TECHNICAL DESCRIPTION

MX3639

MX EMERGENCY AND EXIT LIGHTS

DOCUMENT INFORMATION

DOCUMENT NAME:	TECHNICAL DESCRIPTION MX3639
DOCUMENT NUMBER:	MX3639
DATE OF ISSUE:	2020-11-16
REVISION:	4
DATE OF REVISION:	2025-04-15

Table of Contents

1. INTRODUCTION

This document describes addressable Emex Emergency light and Exit signs (MX Light C, R, High ceiling, MX 25, MX 40) and red cross option (RX models).

Table 1, Products covered in this document.

	Model name	PCB number	PCB revision	SW revision
	MX – Series 2025	230530	3	2.0

2. ABBREVATIONS

LED	Light emitting diode

3. GENERAL DESCRIPTION

MX 25, MX 40 and MX Light units are fully compatible with Panasonic addressable fire alarm system, while fulfilling all the emergency light standards, EN 60598-2-22, EN 1838, EN 62034, EN ISO 7010.

MX units are IP41 rated and can be used in indoor environments, such as offices, hotels, shopping malls and other public areas. Function of exit sign is that exit signs are maintained, operates all the time, both when mains fails and when it is present. Emergency lights are non-maintained, operates only, when the mains power fails. MX 25 and MX 40 exit lights have an option for RX model, a red cross panel to indicate forbidden exit direction. Red cross can be controlled with Panasonic system in normal operating and emergency modes.

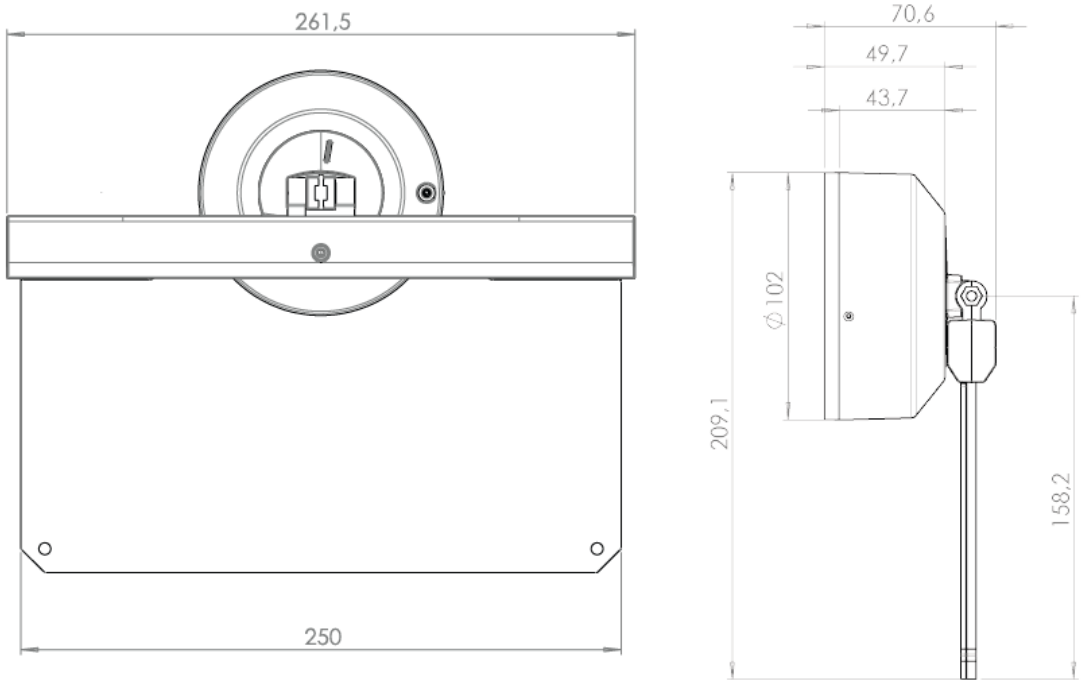
3.1 INDICATOR LIGHT

The state of the MX unit is indicated with indicator light as described in table 2.

