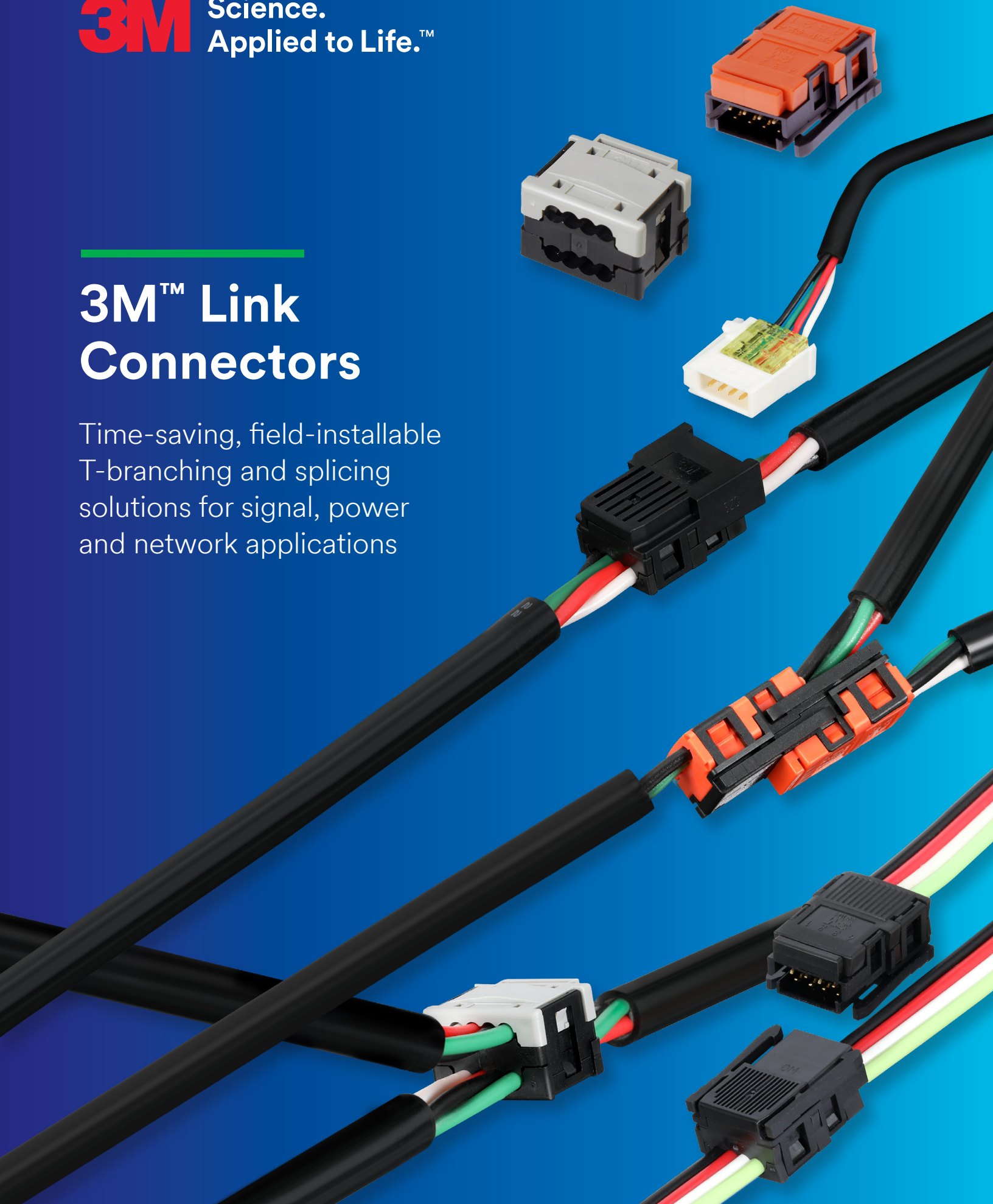


**3M** Science.  
Applied to Life.™

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# 3M™ Link Connectors

Time-saving, field-installable  
T-branching and splicing  
solutions for signal, power  
and network applications



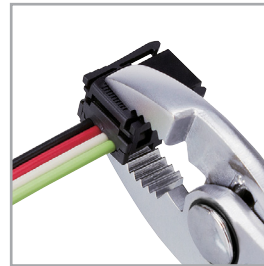
# 3M™ Link Connectors

3M™ Link Connectors offer a simple, single-action IDC termination method for T-branching, splicing off trunk lines and creating wire junctions for signal and power networks.

- Enables branched networks and splicing into an existing trunk line
- Provides a simple and efficient method to create a junction and extend a trunk line
- Allows installation of additional small devices connecting into an existing trunk line without adding separate signal and power lines direct from a terminal block or control unit
- Available in a variety of configurations to meet many different application requirements
- Supports wires 22 to 16 AWG

## Insulation Displacement Contact technology

All 3M Link Connectors feature Insulation Displacement Contact (IDC) termination technology. Invented by 3M in 1961, the IDC method allows technicians to terminate multiple wires simultaneously without wire stripping for fast, reliable installation and maintenance in the field.



