



3M™ Mini-Clamp, Link, and Power Clamp Connectors 2020

3M Electronics Materials Solutions

Forging connections.



3M's Mini-Clamp, Link, and Power Clamp Connectors feature insulation displacement contact (IDC) termination and offer a **time-saving, reliable, and field-installable wiring solution.**



3M™ Mini-Clamp Connectors

28 to 20AWG wire

32V, 3.0A max

Common applications: Connect to equipment (e.g. sensors, switches)



3M™ Link Connector Series

22 to 16AWG wire

160V, 5.0A max

Common applications: Branching and splicing into existing network



3M™ Power Clamp Connectors

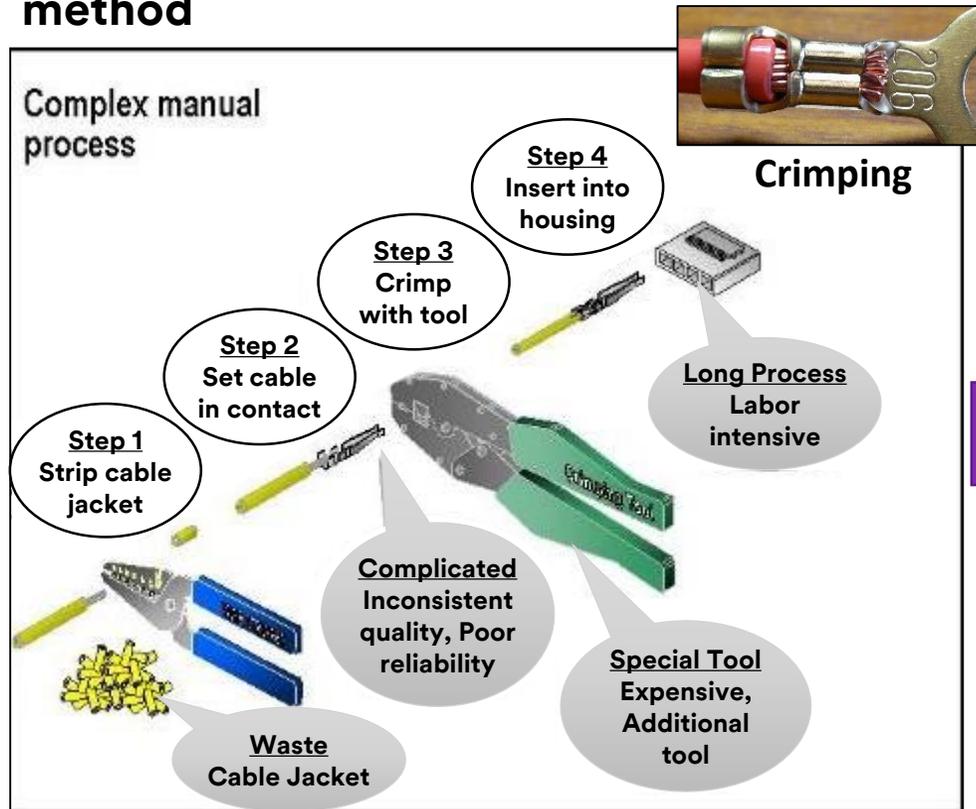
20 to 18AWG wire

250V, 6-10A max

Common applications: Field networking systems

Insulation Displacement Contact (IDC) Benefit

Traditional crimping connection method

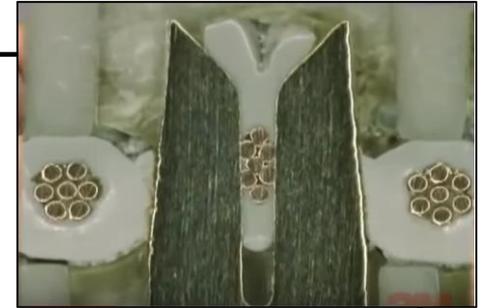


IDC benefit

*I*nsulation
*D*isplacement
*C*ontact

Easy Termination. No special tools.