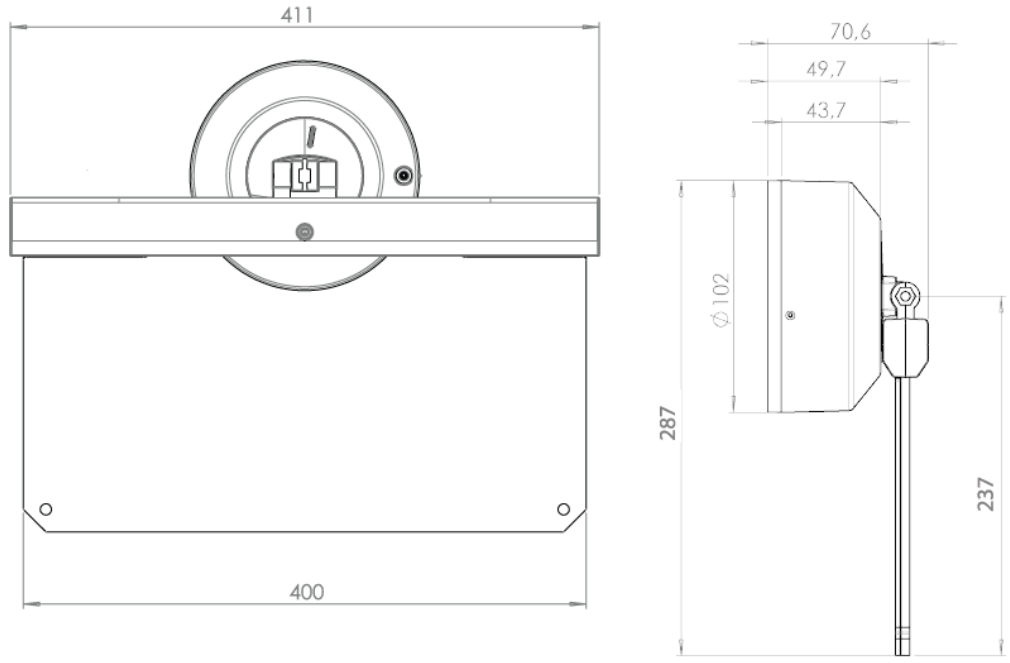
Table 2, State of the unit indicated by the indicator light

Indicator light	State of the unit
Solid green	Operating normally
Blinking green	Performing commissioning test
Solid red	Faulty LED luminaire
Blinking red	Faulty battery or failed duration test