Press cover with pliers  
(flat cable example)



T branching off a trunk line  
(round cable examples)

## Three ways to optimize your network

3M™ Link Connectors are available in standard detachable, one-piece (including the splash-proof IP54 option), and 3M™ Branch Mini-Clamp versions. Various 3M Link series connectors support round or flat cable, including a few options for discrete wire.



### 3M™ Link Connector 381 and 382 Series (Detachable 2-piece type)

A detachable, versatile solution for wire-to-wire network connections. It allows single-action IDC termination for T-branching and splicing of sensor and field networks. Hermaphroditic connector mates with itself and with the 3M™ Link Connector 382 Series boardmount connector.



### 3M™ One Piece Branch Link Connector 387 Series

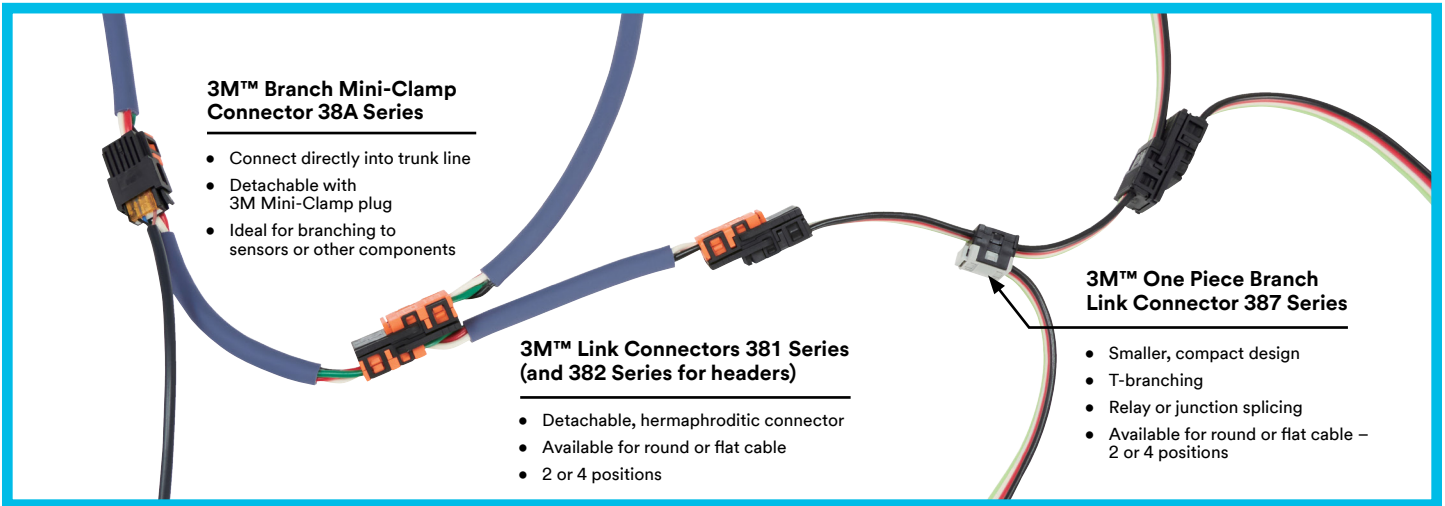
This smaller, compact connector allows for field T-branching from the main trunk line to branch wires and components, helping to eliminate separate wiring back to the terminal block or control unit. A version for tap connections is also available.



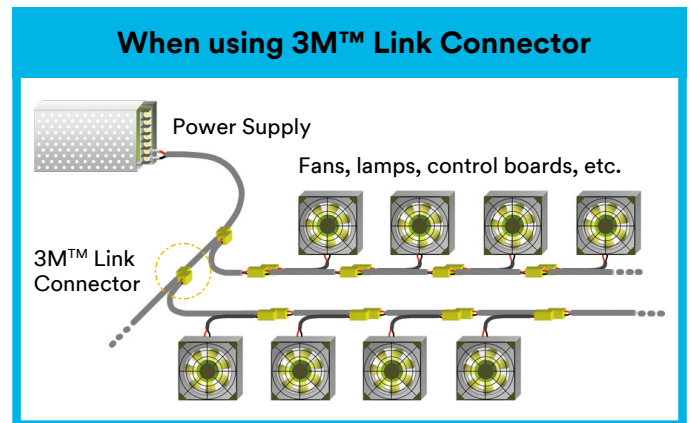
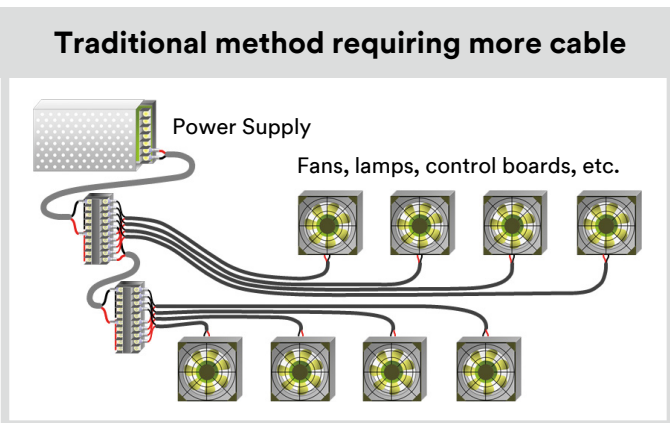
### 3M™ Branch Mini-Clamp Link Connector 38A Series

