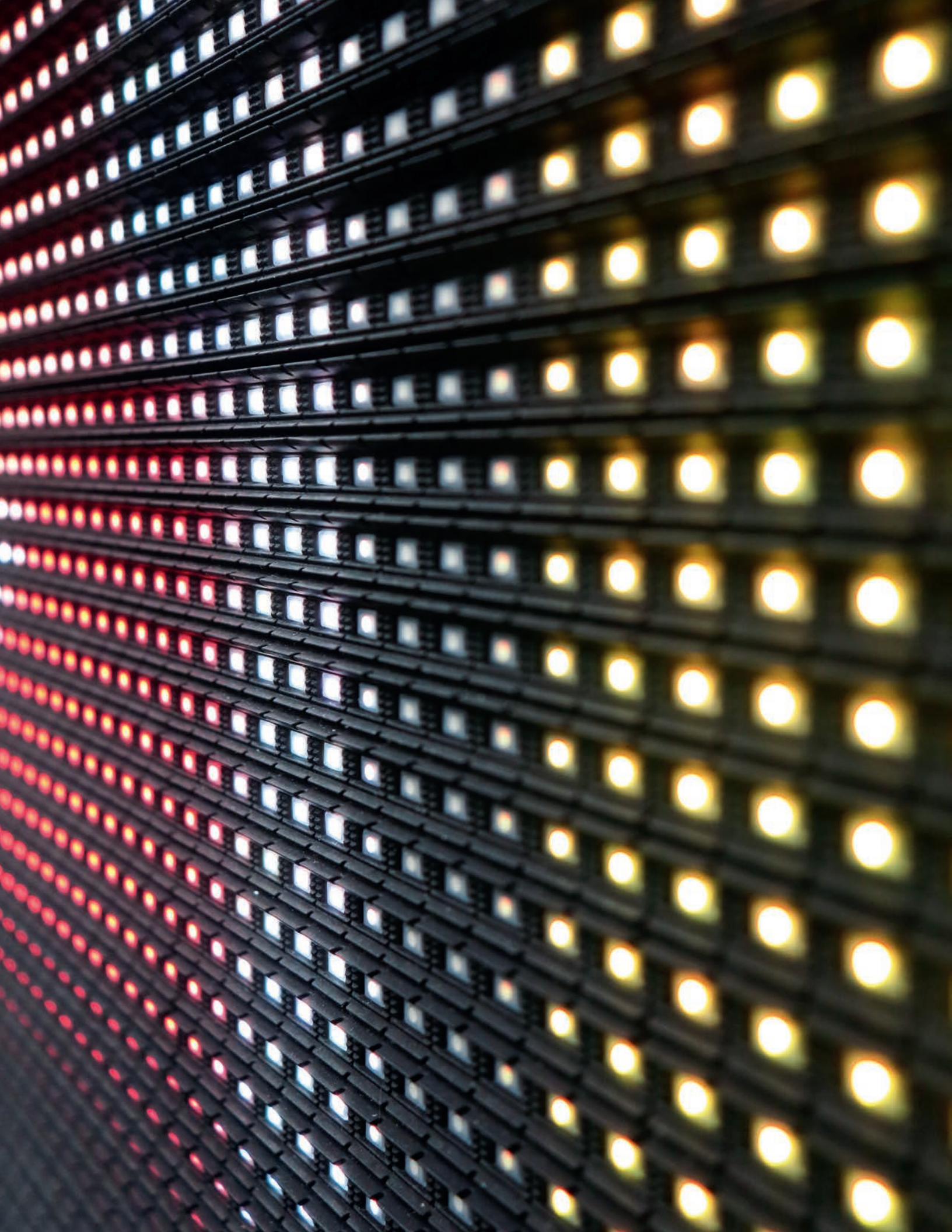
SURFACE MOUNT PCB TERMINAL BLOCKS

The Standard for SMT Applications



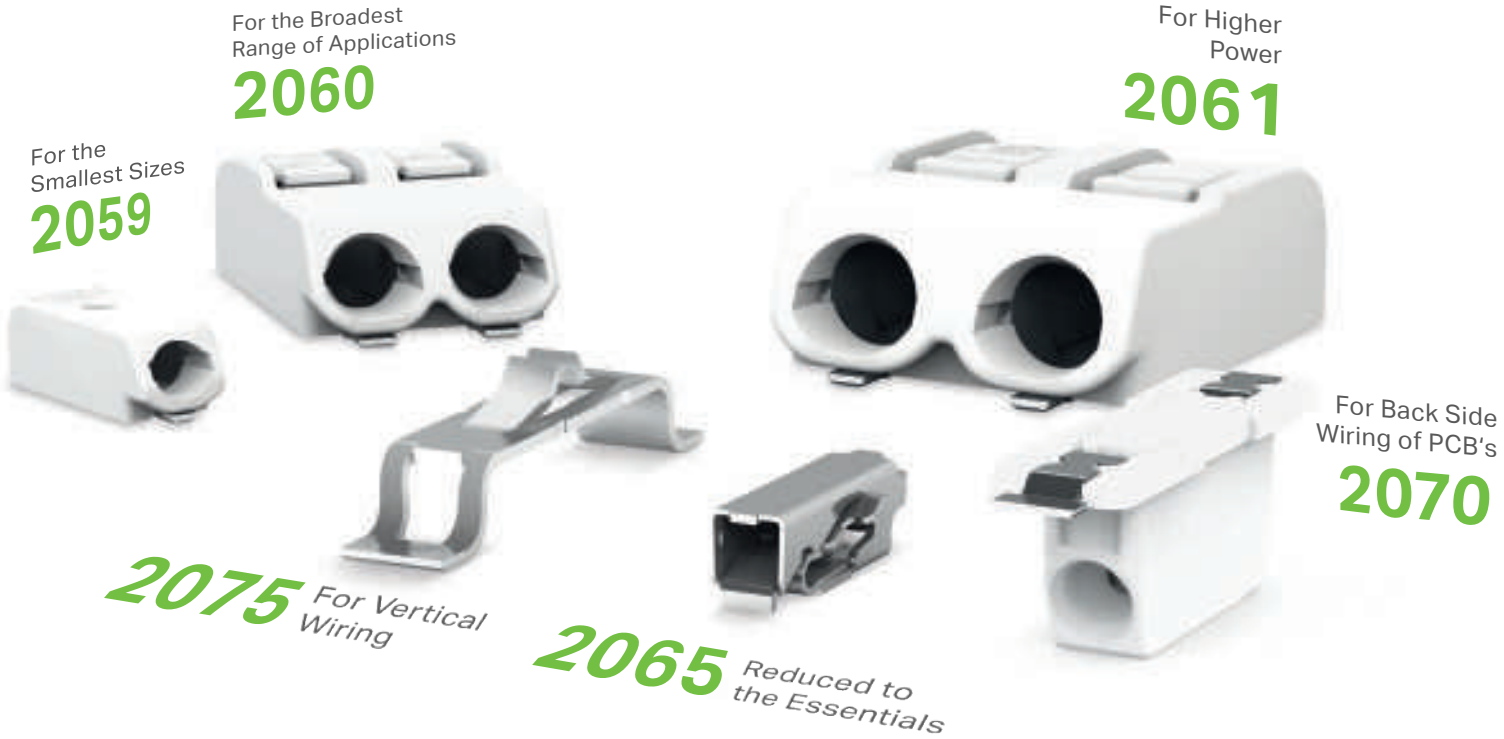
Contents

SURFACE MOUNT PCB TERMINAL BLOCKS

A compact and low-profile PCB connection is required in many eletronics applications, particularly in luminaires for optimal uniform light distribution, while minimizing shadowing. WAGO's Surface Mount PCB terminal blocks, with their combination of a flat design and wide application scope fully satisfy these demands. Furthermore, assembling 1-, 2- and 3-pole terminal blocks (2059, 2060 and 2061 Series) side-by-side without loss of spacing provides complete flexibility with a reduced number of variants. All WAGO Surface Mount PCB terminal blocks come in tape-and-reel packaging for full integration into an automated assembly process.

Applications

The numerous advantages of WAGO's Surface Mount line of PCB terminal blocks enable them to be used in many different applications. They provide the perfect connection in a luminaire between driver and module; they provide a reliable and repeatable alternative to soldered leads in industrial electronic devices like sensors