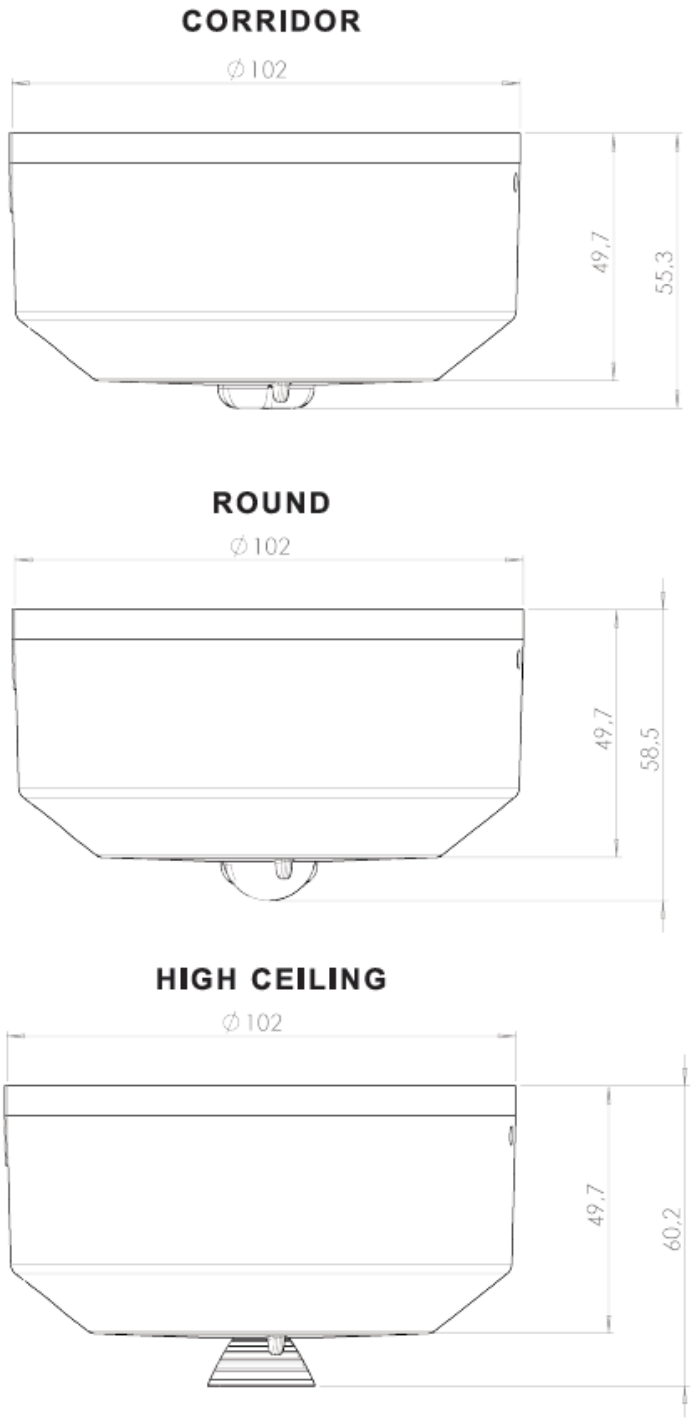
3.2 DIMENSIONS OF MX UNITS



Picture 1, Dimensions of MX 25 exit light



Picture 2, Dimensions of MX 40 exit light



Picture 3, Dimensions of MX Light emergency lights with Round, Corridor and high ceiling lenses

4. SET THE COM LOOP ADDRESS

Each COM loop unit must have a unique COM loop address in range 1-253. Set the address to each MX unit with the Address Setting Tool (4414). Use the connection cable with crocodile clips or directly connect the tool's terminal SA and SB terminals to the SA and SB terminals of MX unit.

4.1 SET THE MODE

Set the mode with the Address Setting Tool (4414) according to the table 3 below.

Table 3, Compatibility table for setting the mode to MX units

System model	Advanced mode	NORMAL mode	2330 mode	2312 mode
EBL512 G3	Not used	Yes	Not used	Not used

