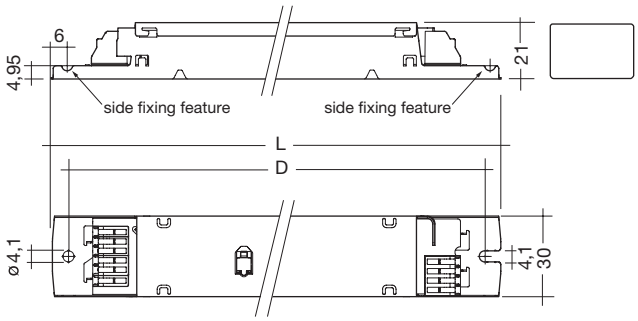
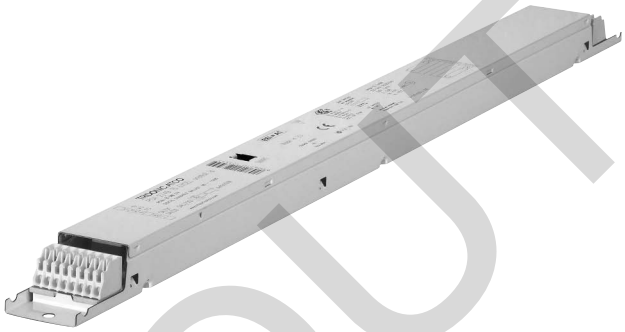
PCA T5 EXCEL one4all lp x!tec 14–80 W 220–240 V 50/60/0 Hz

RoHS





- world first: first processor-controlled ballast with x!tec inside
- operation of T5 lamps of the same length (e.g. FH 28 W / FQ 54 W)
- automatic lamp detection and operation with correct lamp parameters
- average service life = 50,000 h (at ta max. with a failure rate ≤ 0.2 % per 1,000 operating hours)
- dimming range from 1–100 %
- lamp friendly warm start within 0.5 s with AC and 0.2 s with DC
- power consumption in standby mode < 0.5 W
- disturbance free precise control with a digital signal (DSI), switchDIM or DALI (Digital Addressable Lighting Interface)
- fully digital lamp management for flash-free starting at any dimming level
- operating frequency ~40–100 kHz
- integrated SMART interface
- Intelligent Voltage Guard (overvoltage indication and undervoltage shutdown)
- Intelligent Temperature Guard (overtemperature protection)
- automatically triggered adjustable emergency light value for DC and rectified AC voltage
- SMART Heating Concept for optimum filament heating at any dimming level and cut off the electrodes at approx. 90 % dimmlevel for maximum energy efficiency
- plugADDRESSING

Extensive feedback functions and adjustable parameters:

- OEM-specific reserved memory for storing customer data in the ballast
- extensive diagnostic options
- the emergency light value can be set between 1 % and 100 %
- backwards compatibility adjustable
- DALI-MEMORY and corridorFUNCTION with 3 preprogrammed profiles

Packaging:
360 mm housing
box of 10
76 boxes/pallet
760 pieces/pallet

425 mm housing
box of 25
33 boxes/pallet
825 pieces/pallet

Standards:
EN 55015
EN 55022
EN 60929
EN 61000-3-2
EN 61347-2-3
EN 61547
Suitable for emergency installations according to EN 50172

