PX709-C

PxArt+

Mono Ceiling

User manual

Table of Contents

1 Description

PxArt+ Mono Ceiling is a professional LED illuminator designed to illuminate museum or exhibition displays.

By using semiconductor light sources SSL LED COB type and advanced control electronics, a high-class illuminator has been created that meets very high requirements concerning museum and exposition lighting. Its most advantages include the total lack of ultraviolet radiation, trace amounts of infrared radiation, very high CRI color rendering index, high brightness and low energy consumption.

The device has a handle that allows it to be mounted directly to the ceiling. An individual address assigned to each lamp allows to adjust its brightness independently of the settings of other lamps. Thanks to the button placed on the housing, it can also be manually controlled (e.g. when the lamp is installed in an installation without DMX512 control).

The lamp uses a highly efficient LED diode and an effective control system, thanks to which the lamp emits a small amount of heat.

The lamp housing allows to change the lighting direction in two axes.

Additional accessories are available for purchase: side diaphragms, honeycomb and an additional lens.

2   Safety conditions

<u>Caution! Before installing, connecting and using the lamp you have to absolutely read this document.</u>

The following symbols are used to underline important information on security on the product and in this manual.

Danger! Risk of loss of life and health	**Warning!** Fire hazard	**Warning!** LED light emission, the risk of eye damage	**Warning!** The risk of burns	**Warning!** Read the instruction manual

<u>Caution!</u>

Do not look at the LEDs, LEDs can cause damage or eye irritation. Do not look at the light source with any optical devices that focus the light rays.

Light is harmful to unprotected eyes, can cause irritation, eye damage or even loss of eyesight.

While working outdoors in normal conditions, the housing unit can heat up to +65°C. Make sure that accidental contact with the device during use is impossible.

In case of improper usage of the product it may cause a risk of serious injury or death because of the threat of fire.

The PX709-C device is powered directly from 230V power grid. Failure to comply with the safety rules may result in electric shock and may endanger the user's life. Therefore it is necessary to observe the following:

1. Installation should be performed by a person holding the appropriate qualifications, according to the instruction manual.
2. The electrical installation to which the lamp is to be connected must meet the safety requirements (the installation must be 3-wire and equipped with a residual current device).
3. All the conductors should be protected against mechanical and thermal damage.
4. In the event of damaging any conductor, it should be replaced with a conductor of the same technical data.
5. All repairs, should be made with cut off power supply.
6. Do not connect to the power supply to device with visible damage.
7. All sudden shocks, particularly dropping, should be avoided.
8. The device cannot be used in places with temperature lower than +2°C or higher than +40°C.
9. Clear with damp cloth only.

3   Connectors and control elements

Output to PX277

Brightness adjustment
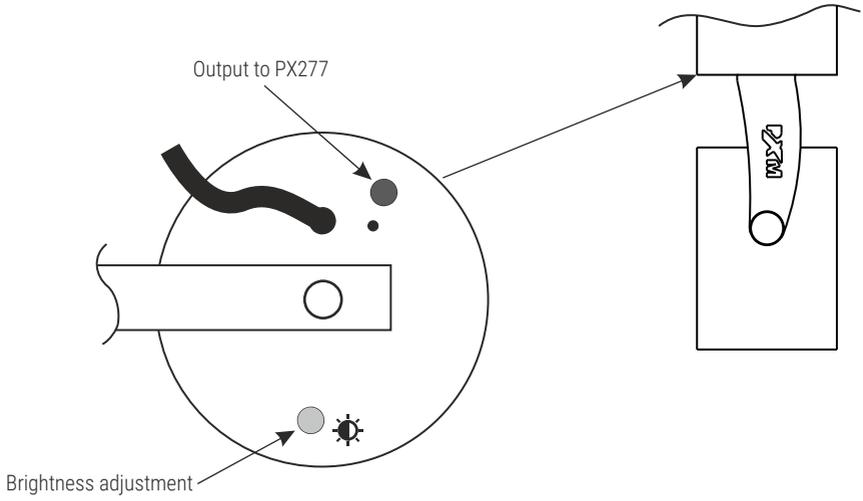
4   Information on version

The PX709-C lamp is available in several versions that differ, for example, in the angle of the lenses used.