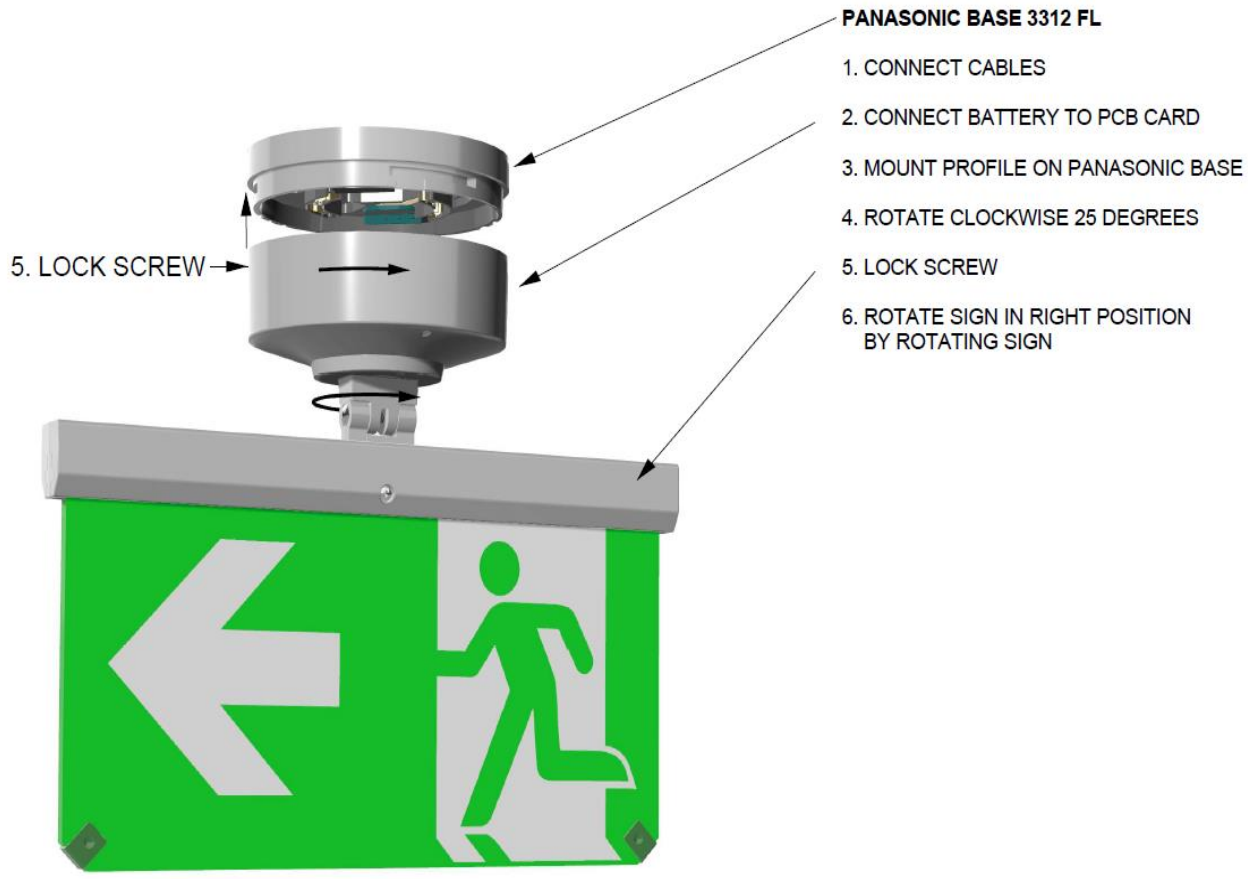
5. INSTALLATION

5.1 ANALOG BASE

Bases for MX units can be mounted on the ceiling and wall.

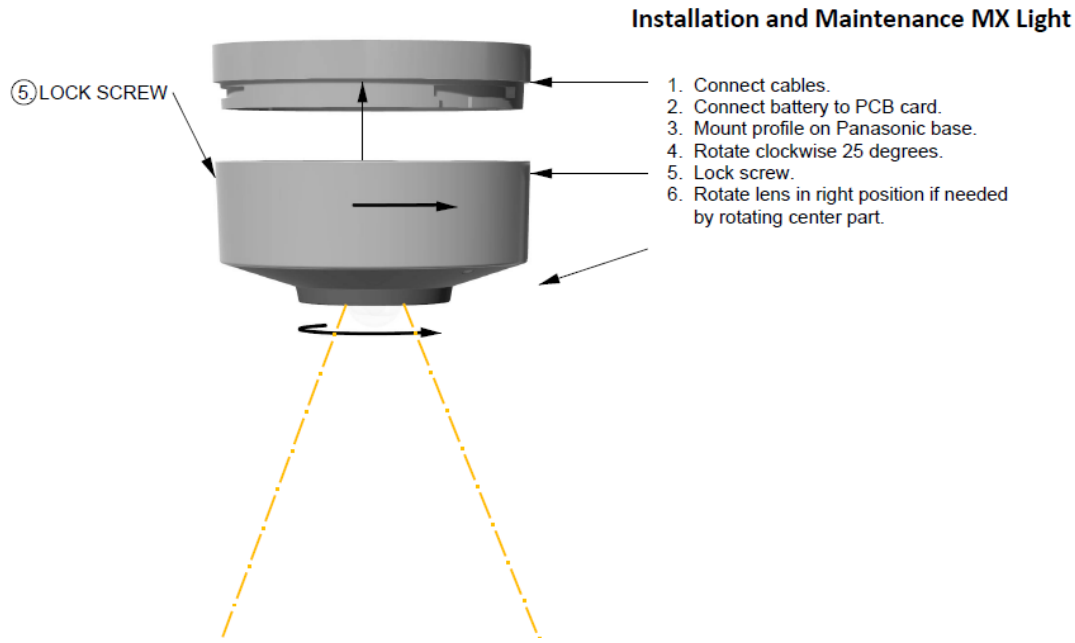
5.2 MX UNIT

MX Light, MX 25 and MX 40 units are installed to Panasonic Analog bases by placing MX unit to the base and twisting the MX unit clockwise 25 degrees. After installing the MX unit to the base, fix the unit with locking screw locating on the side of the MX unit and rotate the sign to right position.



