DALI ⬤ CQC ⬤ C E ⬤ RoHS

HI

PCI FOX B011
PCI PRO built-in

Product description

- For metal halide lamps
- Also for mobile luminaires with connectors
- Pulse packets for increased ignition energy (pulseCONTROL technology)
- Switching possible via mains or powerless via the digital interface
- Noise-free precise control via DALI or DSI signal
- On/off switching via DALI/DSI signal
- Fault reporting in DALI mode
- With patented circuit elements
- Flicker-free light
- Colour stability thanks to constant power
- Guaranteed long life
- No acoustic resonance
- Safety shutdown if a lamp is faulty or missing
- Greatly reduced reignition time
- Hardly any EMC interference in the ignition phase
- Automatic shutdown on overheating
- Screw terminals: ≤ 1.5 mm² for stranded wire, ≤ 2.5 mm² for solid wire
- Lower section of casing made of steel
- Upper section of casing made of Makrolon, VO material, black
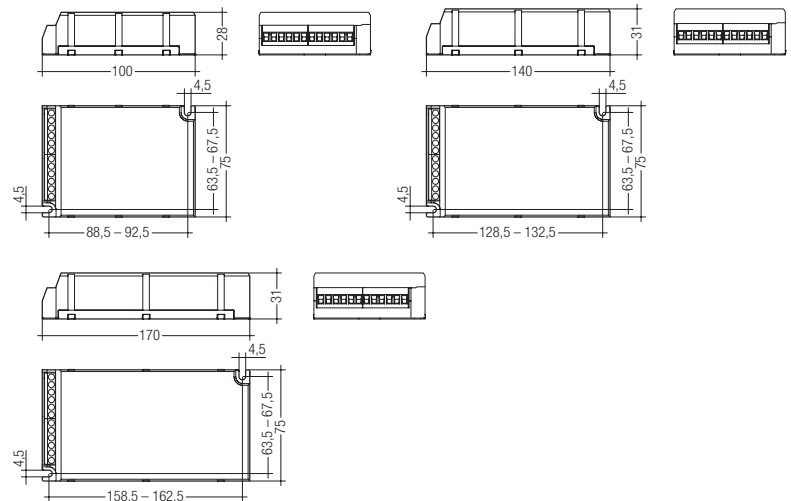
Technical data

Mains voltage range	220 – 240 V
AC voltage range	198 – 254 V
DC voltage range	153 – 320 V
Mains frequency	0 / 50 / 60 Hz
Max. ignition voltage	5 kVp
Operating frequency	145 Hz
Type of protection	IP20

→

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Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
For luminaires with 1 lamp				
PCI 0020 FOX B011	**86458340**	15 pc(s).	600 pc(s).	0.195 kg
PCI 0035 FOX B011	**86458341**	15 pc(s).	600 pc(s).	0.193 kg
PCI 0070 FOX B011	**86458342**	15 pc(s).	600 pc(s).	0.256 kg
PCI 0150 FOX B011	**86458343**	15 pc(s).	600 pc(s).	0.366 kg

## Specific technical data

Lamp wattage	Lamp type	Type	Article number	Dimensions L x W x H	Lamp power	Circuit power[1]	EEI	Efficiency	Current at 50 Hz 230 V	λ at 50 Hz 230 V	Max. cable length to lamp	tc point max.	Ambient temperature ta	tc/ta for ≥ 50,000 h
For luminaires with 1 lamp														
1 x 20 W	HI	**PCI 0020 FOX B011**	86458340	100 x 75 x 28 mm	20 W	24.5 W	A2	> 84 %	0.10 A	0.95	1.5 m / 120 pF	80 °C	-25 … +55 °C	80/55 °C
1 x 35 W	HI	**PCI 0035 FOX B011**	86458341	100 x 75 x 28 mm	39 W	45.0 W	A2	> 87 %	0.20 A	0.97	1.5 m / 120 pF	80 °C	-25 … +50 °C	80/50 °C
1 x 70 W	HI	**PCI 0070 FOX B011**	86458342	140 x 75 x 31 mm	72 W	80.0 W	A2	> 89 %	0.35 A	0.97	1.5 m / 120 pF	80 °C	-25 … +50 °C	80/50 °C
1 x 150 W	HI	**PCI 0150 FOX B011**	86458343	170 x 75 x 31 mm	147 W	160.0 W	A2	> 91 %	0.70 A	0.97	1.5 m / 120 pF	80 °C	-25 … +50 °C	80/50 °C

[1] At ta = 25 °C.