Lamp		Ballast											
wattage	type	type	article number	length L	fixing centres D	weight	circuit power	lamp power	current at 230 V / 50 Hz	λ at 230 V / 50 Hz	tc point	temperature range
W				mm	mm	kg	W ②	W ②	A ②		°C	°C ①
1x14	T5	**PCA 1x14/24 T5 EXCEL one4all lp** x!tec	22176178	360	350	0.25	16.3	14	0.08	0.95	80	-25 → +60
2x14	T5	**PCA 2x14/24 T5 EXCEL one4all lp** x!tec	22176179	360	350	0.28	31.7	2x14	0.15	0.97	80	-25 → +60
1x24	T5	**PCA 1x14/24 T5 EXCEL one4all lp** x!tec	22176178	360	350	0.25	25.8	23	0.12	0.97	80	-25 → +60
1x24	TC-L	**PCA 1x14/24 T5 EXCEL one4all lp** x!tec	22176178	360	350	0.25	25.5	22	0.12	0.97	80	-25 → +60
2x24	T5	**PCA 2x14/24 T5 EXCEL one4all lp** x!tec	22176179	360	350	0.28	52.1	2x23	0.23	0.98	85	-25 → +60
2x24	TC-L	**PCA 2x14/24 T5 EXCEL one4all lp** x!tec	22176179	360	350	0.28	51.5	2x22	0.23	0.98	85	-25 → +60
1x21	T5	**PCA 1x21/39 T5 EXCEL one4all lp** x!tec	22176176	360	350	0.25	23.8	21	0.11	0.95	85	-25 → +60
2x21	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x!tec	22176177	425	415	0.35	46.0	2x21	0.21	0.97	80	-25 → +60
1x39	T5	**PCA 1x21/39 T5 EXCEL one4all lp** x!tec	22176176	360	350	0.25	42.3	38	0.20	0.97	85	-25 → +60
1x40	TC-L	**PCA 1x21/39 T5 EXCEL one4all lp** x!tec	22176176	360	350	0.25	42.6	40	0.19	0.97	80	-25 → +60
2x39	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x!tec	22176177	425	415	0.35	84.1	2x38	0.38	0.99	85	-25 → +60
1x28	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x!tec	22176174	360	350	0.26	30.9	28	0.15	0.95	80	-25 → +60
2x28	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x!tec	22176175	425	415	0.35	62.1	2x28	0.28	0.97	80	-25 → +60
1x54	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x!tec	22176174	360	350	0.26	59.5	54	0.27	0.98	85	-25 → +60
2x54	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x!tec	22176175	425	415	0.35	118.4	2x54	0.53	0.99	85	-25 → +55
1x35	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x!tec	22176172	360	350	0.27	38.8	35	0.18	0.97	80	-25 → +60
2x35	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x!tec	22176173	425	415	0.34	76.4	2x35	0.33	0.97	80	-25 → +60
1x49	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x!tec	22176172	360	350	0.27	53.7	49	0.24	0.97	80	-25 → +60
2x49	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x!tec	22176173	425	415	0.34	105.6	2x49	0.47	0.98	85	-25 → +60
1x80	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x!tec	22176172	360	350	0.37	86.9	80	0.39	0.98	85	-25 → +60
2x80	T5	**PCA 2/80 T5 EXCEL one4all lp** ③	22176053	425	415	0,35	164,5	2x80	0,75	0,99	80	-25 → +50

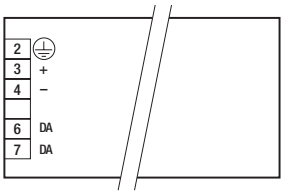
① 10 °C to ta max: normal diming operation
-25 °C to +10 °C: dimming operation from 100 % to 30 %.
-25 °C to +10 °C, dimming below 30 %: Ballast could shut down but will not cause failure. This applies to AC and DC operation.
② valid at 100 % light output
③ single wattage ballast, corridor**FUNCTION** V1, power consumption in standby mode <0.5 W (< 0.8 W by switchDIM, DSI and corridorFUNCTION)

Lamp starting characteristics:
Warm start
Starting time 0.5 s with AC
Starting time 0.2 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 EN 50172 or for emergency luminaires according to EN 61347-2-3 appendix J.

Our ballasts are construed to operate DC voltage and pulsed DC voltage.
To operate ballasts with pulsed DC voltage the polarity is absolute mandatory.



Light output level in DC operation:
Programmable from 0 % to 100 %
Programming by extended DSI or DALI signal (16 bit).
Default value is 70 %
In DC operation dimming mode can be activated.

Emergency units:
The "PCA T5 EXCEL one4all lp x:tec" ballasts are compatible with all emergency units from Tridonic. See the table in the data sheet. Also all "5-pole" emergency units can be used. When used with other emergency units tests are necessary.