This connector works with 3M™ Mini-Clamp Connectors for branching from main bus lines to sensors or other components. The connector provides a detachable method from the T-branch connection providing additional flexibility, helping simplify designs and reduce wiring.

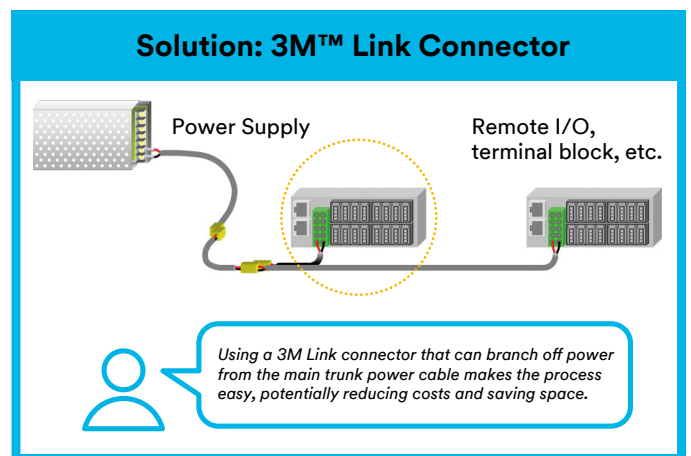
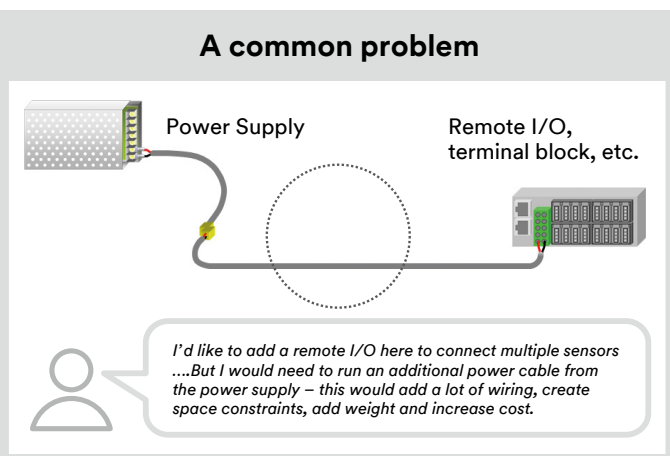
# Flexible relay, branching and splicing for optimized network layouts



Provides an option to eliminate the power distribution unit/terminal block and allows for branching directly to individual components from the power supply trunk line.



When additional equipment needs to be installed, branch wiring can be done from any position on the nearby installed cable without cutting the wire.

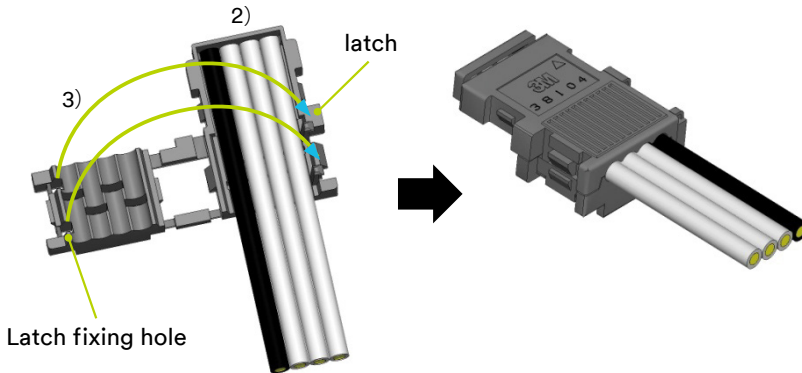


# Wiremount connector wiring procedure

## 3M™ Link Connector Series 381 for cable end processing (detachable)

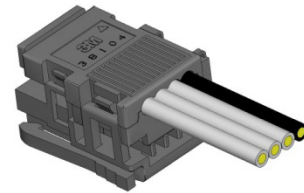
### 1 Place the wires in the cover

- 1) Check the pin numbers in the cover groove and the cable orientation.
- 2) Place the end of the cable against the insulating cap at the end of the cover.
- 3) Fold the cover in half so that it encloses the wires.
- 4) Insert the tip of the latch into the latch fixing hole and secure it in place.