Below is a description of the PX709-C markings and their explanation:

PX709-C – XX – UYY – Z

XX – lens angle:

15 – 15°

36 – 36°

51 – 51°

U – color rendering index CRI:

X – 95

8 – 80

9 – 90

YY – color temperature:

30 – 3000K

50 – 5000K

Z – housing color:

1 – gray

2 – black

3 – white

5   Control

5.1   Button

The lamp has been equipped with button which allow for changing the brightness level. The button have been placed at the bottom part of the junction box, above the lamp reflector.

Depending on a situation, the diode signal the following:

- start of the lamp – quick flickering of the diode for 2 seconds,
- DMX signal receiving – slow flickering of the brightness adjustment button (1Hz frequency) in the first minute after receiving the DMX signal,
- after the start of the lamp in case of the loss of DMX signal – diode lights (continuously) for 1 minute,
- if the state of DMX signal changed (if there wan no DMX signal and it returned, or vice versa) – diode signals it for 1 minute,
- damage of the temperature sensor module – diode does not go out after 1 minute.

To change the brightness, press and hold down the control button. If during the brightness adjustment the button diode starts flickering, it means that the extreme value (minimum or maximum) has been reached. Then the direction of adjustment changes.

It is possible to change the adjustment direction without reaching extreme values. For example, while the lamp brightness is increased, release

the control button for a moment. The diode will signal the change of adjustment direction. The pressing of the adjustment button again will cause the dimming of the lamp (brightness decrease).

While the lamp operates, the diode stays switched off (excluding situations mentioned above).

5.2 DMX signal

The PX709-C lamp can be controlled via one DMX channel – lamp brightness.

Setting the lamp parameters:

	Value of the lamp parameter	Value of the DMX signal
Brightness adjustment	100%	255
	:	:
	50%	128
	:	:
	0%	0

6   Cooperating with the PX277 configurator

The PxArt+ Mono Ceiling settings can be changed by connecting to the PX277 (PxArt Settings Controller) configurator. It allows in connection with PX709-C to define the following parameters: DMX addresses for brightness (in the range of 1 – 512) and device behavior in the absence of DMX signal (programmable scene).

When the lamp is connected to the configurator, the PX709-C will restart.

6.1 Available parameters

Bright. address – changing the DMX address of the brightness channel in the range of 1 – 512

Scene bright. – scene brightness displayed after DMX signal loss

Smooth – the smoothing function allows for smooth changes of brightness and color, without visible jerks, which prevents the effects of "vibrations" of light from occurring in lighting installations. Possible options to choose from:

- **Time** – smoothing in the set time interval
- **Off** – smoothing off
- **P2P** – linear smoothing between DMX packets

Smooth time – the smoothing function can be selected in the time interval from 10 to 2000ms

Default sett. – restoring factory settings in PX709-C:

- **Bright. address**: 1
- **Scene bright.**: 128
- **Smooth**: Time
- **Smooth time**: 200ms