and actuators; they provide a compact interconnect solution in building automation or other IoT smart devices. In short, they are the optimal low-profile connection method for any surface mount PCB application. The terminal blocks accommodate a broad range of conductors and carry major international approvals making them highly versatile for worldwide applications.



Advantages:

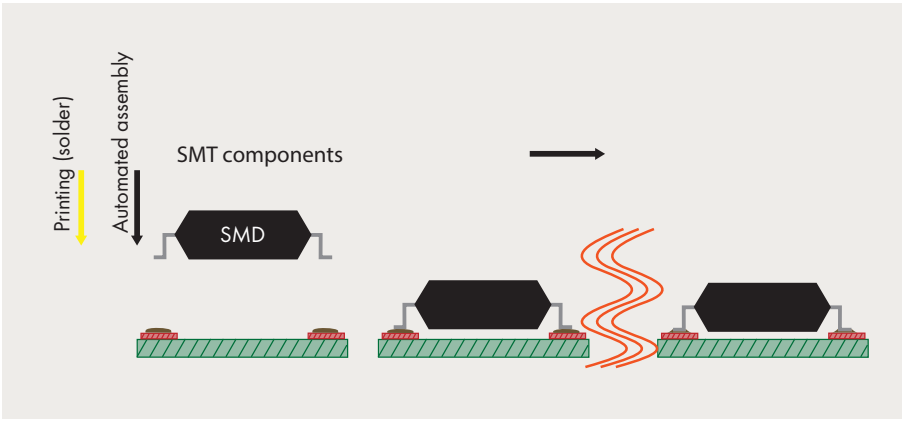
- Low profile minimizes on-board shadowing
- Push-in termination of solid conductors
- Terminal strips of different pole numbers can be assembled side-by-side without loss of spacing, reducing the number of variants and lowering production costs
- Available in 1 to 3 pole configurations
- Delivery in tape-and-reel packaging for full integration into SMT soldering process
- Lower costs via automated pick-and-place assembly

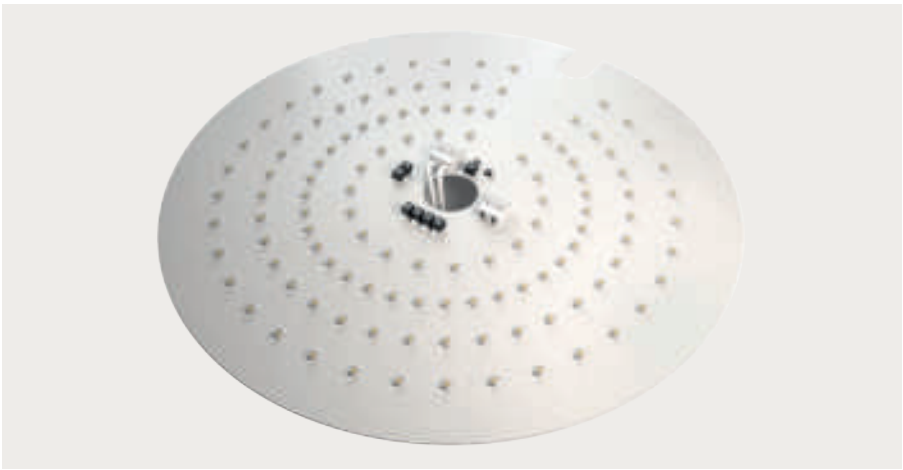
SURFACE MOUNT TECHNOLOGY

Surface Mount Technology (SMT) means soldering electronic components directly onto PCB surface pads without drilling holes. The basic SMT process consists of applying solder paste to the PCB via solder dispensing equipment, screen or stencil printing.