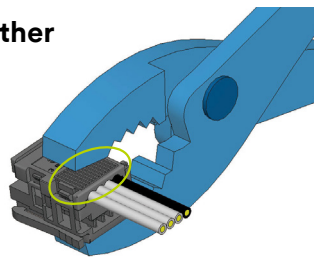
### 2 Temporarily attach to the body

Align the four latches on the body with the four grooves on the cover, and press together until the latches lock into position.



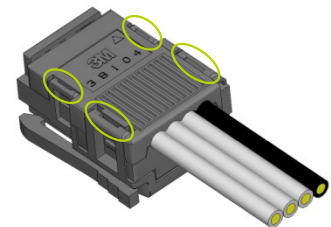
### 3 Press the connector together

Place a tool (such as pliers) on the jagged sections on the top of the cover and the back of the body, and press the cover onto the body.



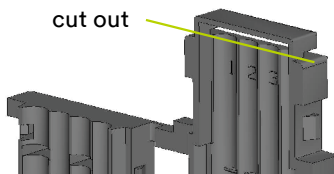
### 4 Check

Check that all four latches are engaged and the installation is complete.

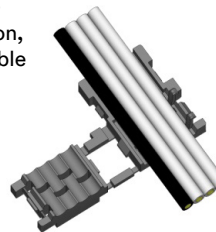


## 3M™ Link Connector Series 381 for T-branching (detachable)

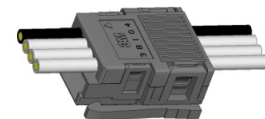
- 1 Cut off base of the insulating cap at the tip of the cover with pliers.



- 2 Check the pin number in the cover groove and the cable orientation, then set the cable in place.

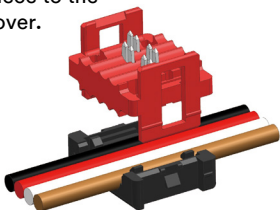


- 3 Perform the same steps for assembly of the T-branch connector as the cable end processing steps above.

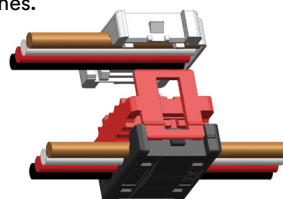


## 3M™ One Piece Branch Link Connector 387 Series

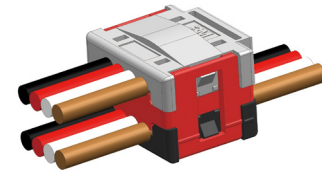
- 1 After inserting the main cable into the main cover, temporarily attach the center body piece to the main cover.



- 2 After placing the branch cable into the branch cover, attach it to the center body piece, aligning the side latches.



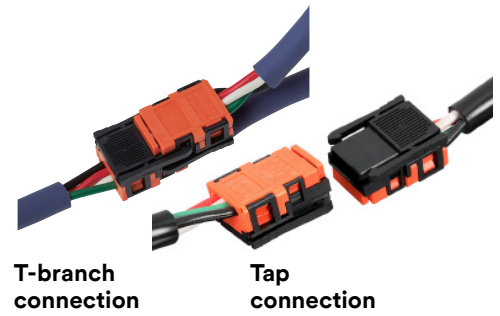
- 3 Use a pliers or the 3M one-piece assembly tool to press the connector pieces together. Check that the latches are engaged to verify the assembly is complete.



## 3M™ Link Connector 381 Series

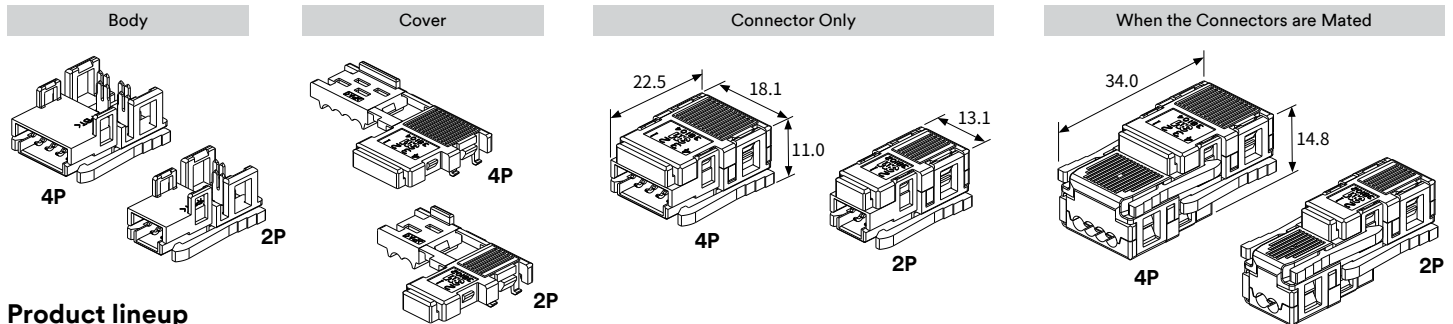
Wiremount, two-piece branch type, hermaphroditic connector, 2 position or 4 positions: 3810x-x0xx-x00 FL