- Time-saving
- Reliable connection
- Waste reduction



3M Mini-Clamp Series



3M Link Series



3M Power Clamp Series



3M™ Mini-Clamp Connectors



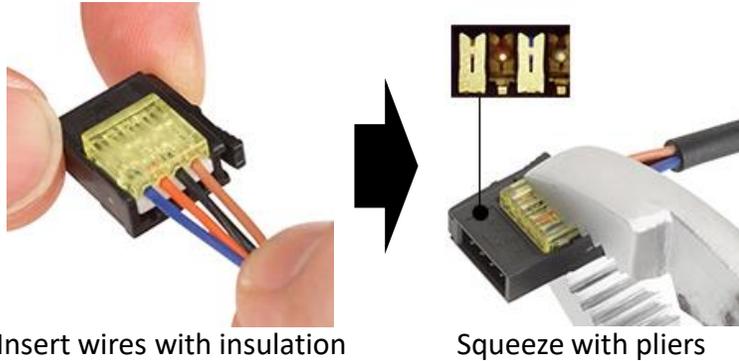
IP67



3M™ Mini-Clamp Connector

Simple termination process for fast, reliable installation and maintenance

- Minimize risk of conductor damage with no wire stripping.
- Stable termination quality with IDC increases reliability of sensor wiring.
- Supports wires 28 to 20AWG; 32V, 3.0A max

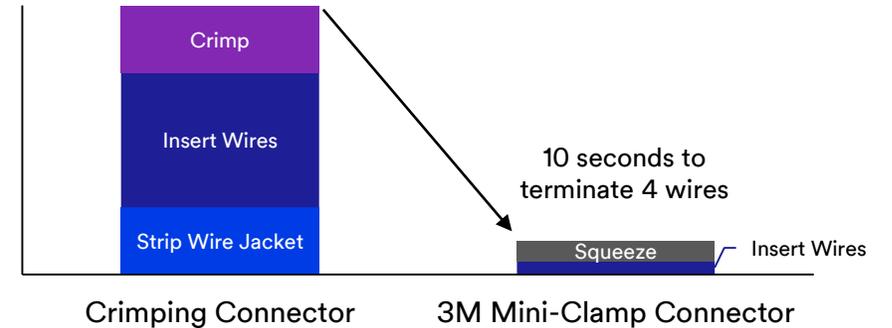


Insert wires with insulation

Squeeze with pliers

Optimize network layout with field-installability

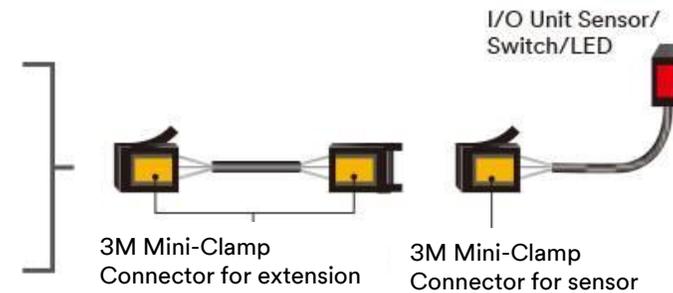
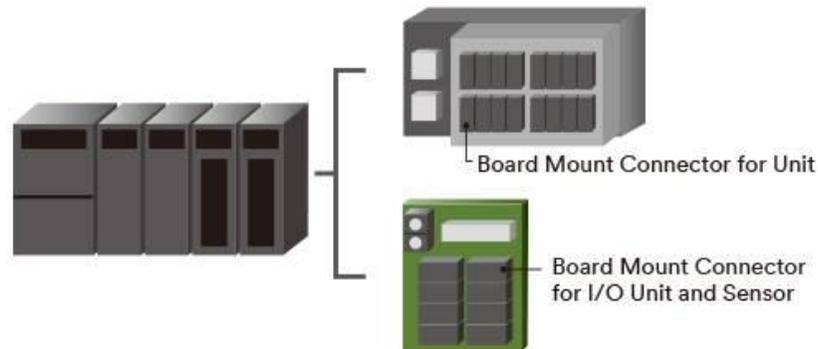
- Easily connect to pig-tail wired sensors.
- Field termination allows for optimal cable lengths to save space and wire efficiently.