SMT assembly is performed using fully automated placement machines. Surface mount components are soldered to the board in convection or vapor phase ovens.

Reflow Soldering Process

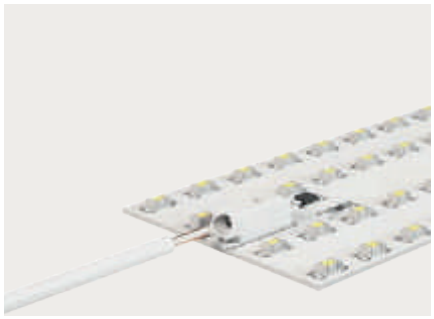




2059 SERIES

For the Smallest Sizes

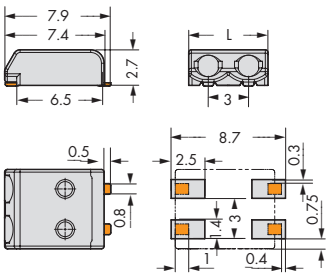
- Low profile: just 2.7 mm
- Pin spacing: 3 mm
- Conductor range: 26 … 20 AWG (0.14 … 0.5 mm²), solid or tin bonded
- Push-in termination
- Easy conductor removal via operating tool
- Ratings: 320/600 V, 3 A
- Available in 1–3 pole variants
- Side-by-side assembly without pole loss
- Available in tape-and-reel packaging



Insert solid conductors via push-in termination

Easy conductor removal, e.g., via operating tool (206-859)

2059 Series, 3 mm Pin Spacing					
Pin spacing	**3 mm /0.118 inch**			**Conductor Data**	
Ratings per	**IEC/EN 60664-1**			**Connection technology**	PUSH WIRE®
Overvoltage category	III	III	II	**Conductor range: solid or tin bonded**	0.14 … 0.34 mm²
Pollution degree	3	2	2	**AWG solid or tin bonded**	26 … 22
Rated voltage	63 V	160 V	320 V	**Strip length**	4 … 5.5 mm / 0.16 … 0.22 inch
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV		
Rated current	3 A	3 A	3 A		
Approvals per	**UL 1977**			**Additional Conductor Size with Special Conditions**	0.5 mm²
Rated voltage, 1-pole	600 V			**AWG**	20
Rated voltage, 2 or more poles	320 V			**Strip length**	6 … 7.5 mm / 0.24 … 0.3 inch
Nominal current UL	3 A			**Note (for 20 AWG/0.5 mm² only)**	No reconnection of smaller conductor sizes after insertion of 20 AWG/0.5 mm²
Surface Mount PCB terminal blocks in tape-and-reel packaging					**Reel diameter: 330 mm**
Pole No.	**Item No. - White**			**Item No. - Black**	**Pack. Unit**
1	2059-301/998-403			2059-321/998-403	2650 per reel
2	2059-302/998-403			2059-322/998-403	1750 per reel
3	2059-303/998-403			2059-323/998-403	1750 per reel

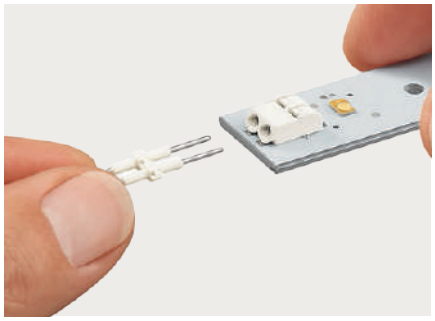


L = (pole no. x pin spacing) – 0.1 mm

2059 SERIES

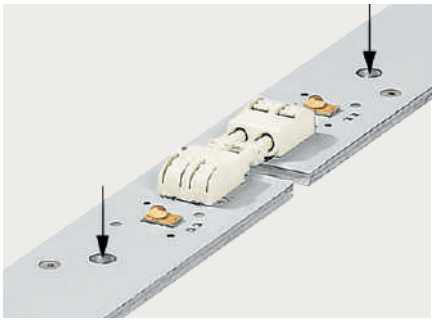
Board-to-Board Link

Besides standard wiring, several PCBs or LED modules can be easily assembled into a single string using board-to-board connection links. This minimizes labor (no manual wiring) and materials needed for connecting LED modules or PCBs.



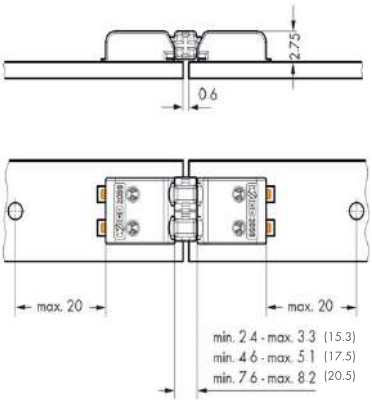
Insert a board-to-board link into the terminal block

Assembly: Place PCBs on a flat surface and connect terminal blocks on adjoining PCBs via board-to-board link. Disassembly: pull PCBs apart (max. 10 mating cycles)



The PCBs must be secured after assembly

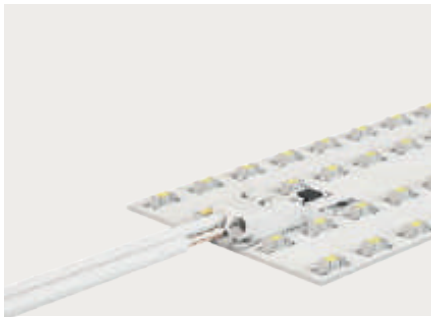
2059 Series, Board-to-Board Link							
Pin spacing	3 mm / 0.118 inch			Pole No.	Item No.	Pin Length	Pack. Unit
Ratings per	IEC/EN 60664-1			1	2059-901	15.3 mm	1,500
Overvoltage category	III	III	II	2	2059-902	15.3 mm	500
Pollution degree	3	2	2	3	2059-903	15.3 mm	375
Rated voltage	63 V	160 V	320 V	1	2059-901/0018-0000	17.5 mm	1,500
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2	2059-902/0018-0000	17.5 mm	500
Rated current	3 A	3 A	3 A	3	2059-903/0018-0000	17.5 mm	375
Approvals per	UL1977			1	2059-901/0021-0000	20.5 mm	1,500
Rated voltage: 1-pole	600 V			2	2059-902/0021-0000	20.5 mm	500
Rated voltage: 2 or more poles	320 V			3	2059-903/0021-0000	20.5 mm	375
Nominal Current UL	3 A						