- No special tools are required; see page 4 for details
- Compatible with wire size 22-16 AWG round cable and 20-16 AWG 2.54 mm pitch flat cable
- The same connectors can be used to connect either a T-branch off a trunk line or relay type connection, simplifying inventory requirements for multiple applications
- For mass production, contact your 3M sales representative for special tool options
- Compatible with the 3M™ Link Connector 382 Series boardmount



<b>Applicable connectors</b>	Connector	3M™ Link Connector 381 Series 3810x-x0xx-x00 FL 3M™ Link Connector 382 Series 3820x-x2S3-000 FL
	Cable	According to the compatible wire table
<b>Item</b>	Project	Specifications
	Voltage	AC/DC 160V or less
	Temperature	Maximum 5.0A
	Operating temperature range	-20-70° C

### Parts



### Product lineup

#### Round cable compatible products

3M™ Link Connector 381 Series Part Number	Positions	Cable Type	Compatible Wires		Wire Shape Finished Outer Diameter (mm)	Connector Color	
			Conductor Size			Body Color	Cover Color
			AWG No.	Nominal Cross-Sectional Area (mm)			
38102-F020-H00 FL	2	Round cable	20	0.50	1.8-2.1	Gray	Yellow
38102-W022-W00 FL	2	Round cable	22	0.30	1.4-1.7	White	Pink
38104-E016-L00 FL	4	Round cable	16	1.25	2.1-2.4	Red	Orange
38104-E018-E00 FL	4	Round cable	18	0.75	2.1-2.4	Black	Orange
38104-F018-F00 FL	4	Round cable	18	0.75	1.8-2.1	Black	Yellow
38104-E020-G00 FL	4	Round cable	20	0.50	2.1-2.4	Gray	Orange
38104-F020-H00 FL	4	Round cable	20	0.50	1.8-2.1	Gray	Yellow
38104-F022-N00 FL	4	Round cable	22	0.30	1.8-2.1	White	Yellow
38104-W022-W00 FL	4	Round cable	22	0.30	1.4-1.8	White	Pink
38104-H022-K00 FL	4	Round cable	22	0.30	1.1-1.4	White	White



#### Flat cable compatible products

3M™ Link Connector 381 Series Part Number	Positions	Cable Type	Compatible Wires		Wire Shape Finished Outer Diameter (mm)	Connector Color	
			Conductor Size			Body Color	Cover Color
			AWG No.	Nominal Cross-Sectional Area (mm)			
38102-0016-200 FL	2	Flat Cable	16	1.25	2.54-2.54	Red	Black
38102-0018-000 FL	2	Flat Cable	18	0.75	2.54-2.54	Black	Black
38104-0016-200 FL	4	Flat Cable	16	1.25	2.54-2.54	Red	Black
38104-0018-000 FL	4	Flat Cable	18	0.75	2.54-2.54	Black	Black
38104-0020-100 FL	4	Flat Cable	20	0.50	2.54-2.54	Gray	Black



# 3M™ Link Connector 382 Series

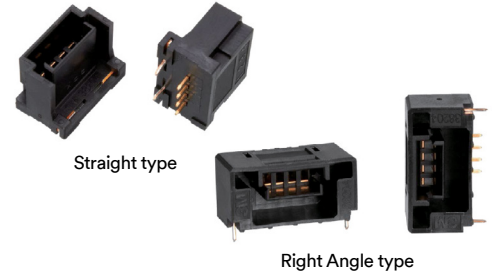
Boardmount connector, 2 or 4 positions:

(The x in the model number indicates the number of positions (2 or 4))

3820x-62S3-000 PL: Straight type

3820x-52S3-000 PL: Right angle type

- Boardmount connector for input/output devices that enables easy system installation
- Compact design saves space
- Board fixing pins allow temporary fixing to the board during soldering
- Accepts latch mechanism of 3M™ Link Connector 381 Series – latching provides a secure connection



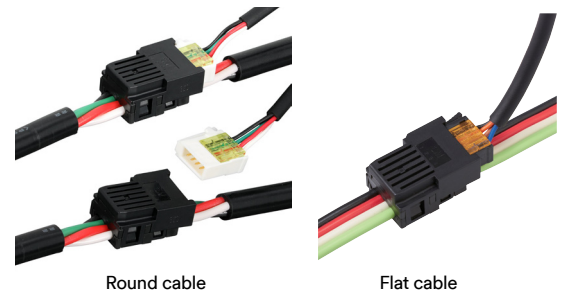
<b>Compatible with</b>	Cable	3M™ Link Connector 3810x-x0xx-x00 FL		
<b>Item</b>	Project	Voltage	Current	Operation Temperature Range
	Specification	AC/DC 160V or below	Maximum 5.0A	

