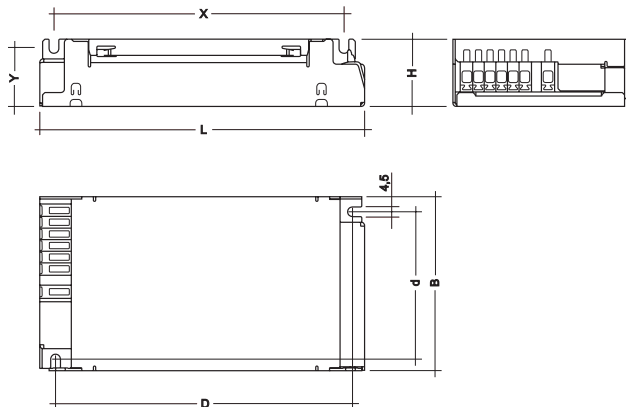




Digital electronic ballasts
High pressure discharge lamps

powerCONTROL PCI 20 / 22, PCI 35 / 70, PCI 100 / 150 PRO C011



First electronic ballast for metal halide lamps controlled by a **xitec** processor. The **xitec** processor controls the power circuit and the ignition process. The basic circuit elements are protected by patents. The units have been specially designed for installation in luminaires.

- operate quartz- and ceramic burner lamps
- flicker free light
- stable colour through constant light output
- lamp life increased up to **20 %** ①
- power losses reduced by **25–50 %** ①
- lightweight ①
- no acoustic resonance
- multi wattage
- switches off when the lamp is missing or faulty
- increased ignition energy thanks to pulse packages (**PulseControl** technology)
- re-strike time reduced by up to **50 %** ①
- electromagnetic interference during ignition reduced by up to **95 %** ①
- overtemperature cut off
- housing: Aluminium (PCI 20 / 22 PRO steel), IP 20
- push-in terminals up to 2.5 mm² for stranded and solid wire
- can be used in movable luminaires with plugs (discharge voltage < 34 V after 1 s)
- excellent thermal behaviour
- average service life = 50.000 h (at ta max. with a failure rate ≤ 0.2 % per 1.000 operating hours)

Type		PCI 20/22 PRO C011	PCI 35/70 PRO C011	PCI 100/150 PRO C011
article number		86458600	86458601	86458602
lamp wattage	W	20/22	39/73	100/147
circuit wattage at ta = 25 °C	W	23/25.5	43.5/79	108/158.5
mains voltage	V	220–240	220–240	220–240
AC voltage range	V	198–254	198–254	198–254
DC voltage range	V	198–320	198–320	198–320
current	A	0.10/0.10	0.20/0.35	0.50/0.70
mains frequency	Hz	50/60	50/60	50/60
power factor	λ	0.95	0.97	0.97
operating frequency	Hz	145	145	145
max. ignition voltage	kVp	5	5	5
max. distance from lamp	m/pF	2/160	5/400	5/400
max. ambient temperature ta	°C	55	50	50
min. ambient temperature ta	°C	-25	-25	-25
max. housing temperature tc	°C	75	80	80
fixing centres bottom length (D)	mm	78–80	88–90	128–130
fixing centres bottom width (d)	mm	47–49	63.5–65.5	63.5–65.5
dimensions length x width x height	mm	90 x 59 x 29	100 x 75 x 29	140 x 75 x 29
fixing centres side length (X)	mm	75.5	85	125
fixing centres side height (Y)	mm	25	25	25
weight	g	150	195	305

① compared to magnetic solutions

② For details see page 3

Installation instructions

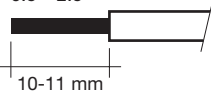
Wiring type and cross section

Stranded wire or solid wire up to 2.5 mm² may be used for wiring. Strip 10–11 mm of insulation from the cables to ensure perfect operation of the push-in terminals.

Use one wire for each terminal connector only.

wire preparation:

0.5 – 2.5 □



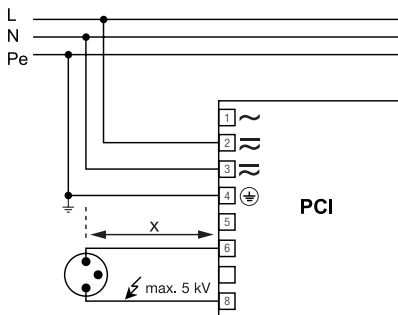
Note on wiring

The length of the lamp wires is limited by the value of cable capacitance. The maximum of 400 pF* would enable connection of approximately 5 m* of lamp wire.

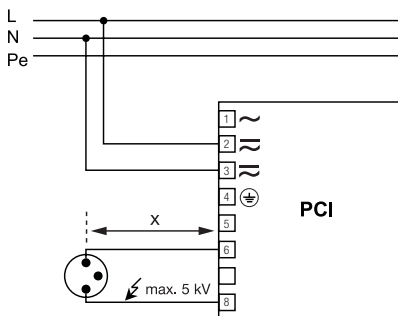
* 2 m / 160 pF for PCI 20 / 22 PRO

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.).

In class 1 luminaires it is necessary to earth the ballast and the luminaire via the earth terminal, in class 2 luminaires not.