## Installation instructions

Wiring type and cross section
Stranded wire with end ferrule with a cross section of 1.5 mm² or solid wire up to 2.5 mm² may be used for wiring. Strip 6 mm of insulation from the cables to ensure perfect operation of the screw terminals.

wire preparation:
0.5 – 2.5 mm²

6 mm
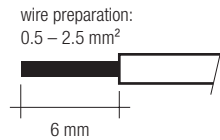
Mounting recommendation
To ensure optimum heat removal the ECG should be mounted on a metal plate (luminaire body). No insulators between the ECG and the the cooling surface (air, adhesive tape, etc.). Finally, the temperature measurement remains important.

PCI
luminaire

PCI
gap
luminaire
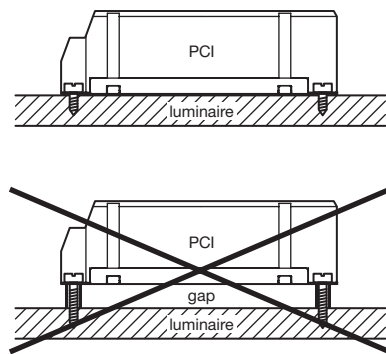
If several ballasts are installed in masts, boxes, etc., measures must be taken to avoid overheating of individual components.

Radio interference
• Do not cross mains and lamp cables.
• Do not lay mains cables together with lamp cables (ideally they should be 5–10 cm apart).
• Do not lead mains cables too closely along the electronic ballast.
• Twist lamp cables.
• Increase the distance between lamp cables and earthed metal surfaces.
• Keep the mains cable in the luminaire short.
• Parallel runs (x) of mains and lamp cables must be kept as short as possible.

Important advise
When a lamp is changed (at the end of its life), if a lamp is missing, or after overtemperature shutdown the mains voltage of the ECG must be disconnected.
Warning – starting voltage up to max. 5 kV!
Not suitable for use with lamps with integral ignitors.

Note on wiring
The length of the lamp wires is limited by the value of cable capacitance. The maximum of 120 pF would enable connection of approximately 1.5 metres of lamp wire.

In class 1 luminaires it is necessary to earth the ballast and the luminaire via the earth terminal.

Protection class 2 luminaires do not need an earth connection. Insulation must be provided by the luminaire design.

To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

Standards
EN 55015 (radio interference)
EN 61000-3-2 (mains harmonics)
EN 61347-2-12
EN 61547 (interference immunity)
IEC 62386-203 (DALI standard)
CE mark
EMV-VDE mark
ENEC mark

## Safety switch off

End of life of the lamps
At the end of their useful life, lamps often cycle on/off. The PCI ballast recognises this condition and switches off the lamp, after three complete on/off cycles and whilst the supply has been unswitched. Complete lamp switch-off enables easy identification of a defective lamp in the application. After a change of the faulty lamp and an interruption of the mains supply (mains reset) the ballast will strike the lamp. When there is no lamp in circuit or a defective lamp is connected to the ballast, the ballast will switch off after apr. 25 minutes.
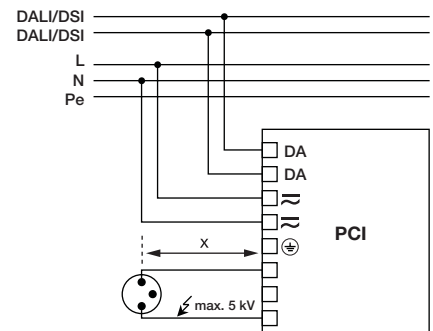
Overtemperature shutdown
The ballasts switch off at an overtemperature of around 10 °C. They can be restored with an OFF-ON sequence via DALI/DSI or with a mains reset.