Temperature range:
Unlimited dimming range from 10 °C to ta max.
-25 °C to +10 °C: dimming operation from 100 % to 30 %. If dimm level goes below 30 % malfunction possible, but no electronic ballast damage.
This applies to AC and DC operation.

Lamp type recognition:
Each of the lamps for wich the control gear is designed will be operated correctly according the lamp specifications. The currently used lamp is recognised during the start up process.
To avoid an incorrect lamp recognition due to fast multiple ON / OFF switches, new lamp data are only restored if the lamp has operated for at least 5 seconds.

Mains currents in DC operation (at 70 % light output):

wattage W	lamp type	Ballast type	Mains current at U_n = 220 V DC	Mains current at U_n = 240 V DC
1x14	T5	**PCA 1x14/24 T5 EXCEL one4all lp** x:tec	0.06 A	0.06 A
2x14	T5	**PCA 2x14/24 T5 EXCEL one4all lp** x:tec	0.12 A	0.12 A
1x24 / 1x24	T5 / TC-L	**PCA 1x14/24 T5 EXCEL one4all lp** x:tec	0.10 A / 0.10 A	0.09 A / 0.09 A
2x24 / 2x24	T5 / TC-L	**PCA 2x14/24 T5 EXCEL one4all lp** x:tec	0.20 A / 0.20 A	0.18 A / 0.18 A
1x21	T5	**PCA 1x21/39 T5 EXCEL one4all lp** x:tec	0.09 A	0.08 A
2x21	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x:tec	0.17 A	0.16 A
1x39 / 1x40	T5 / TC-L	**PCA 1x21/39 T5 EXCEL one4all lp** x:tec	0.15 A / 0.15 A	0.14 A / 0.14 A
2x39	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x:tec	0.30 A	0.28 A
1x28	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x:tec	0.11 A	0.11 A
2x28	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x:tec	0.21 A	0.20 A
1x54	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x:tec	0.21 A	0.20 A
2x54	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x:tec	0.42 A	0.38 A
1x35	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	0.14 A	0.13 A
2x35	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x:tec	0.26 A	0.24 A
1x49	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	0.18 A	0.17 A
2x49	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x:tec	0.36 A	0.33 A
1x80	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	0.30 A	0.27 A
2x80	T5	**PCA 2/80 T5 EXCEL one4all lp**	0.79 A	0.72 A

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

wattage W	lamp type	Ballast type	AC-BLF at U_n = 230 V AC
1x14	T5	**PCA 1x14/24 T5 EXCEL one4all lp** x:tec	1.00
2x14	T5	**PCA 2x14/24 T5 EXCEL one4all lp** x:tec	0.99
1x24 / 1x24	T5 / TC-L	**PCA 1x14/24 T5 EXCEL one4all lp** x:tec	1.01 / 1.04
2x24 / 2x24	T5 / TC-L	**PCA 2x14/24 T5 EXCEL one4all lp** x:tec	1.02 / 1.02
1x21	T5	**PCA 1x21/39 T5 EXCEL one4all lp** x:tec	1.03
2x21	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x:tec	1.02
1x39 / 1x40	T5 / TC-L	**PCA 1x21/39 T5 EXCEL one4all lp** x:tec	1.02 / 0.97
2x39	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x:tec	1.02
1x28	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x:tec	1.00
2x28	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x:tec	1.01
1x54	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x:tec	1.00
2x54	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x:tec	1.01
1x35	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	0.99
2x35	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x:tec	0.98
1x49	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	1.02
2x49	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x:tec	1.00
1x80	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	1.02
2x80	T5	**PCA 2/80 T5 EXCEL one4all lp**	1.00