Crimping Connector

3M Mini-Clamp Connector

Application Example

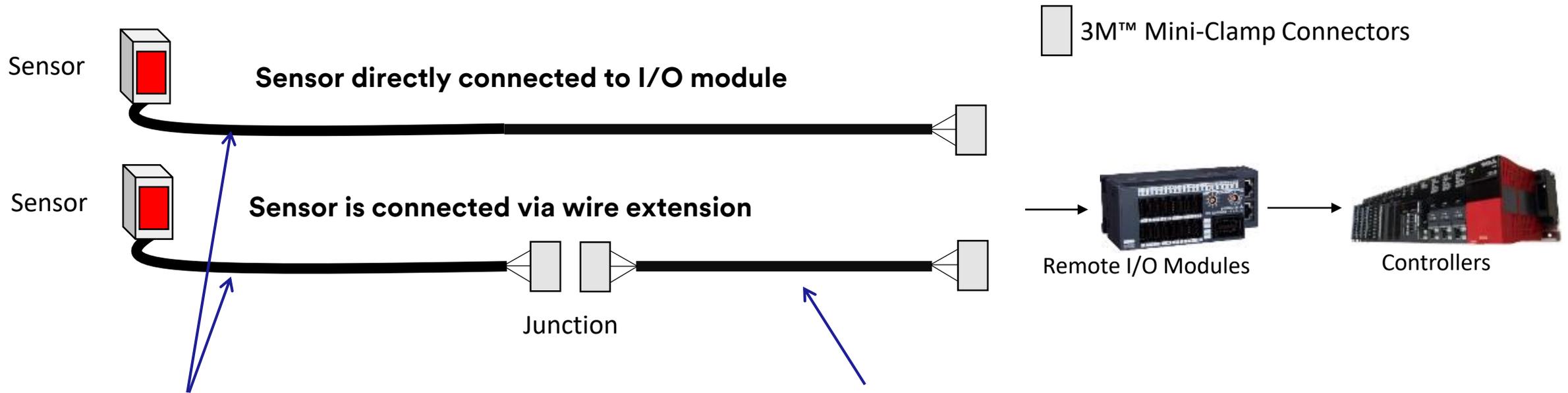


3M™ Mini-Clamp Connector - Installation

See the simple installation process



3M provides reliable solutions designed to quickly connect sensors to your network



Sensor side wiring

- Sensors are placed in process first
- 3M Mini-Clamp allows manufacturer to easily terminate sensors in field:
 - Optimize cable length from sensor to network
 - Easier, faster sensor replacement in field

Extension wiring

- Provides ability to extend cables to controllers
- Allows main assembly harness to be outsourced and connectorization to pig-tailed sensors in field

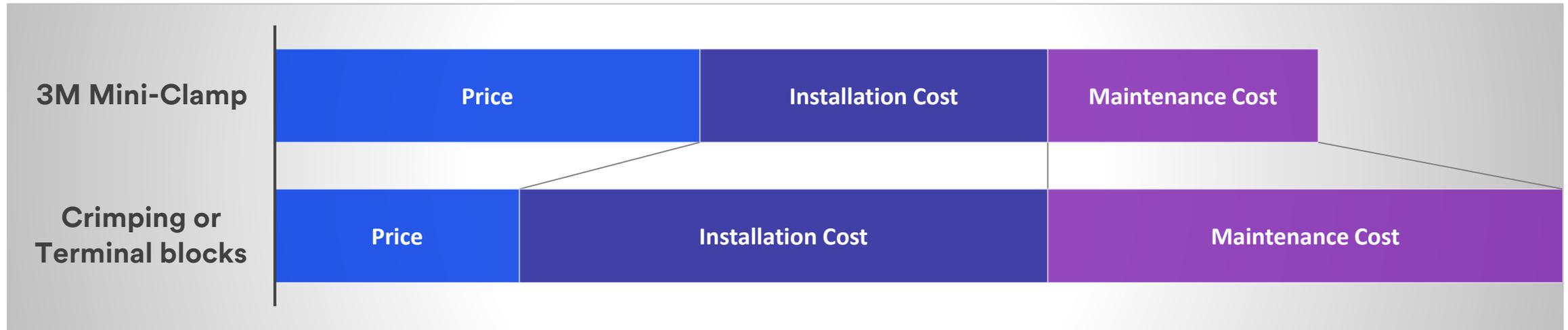
3M™ Mini-Clamp Connectors can provide an overall cost-saving solution

Installation

- Faster, simpler, and more reliable
- Supports various cable lengths
- No skilled workers or special tools required

Maintenance

- Ability to replace sensors in field
- No need to bring in contacts and housing



3M™ Water-Resistant Boot, 378 Series



IP67

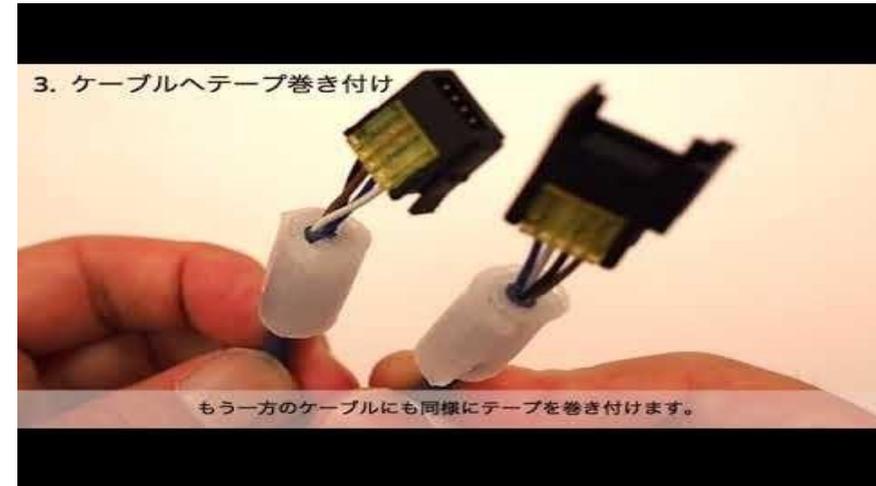
Key Features & Benefits:

- IP67 protection provides:
 - Full protection against dust and other particulates
 - Water resistance (full immersion for up to 30 minutes at 1 meter depth)
- Field-installable with simple process and no special tools
- Works for wide range of cable bundle diameters: $\varnothing 2.5\text{--}6.0\text{mm}$

Simple Installation Process



[See the simple installation process:](#)



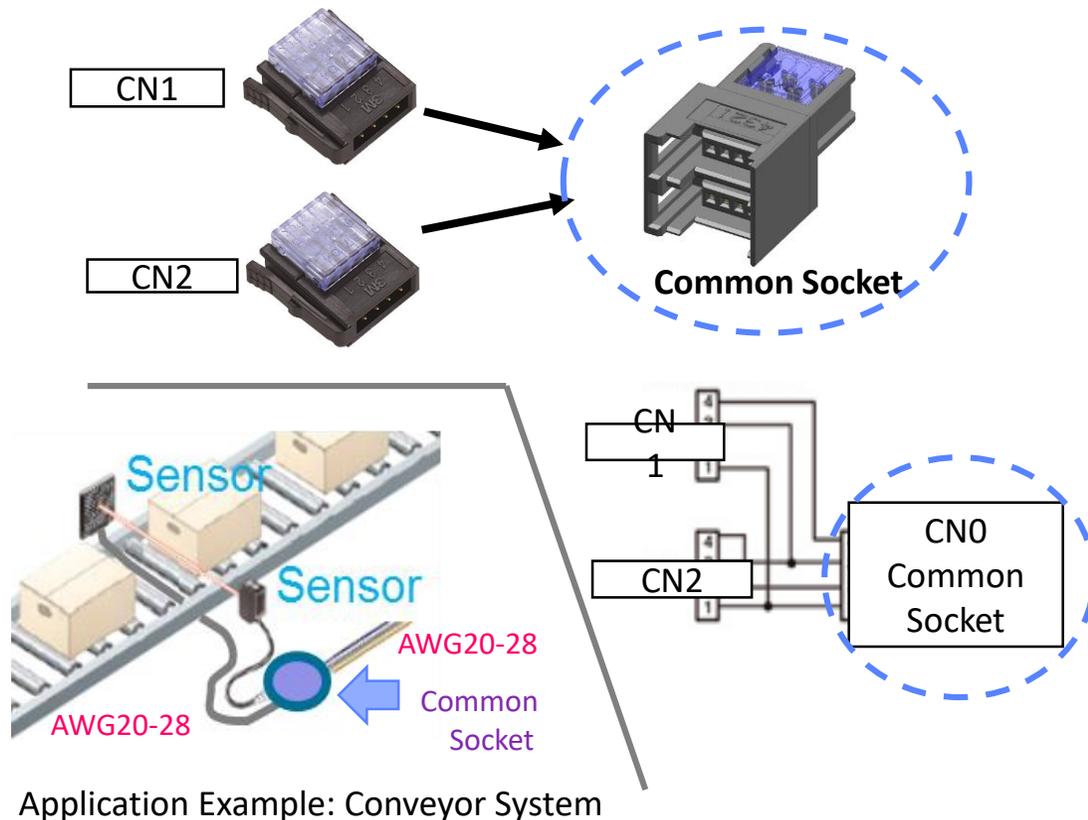
3M™ Mini-Clamp Connector Inside

3M™ Mini-Clamp Common Socket

3M™ Mini-Clamp Common Socket

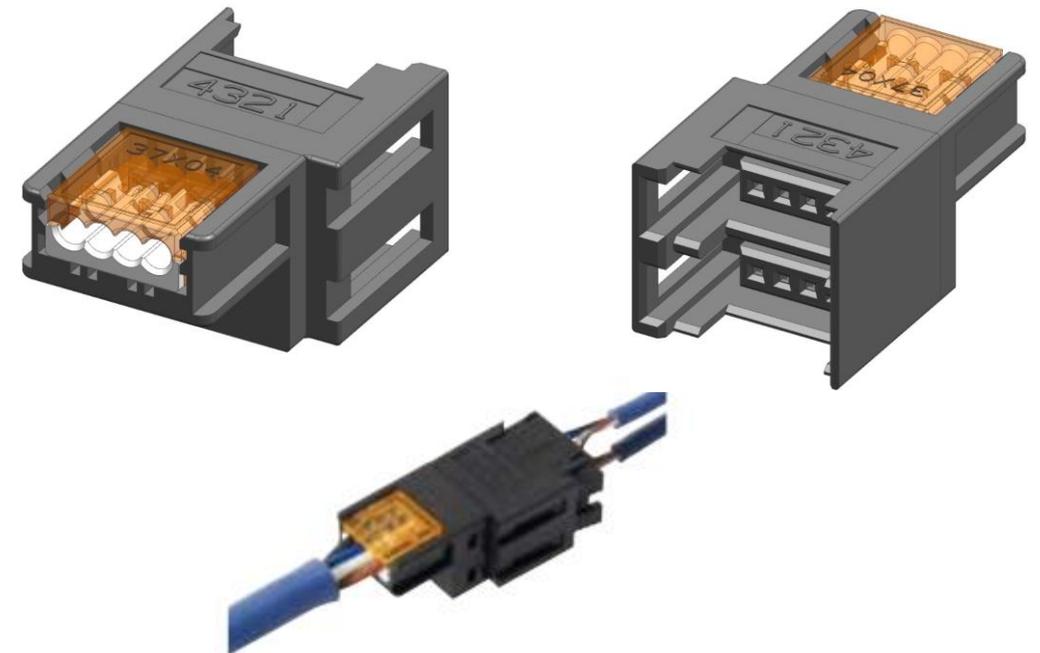
Power & Signal splitting on sensor wiring

Sensor line to dual sensor lines



Similar to the 3M standard 3M™ Mini-Clamp Connector, the 3M Mini-Clamp Common Socket:

- Provides simple, reliable, time-saving installation
- Allows networks to be optimized:
 - Reducing material
 - Making field installation and maintenance simpler
 - Ensuring robust network



3M™ Mini-Clamp Connector – Product Portfolio Offering

Additional product offerings not shown: Boardmount sockets, 6 and 8 position plugs and sockets for 26-20AWG

Size of Conductor	Wire Jacketing Outside Diameter	Wiremount Plug y: # of positions (3, 4, 6, 8)	Wiremount Socket x: 0=Standard, P=Panel Mount y: # of positions (3, 4, 6, 8)	Common Socket Connector x: 0=Standard, P=Panel Mount	Body Color	Cover Color
						