Circuit diagram PCI class 1 application



Circuit diagram PCI class 2 application

Loading of automatic circuit breakers

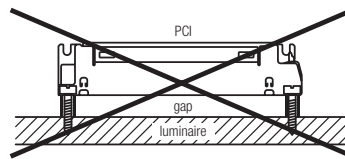
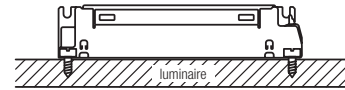
Automatic circuit

breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation Ø	1.5 mm ²	1.5 mm ²	1.5 mm ²	2.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	2.5 mm ²
PCI 20 / 22 PRO	30	40	50	60	15	20	25	30
PCI 35 / 70 PRO	14	25	36	42	8	14	18	18
PCI 100 / 150 PRO	7	14	20	20	4	6	7	7

Mounting recommendation

The PCI-C has an excellent thermo management. Optimum heat transport can help improving the lifetime. Whenever possible keep the ballast away from hot parts.

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 important remains the temperature measurement.



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.

A list of released lamps for the save operation with PCI can be found on www.tridonicatco.com → Techn. Information → More Documents → Lamp Matrix for HID

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 units shut down at Δt approx. +7 °C compared with tc. A mains reset must be carried out so that the units switch on again.

Overload strength

320 V_{AC} / 1 h

280 V_{AC} / 10 h

Packing quantities

PCI 20 / 22:	PCI 35 / 70:
box of 15	box of 15
60 boxes/pallet	50 boxes/pallet
900 pieces/pallet	750 pieces/pallet

PCI 100 / 150:

box of 15
40 boxes/pallet
600 pieces/pallet

Standards

EN 55015 (radio interference)
EN 61000-3-2 (mains harmonics)
EN 61347-2-12
EN 61547 (interference immunity)
EN 61167
CE mark
ENEC mark
CQC mark

Harmonic distortion in the mains supply

Type	THD
PCI 20 / 22 PRO	<12 %
PCI 35 / 70 PRO	<10 %
PCI 100 / 150 PRO	<12 %

Ballast lumen factor

EN 60929 8.1

Type	AC/DC-BLF U = 198–254 V, 25 °C
PCI 20 / 22 PRO	1.00
PCI 35 / 70 PRO	1.00
PCI 100 / 150 PRO	1.00

Multi wattage power selection

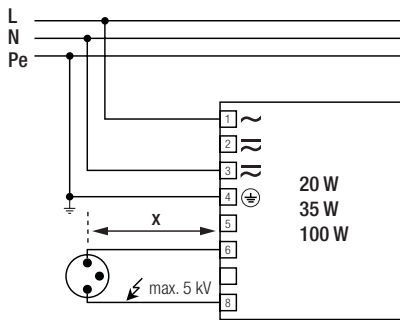
The PCI PRO C011 are able to operate two different wattages. As a result of the lamp characteristics an automatic detection is not possible. The wattage selection is done via mains terminals. For using the lower power lamp connect the mains on the terminals [1] and [3]. For using the higher power lamp connect the mains on the terminals [2] and [3]. Do not connect the mains on the terminals [1] and [2] as this would destroy the device!
To avoid the use of a wrong lamp we recommend to mark the luminaire with the correct lamp type.

Correct mains setup

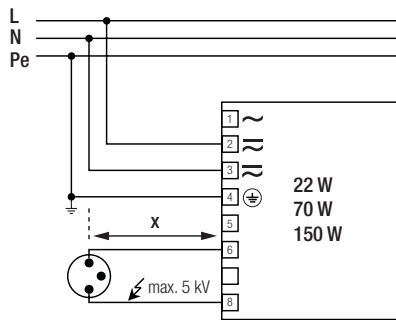
It is important to run the ballast only with the lamp set at the mains terminals. Over powering of the lamp will lead to a shorter lifetime or destruction of the lamp. Under powering may lead to an early shutdown or colour shifts in the lamp as well as a shorter life time.

Note on PCI 20/22 PRO C011

That ballast is designed to drive a standard 20 W lamp as well as 22 W lamps*. In this setup 20 W lamps cannot be ignited.
* Philips CDM-TM 20



Circuit diagram multiwatt for 20, 35 and 100 W



Circuit diagram multiwatt for 22, 70 and 150 W

Temperature range

The t_a temperature value is the basis for specifying the rated life.
The relationship between the t_c temperature and the t_a temperature depends on the design of the luminaire. If the measured t_c temperature is approximately 5 K under the t_c max. temperature the t_a temperature should be checked and, if necessary, measurements should be taken on the critical components (e.g. electrolytic capacitor). Detailed information is available on request.
PCI PRO C011 is designed for an average life of 50,000 hours under rated conditions, with a failure probability of less than 10 %. This corresponds to an average failure rate of 0.2 % per 1,000 hours of operation.
The specified t_c temperature is the maximum permitted value (rated temperature according to EN 61347 -1). Above this safety-related value the thermal cutout protects the device against damage. The expected lifetime values are shown in the following table. The t_c values are the relevant values here.

Expected lifetime

Lamp power					
20 W	t_a	°C	60	55	50
	t_c	°C	75	70	65
	lifetime	h	40,000	55,000	75,000
22 W	t_a	°C	60	55	50
	t_c	°C	75	70	65
	lifetime	h	40,000	55,000	75,000
35 W	t_a	°C	70	65	60
	t_c	°C	80	75	70
	lifetime	h	25,000	40,000	55,000
70 W	t_a	°C	60	55	50
	t_c	°C	80	75	70
	lifetime	h	25,000	40,000	55,000
100 W	t_a	°C	65	60	55
	t_c	°C	85	80	75
	lifetime	h	35,000	50,000	70,000
150 W	t_a	°C	55	50	45
	t_c	°C	80	75	70
	lifetime	h	35,000	50,000	70,000