Lighting time – total lamp lighting time

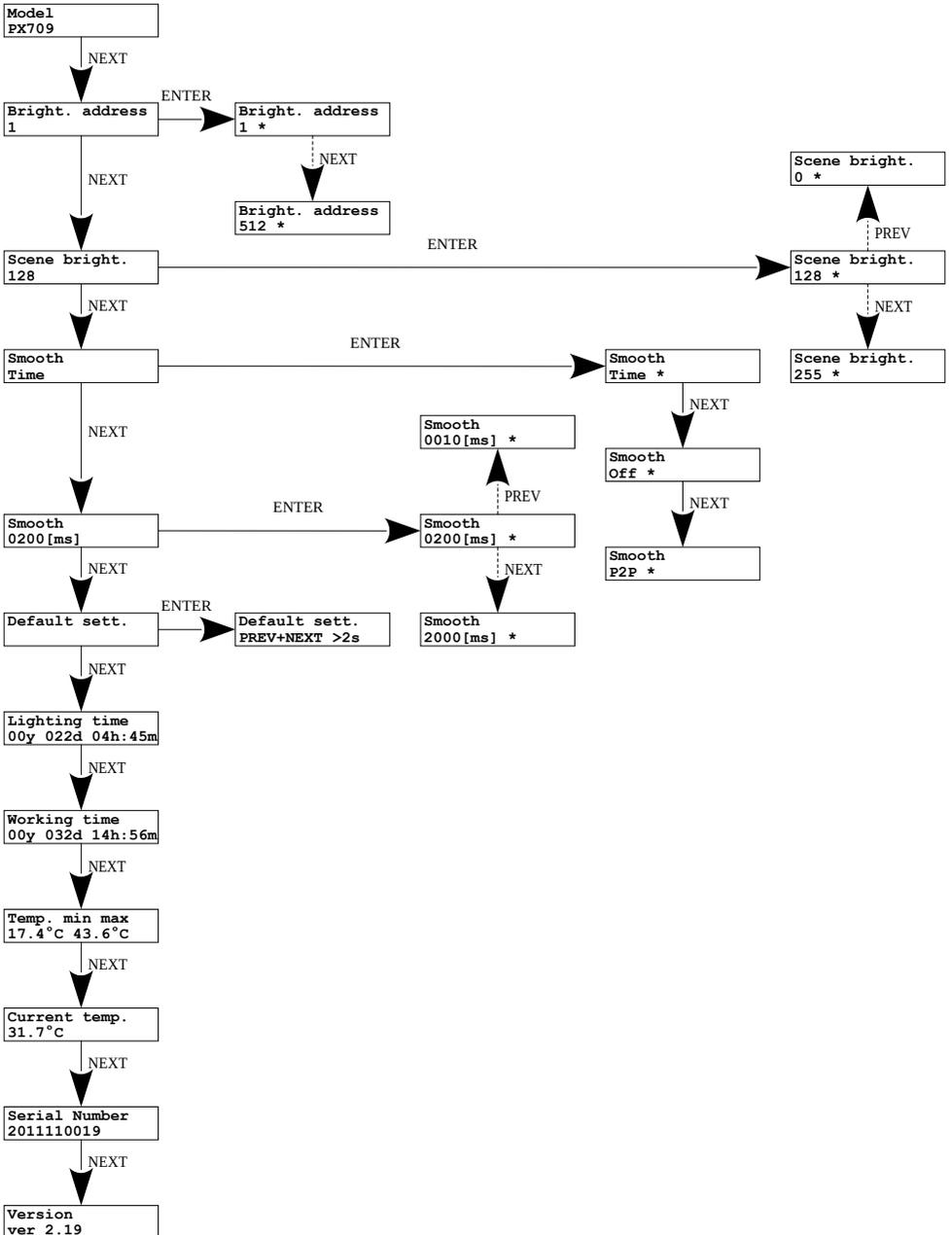*Working time* – total lamp operating time

Temp. min max – combination of the lowest and highest temperature recorded by the device

Current temp. – current temperature of the device

Serial Number – serial number of the device

Version – software version

6.2 The PxArt+ Mono Ceiling menu diagram in PX277

```
┌─────────────────┐
│ Model           │
│ PX709           │
└─────────────────┘
        │ NEXT
        ▼
┌─────────────────┐   ENTER    ┌─────────────────┐
│ Bright. address │──────────▶ │ Bright. address │
│ 1               │            │ 1 *             │
└─────────────────┘            └─────────────────┘
        │ NEXT                          ┊ NEXT
        │                               ▼
        │                       ┌─────────────────┐      ┌─────────────────┐
        │                       │ Bright. address │      │ Scene bright.   │
        │                       │ 512 *           │      │ 0 *             │
        ▼                       └─────────────────┘      └─────────────────┘
┌─────────────────┐            ENTER                             ▲ PREV
│ Scene bright.   │──────────────────────────────────▶  ┌─────────────────┐
│ 128             │                                      │ Scene bright.   │
└─────────────────┘                                      │ 128 *           │
        │ NEXT                                           └─────────────────┘
        ▼                                                        │ NEXT
┌─────────────────┐         ENTER        ┌─────────────────┐    ▼
│ Smooth          │───────────────────▶  │ Smooth          │  ┌─────────────────┐
│ Time            │                      │ Time *          │  │ Scene bright.   │
└─────────────────┘                      └─────────────────┘  │ 255 *           │
        │ NEXT                                   │ NEXT        └─────────────────┘
        │                    ┌─────────────────┐ ▼
        │                    │ Smooth          │ ┌─────────────────┐
        │                    │ 0010[ms] *      │ │ Smooth          │
        │                    └─────────────────┘ │ Off *           │
        │                           ▲ PREV       └─────────────────┘
        ▼                           ┊                  │ NEXT
┌─────────────────┐  ENTER   ┌─────────────────┐      ▼
│ Smooth          │────────▶ │ Smooth          │ ┌─────────────────┐
│ 0200[ms]        │          │ 0200[ms] *      │ │ Smooth          │
└─────────────────┘          └─────────────────┘ │ P2P *           │
        │ NEXT                       ┊ NEXT       └─────────────────┘
        ▼                            ▼
┌─────────────────┐  ENTER   ┌─────────────────┐  ┌─────────────────┐
│ Default sett.   │────────▶ │ Default sett.   │  │ Smooth          │
│                 │          │ PREV+NEXT >2s   │  │ 2000[ms] *      │
└─────────────────┘          └─────────────────┘  └─────────────────┘
        │ NEXT
        ▼
┌─────────────────┐
│ Lighting time   │
│ 00y 022d 04h:45m│
└─────────────────┘
        │ NEXT
        ▼
┌─────────────────┐
│ Working time    │
│ 00y 032d 14h:56m│
└─────────────────┘
        │ NEXT
        ▼
┌─────────────────┐
│ Temp. min max   │
│ 17.4°C 43.6°C   │
└─────────────────┘
        │ NEXT
        ▼
┌─────────────────┐
│ Current temp.   │
│ 31.7°C          │
└─────────────────┘
        │ NEXT
        ▼
┌─────────────────┐
│ Serial Number   │
│ 2011110019      │
└─────────────────┘
        │ NEXT
        ▼
┌─────────────────┐
│ Version         │
│ ver 2.19        │
└─────────────────┘
```

