RGB Technology®
MODERN TECHNOLOGIES

OPERATION AND MAINTENANCE MANUAL

ANALOG CLOCK ZE30/ZF30

Product code:
331-XX-XX-XX
332-XX-XX-XX

RoHS COMPLIANT

CE

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1 Manufacturer

RGB Technology Sp. z o. o. (RGB Technology Ltd.)
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75-129 Koszalin
POLAND

2 Specifications

Table 1

Device dimensions/clock face dimension [mm]:	318 x 49/300
Power supply:	IEEE 802.3af(PoE)/IEEE 802.3at(PoE+). Optionally: - 5V DC - 230V AC (when using APV-8-5 power supply)
Acceptable input voltage frequency range:	50 ÷ 60 Hz (for 230V AC power supply)
Mechanism:	Stepping **(ZE30 - 331-XX-XX-XX)** Continuous sweep **(ZF30 - 332-XX-XX-XX)**
Device weight:	0.95 kg
Ingress protection rating IP:[1]	IP40
Average device power consumption:	0,7 W
Operating temperature (ambient):	-5°C ÷ 40°C
Device storage temperature:	-10°C ÷ 60°C
Housing color:	White

3 Transport and storage

The device is sensitive to mechanical damage. It should be ensured that it is properly secured for transport so as to eliminate any damage. It is forbidden to transport the device components separately in a collective package – each item must be packed individually and cannot 'bump' during transportation.

4 Device construction

The ZE30/ZF30 wall-mounted version has a housing made of ABS. The clock face and hands are protected from the front with tempered glass or polycarbonate, thanks to which - after proper installation - the device is characterized by IP 40 protection level.

4.1 Analog clocks construction

Figure 1 shows the ZE30 device construction.

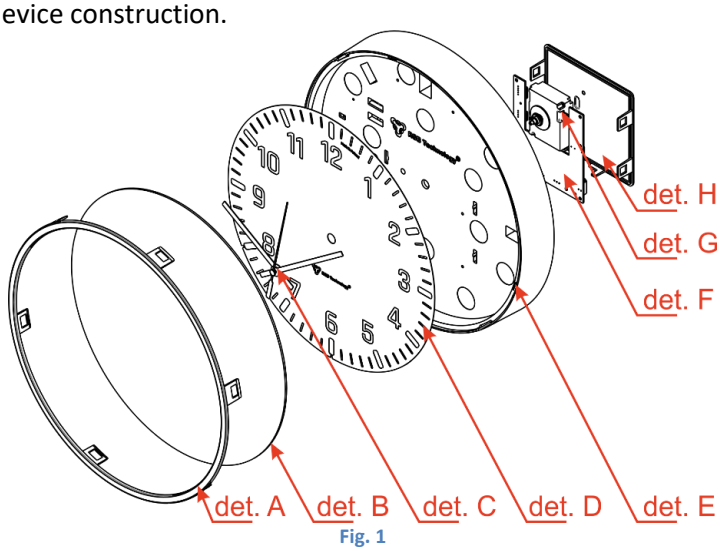


Fig. 1

det. A – Clock rim; det. B – Viewfinder; det. C – Hands; det. D – Dial; det. E – Clock body; det. F - Controller; det. G – Mechanism; det. H – Back cover.

[1] The degree of protection based on the EN 60529 standard.

4.2 ZE30/ZF30 device dimensions

All dimensions given in the figures are in [mm].