Product	External Dimensions	Recommended Through Hole Pattern												
38202-62S3-000 PL		<table border="1"> <thead> <tr> <th>Board Thickness</th> <th>DIM. A</th> <th>DIM. B</th> </tr> </thead> <tbody> <tr> <td>1.0mm</td> <td>4.90</td> <td>(1.20)</td> </tr> <tr> <td>1.6mm</td> <td>5.10</td> <td>(1.00)</td> </tr> </tbody> </table>	Board Thickness	DIM. A	DIM. B	1.0mm	4.90	(1.20)	1.6mm	5.10	(1.00)			
Board Thickness	DIM. A	DIM. B												
1.0mm	4.90	(1.20)												
1.6mm	5.10	(1.00)												
38204-62S3-000 PL		<table border="1"> <thead> <tr> <th>Board Thickness</th> <th>DIM. A</th> <th>DIM. B</th> <th>DIM. C</th> </tr> </thead> <tbody> <tr> <td>1.0mm</td> <td>8.40</td> <td>0.84</td> <td>(4.45)</td> </tr> <tr> <td>1.6mm</td> <td>8.00</td> <td>0.64</td> <td>(4.65)</td> </tr> </tbody> </table>	Board Thickness	DIM. A	DIM. B	DIM. C	1.0mm	8.40	0.84	(4.45)	1.6mm	8.00	0.64	(4.65)
Board Thickness	DIM. A	DIM. B	DIM. C											
1.0mm	8.40	0.84	(4.45)											
1.6mm	8.00	0.64	(4.65)											
38202-52S3-000 PL		<table border="1"> <thead> <tr> <th>Board Thickness</th> <th>DIM. A</th> <th>DIM. B</th> </tr> </thead> <tbody> <tr> <td>1.0mm</td> <td>10.15</td> <td>(3.60)</td> </tr> <tr> <td>1.6mm</td> <td>10.35</td> <td>(3.40)</td> </tr> </tbody> </table>	Board Thickness	DIM. A	DIM. B	1.0mm	10.15	(3.60)	1.6mm	10.35	(3.40)			
Board Thickness	DIM. A	DIM. B												
1.0mm	10.15	(3.60)												
1.6mm	10.35	(3.40)												
38204-52S3-000 PL		<table border="1"> <thead> <tr> <th>Board Thickness</th> <th>DIM. A</th> <th>DIM. B</th> </tr> </thead> <tbody> <tr> <td>1.0mm</td> <td>10.15</td> <td>(3.60)</td> </tr> <tr> <td>1.6mm</td> <td>10.35</td> <td>(3.40)</td> </tr> </tbody> </table>	Board Thickness	DIM. A	DIM. B	1.0mm	10.15	(3.60)	1.6mm	10.35	(3.40)			
Board Thickness	DIM. A	DIM. B												
1.0mm	10.15	(3.60)												
1.6mm	10.35	(3.40)												

## 3M™ Branch Mini-Clamp Link Connector 38A Series

Wiremount connector branch type 4 positions: 38A04-x0xx-x00 FL

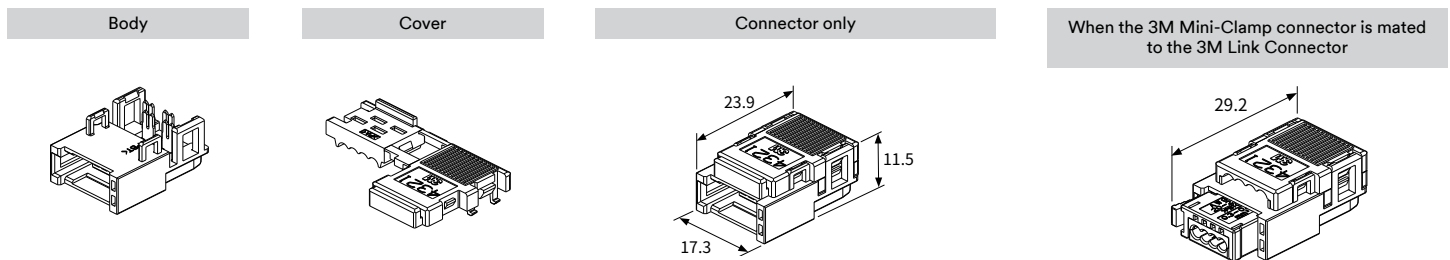
- No special tools are required; simply place the wires in the cover and press the cover into the body with pliers
- Enables branching from main bus line using the versatile 3 or 4 position 3M™ Mini-Clamp Connector Plug
- Compatible with main bus trunk line wire sizes 20-18 AWG for round cable and 20-16 AWG for 2.54mm pitch flat cables
- 3M Mini-Clamp plug can support branching with wires as small as 30 AWG