Picture 4, Installation of MX 25 and 40 units to Panasonic base

EMERGENCY LIGHT



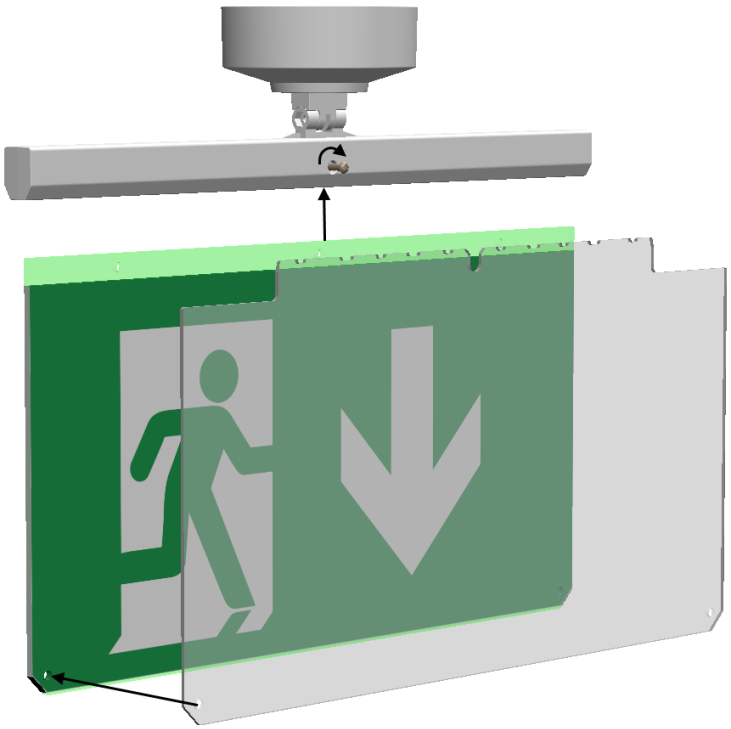
Picture 5, Installation of MX Light unit to Panasonic base

5.3 MOUNTING OF PICTOGRAM

Mounting of pictogram to MX 25 and 40 units is done by sliding the pictogram to the exit light case and pushing the pictogram until you feel the pictogram to click in place. Lastly fix the pictogram securely with the mounting screw.

Picture 6, Mounting of pictogram for MX 25 and MX 40 units

RX model for MX 25 and MX 40 units is installed after installing the pictogram to the exit light case. Slide the red cross panel on top of exit light pictogram and fix the red cross panel to place with included plastic buttons.