AWG28-26 (0.08 - 0.14mm ²)	Ø0.6 - 0.8mm	3710y-4080-G00 FL	----	----	Grey	Purple
	Ø0.8 - 1.0mm	3710y-4101-G00 FL	----	----		Red
AWG26-24 (0.14 - 0.3mm ²)	Ø0.6 - 0.8mm	3710y-3080-000 FL	----	----	Black	Purple
	Ø0.8 - 1.0mm	3710y-3101-000 FL	3730y-3101-0x0 FL	37C04-3101-0x0 FL		Red
	Ø1.0 - 1.2mm	3710y-3122-000 FL	3730y-3122-0x0 FL	37C04-3122-0x0 FL		Yellow
Ø1.2 - 1.6mm	3710y-3163-000 FL	3730y-3163-0x0 FL	37C04-3163-0x0 FL	Orange		
AWG22-20 (0.3 - 0.5mm ²)	Ø1.0 - 1.2mm	3710y-2124-000 FL	3730y-2124-0x0 FL	37C04-2124-0x0 FL		Green
	Ø1.2 - 1.6mm	3710y-2165-000 FL	3730y-2165-0x0 FL	37C04-2165-0x0 FL		Blue
	Ø1.6 - 2.0mm	3710y-2206-000 FL	3730y-2206-0x0 FL	37C04-2206-0x0 FL	Grey	

* Locating post position options: A = Asymmetric, B = Symmetric, 2 = None

Related Accessories:

3M™ Water-Resistant Boot,
378 Series



3M Mini-Clamp
Dust Covers
37803-1000-00
37804-1000-00

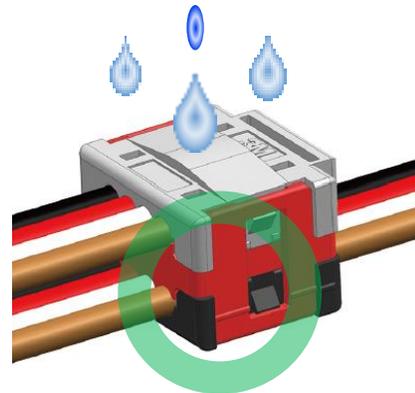


3M Mini-Clamp
Crimping Tool
37900-10





3M™ Link Connector Series



3M™ Link Connector

Enables branched networks and splicing into existing network

- Provides networking efficiency by optimizing signal and power line routing to terminal
- Allows installation of additional small devices without adding signal and power lines from controller.
- Supports wires 22 to 16AWG; 160V, 5.0A max.

