Lamp starting characteristics:
Warm start
Starting time 1.5 s with AC
Starting time 0.6 s with DC
Start at any dimming level

AC operation:
Mains voltage
220–240 V 50/60 Hz
198–264 V 50/60 Hz including safety tolerance (±10 %)
202–254 V 50/60 Hz including performance tolerance (+6 % / -8 %)

DC operation:
220–240 V 0 Hz
198–280 V 0 Hz certain lamp start
176–280 V 0 Hz operating range
Use in emergency lighting installations according to VDE 0108 or for emergency luminaires according to EN 61347-2-3 appendix J.

Temperature range:
Dimming range 100 % to 3 % from 10 °C to maximum permissible ambient temperature ta.
100 % operation from -25 °C to maximum permissible ambient temperature ta.

Mains currents in DC operation:

Ballast Type	Mains current at U_n = 220 VDC	Mains current at U_n = 240 VDC
PCA 1/55 TC-DD EXCEL 220–240V 50/60/0Hz	0.21 A	0.20 A

Light output level in DC operation:
Programmable from 3 % to 70 %
Programming by extended DSI signal (16 bit)
Default value is 70 %
In DC operation dimming is not possible

Ballast lumen factor AC operation (AC-BLF) EN 60929 8.1:

Ballast Type	AC-BLF at U_n = 230 VAC
PCA 1/55 TC-DD EXCEL 220–240V 50/60/0Hz	1.04

The ballast lumen factor for AC operation (AC-BLF) does not alter from U_n = 198 VAC to U_n = 254 VAC.

The ballast lumen factor for DC operation (DC-BLF) on the basis of an automatic power reduction of the ballasts (default value is 70 %) will be smaller than AC. It does not alter in the DC operating range (198–280 VDC).

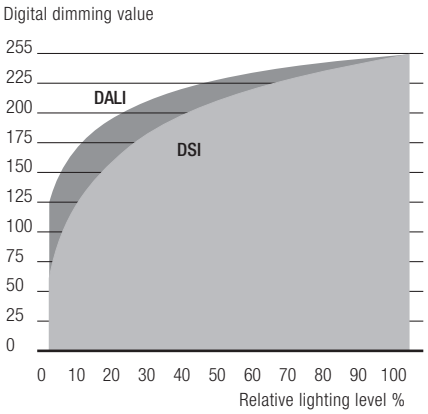
Harmonic distortion in the mains supply (at 220 V/50 Hz):

Ballast Type	THD	3	5	7	9	11
PCA 1/55 TC-DD EXCEL 220–240V 50/60/0Hz	13.1	12.1	4.4	2.6	1.5	0.8

Dimming:
Dimming range 3 % to 100 %
Digital control with:
- DSI signal: 8 bit Manchester Code
  Maximum speed 3 % to 100 % in 1.4 s
- DALI signal: 16 bit Manchester Code
  Maximum speed 3 % to 100 % in 0.5 s
  Programmable parameter:
  Minimum dimming level
  Maximum dimming level
  Default minimum = 3 %
  Programmable range 3 % ≤ MIN ≤ 49 %
  Default maximum = 100 %
  Programmable range 100 % ≥ MAX ≥ 50 %

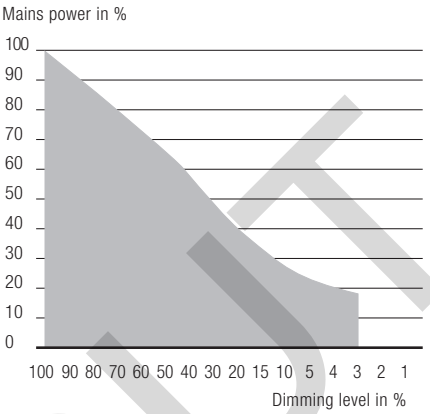
Dimming curve that is friendly to the eye.

Dimming characteristics PCA EXCEL



Dimming characteristics as seen by the human eye

Energy Savings PCA EXCEL



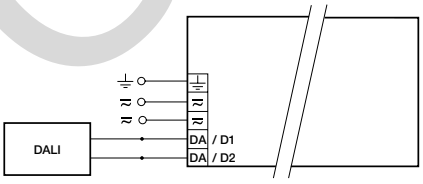
Control input (DA/D1, DA/D2):
Digital DALI/DSI signal or switchDIM can be wired on the same terminals (DA/D1 and DA/D2).