2060 SERIES

For Broadest Range of Applications

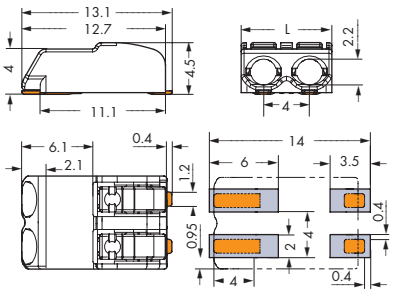
- Low profile: 4.5 mm
- Pin spacing: 4 mm
- Conductor range:
  24 … 18 AWG (0.2 … 0.75 mm²)
- Push-in termination of solid conductors
- Push-buttons simplify insertion/removal of all conductor types
- Ratings: 320/600 V, 9 A
- Available in 1–3 pole variants
- Side-by-side assembly without pole loss
- Available in tape-and-reel packaging



Insert solid conductors via push-in termination

Insert/remove fine-stranded conductors by lightly pressing on a push-button, e.g., via operating tool (206-860)

2060 Series, 4 mm Pin Spacing					
Pin spacing	4 mm /0.157 inch			Conductor Data	
Ratings per	IEC/EN 60664-1			Connection technology	Push-in CAGE CLAMP®
Overvoltage category	III	III	II	Conductor range: solid/stranded/fine-stranded	0.2 … 0.75 mm²
Pollution degree	3	2	2	AWG solid/stranded/fine-stranded	24 … 18
Rated voltage	63 V	160 V	320 V	Strip length	7 … 9 mm / 0.28 … 0.35 inch
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV		
Rated current	9 A	9 A	9 A		
Approvals per	UL 1977				
Rated voltage, 1-pole	600 V				
Rated voltage, 2 or more poles	320 V				
Nominal current UL	9 A				
Surface Mount PCB terminal blocks with push-buttons in tape-and-reel packaging					Reel diameter: 330 mm
Pole No.	Item No. - White			Item No. - Black	Pack. Unit
1	2060-451/998-404			2060-471/998-404	1500 per reel
2	2060-452/998-404			2060-472/998-404	1,000 per reel
3	2060-453/998-404			2060-473/998-404	750 per reel



L = (pole no. x pin spacing) – 0.1 mm

2060 SERIES

Pin Spacing: 8 mm

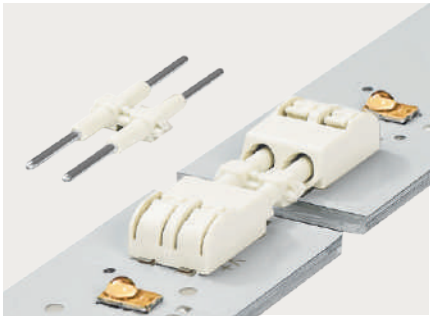
The 2-pole Surface Mount PCB terminal block with 8 mm pin spacing has joined WAGO's portfolio, providing higher rated voltages up to 600 V (UL) and 630 V / 6 kV / 2 (IEC) in LED and industrial applications.

Board-to-Board Link

Besides standard wiring, several PCBs or LED modules can be easily assembled into a single string using board-to-board connection links. This minimizes labor (no manual wiring) and materials needed for connecting LED modules or PCBs.

THR and Wave Soldering

WAGO's 2060 Series THR PCB Terminal Blocks with soldering pins are ideal for both THR and wave soldering. The 2060 THR Series is available in both white and black housings.
Additional information at:
www.wago.us/SMT

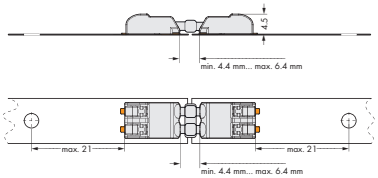


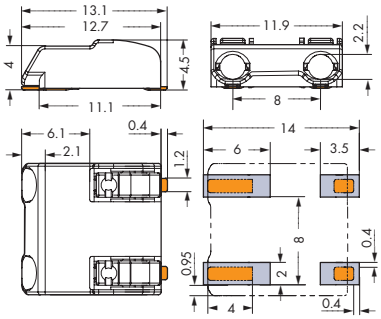
Assembly: Place PCBs on a flat surface and connect terminal blocks on adjoinging PCBs via board-to-board link
Disassembly: Pull PCBs apart (max. 10 mating cycles). PCBs must be secured after assembly

2060 Series, Board-to-Board Link				
Pin spacing	4 mm / 0.157 inch	Pole No.	Item No.	Pack. Unit
Approvals per	UL1977	1	2060-951/028-000	1500
Rated voltage: 1-pole	600 V	2	2060-952/028-000	500
Rated voltage: 2 or more poles	320 V	3	2060-953/028-000	375
Nominal current UL	9 A	Note: Only suitable for 2060-45x, not for 2060-40x		

2060 Series, 8 mm Pin Spacing					
Pin spacing	8 mm / 0.314 inch			Conductor Data	
Ratings per	IEC/EN 60664-1			Connection technology	Push-in CAGE CLAMP®
Overvoltage category	III	III	II	Conductor range: solid/stranded/fine-stranded	0.2 … 0.75 mm²
Pollution degree	3	2	2	AWG solid/stranded/fine-stranded	24 … 18
Rated voltage	400 V	630 V	1000 V	Strip length	7 … 9 mm / 0.28 … 0.35 inch
Rated surge voltage	6 kV	6 kV	6 kV		
Rated current	9 A	9 A	9 A		
Approvals per	UL 1977				
Rated voltage	600 V				
Nominal current UL	9 A				
Surface Mount PCB terminal blocks with push-buttons in tape-and-reel packaging					Reel diameter: 330 mm
Pole No.	Item No. - White			Item No. - Black	Pack. Unit
2	2060-852/998-404			2060-872/998-404	6,750 (9 x 750)