Simple Installation



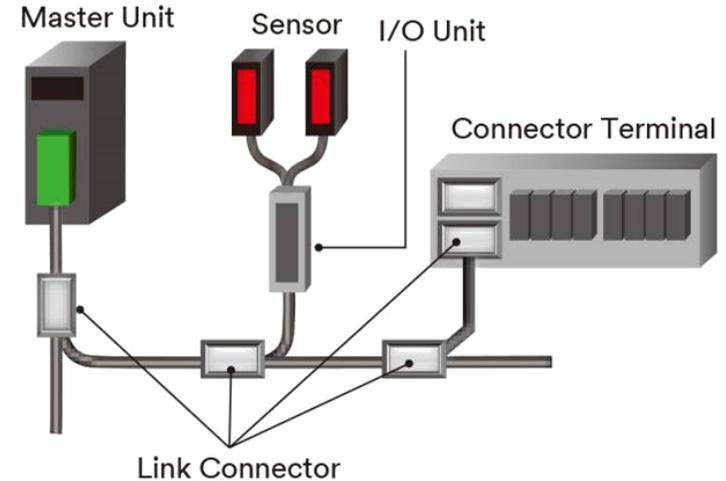
Just insert wires with insulation and squeeze with a pair of pliers



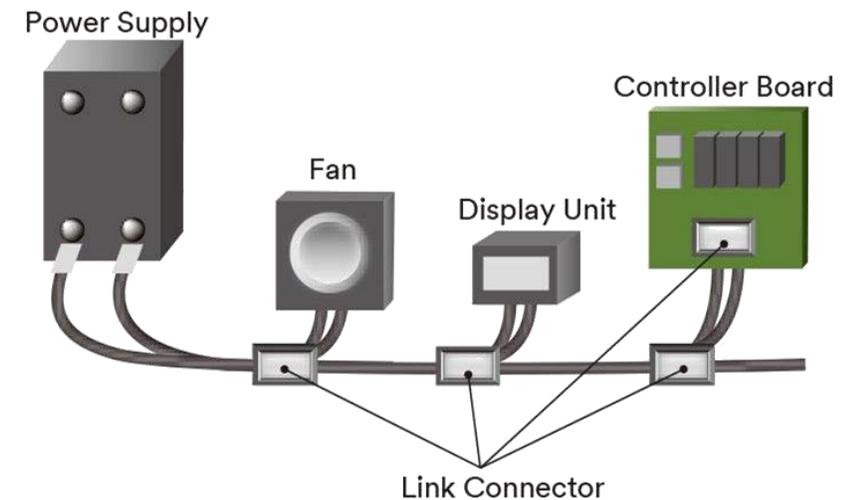
T branch by connector

Application Examples

Serial Sensor Network



Power Supply



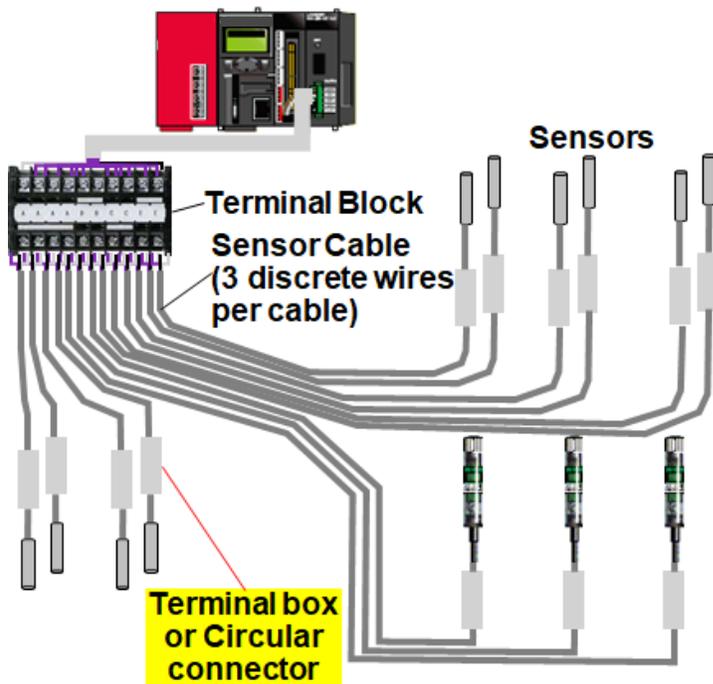
3M™ Link Connector - Application & Value Proposition