Picture 7, Installing the RX model on top of exit light pictogram

6. WIRING

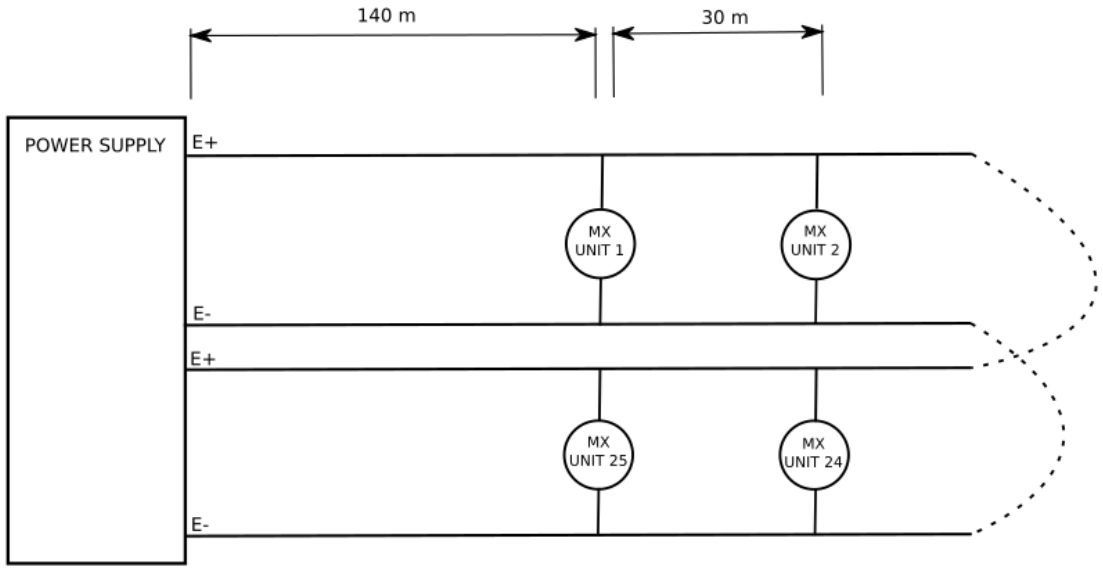
Table 4 shows tested examples of maximum loop cable length. Loops are terminated to power supply module from both ends as in picture 8.

Table 4, Example of tested maximum loop cable lengths

Copper wire diameter	Total power consumption of loop units	Minimum loop supply voltage	Cable length from system to loop units	Cable length between units	Total cable length
0.8 mm [1)]	20 W (25 pcs. MX 25)	30 V	280 m (2x140m)	30 m	1 km
0.8 mm [1)]	23 W (23 pcs. MX 40)	32 V	340 m [2)] (140m+200m)	30 m	1 km

1) Cable used: Berica Cavi S.P.A. J-HH BMK LSZH 2x2x0,80

2) Unit places 24 and 25 were left empty, hence outgoing loop length 140 m and returning loop length 200m.



Picture 8, Test loop

Table 5 shows calculated examples of maximum loop cable length. All calculated examples are rough estimations and real case maximum cable length can vary depending on cable length from system to units. In table 5 calculations it is assumed that distance from system to units is same as the distance between units.

Table 5, Example of calculated maximum loop cable lengths

Copper wire diameter	Total power consumption of loop units	Minimum loop supply voltage	Distance between units and system to first unit	Maximum loop cable length
0.8 mm [1)]	40 W (50 pcs. MX 25)	31 V	8 m	400 m
1.0 mm [2)]	40 W (50 pcs. MX 25)	31 V	13 m	650 m
0.8 mm [1)]	32 W (40 pcs. MX 25)	31 V	12 m	480 m
1.0 mm [2)]	32 W (40 pcs. MX 25)	31 V	17.5 m	700 m
0.8 mm [1)]	24 W (30 pcs. MX 25)	31 V	20 m	600 m
1.0 mm [2)]	24 W (30 pcs. MX 25)	31 V	31.5 m	945 m
0.8 mm [1)]	50 W (50 pcs. MX 40)	31 V	5 m	250 m
1.0 mm [2)]	50 W (50 pcs. MX 40)	31 V	8 m	400 m
0.8 mm [1)]	40 W (40 pcs. MX 40)	31 V	8 m	320 m
1.0 mm [2)]	40 W (40 pcs. MX 40)	31 V	11.5 m	460 m
0.8 mm [1)]	30 W (30 pcs. MX 40)	31 V	16 m	480 m
1.0 mm [2)]	30 W (30 pcs. MX 40)	31 V	24 m	720 m