Board-to-Board Link - 8 mm			Reel diameter: 330 mm
Pole No.	Item No. - White		Pack. Unit
2	2060-962/028-000		375

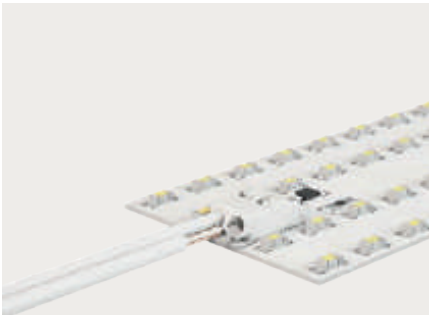




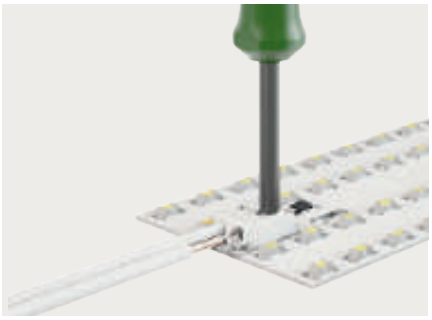
2061 SERIES

For Higher Power Applications

- Low profile: 5.6 mm
- Pin spacing: 6 mm
- Conductor range: 20 … 16 AWG (0.5 … 1.5 mm²)
- Push-in termination of solid conductors
- Push-buttons simplify insertion/removal of all conductor types
- Ideal for automated wiring systems
- Ratings: 300/600 V 10 A UL1059
- Available in 1–3 pole variants
- Side-by-side assembly without pole loss
- Available in tape-and-reel packaging

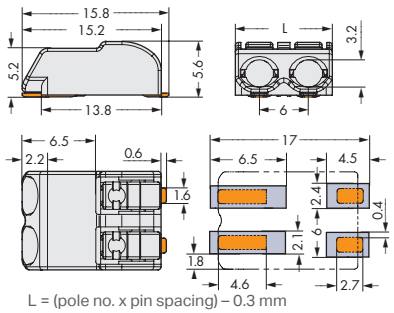


Insert solid conductors via push-in termination



Insert/remove fine-stranded conductors by lightly pressing on a push-button, e.g., via operating tool (206-861)

2061 Series, 6 mm Pin Spacing					
Pin spacing	**6 mm / 0.24 inch**			**Conductor Data**	
Ratings per	**IEC/EN 60664-1**			**Connection technology**	Push-in CAGE CLAMP®
Overvoltage category	III	III	II	**Conductor range: solid/stranded/fine-stranded**	0.5 … 1.5 mm²
Pollution degree	3	2	2	**AWG solid/stranded/fine-stranded**	20 … 16
Rated voltage	250 V	320 V	630 V	**Strip length**	7 … 10 mm / 0.28 … 0.39 inch
Rated surge voltage	4 kV	4 kV	4 kV		
Rated current	17.5 A	17.5 A	17.5 A		
Approvals per	**UL 1059**				
Rated voltage, 1-pole	600 V				
Rated voltage, 2 or more poles	300 V				
Nominal current UL	10 A				
Surface Mount PCB terminal blocks with push-buttons in tape-and-reel packaging					**Reel diameter: 330 mm**
Pole No.	**Item No. - White**			**Item No. - Black**	**Pack. Unit**
1	2061-601/998-404			2061-621/998-404	900 per reel
2	2061-602/998-404			2061-622/998-404	700 per reel
3	2061-603/998-404			2061-623/998-404	450 per reel



L = (pole no. x pin spacing) – 0.3 mm

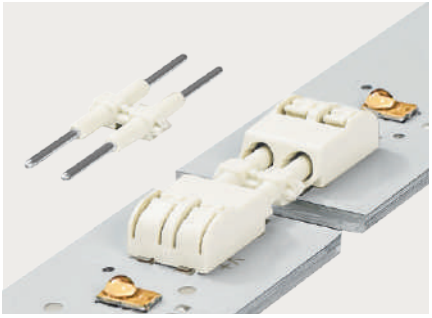
2061 SERIES

Board-to-Board Link

Besides standard wiring, several LED modules can be easily assembled into a single string using board-to-board connection links. This minimizes labor (no manual wiring) and materials needed for connecting LED modules.

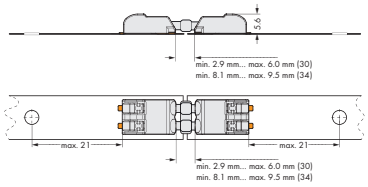
THR and Wave Soldering

WAGO's 2061 Series THR PCB Terminal Blocks with soldering pins are ideal for both THR and wave soldering. The 2061 THR Series is available in both white and black housings.
Additional information at:
www.wago.us/SMT



Assembly: Place PCBs on a flat surface and connect terminal blocks on adjoining PCBs via board-to-board link.
Disassembly: Pull PCBs apart (max. 10 mating cycles). The PCBs must be secured after assembly