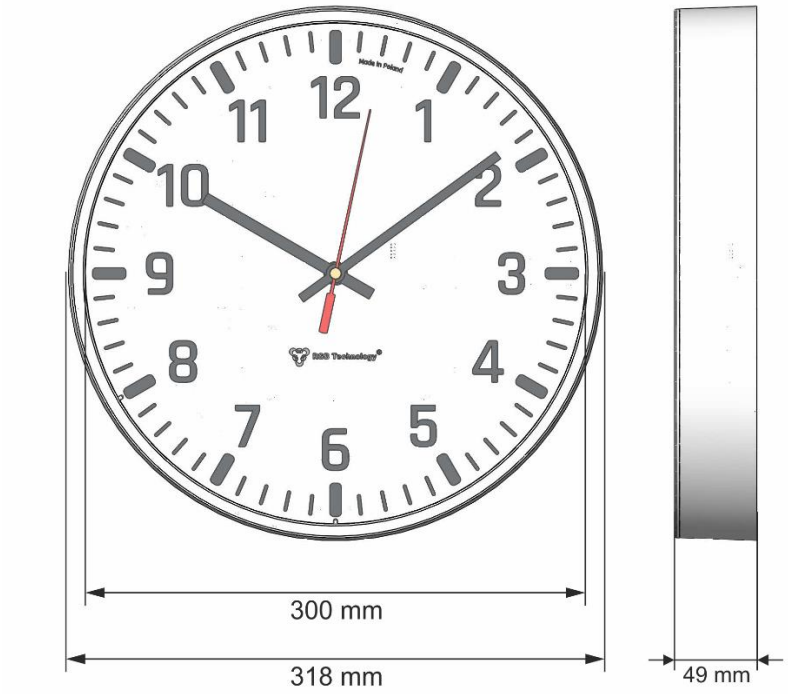


Fig. 2

5 Device installation

Correct installation involves placing the device in a specific location on the wall. For hanging the clock with the housing, the provided holes are as follows: two mounting holes **det. A** and holes for attaching the wall mount **det. B** (Fig. 3) – requires additional mounting. as described in section 8.2.

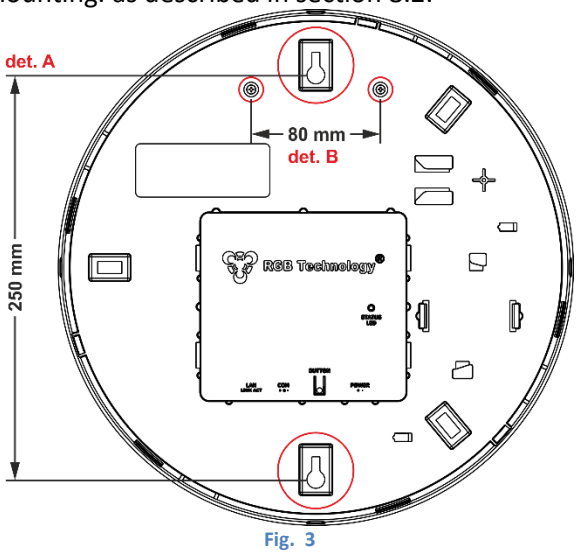


Fig. 3

NOTE!

Before you begin any installation operations or start using the device, you should refer to the manual supplied by the manufacturer. Improper connection to the mains power supply, incautious device installation, or improper use may cause property damage, loss of health or death from electric shock! Moreover, any failure to follow the Manufacturer's instructions may void your warranty.

NOTE!

Make sure that all components should be mounted with the cables facing down.

NOTE!

It is forbidden to make any additional mounting points or any holes in the device assembly components.

5.1 ZE30/ZF30 application

The ZE30/ZF30 device is designed to tell the time. For the device to function properly, correct configuration of the device and access to the Internet (or connected GPS module) are required.
The device is intended for internal use.

5.2 ZE30/ZF30 configuration

Default clock configuration:
- IP address obtained automatically (DHCP), time zone UTC+1:00, DST: Europe.
- If the DHCP address is not obtained in 5 minutes, the clock takes the address from the following pool: 169.254.0.1 - 169.254.255.254. The clock can be detected using the software: **RGB Devicer** (http://rgbtechnology.pl/soft/).