Total system cost reduction

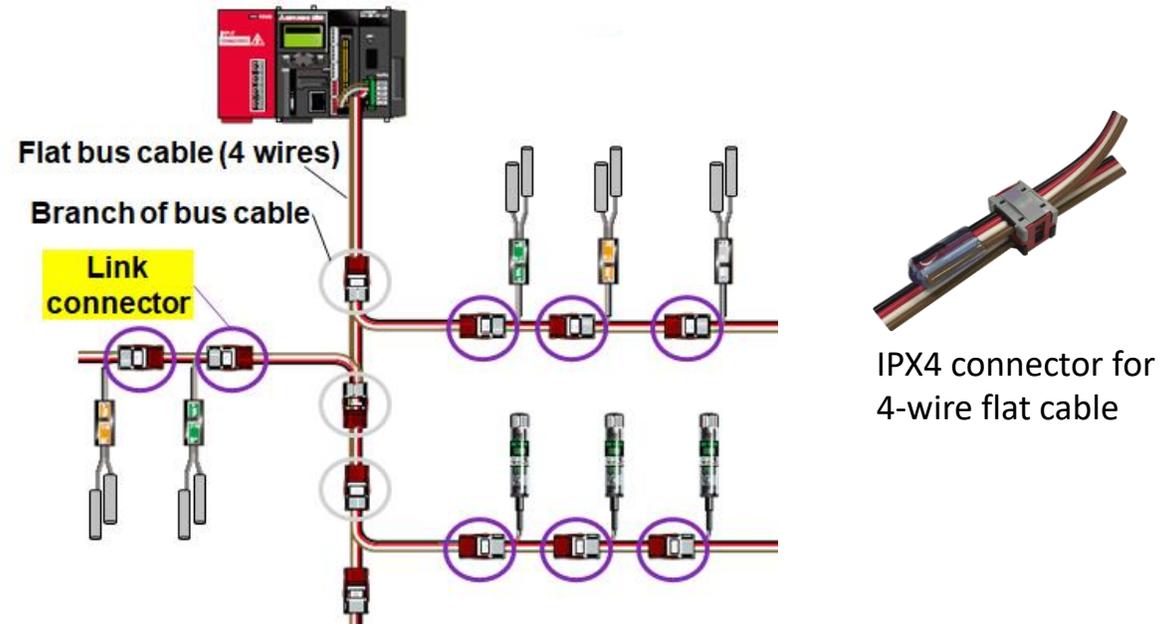
Connector assembly time reduction

Connector component cost reduction*

Current situation:
Parallel connection



With 3M Link Connectors:
Serial connection

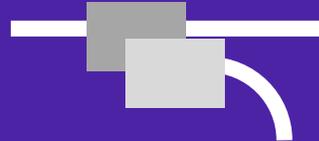


3M™ Link Connector – Simple Termination Process

Connection Options:



Line Extension
A to A



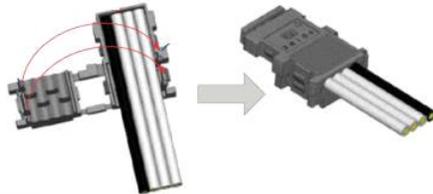
T-tab Branching
A to B



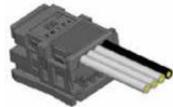
H-tab Branching
B to B

A: For line extension or T-tab branching application

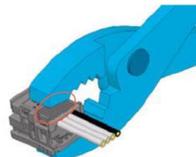
1. Set cable in connector and latch



2. Attach to the body

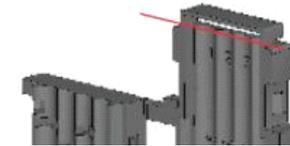


3. Squeeze with pliers to secure



B: For branching application

1. Cut cable, if needed (e.g. T-tab)



2. Set cable in connector



3. Latch and attach to body



4. Squeeze with pliers to secure

3M™ Link Connector Portfolio Offering

3M™ Link Connectors, 381 and 382 Series (Detachable 2-piece type)

- Existing offering
- Removable



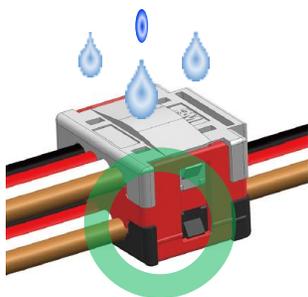
3M™ One Piece Branch (OPB) Link Connector