7 RDM – available parameters

The PX709-C supports the DMX-RDM protocol. DMX protocol allows only of a one-way data transmission, while extension the RDM protocol can transmit information in two directions. This makes possibility of monitoring activities of the compatible devices. Thanks to RDM some available settings of compatible devices may be programmed using this protocol.

<u>List of RDM parameters supported by the PX709-C:</u>

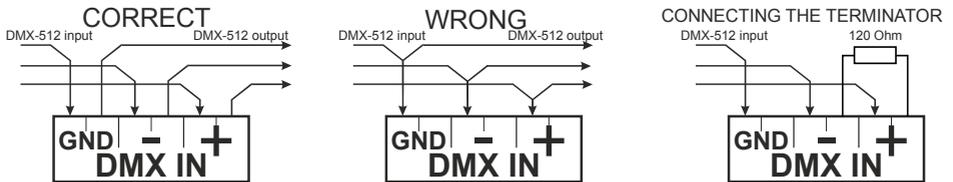| Parameter name	PiD	Description
SUPPORTED_PARAMETERS	0x0050	all supported parameters
PARAMETER_DESCRIPTION	0x0051	description of additional parameters
DEVICE_INFO	0x0060	information concerning the device
SOFTWARE_VERSION_LABEL	0x00C0	firmware version of the device
DMX_START_ADDRESS *	0x00F0	DMX starting address of the device
IDENTIFY_DEVICE *	0x1000	device identification; Two states are possible: identification is off (0x00 value) and identification is on (0x01 value)
DEVICE_MODEL_DESCRIPTION	0x0080	device description, e.g. name
MANUFACTURER_LABEL	0x0081	manufacturer description, e.g. name
DEVICE_LABEL *	0x0082	additional device description; It is possible to enter an additional device description using up to 32 ASCII characters

