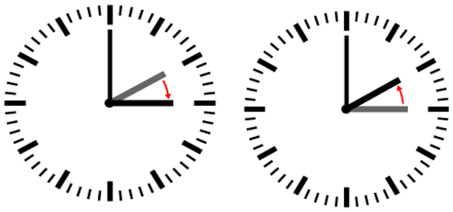
OPERATIONAL RELAY (Scheduling)

The clocks have an embedded operational relay which can signal up to 30 alarms. The duration of each alarm is set independently within the range of 1 second – 59 seconds. There is a possibility of setting the alarms in a weekly mode. The examples of the application:

- activating school bells or buzzers
- activating an industrial buzzer signalling e.g. breaks or changes at the workplace
- providing a time signal for another device /system (e.g. security gates, lighting, heating etc.)

DAYLIGHT SAVING TIME / STANDARD TIME – DST

The clock supports the activation of the automatic time change from the standard time to the daylight-saving time and from the daylight-saving time to the standard time (DST – Daylight Saving Time). The change is made for Europe, USA, Canada, Australia and Israel. Automatic adjustment occurs at our UK changeover points for GMT and BST.



STOPWATCH FUNCTION

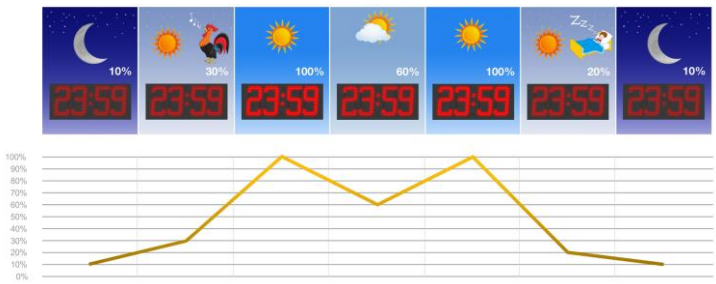
In addition to displaying the time, date and temperature, the clocks support counting time. There are 3 available modes:

a) Stopwatch
b) Timer Up - timer counting up from 0 to a pre-set value
c) Timer Down – timer counting down from a pre-set value to 0

NOTICE:
Control of the Stopwatch function is only possible by IR Remote.

AUTOMATIC BRIGHTNESS CONTROL – SENSOR

Only the automatic brightness control based on **the measurement of ambient light by the sensor** ensures real adjustment of the display brightness to the current lightning conditions of the surroundings.



Current measurement by the sensor is always up-to-date, because it takes into account changes of the position of the Sun in relation to the display, changes of cloud cover during a day, and also shortening and lengthening of a day during a year.

In addition to the automatic brightness control based on the sensor, there is a possibility to manually select and block one of 10 brightness levels.

TIME ZONES

The clock allows the user to set a selected time zone in relation to UTC (Coordinated Universal Time).

ECO MODE

The devices are equipped with an embedded ECO operation mode which supports automatic deactivation of the devices at night or at pre-set time intervals.

SPECIFICATIONS

PrestigeLine

	CONTROLL	DIGIT HIGHT	HIGHT	WIDTH	DEPTH	WEIGHT	POWER CONS.
ZA5-R	IR Remote	50 mm	141 mm	298 mm	42 mm	1 kg	10W
ZA5-L	Browser	50 mm	141 mm	298 mm	42 mm	1 kg	10W
ZB5-R	IR Remote	50 mm	141 mm	408 mm	42 mm	1.5 kg	14W
ZB5-L	Browser	50 mm	141 mm	408 mm	42 mm	1.5 kg	14W
ZA10-R	IR Remote	100 mm	186 mm	349 mm	45 mm	1.5 kg	10W
ZA10-L	Browser	100 mm	186 mm	349 mm	45 mm	1.5 kg	10W
ZB10-R	IR Remote	100 mm	186 mm	512 mm	45 mm	2.0 kg	15W
ZB10-L	Browser	100 mm	186 mm	512 mm	45 mm	2.0 kg	15W
ZA20-R	IR Remote	200 mm	288 mm	616 mm	45 mm	3.0 kg	14W
ZA20-L	Browser	200 mm	288 mm	616 mm	45 mm	3.0 kg	14W
ZB20-R	IR Remote	200 mm	288 mm	900 mm	45 mm	4.0 kg	20W
ZB20-L	Browser	200 mm	288 mm	900 mm	45 mm	4.0 kg	20W

Hermetic

MODEL	CONTROL	DIGIT HIGHT	HIGHT	WIDTH	DEPTH	WEIGHT	POWER CONS.
ZAH10-R	IR Remote	100 mm	160 mm	330 mm	33 mm	1.5 kg	10W
ZAH10-L	Browser	100 mm	160 mm	330 mm	33 mm	1.5 kg	10W
ZBH10-R	IR Remote	100 mm	160 mm	490 mm	33 mm	2.0 kg	15W
ZBH10-L	Browser	100 mm	160 mm	490 mm	33 mm	2.0 kg	15W
ZAH20-R	IR Remote	200 mm	270 mm	590 mm	33 mm	3.0 kg	14W
ZAH20-L	Browser	200 mm	270 mm	590 mm	33 mm	3.0 kg	14W

Distributed by:
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