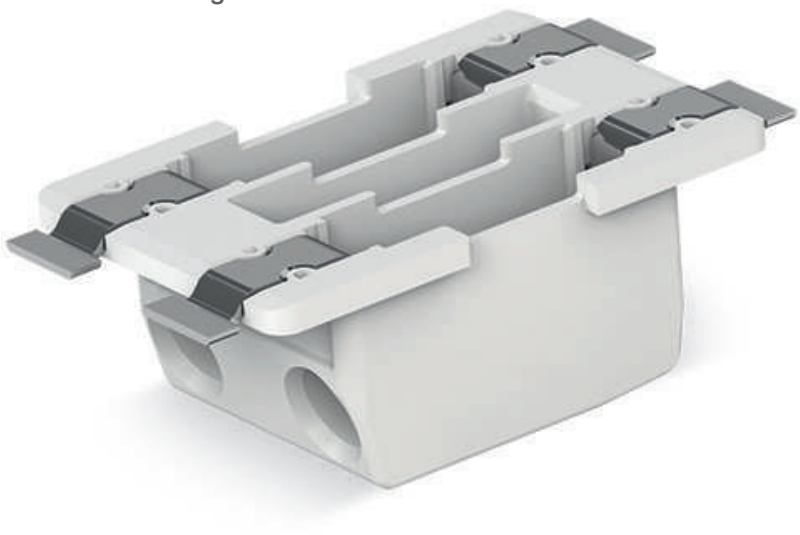
2061 Series, Board-to-Board Link							
Pin spacing	**6 mm / 0.24 inch**			**Pole No.**	**Item No.**	**Total Length**	**Pack. Unit**
Ratings per	**IEC/EN 60664-1**			1	2061-901	30 mm	1,500
Overvoltage category	III	III	II	2	2061-902	30 mm	500
Pollution degree	3	2	2	3	2061-903	30 mm	375
Rated voltage	250 V	320 V	630 V	1	2061-901/034-000	34 mm	1,500
Rated surge voltage	4 kV	4 kV	4 kV	2	2061-902/034-000	34 mm	500
Rated current	9 A	9 A	9 A	3	2061-903/034-000	34 mm	375
Approval per	**UL 1059**						
Rated voltage: 1-pole	600 V						
Rated voltage: 2 or more poles	300 V						
Nominal current UL	10 A						

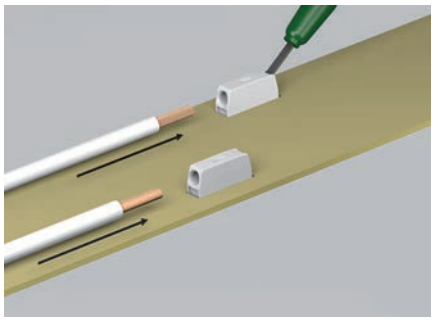


2070 SERIES

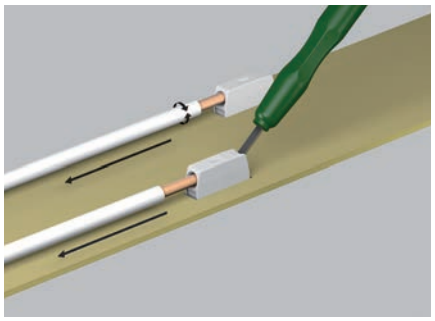
Through-Board Surface Mount PCB Terminal Block - For Back Side Wiring of PCBs

- Pin spacing: 6.5 mm
- Conductor range:
  24 … 18 AWG (0.2 … 0.75 mm²)
- Push-in termination of solid conductors
- Ratings: 600 V 9 A
- Available in 1–3 pole variants
- Available in tape-and-reel packaging
- Surface mount PCB terminal blocks with Push-in CAGE CLAMP® connection for back-side wiring of PCBs
- Low profile of just 1.1 mm on the module's front side
- Connect solid conductors via push-in termination
- Insert fine-stranded conductors and remove all conductors via operating tool (2070-400)

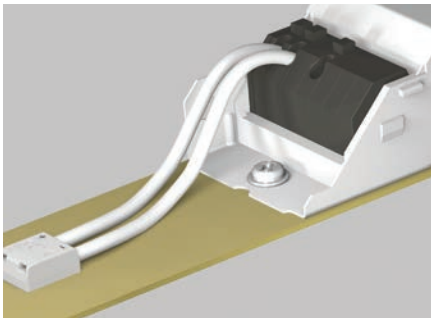




Insert and remove fine-stranded conductors via operating tool (2070-400)

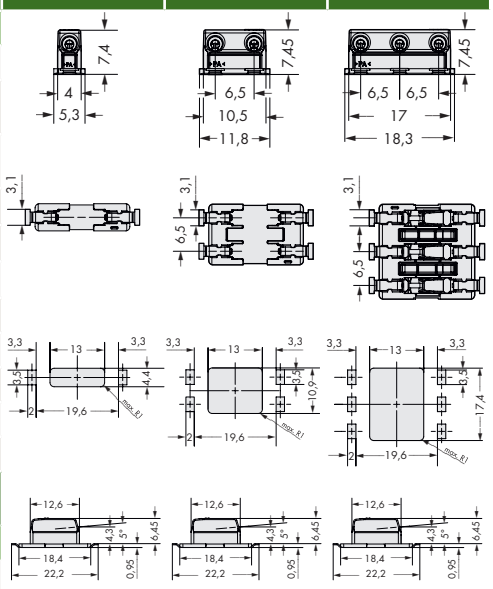


Use operating tool (2070-400) or simply "twist and pull" to remove solid conductors



Shift wiring to the back of the LED module via 2070 Series PCB Terminal Block

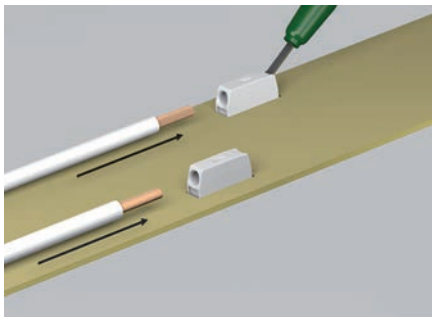
2070 Series, 6.5 mm Pin Spacing					
Pin spacing	6.5 mm / 0.24 inch			Conductor Data	
Ratings per	IEC/EN 60664-1			Connection technology	Push-in CAGE CLAMP®
Overvoltage category	III	III	II	Conductor range: solid/stranded/fine-stranded	0.2 … 0.75 mm²
Pollution degree	3	2	2	AWG solid/stranded/fine-stranded	24 … 18
Rated voltage: FR4 PCB	320 V	320 V	630 V	Strip length	8.5…10 mm
Rated Voltage: Metal Core PCB	200 V	320 V	500 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Rated current	9 A	9 A	9 A		
Approvals per	UL 1977				
Rated voltage	600 V				
Nominal current UL	9 A				
Nominal current CSA	6 A				
Through-board Surface Mount PCB terminal blocks in tape-and-reel packaging					Reel diameter: 330 mm
Pole No.	Item No.				Pack. Unit
1	2070-451/998-406				954 per reel
2	2070-452/998-406				477 per reel
3	2070-453/998-406				318 per reel