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

Harmonic distortion in the mains supply (at 230 V / 50 Hz):

wattage W	lamp type	Ballast type	THD	3	5	7	9	11
1x14	T5	**PCA 1x14/24 T5 EXCEL one4all lp** x:tec	10.2	5.4	6.1	3.2	2.2	1.6
2x14	T5	**PCA 2x14/24 T5 EXCEL one4all lp** x:tec	7.8	4.3	2.5	2.5	2.7	2.2
1x24 / 1x24	T5 / TC-L	**PCA 1x14/24 T5 EXCEL one4all lp** x:tec	6.1 / 6.9	4.6 / 5.8	1.1 / 1.1	1.2 / 1.4	1.2 / 1.2	1.2 / 1.3
2x24 / 2x24	T5 / TC-L	**PCA 2x14/24 T5 EXCEL one4all lp** x:tec	4.8 / 8.5	3.2 / 6.2	1.4 / 1.8	2.0 / 2.7	1.3 / 1.9	1.2 / 1.7
1x21	T5	**PCA 1x21/39 T5 EXCEL one4all lp** x:tec	8.1	5.9	2.4	2.5	2.5	1.6
2x21	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x:tec	7.2	3.6	4.4	2.5	1.5	1.5
1x39 / 1x40	T5 / TC-L	**PCA 1x21/39 T5 EXCEL one4all lp** x:tec	7.0 / 6.2	5.5 / 4.7	1.1 / 0.7	2.1 / 1.4	1.5 / 1.0	1.3 / 0.9
2x39	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x:tec	5.3	4.0	2.5	1.8	0.6	0.9
1x28	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x:tec	9.74	3.93	3.39	2.68	2.52	2.44
2x28	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x:tec	10.0	7.3	1.7	2.1	2.2	1.9
1x54	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x:tec	5.6	3.5	1.5	1.6	1.1	1.3
2x54	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x:tec	8.9	8.5	1.4	1.5	0.7	0.7
1x35	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	9.1	6.0	4.2	2.2	1.9	1.8
2x35	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x:tec	8.7	7.2	1.4	1.4	1.4	0.9
1x49	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	9.6	7.8	4.3	1.8	1.0	1.0
2x49	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x:tec	7.8	7.5	0.6	1.1	0.6	0.7
1x80	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x:tec	8.1	7.8	1.6	0.6	0.5	0.6
2x80	T5	**PCA 2/80 T5 EXCEL one4all lp**	6.8	5.4	4.1	0.8	0.8	0.7

Dimming:
Dimming curve is adapted to the eye sensitiveness.
Dimming range 1 % to 100 %
Digital control with:
- DSI signal: 8 bit Manchester Code
  Speed 1 % to 100 % in 1.4 s
- DALI signal: 16 bit Manchester Code
  Maximum speed 1 % to 100 % in 550 ms
  (adjustable between 50 ms and 90 s)
  Programmable parameter:
  Minimum dimming level
  Maximum dimming level
  Default minimum = 1 %
  Default maximum = 100 %

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

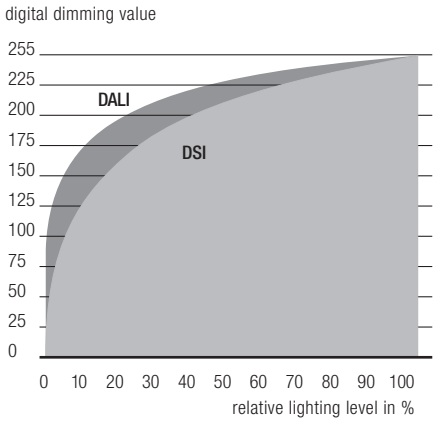
Digital signal DALI/DSI:
The control input is non-polar and protected against accidental connection with a mains voltage up to 264 V. The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations.
Different functions depending on each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

SMART interface:
An additional interface for the direct connection of the SMART-LS II lp[1] 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 T5 EXCEL one4all lp x!tec 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.
With relative DALI dimming commands (e.g. up, down etc.) or switchDIM signals it is possible to change the controlled light level temporarily.
Temporarily means that after a switching cycle OFF/ON command the ballast will start at the preset value determined by the SMART-LS II lp. 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.