Overload strength
320 V AC / 1 h
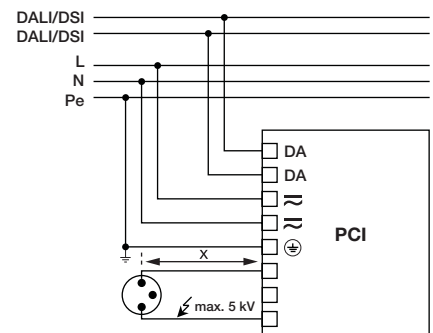
Circuit diagram PCI class 1 application

Circuit diagram PCI class 2 application

Ballast lumen factor
EN 60929 8.1

Type	AC/DC BLF at U = 198-254 V, 25 °C
PCI 0020	1.0
PCI 0035	1.0
PCI 0070	1.0
PCI 0150	1.0

Harmonic distortion in the mains supply

Ballast Type	THD	3	5	7	9	11
PCI 0020	8.3	3.4	5.6	3.0	4.0	1.6
PCI 0035	9.0	6.8	4.3	2.4	4.0	2.0
PCI 0070	10.0	9.0	3.3	2.2	2.6	1.7
PCI 0150	7.5	3.9	4.4	2.0	2.0	0.7

Loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation Ø	1.5 mm²	1,5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²
PCI 0020	30	40	50	60	15	20	25	30
PCI 0035	30	40	50	60	15	20	25	30
PCI 0070	14	25	36	42	8	14	18	18
PCI 0150	7	14	20	20	4	6	7	7

Installation instructions

Control input (DA)
Digital DALI/DSI signal can be wired on the terminals DA.

Digital signal DALI/DSI
The control input is non-polar and protected against accidental connection with a mains voltage up to 264 V. The control signal is not SELV. Control cable should be installed in accordance with the requirements of low voltage installations.
Different functions depending on each module.

Standards (DALI)
DALI standard IEC 62368
HID EVG → device type 2
DALI 0 = 0 % light
DALI > 0 = 100 % light

Programmable parameters
- Groups 1–16
- Scenes 1–16 (values 0 % / 100 % / MASK)
- Power On Level (values 0 % / 100 %)
- System Failure Level (values 0 % / 100 %)

Queries
via DALI standard:
- Lamp wattage (values yes/no)
- Lamp error (values yes/no)

via eDALI:
- Lamp type
- Device type
- Article number
- Production date
- Serial number
- Software version
- Commissioning

OEM Memory Bank
The customer can store additional luminaire information in the ECG (Memory Bank 1), such as luminaire type and article number. Data is written to Memory Bank 1 in accordance with DALI standard IEC 62368.
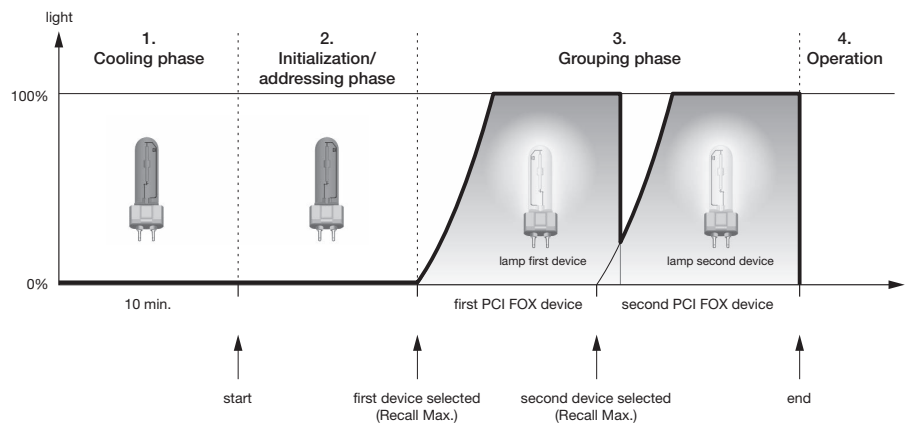
Commissioning of PCI FOX ballasts