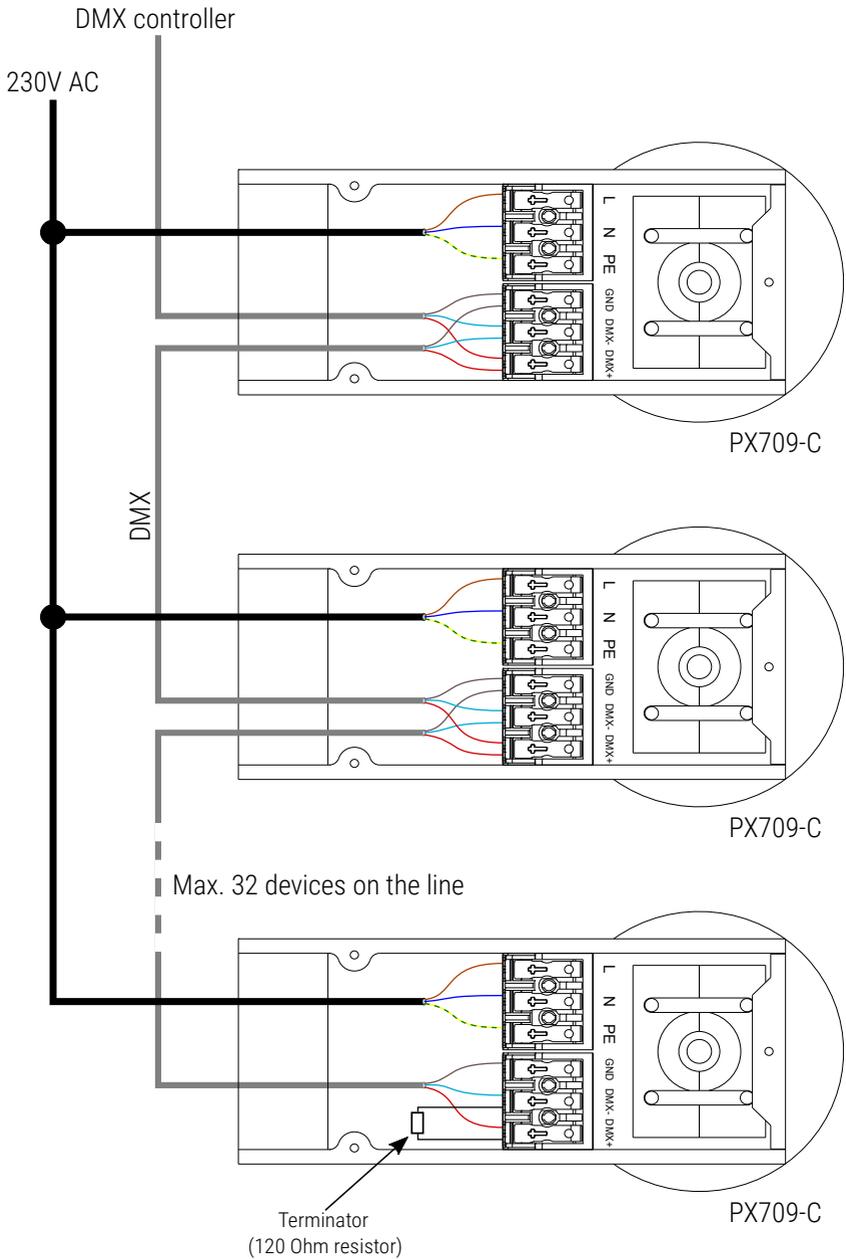| Parameter name	PiD	Description
FACTORY_DEFAULTS	0x0090	device default settings
DMX_PERSONALITY *	0x00E0	DMX operational mode
DMX_PERSONALITY_ DESCRIPTION	0x00E1	description of individual operational modes
SENSOR_DEFINITION	0x0200	information on the selected temperature sensor
SENSOR_VALUE	0x0201	information about sensors
DEVICE_HOURS	0x0400	total lamp operating time
LAMP_HOURS	0x0401	total lamp lighting time
SMOOTH_DIS_0/P2P_1/ TIM_2 *	0x801A	selection of smoothing options
SMOOTH_TIME *	0x801B	smoothing time for the TIM function for the time smoothing option
SCENE_BRIGHTNESS *	0x8022	brightness settings, default value is 128
SERIAL_NUMBER	0x8030	device serial number