[1] SMART-LS II lp: article number 86458258

Dimming characteristics
PCA T5 EXCEL one4all lp x!tec



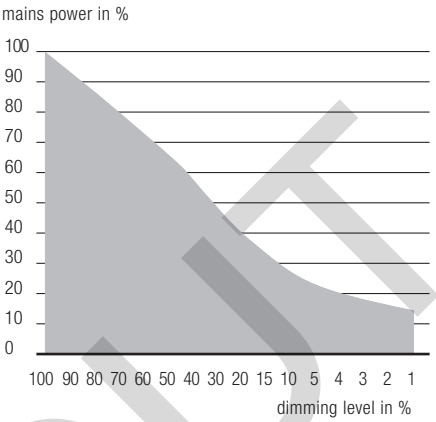
Dimming characteristics as seen by the human eye

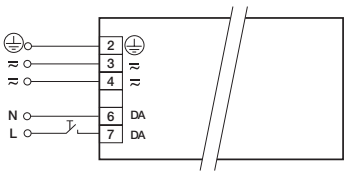
Brief push (< 0.6 s) switches ballast ON and OFF. The ballasts switch-ON at light level set at switch-OFF.
When the push to make switch is held, PCA ballasts are dimmed. After repush the PCA is dimmed in the opposite direction.
The switchDIM fade time is set to 3 s from min. to max. in the factory settings. With a 20 s push to the push to make switch this fade time can be changed to 6 s. In this instance the switchDIM application will be synchronized to 50 % light level after 10 s and after 20 s the light level rises to 100 % with the new fade time.
At every synchronizsation (10 s keystroke) the device will reset to 3 s (factory setting)
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.

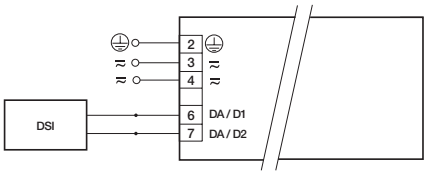
Backwards compatibility:
With a simple key combination a PCA T5 EXCEL one4all lp x!tec can be reset as a normal PCA EXCEL lp from the previous generation. Synchronisation simply has to take place three times within one minute (3 x 10 s).
To activate the "x!tec" settings again, synchronisation has to take place four times within one minute.

Energy saving
PCA T5 EXCEL one4all lp x!tec

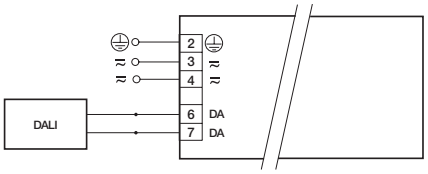




switchDIM PCA T5 EXCEL one4all lp x!tec



DSI PCA T5 EXCEL one4all lp x!tec



DALI PCA T5 EXCEL one4all lp x!tec

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 1x14/24 T5 EXCEL one4all lp x!tec	50	80	110	135	25	40	75	90
PCA 2x14/24 T5 EXCEL one4all lp x!tec	24	34	48	52	12	17	24	26
PCA 1x21/39 T5 EXCEL one4all lp x!tec	34	50	76	86	17	25	38	43
PCA 2x21/39 T5 EXCEL one4all lp x!tec	16	22	32	36	8	11	16	18
PCA 1x28/54 T5 EXCEL one4all lp x!tec	24	34	48	52	12	17	24	26
PCA 2x28/54 T5 EXCEL one4all lp x!tec	16	22	32	34	8	11	16	17
PCA 1x35/49/80 T5 EXCEL one4all lp x!tec	16	24	32	38	8	12	16	19
PCA 2x35/49 T5 EXCEL one4all lp x!tec	16	22	32	34	8	11	16	17
PCA 2/80 T5 EXCEL one4all lp	10	14	20	22	5	7	10	11

Continuous operation: to calculate the protective saftey switch see main current, page 1

Intelligent Voltage Guard
Intelligent Voltage Guard is the name of the new electronic monitor from Tridonic. This innovative feature of the PCA family of control gear from Tridonic immediately shows if the mains voltage rises above or falls below certain thresholds. Measures can then be taken quickly to prevent damage to the control gear.