Compatible With	Connector	3M™ Mini-Clamp III Wiremount Plug 37A Series 3M™ Mini-Clamp Wiremount Plug 371 Series
	Cable	According to the compatible wire table
Item	Project	Specifications
	Voltage	AC/DC 32V or less
	Amperage	Maximum 3.0A
	Operating temperature range	-20 to 85°C (1A current) / -20 to 75°C (2A current) / -20 to 60°C (3A current) *No condensation or water droplets

### Parts

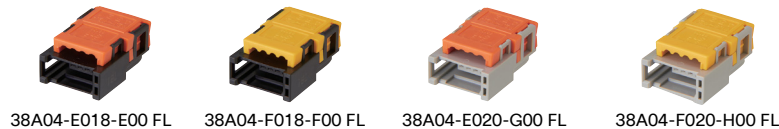
### External Dimensions (mm)



### Product lineup

#### Round cable compatible products

3M™ Branch Mini-Clamp Link Connector 38A Series Part Number	Positions	Cable Type	Compatible Wires			Connector Color	
			Conductor Size		Wire Shape Finished Outer Diameter (mm)	Body Color	Cover Color
			AWG No.	Nominal Cross-Sectional Area (mm)			
38A04-E018-E00 FL	4	Round Cable	18	0.75	2.1-2.4	Black	Orange
38A04-F018-F00 FL	4	Round Cable	18	0.75	1.8-2.1	Black	Yellow
38A04-E020-G00 FL	4	Round Cable	20	0.50	2.1-2.4	Gray	Orange
38A04-F020-H00 FL	4	Round Cable	20	0.50	1.8-2.1	Gray	Yellow



#### Flat cable compatible products

3M™ Branch Mini-Clamp Link Connector 38A Series Part Number	Positions	Cable Type	Compatible Wires			Connector Color	
			Conductor Size		Wire Shape Finished Outer Diameter (mm)	Body Color	Cover Color
			AWG No.	Nominal Cross-Sectional Area (mm)			
38A04-0016-200 FL	4	Flat Cable	16	1.25	2.54	Red	Black
38A04-0018-000 FL	4	Flat Cable	18	0.75	2.54	Black	Black
38A04-0020-100 FL	4	Flat Cable	20	0.50	2.54	Red	Black



## 3M™ One Piece Branch Link Connector 387 Series

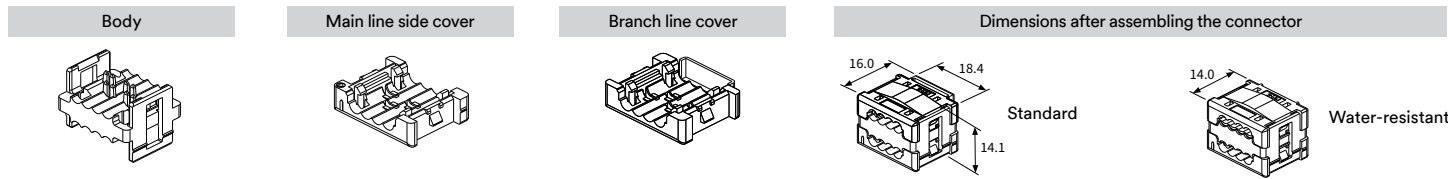
Wiremount one piece branching type connector, 4 positions: 38704-xxxx0

- No special tools are required; see page 4 for details
- Compatible with wire size 22-16 AWG round cable and 2.54 mm pitch flat cables used in various signal applications.
- Smaller size compared with two-piece branch connectors.

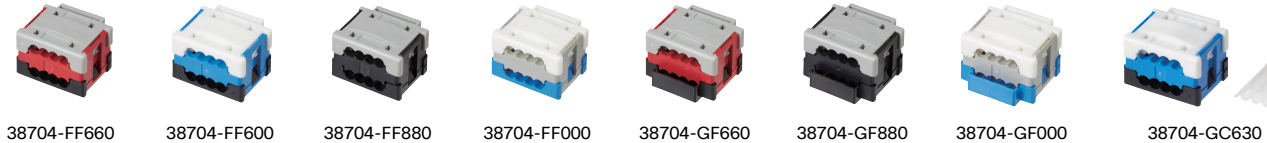


<b>Compatible With</b>	Cable	2.54 mm pitch flat cable AWG#16 (1.25 mm <sup>2</sup> ) to AWG#20 (0.5 mm <sup>2</sup> ) Insulation outer diameter 2.54 mm *Please contact a 3M representative for details		
<b>Item</b>	Project	Voltage	Current	Operation temperature Range
	Specification	AC/DC 32V or below	Maximum 7.0A	-20 to 75°C