* - editable parameter

8 DMX signal connecting

PX709-C must be connected to the DMX line in series, without branching on the control cable. This means that the control cable should be connected to the *DMX* pins in the PX709-C, and then from the *DMX* pins to the next DMX receivers (diagram below).
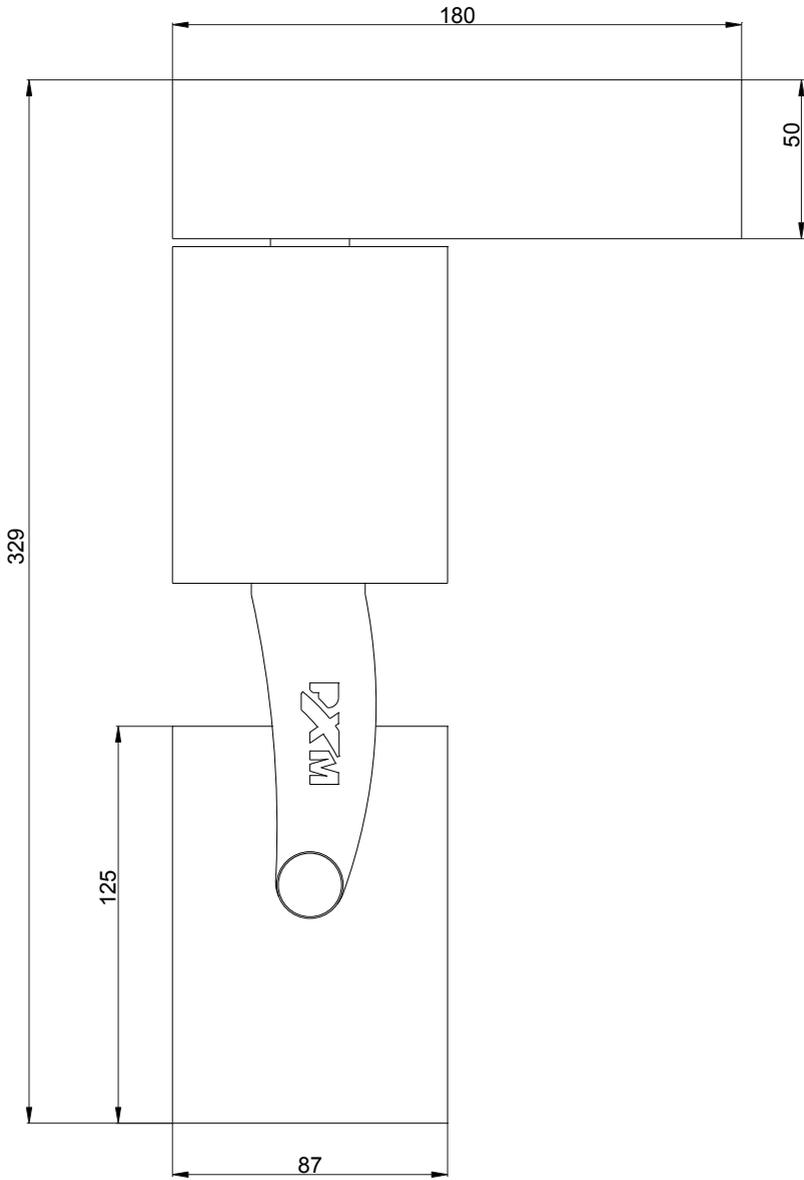
If the PX709-C is the last device in the DMX line, then a terminator – 120 Ohm resistor should be connected to the "*DMX +*" and "*DMX-*" terminals.

9 Connection scheme

DMX controller

230V AC

PX709-C

DMX

PX709-C

Max. 32 devices on the line

Terminator
(120 Ohm resistor)

PX709-C

10 Dimensions

180

50

329

125

87

PXM

11   Technical data

type	PX709-C
power supply	230V AC
number of LEDs	1 (COB)
power	27W
PF (power factor)	0.94
max. increase of the housing temperature	+50°C
color rendering index CRI	min. 80
lifetime of diodes	50000h
reflector angles*	15°, 36°, 51°
brightness adjustment range	0 – 100%
control	DMX / RDM
mounting	to the ceiling
available housing colors	gray, black, white
weight	1.3kg
dimensions	width: 180mm height: 329mm diameter: 87mm

* – the user can replace the headlamp on his own, according to his own needs (a different headlamp must be ordered separately)

DECLARATION OF CONFORMITY

PXM Marek Żupnik spółka komandytowa
Podłęże 654, 32-003 Podłęże

we declare that our product:

Product name: PxArt+ Mono Ceiling

Product code: PX709-C

meets the requirements of the following standards, as well as harmonised standards:

PN-EN 60598-1:2015-04	EN 60598-1:2015
PN-EN 62471:2010	EN 62471:2008
PN-EN 61000-4-2:2011	EN 61000-4-2:2009
PN-EN IEC 61000-6-1:2019-03	EN IEC 61000-6-1:2019
PN-EN 61000-6-3:2008	EN 61000-6-3:2007

and meets the essential requirements of the following directives:

2011/65/UE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment
Text with EEA relevance.

2014/30/UE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast)
Text with EEA relevance.

2014/35/UE DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

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