After connecting the power supply, the clock will reset the hands to 12:00 (this process may take several minutes - depending on the position of the hands) and then - with correctly configured Internet access - it will start setting the current time, according to the default clock settings. Additional clock configuration involves personalizing the device by the user through the Web-panel into which you can log via Wi-Fi or LAN.

- In order to connect the device via Wi-Fi, you need to find the Wi-Fi network supporting the clock (by default it is the network named: RGB-CLOCK-XX-XX, where XX-XX are the last 4 characters of the clock MAC address). The MAC address can be found on the back of the clock – above the device identification sticker. The default Wi-Fi password is 0123456789.
- In order to connect to the clock using the LAN cable, you must first configure the network card of the computer to which it is connected. The instructions for the correct configuration of the network card are available for download at http://rgbtechnology.pl/soft/.

Table 2

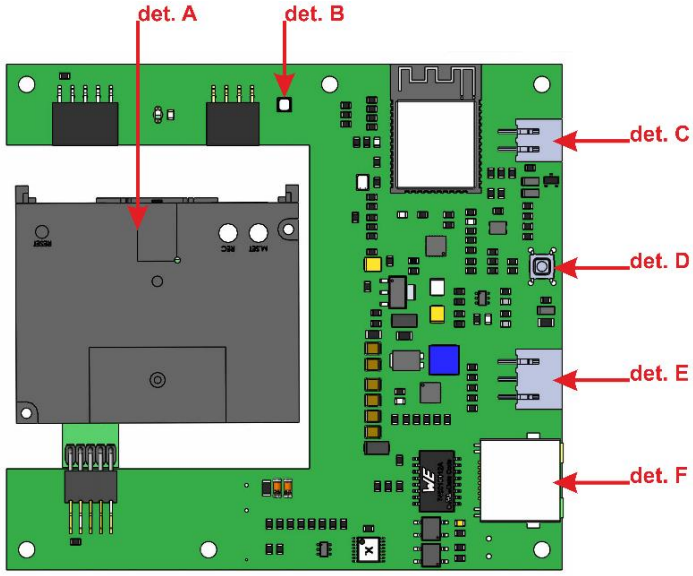
Parameter	Default value
User	admin
Password	dbps

After the correct configuration of the network connection, we can, via a Web browser, connect to the built-in website (Web panel) where you can personalize the device. The connection data is presented in Table 2. To find the IP address of a given device, use the RGB Devicer program (available for download from Google Play, App Store or from http://rgbtechnology.pl/soft/).

The following tabs are available on the built-in clock website:
TIME -> tab allowing you to set the clock mode and the clock time zone;
ADVANCED -> tab allowing you to configure advanced device parameters, such as setting the DHCP mode, changing the Web-panel password, setting the Master/Slave mode or restoring the default device settings;
STATUS -> tab for reading the device status;
FIRMWARE -> tab for reading the software version, device type and software update;
WI-FI -> tab allowing you to read information about available Wi-Fi networks and allows you to connect the clock to a given network.

6 Control module

The control module (Fig. 4) enables the operation of peripheral devices.



Detailed information:

Det. B – LED informing about the device operating status:
Green color – normal operation mode;
Yellow color – other actions, e.g.: restoring default settings;
Red color – service activities;

Det. C – 5VDC connector – allowing connection of the APV-8-5 power supply;

Det. D – RESET button – allows you to restore the default device settings (press and hold the button until the yellow LED lights up – for about 5 seconds – and then release it);

Det. E – COM communication connector – allowing the connection of the GPS module or the cable connecting two clocks together (Master/Slave).

det. A – Mechanism; det. B – Signal LED; det. C – 5 VDC connector; det. D – Factory settings button; det. E – Communication connector; det. F – LAN connector;

Fig. 4

7 Device accuracy

The common time standard for the device is a quartz crystal oscillator of the built-in RTC clock. The declared accuracy of this clock with stable power supply and operating temperature of 25°C is +/- 1 minute per month.
In order to eliminate the RTC clock error (acceleration or delay), the accuracy of the device can be increased by synchronizing with another time standard. The deviation from the standard declared in Table 2 defines a one-time and non-cumulative indication error.