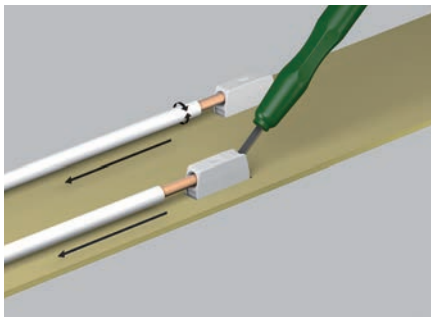
2070 SERIES

With Additional Features: Integrated Cover and Standard Marking

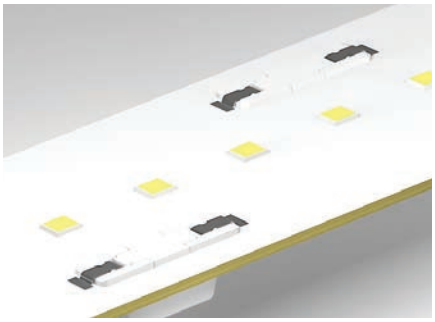
- Pin spacing: 6.5 mm
- Conductor range:
  24 … 18 AWG (0.2 … 0.75 mm²)
- Push-in termination of solid conductors
- Ratings: 300/600 V 9 A
- Available in 1–3 pole variants
- Available in tape-and-reel packaging
- With integrated cover for simplified pick and place handling and reduced shadowing
- Surface mount PCB terminal blocks with Push-in CAGE CLAMP® connection for back-side wiring of PCBs
- Low profile of just 1.1 mm on the module's front side
- Connect solid conductors via push-in termination
- Insert fine-stranded conductors and remove all conductors via operating tool (2070-400)



Insert and remove fine-stranded conductors via operating tool (2070-400)



Use operating tool (2070-400) or simply "twist and pull" to remove solid conductors



Variants with cover feature a center contact surface for easy pick-and-place assembly and minimal shadowing

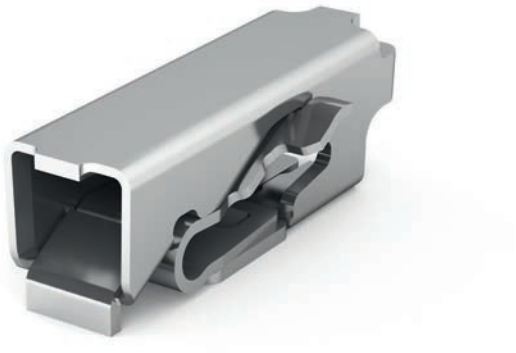
2070 Series, 6.5 mm Pin Spacing					
Pin spacing	6.5 mm / 0.24 inch			Conductor Data	
Ratings per	IEC/EN 60664-1			Connection technology	Push-in CAGE CLAMP®
Overvoltage category	III	III	II	Conductor range: solid/stranded/fine-stranded	0.2 … 0.75 mm²
Pollution degree	3	2	2	AWG solid/stranded/fine-stranded	24 … 18
Rated voltage: FR4 PCB	320 V	320 V	630 V	Strip length	8.5…10 mm / 0.345…0.395 inch
Rated Voltage: Metal Core PCB	200 V	320 V	500 V		
Rated surge voltage	4 kV	4 kV	4 kV		
Rated current	9 A	9 A	9 A		
Approvals per	UL 1977				
Rated voltage	600 V				
Nominal current UL	9 A				
Nominal current CSA	6 A				
Through-board Surface Mount PCB terminal blocks in tape-and-reel packaging	With integrated cover, no marking			With integrated cover, standard marking	With integrated cover, reverse marking
Pole No.	Item No.			Item No.	Item No.
1	2070-461/998-406			2070-521/998-406	2070-541/998-406
2	2070-462/998-406			2070-522/998-406	2070-542/998-406
3	2070-463/998-406			2070-523/998-406	2070-543/998-406

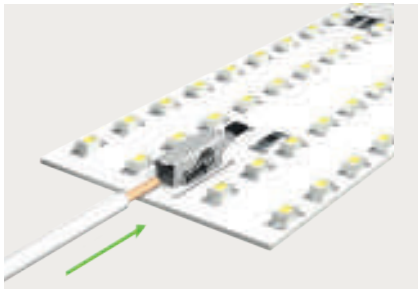
Standard Marking	Reverse Marking
	

2065 SERIES

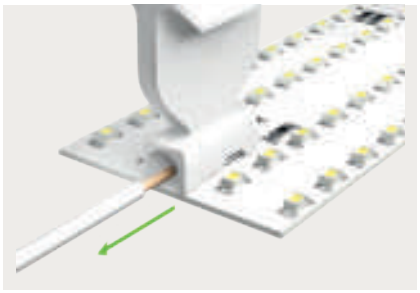
Reduced to the Essentials

- Low profile: 2.7 mm
- Conductor range:
  24 … 18 AWG (0.2 … 0.75 mm²)
- Push-in termination
- Wire is removable by using operating tool to depress side push-button
- Maximum conductor size, minimum installation space
- Compact design provides uniform light distribution
- A reliable alternative to wire soldering
- Terminal block without insulation housing

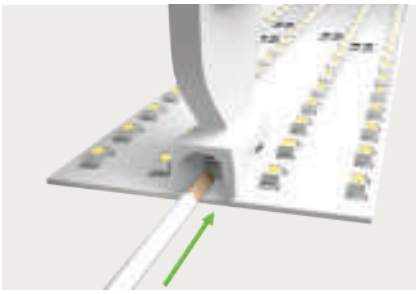




Insert solid conductors via push-in termination.