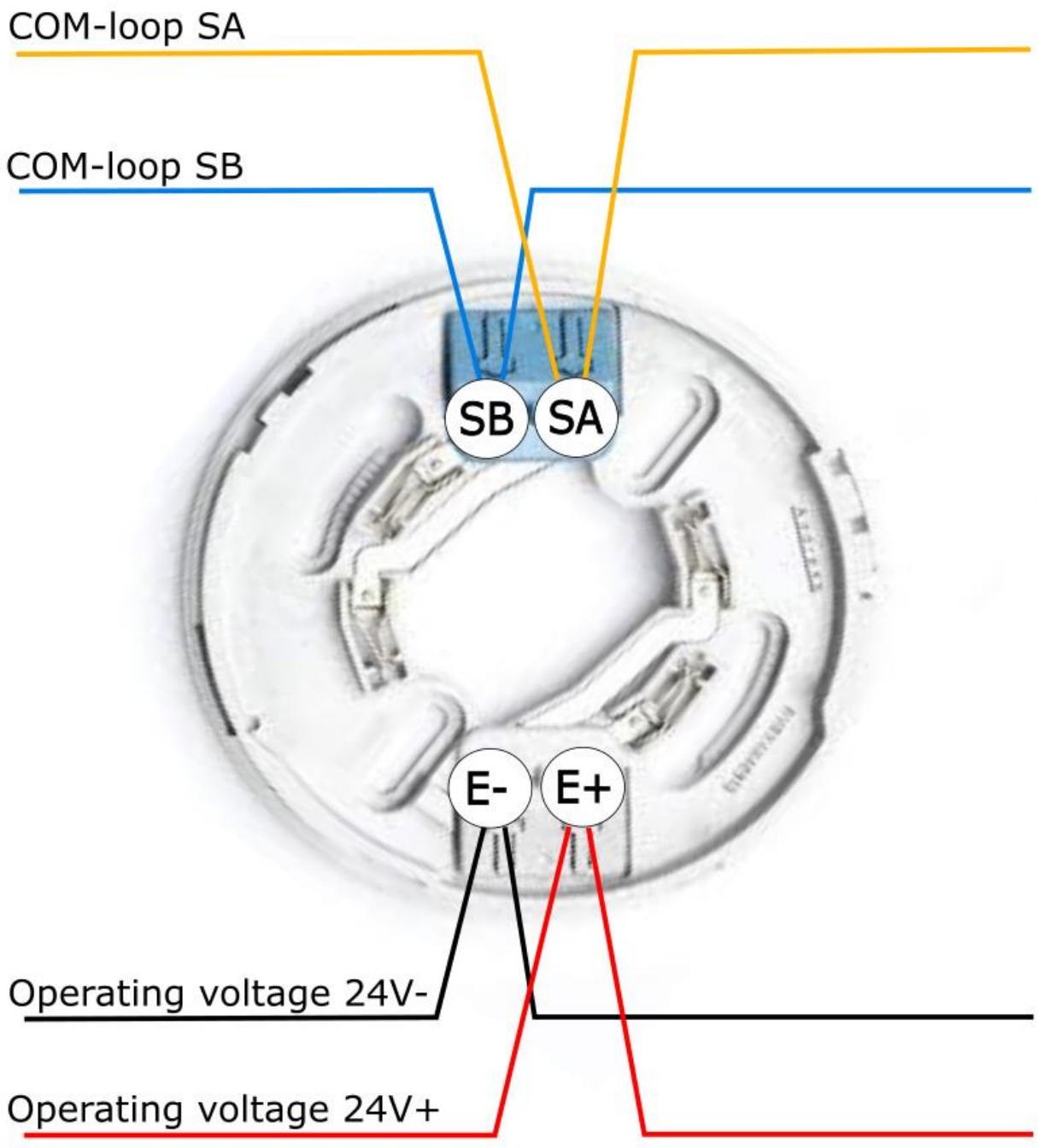
1) Wire resistance approx. 34.0 Ω/km

2) Wire resistance approx. 21.5 Ω/km

Recommended solid copper wire diameter for following Panasonic Analog bases is 0.6 – 1.2 mm. Recommended wire strip length is 10 – 12 mm.

6.1 ANALOG BASE 3312FL

Connect COM loop wires (in yellow and blue in picture 9) to analog base terminals SA and SB according to picture 9. Connect operating voltage loop wires (in red and black in picture 8) to base terminals E+ and E-.