Table 2

Standard type	Communication method	Deviation from the standard
NTP time server	LAN	server dependent, maximum: +/- 20 ms
GPS system	GM-2 GPS module	strong and stable signal: +/- 20 ms weak signal: +/- 100 ms
Master clock	LAN	master clock dependent

Notice! The first clock synchronization occurs within 80 seconds. Subsequent synchronizations (e.g. after signal loss) take place at a time set by the user (64 seconds by default).

8 Additional options

8.1 Side mount for single-/double-sided analog clock

You can buy a dedicated bracket/side frame for the device, which allows you to mount the clock to the wall. The center point of the clock mounted in this holder will be 40 cm away from the wall (approximately 24-25 cm from the outer edge of the housing). In the case of a single-sided clock holder, the rear part of the holder is plugged with a dedicated steel powder-coated cover. The clock is mounted by pressing it into three dedicated clamps located on the holder.
107-01-37 – side holder for a double-sided analog clock;
107-01-38 – side holder for a single-sided analog clock + frame cover.

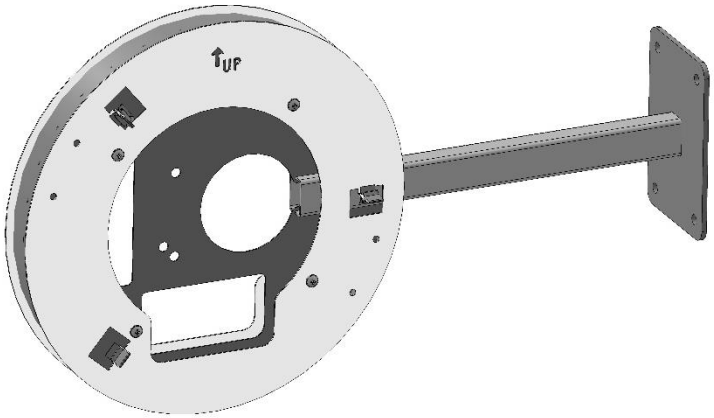


Fig. 5

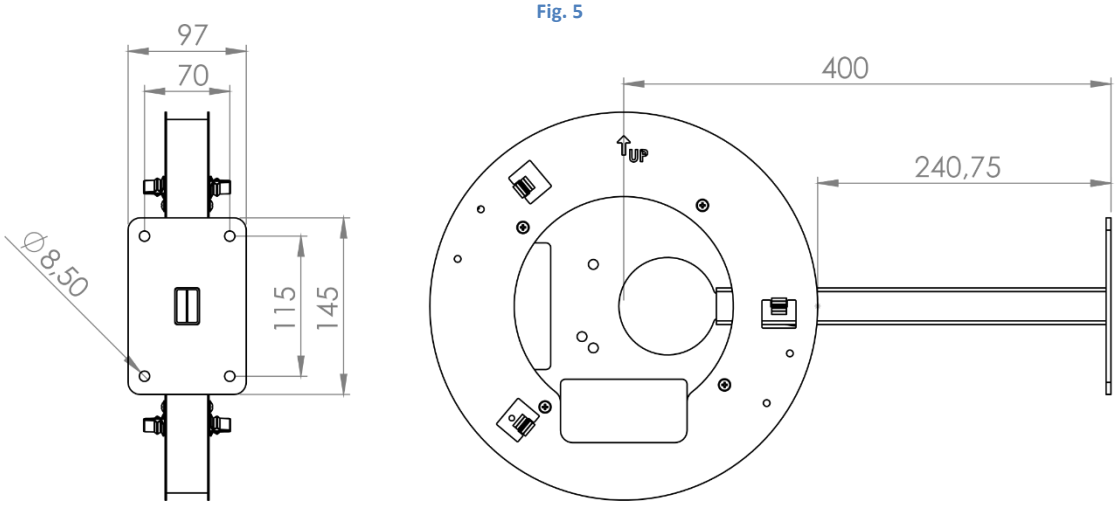


Fig. 6

8.2 Wall-mounting (107-01-36 or 107-01-39).

You can purchase a wall mount for the device, which allows you to mount the ZE30 clock to any flat surface. Two variants of mounting depth are available:
107-01-36 -> 24.8 mm deep for ZE30 clocks (Fig. 9a) – supplied with the clock as a standard mount;
107-01-39 -> 32.05 mm deep for ZE30 clocks equipped with an additional rim (Fig. 9b) – supplied with the clock having a rim or with a separately purchased rim.

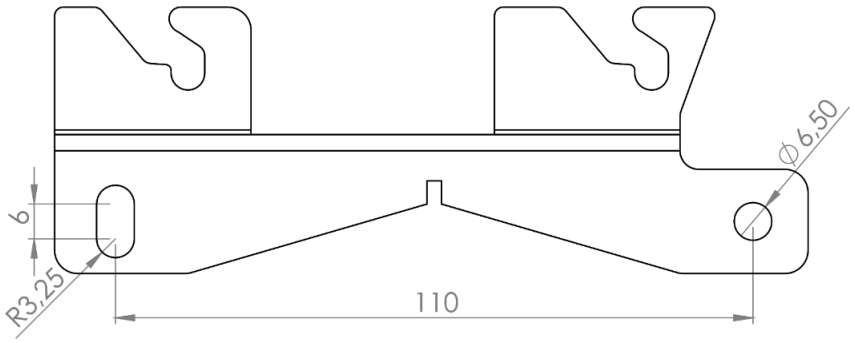


Fig. 7

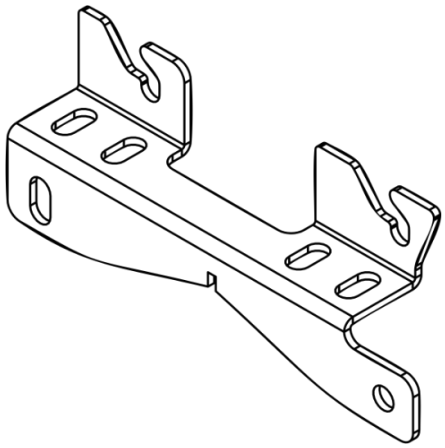


Fig. 8

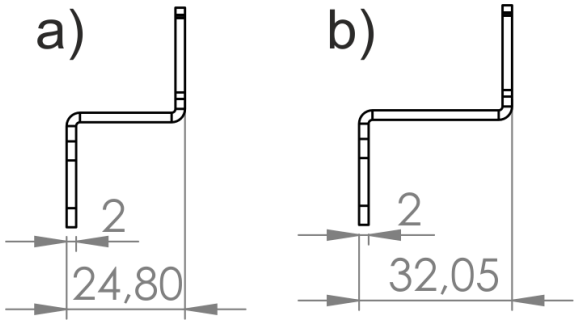


Fig. 9

8.3 Rim (107-02-01).

The ZE30/ZF30 clock can be further equipped with a stainless steel housing. The rim is mounted using dedicated springs.

NOTE! To mount the rim, first remove the plastic clock ring (Fig. 1, det. A).