- If the mains voltage rises above approx. 305 V (voltage depends on the ballast type), the lamp starts flashing on and off.
- This signal "demands" disconnection of the power supply to the lighting system.
- The active-current-control of these control gears is protected against failure caused by the high mains currents generated as a result of mains undervoltage. The switch off level depends on lamp wattage and is typically < 140 V.

corridorFUNCTION
The corridorFUNCTION can be programmed in two different ways.
To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS. The software can be the configTOOL, the pcaCONFIGURATOR or the corridorFUNCTION CONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V simply has to be applied for five minutes at the switchDIM connection.
The unit will then switch automatically to the corridorFUNCTION.
Note: If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.
The corridorFUNCTION V2 offers the added benefit of a second and third preprogrammed profile, which can be activated by the corridorFUNCTION plugs. It is also possible to combine the corridorFUNCTION with the SMART-LS II lp light sensor.
Application and functionallity of profiles see user manual.

Intelligent Temperature Guard
The intelligent temperature guard protects the PCA T5 EXCEL one4all lp x!tec from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast. Depending on the luminaire design, the ITG operates at about 5 to 10 °C above Tc temperature.

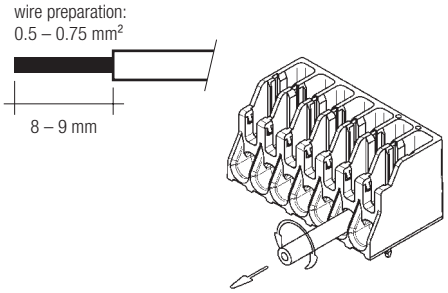
plugADDRESSING – simple handling, comissioning and wiring
The new plug&play solution simplifies handling.
By attaching different colored marked plugs to the SMART-Interface, group addresses are assigned to the PCA T5 EXCEL one4all lp x!tec.
This supersedes a single addressing and the devices can be put into operation without any additional programming. Another significant advantage of this concept is in case of exchange and no limits to 64 DALI addresses. Ideal for RGB applications and cost-effective system solutions with simple controllers.
Simple – Quick – Plug & Play!

Operating voltage:

Wattage W	lamp type	Ballast type	U_{out}
1x14	T5	**PCA 1x14/24 T5 EXCEL one4all lp** x!tec	400 V
2x14	T5	**PCA 2x14/24 T5 EXCEL one4all lp** x!tec	400 V
1x24 / 1x24	T5 / TC-L	**PCA 1x14/24 T5 EXCEL one4all lp** x!tec	400 V / 400 V
2x24 / 2x24	T5 / TC-L	**PCA 2x14/24 T5 EXCEL one4all lp** x!tec	400 V / 400 V
1x21	T5	**PCA 1x21/39 T5 EXCEL one4all lp** x!tec	400 V
2x21	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x!tec	400 V
1x39 / 1x40	T5 / TC-L	**PCA 1x21/39 T5 EXCEL one4all lp** x!tec	400 V / 400 V
2x39	T5	**PCA 2x21/39 T5 EXCEL one4all lp** x!tec	400 V
1x28	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x!tec	430 V
2x28	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x!tec	430 V
1x54	T5	**PCA 1x28/54 T5 EXCEL one4all lp** x!tec	430 V
2x54	T5	**PCA 2x28/54 T5 EXCEL one4all lp** x!tec	430 V
1x35	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x!tec	430 V
2x35	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x!tec	430 V
1x49	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x!tec	430 V
2x49	T5	**PCA 2x35/49 T5 EXCEL one4all lp** x!tec	430 V
1x80	T5	**PCA 1x35/49/80 T5 EXCEL one4all lp** x!tec	430 V
2x80	T5	**PCA 2/80 T5 EXCEL one4all lp**	430 V

Installation instructions:

Wiring type and cross section:
The wiring can be solid cable with a cross section of 0.5 to 0.75 mm² for push terminal and 0.5 mm² for IDC terminal. For the push-wire connection you have to strip the insulation (8–9 mm).