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 to the requirements of low voltage installations.
Different functions depending on each module.

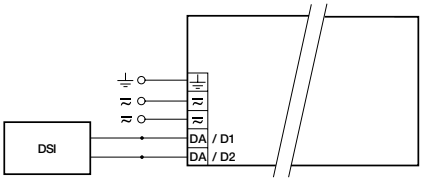
SMART interface:
An additional interface for the direct connection of the SMART-LS light sensor. The sensor registers actual ambient light and maintains the individually defined lux level.
After every mains reset the SMART interface automatically checks for an installed sensor. With the sensor installed the PCA EXCEL automatically runs in the constant lux level mode.
ON/OFF-Switch via mains, switchDIM or DALI/DSI signal.
DALI/DSI signal = 0 switches off,
DALI/DSI signal ≥ 1 switches on.
Dimming with DALI or a DSI signal with the SMART-LS installed is not possible.
switchDIM enables a temporary change of light level.
The installation of the two wire bus is according to the appropriate low voltage regulations.

switchDIM:
Integrated switchDIM function allows a direct connection of a push to make switch for dimming and switching.
Brief push (< 0.6 s) switches ballast ON and OFF. The ballasts switch-ON at light level set at switch-OFF.
When the push to make switch is held, PCA ballasts are dimmed. After repush the PCA is dimmed in the opposite direction.
In installations with PCAs with different dimming levels or opposite dimming directions (e.g. after a system extension), all PCAs can be synchronized to 50 % dimming level by a 10 s push.
Use of push to make switch with indicator lamp is not permitted.

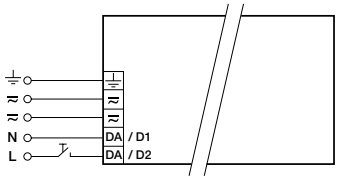
switchDIM and corridorFUNCTION are very simple tools for controlling ballasts with conventional momentary-action switches or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.



DALI PCA TC-DD EXCEL one4all



DSI PCA TC-DD EXCEL one4all



switchDIM PCA TC-DD EXCEL one4all

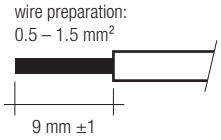
Loading of automatic circuit breakers:

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation ∅	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²
PCA 1/55 TC-DD EXCEL	22	32	44	50	11	16	22	25

Installation instructions:

Wiring type and cross section:
The wiring can be in flexible cable with ferules or solid with a cross section of 0.5–1.5 mm².
For perfect function of the simple to use push-wire terminals the strip length should be 9 mm.

U_{out} = 250 V 250



RFI:
- Connection to the lamps of the hot leads must be kept as short as possible
- Mains leads should be kept apart from lamp leads (ideally 5–10 cm distance)
- Do not run mains leads adjacent to the electronic ballast
- Twist the lamp leads
- Keep the distance of lamp leads from the metal work as large as possible
- Ballast must be earthed
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

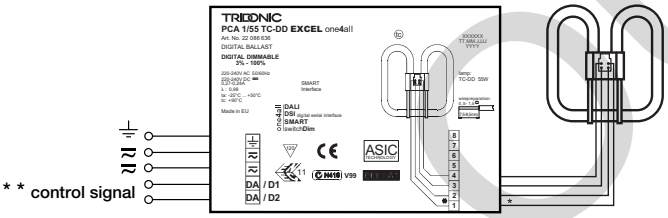
Important advise:
- When using two or more dimmable ballasts in one luminaire with separate dimming controls, the lamp leads must be kept separate
- All lamps must have the same length lead

Wiring advice:
The lead length is dependent on the capacitance of the cable.

Ballast	Terminal		Maximum capacitance allowed	
Type	Cold	Hot	Cold	Hot
PCA 1/55 TC-DD EXCEL	3, 4	1, 2	200 pF	100 pF

With standard solid wire 0.5/0.75 mm² the capacitance of the lead is 30–80 pF/m.
This value is influenced by the way the wiring is made.

Lamp connection should be made with symmetrical wiring.
Hot leads and cold leads should be separated as much as possible.



** control signal

* leads 1, 2: keep wires short, max. 1.0 m
leads 3, 4: max. 2.0 m
** digital signal (DSI), DALI or switch**DIM**

PCA TC-DD EXCEL one4all 55 W