Because of the special characteristics of HID light sources, PCI FOX ballasts (Device Type 2) cannot be addressed in the same way as conventional DALI ballasts for fluorescent or halogen lamps for example. For visualisation during the grouping phase the HID lamps must remain switched off before and during the addressing phase as they can only be properly ignited in the cold state. Dimmed operation of these lamps is not recommended, which also calls for different handling during commissioning.

Tridonic recommends configTOOL ≥ V1.5 software for commissioning PCI FOX ballasts
(download from www.tridonic.com → Services → Download → Software).

IMPORTANT: Other DALI controllers can only be used for commissioning if they handle DALI Device Type 2 units appropriately (see Requirements of control products).

Overview – commissioning cycle with configTOOL ≥ **V1.5**

Commissioning comparison table

	DALI HID ballast PCI FOX	Standard DALI ballast e.g. PCA Excel one4all
Before commissioning the installation	Devices must have been switched off for at least 10 minutes!	–
Initialisation and addressing phase	Devices remain switched off	• Devices fade to minimum value • On successful addressing the devices fade up to 100 % • At the end of the addressing phase the devices fade down to the minimum value
Visualisation in the grouping phase	• Selected device starts the lamp at 100 % • If a different device is selected the previously selected device switches off with a maximum delay of 10 s **Visualisation/grouping is not possible with hot HID lamps!**	• Selected device fades from minimum value to 100 % • If a different device is selected the previously selected device fades to the minimum value
Operation	Devices can be controlled/operated with other DALI/DSI control products	Devices can be controlled/operated with other DALI/DSI control products

Step-by-step commissioning with configTOOL ≥ V1.5

1. Cooling phase
HID EVG → Device Type 2
The lighting must have been switched off before start-up for at least 10 min.
(visualization/grouping is not possible with hot lamps)

2. Initialisation and addressing phase
• Launch DALI configTOOL and select the DALI interface
• Go to the "DALI Device Programmer" tab
• Click on "Search Devices" and follow the on-screen instructions.

PCI FOX devices remain dark during the entire addressing phase. In contrast, DALI devices for fluorescent lamps, LEDs and incandescent lamps fade down to their minimum value and go to 100 % during the addressing phase. At the end of the addressing phase they fade back to their minimum value.

3. Visualisation in the grouping phase
• Activate the "Enable optical selection feedback" by ticking the checkbox
• If a PCI FOX device (Device Type 2, special symbol) is selected in configTOOL the appropriate device switches on. It remains on until a different DALI device is selected in the system.
  → PCI FOX then switches off after a maximum delay of 10 seconds.

4. Operation
• PCI FOX devices can be switched powerless with a broadcast signal
  (DALI or DSI, without addressing of the devices)
• PCI FOX devices can be addressed and operated individually or in groups with a DALI signal. For examples with Tridonic controls please see matrix above.

Requirements of control products

Initialization/addressing phase:

INITIALIZE	(This command must be sent first)
...	When the INITIALIZE command is sent, PCI FOX devices change
...	the RECALL MIN value to 0 % → devices switch off/remain
...	switched off
RECALL MIN LEVEL	
...	
...	
...	
TERMINATE	(Last command in the initialization phase)
	When the TERMINATE command is sent, PCI FOX changes the
	RECALL MIN value back to 1 % (100 % light)

Realisation with Tridonic controls

	Commissioning	Operation
DALI GC		✔
x-touch**PANEL**	in preparation	✔
x-touch**BOX**	in preparation	✔
DALI TOUCHPANEL		✔
Software config**TOOL**	✔	✔