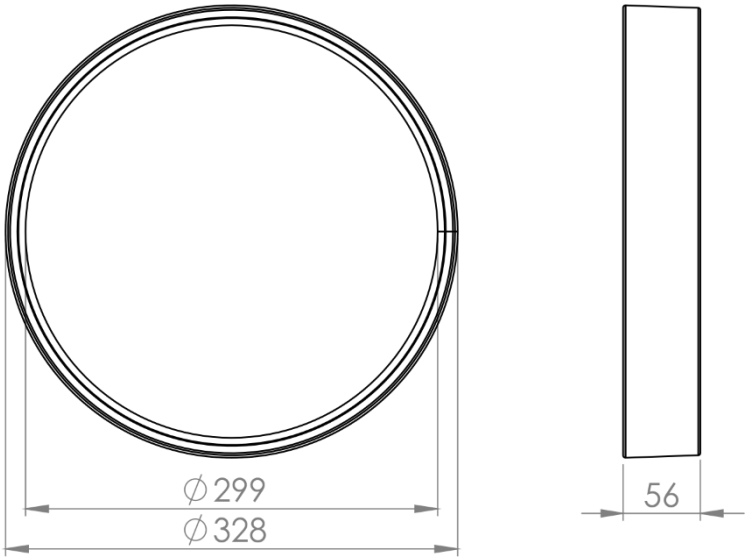


Fig. 10

8.4 Switching power supply APV-8-5 (100-03-01).

Optionally, the ZE30 clock can be further equipped with an APV-8-5 switching power supply for use in locations with standard power infrastructure (230V). The power supply has a plug for connecting the wires to the connector in the controller (Fig. 4, det. C), and a quick coupler for the power cable. The clock has a special socket for mounting the power supply without the need to use screws.

NOTE! Due to individual customer needs regarding the length of the power cord, the manufacturer does not provide it with the power supply.

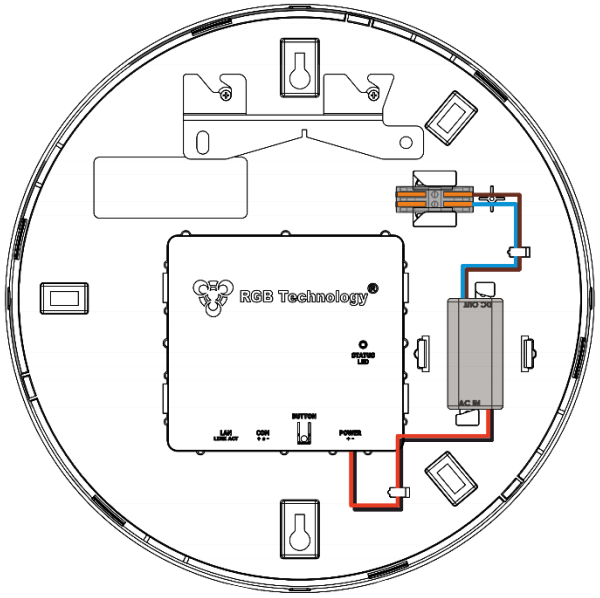


Fig. 11

8.5 GPS module (102-02-34)

Optionally, the device can be equipped with an external GPS module. The properly configured clock equipped with a GPS module synchronizes with the time received from satellites. The standard length of the GPS module cable is 10m. A detailed description of the module is available in the GPS module technical and operational documentation. The GPS module should be connected to the COM connector on the analog clock.

Fig. 12

9 Initial start-up

Step 1: Connect the device to a PoE power source or optionally – when using the APV-8-5 power supply – a 230 VAC mains power source.

Step 2: If properly connected, the clock should proceed to reset the hands to 12:00 and then set the current time.

10 Disposal and recycling

10.1 Packaging material recycling

The packaging elements must be segregated and, then, recycled in accordance with the local executive regulations on waste disposal.

10.2 Device disposal

The device must not be disposed of with normal municipal waste!

In accordance with Directive 2012/19/EC (WEEE), the user is obliged to transfer the damaged or destroyed device to the appropriate disposal facility if there is no economically justified repair possibility.

11 Most common installation errors

1. The device has not been installed in accordance with the manual.
2. Drilling additional mounting holes in the housing.
3. Connecting a device to the network without a PoE adapter.

12 Warranty Void If Removed

The warranty is invalid if the label with the device serial number and the note "Warranty Void If Removed" is torn off.