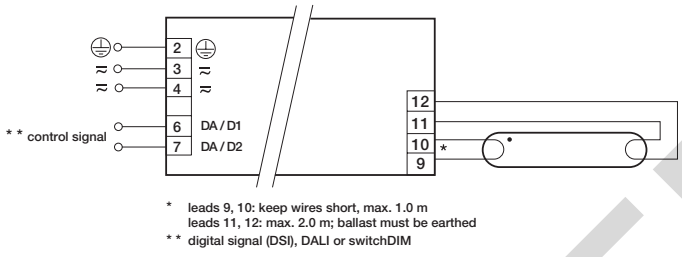


Wiring advice:
The lead length is dependent on the capacitance of the cable.

Ballast	Terminal		Maximum capacitance allowed	
Type	Cold	Hot	Cold	Hot
PCA 1/xx T5 EXCEL one4all lp x:tec	11, 12	9, 10	200 pF	100 pF
PCA 2/xx T5 EXCEL one4all lp x:tec	11, 12, 13, 14	9, 10, 15, 16	200 pF	100 pF

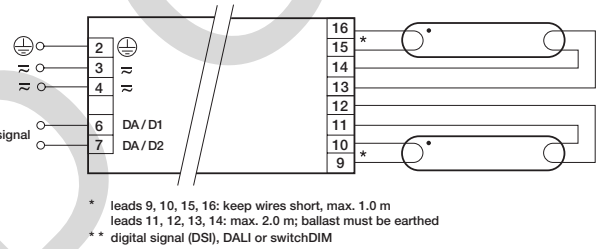
With standard solid wire 0.5/0.75 mm² the capacitance of the lead is 30–80 pF/m.
This value is influenced by the way the wiring is made.
Lamp connection should be made with symmetrical wiring.
Hot leads (9, 10, 15, 16) and cold leads (11, 12, 13, 14) should be separated as much as possible.
When using two or more dimmable ballasts in one luminaire with separate dimming controls, the lamp leads must be kept separate.

Dimmable ballasts from Tridonic have to be earthed.



* leads 9, 10: keep wires short, max. 1.0 m
leads 11, 12: max. 2.0 m; ballast must be earthed
* * digital signal (DSI), DALI or switchDIM

PCA T5 EXCEL one4all lp x:tec **1x14–80 W**

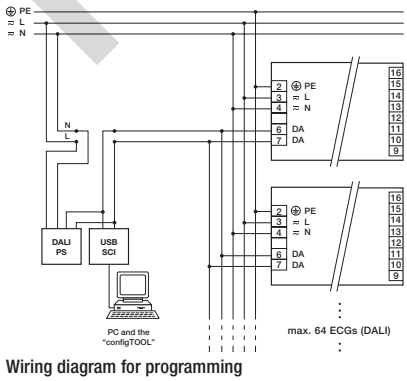


* leads 9, 10, 15, 16: keep wires short, max. 1.0 m
leads 11, 12, 13, 14: max. 2.0 m; ballast must be earthed
* * digital signal (DSI), DALI or switchDIM

PCA T5 EXCEL one4all lp x:tec **2x14–49 W**
PCA T5 EXCEL one4all lp 2/80 W
Dimmable ballasts from Tridonic have to be earthed.

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
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

General advise:
Electronic ballasts are virtually noise free.
Magnetic fields generated during the ignition cycle can cause some background noise but only for a few milliseconds.



Wiring diagram for programming

Programming:
With appropriate software and a USB interface different functions can be activated and various parameters can be configured in the new PCA T5 EXCEL one4all lp x:tec. All that is needed is a DALI-USB and the software.

configTOOL
Full version for programming all the functions and parameters.

pcaCONFIGURATOR
For programming the corridorFUNCTION, device configuration (fade time, ePowerOnLevel, etc.) DC level, compatibility settings, and startup date and for resetting.
Maximum amount of ballast see DALI/DSI specification.

corridorFUNCTION CONFIGURATOR
For activating and deactivating the corridorFUNCTION and for project-specific programming of the PCA T5 EXCEL one4all lp x:tec units.
Maximum amount of ballast see DALI/DSI specification.

Isolation and electric strength testing of luminaires:
Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an isolation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The isolation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

ⓘ For further technical information please visit www.tridonic.com