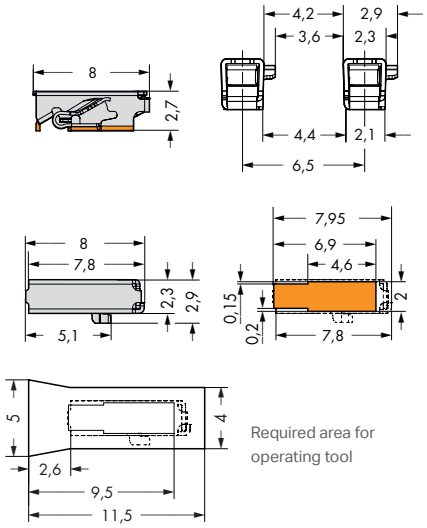


Insert fine-stranded conductors – as well as remove all conductors – via operating tool. (Item No. 2065-189)



The operating tool's funneled conductor entry securely guides the stranded conductor into the terminal block.

2065 Series					
Technical Data				**Conductor Data**	
Ratings per	**IEC/EN 60664-1**			**Connection technology**	**Push-in CAGE CLAMP®**
Overvoltage category	III	III	II	**Conductor range:**	0.2 … 0.75 mm²
Pollution degree	3	2	2	**AWG**	24 … 18
Rated voltage*	320 V	320 V	630 V	**Strip length**	7.5 mm / 0.3 inch (min.)
Rated impulse voltage	4 kV	4 kV	4 kV		
Rated current	9 A	9 A	9 A		
Approvals per	**UL1977**				
Rated Voltage*	600 V				
Nominal Current UL	9 A				
Nominal Current CSA	6 A				
Surface Mount PCB terminal blocks in tape-and-reel packaging	**With push-button solid/stranded/fine-stranded**			**Without push-button solid or tin bonded**	**Reel diameter: 330 mm**
Pole No.	**Item No.**			**Item No.**	**Pack. Unit**
1	2065-100/998-403			2065-101/998-403	2650 per reel



Required area for operating tool

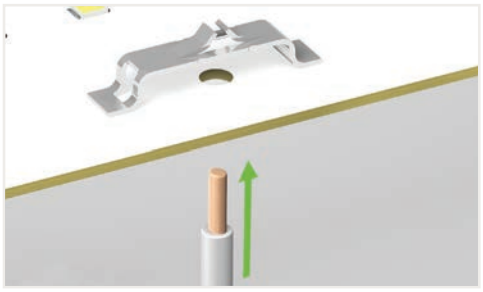
*Rated voltage for 6.5 mm pin spacing
Any layout deviation must meet the insulation coordination safety standards (EN/IEC 60664-1) or end device standard requirements.

NOTE: Terminal block without insulation housing!
Protection against accidental contact must be provided at voltages higher than low voltage (e.g., SELV/PELV) for the relevant application.

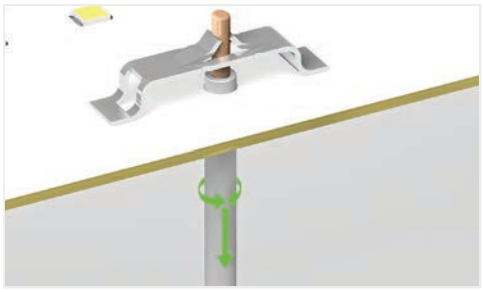
2075 SERIES

For Vertical Wiring

- Wiring performed on the back of the LED module simplifies luminaire manufacturing
- Compact design provides uniform light distribution
- An economical alternative to wire soldering in any industrial electronics application
- Supports both manual and automated wiring systems



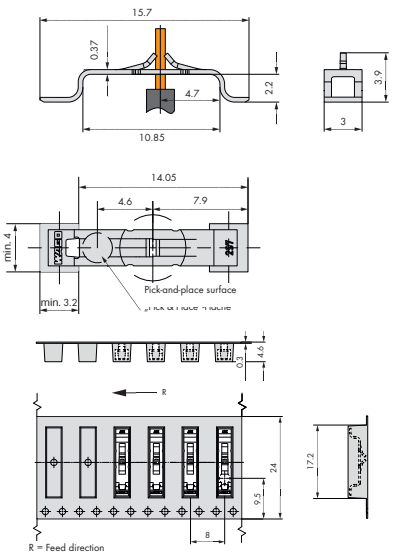
Insert solid conductors via push-in termination.



Simply twist and pull to remove conductors – no tools required.

2075 Series				
Technical Data			**Conductor Data**	
Ratings per	**IEC/EN 60664-1**		**Connection technology**	**PUSH WIRE®**
Overvoltage category	III	II	**Conductor range: solid**	0.34 … 0.75 mm²
Pollution degree	3	2		
Rated voltage*	200 V	500 V		
Rated surge voltage	4 kV	4 kV		
Rated current	9 A	9 A		
Approvals per	**UL1977**		**AWG solid**	20 … 18
Rated Voltage	600 V		**Strip length**	min. 3.65 mm / 0.14 inch
Nominal Current UL	9 A			
Nominal Current CSA	6.5 A			
Through-board Surface Mount PCB terminal blocks in tape-and-reel packaging				**Reel diameter: 330 mm**
Pole No.	**Item No.**			**Pack. Unit**
1	2075-381/997-404			18,000 (9 x 2000)

*Rated voltage for 7 mm pin spacing
Layout must meet the insulation coordination safety standards (EN/IEC 60664-1) or end device standard requirements.



NOTE: Terminal block without insulation housing!
Protection against accidental contact must be provided at voltages higher than low voltage (e.g., SELV/PELV) for the relevant application.

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