Picture 9, Wiring for Panasonic Analog bases 3312FL

7. TECHNICAL DATA

Note that all current consumptions are valid by nominal voltage and at temperature of 25 °C

Table 6, Technical data

Voltage:	
Allowed	12-32 V DC
Nominal	24 V DC
Current:	
Active:	
MX 25	See measurements page 16 and 17
MX 40	See measurements page 16 and 17
MX Light	See measurements page 16 and 17
Power consumption:	
MX 25	See measurements page 16 and 17
MX 40	See measurements page 16 and 17
MX Light	See measurements page 16 and 17
Operating time in emergency mode:	
MX 25	1/3h
MX 40	1/3h
MX Light	1/3h
Address range	1-253
Address setting	With address setting tool
Internal battery	NiMH 1.2V / 2.4V, 2050mAh (1/3h)
Material	PC (polycarbonate)
Ambient temperature:	
Operating	0 to +45 °C
Storage	0 to +45 °C
Ambient humidity	Maximum 95 % RH (no condensation)
Ingress protection rating	IP41
Dimensions (LxWxH):	
MX 25	102x261x225 mm
MX 40	102x411x300 mm
MX Light	102x102x55-61 mm
Weight:	
MX 25	1h 374g / 3h 411g
MX 40	1h 685g / 3h 721g
MX Light	1h 115g / 3h 151g
Colour	White

7.1 MEASUREMENTS

1h back-up battery

25M-Mode 1h			
Status	**Voltage**	**Current**	**Power**
Normal mode, Battery charging	24 V	34 mA	**0,8 W**
Normal mode, Battery full	24 V	16 mA	**0,4 W**
RED-X on, Charging battery	24 V	48 mA	**1,2 W**
RED-X on, Battery full	24 V	28 mA	**0,7 W**
Fault mode, No battery, No LED.	24 V	8 mA	**0,2 W**

40M-Mode 1h			
Status	**Voltage**	**Current**	**Power**
Normal mode, battery charging	24 V	46 mA	**1,1 W**
Normal mode, battery full	24 V	29 mA	**0,7 W**
RED-X on, Charging battery	24 V	48 mA	**1,2 W**
RED-X on, Battery full	24 V	31 mA	**0,7 W**
Fault mode, No battery, No LED.	24 V	8 mA	**0,2 W**

EMERGENCY-Mode 1h			
Status	**Voltage**	**Current**	**Power**
Normal mode, Battery charging	24 V	26 mA	**0,6 W**
Normal mode, Battery full	24 V	8 mA	**0,2 W**
External control	24 V	1 mA	**0,0 W**
Fault mode, No battery, No LED.	24 V	8 mA	**0,2 W**

3h Back-up battery

25M-Mode 3h			
Status	**Voltage**	**Current**	**Power**
Normal mode, Battery charging	24 V	38 mA	**0,9 W**
Normal mode, Battery full	24 V	16 mA	**0,4 W**
RED-X on, Charging battery	24 V	52 mA	**1,2 W**
RED-X on, Battery full	24 V	29 mA	**0,7 W**
Fault mode, No battery, No LED.	24 V	8 mA	**0,2 W**

40M-Mode 3h			
Status	**Voltage**	**Current**	**Power**
Normal mode, battery charging	24 V	50 mA	**1,2 W**
Normal mode, battery full	24 V	28 mA	**0,7 W**
RED-X on, Charging battery	24 V	52 mA	**1,2 W**
RED-X on, Battery full	24 V	31 mA	**0,7 W**
Fault mode, No battery, No LED.	24 V	8 mA	**0,2 W**

EMERGENCY-Mode 3h			
Status	**Voltage**	**Current**	**Power**
Normal mode, Battery charging	24 V	30 mA	**0,7 W**
Normal mode, Battery full	24 V	8 mA	**0,2 W**
External control	24 V	1 mA	**0,0 W**
Fault mode, No battery, No LED.	24 V	8 mA	**0,2 W**

Comments

Measurements taken with one device. There may be minor differences between the devices, and in addition, the line voltage directly affects the current drawn by the device. The line voltage also affects the efficiency of the device, so the power taken up by the device also changes in relation to the line voltage. However, this is quite minor.

8. APPROVALS

Applicable directive / Approval	Applicable standards	Notified body
EMC	EN61000-6-3	Self-declaration