### Parts



3M™ One Piece Link Connector 387 Part Number	Positions	Type	Cable Type	Compatible Wires				Wire Shape Finished Outer Diameter and Pitch (mm)	Connector Color		
				Main Line Side Conductor Size		Branch Line Side Conductor Size			Main line Side Cover Color	Body Color	Branch Line Cover Color
				AWG No.	Nominal Cross-Sectional Area (mm <sup>2</sup> )	AWG No.	Nominal Cross-Sectional Area (mm <sup>2</sup> )				
38704-FF660	4	Branching	Flat Cable	16	1.25	16	1.25	2.5-2.54	Black	Red	Gray
38704-FF600	4	Branching	Flat Cable	16	1.25	20	0.50	2.5-2.54	Black	Blue	White
38704-FF880	4	Branching	Flat Cable	18	0.75	18	0.75	2.5-2.54	Black	Black	Gray
38704-FF000	4	Branching	Flat Cable	20	0.50	20	0.50	2.5-2.54	Blue	Gray	White
38704-GF660	4	Relaying	Flat Cable	16	1.25	16	1.25	2.5-2.54	Black	Red	Gray
38704-GF880	4	Relaying	Flat Cable	18	0.75	18	0.75	2.5-2.54	Black	Black	Gray
38704-GF000	4	Relaying	Flat Cable	20	0.50	20	0.50	2.5-2.54	Blue	Gray	White
38704-GC630	4	Branching	Discrete	16	1.25	23	0.30	2.5-2.54	Black	Blue	White



## 3M™ Splash-proof One Piece Branch Link 387 Series

Wiremount, one-piece branch type, 4-position, splash-proof (IP54): 38704-PA-C

- The butyl rubber sheet inside the connector and the grease-filled cable cap provide insulation protection without compromising space
- Cable caps (38700-C01) are also available for relay applications
- When pressing the cover into the body, be sure to use the dedicated tool 3M™ IDC Assembly Hand Tool 38900-10



<b>Compatible With</b>	Cable	According to the compatible wire table.		
<b>Item</b>	Project	Voltage	Current	Operation Temperature Range
	Specification	AC/DC 32V or below	Maximum 7.0A, but maximum 5.0A when using AWG23 cable	-25 to 55°C

3M™ Water-Resistant Boot 378 Series Part Number	Positions	Type	Cable Type	Compatible Wires				Wire Shape Finished Outer Diameter (mm)	Connector Color		
				Main Line Side Conductor Size		Branch Line Side Conductor Size			Main Line Side Cover Color	Body Color	Branch Line Cover Color
				AWG No.	Nominal Cross-Sectional Area (mm <sup>2</sup> )	AWG No.	Nominal Cross-Sectional Area (mm <sup>2</sup> )				
38704-FF660-PA-C	4	Branching	Flat Cable	16	1.25	16	1.25	2.5-2.54	Black	Red	Gray
38704-FF880-PA-C	4	Branching	Flat Cable	18	0.75	18	0.75	2.5-2.54	Black	Black	Gray
38704-FF000-PA-C	4	Branching	Flat Cable	20	0.50	20	0.50	2.5-2.54	Blue	Gray	White
38704-FF600-PA-C	4	Relaying	Flat Cable	16	1.25	20	0.50	2.5-2.54	Black	Blue	White
38704-FC630-PA	4	Branching	Discrete	16	1.25	23	0.30	2.5-2.54	Black	Blue	White



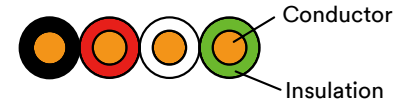
## Cable Product Line-up

### 3M™ Link Connector Compatible Flat Cable: 79100-075-4F1

- Compatible with 3M Link 381, 38A and 387 Series connectors - see connector compatibility tables for details
- 2.54 mm pitch flat cable
- Individual conductor size area: 0.75mm<sup>2</sup>×4
- Uses heat-resistant vinyl compound



Configuration

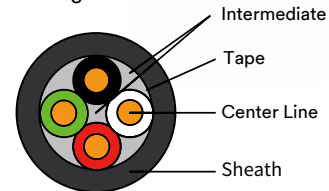


### 3M™ CC-Link/Local Type round cable: 79100-075-4ZLT

- CC-Link/Local Type (LT) compatible product
- Round cable supports flex movement
- Inside conductor size area: 0.75mm<sup>2</sup> x 4
- Outer sheath material made from a vinyl compound with excellent oil and heat resistance



Configuration



## Tools

### 3M™ One-piece Branch Type IDC Assembly Hand Tool: 38900-10

- Designed specifically for 3M Link Connector 387 Series connectors
- Ratchet mechanism provides reliable IDC assembly
- Required for assembly of the one-piece branch splash-proof type connector (38704-PA)



### 3M™ Mini-Clamp IDC Assembly Hand Tool: 37900-10

- Designed specifically for 3M Mini-Clamp IDC Connectors
- Delivers ideal clamping force for 3M IDC connector assembly
- Ergonomical handles help reduce fatigue



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**Safety Data Sheet:** Consult Safety Data Sheet before use.

**Regulatory:** For regulatory information about this product, contact your 3M representative.

**Technical Information:** The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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