- Small size
- Less parts in field

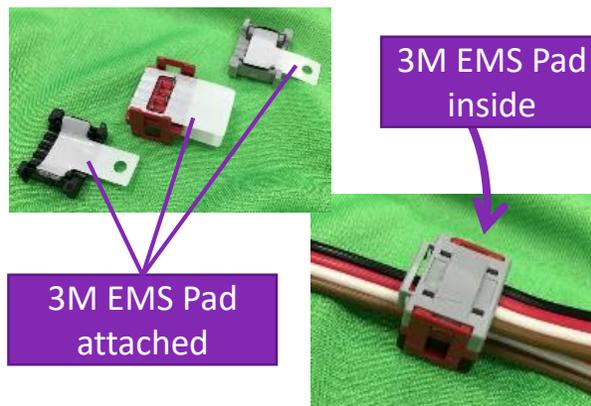


3M™ Splash-proof One Piece Branch (OPB) Link Connector

- IPX4 water protection rating



3M™ Electrical Moisture Sealing (EMS) technology enables IPX4 rating



3M™ Branch Mini-Clamp Link Connector

- Junction connector for branch to sensor
- Provides direct connection of 3M Link Connector to 3M Mini-Clamp Connector (system line to sensor line)



3M™ Link Connectors, 381 and 382 Series

Detachable 2-piece, 2-position connectors

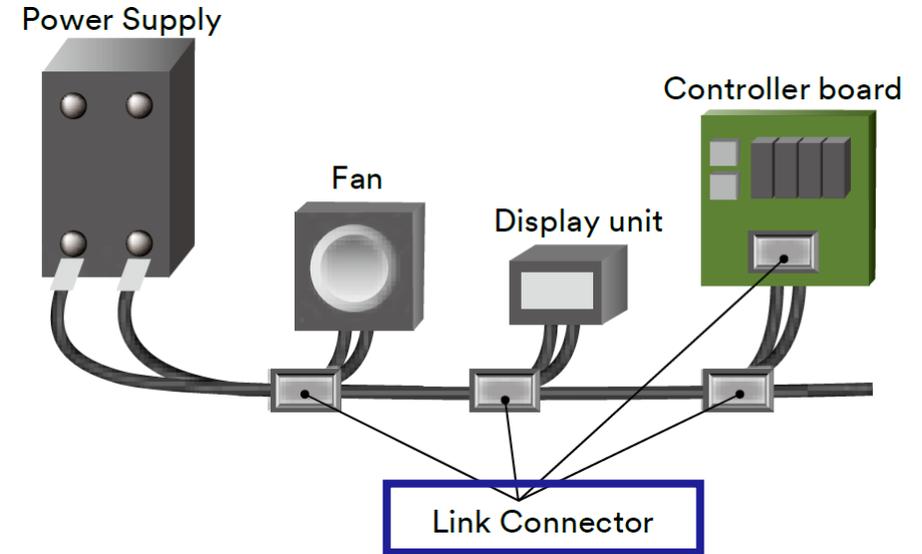
Product Overview

- Hermaphroditic structure
- Enables branching in field
- Compact connectivity
- No special tools required for assembly

Application Examples:

- Field bus connectivity
- Wire saving systems
- Picking systems

Application Example - Power Supply



Available Products

Detachable 2-Piece Link Connector also available in 4 position option

Wiremount



AWG#18



AWG#20



AWG#22

Boardmount



Straight



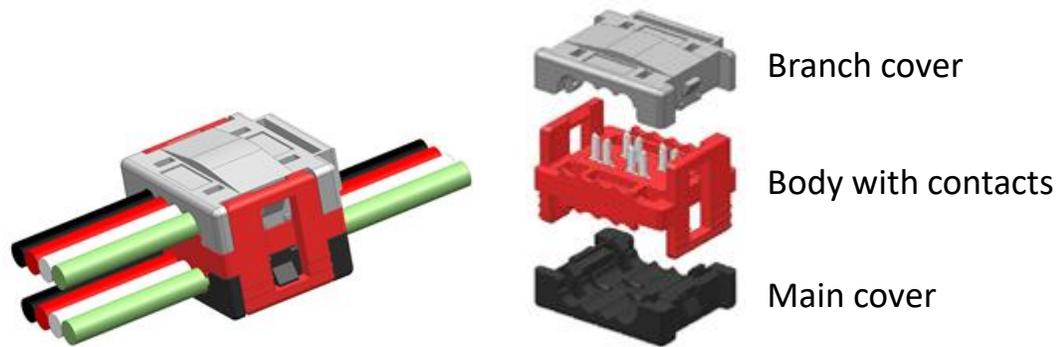
Right Angle

Mounting Location	Configuration	Part Number	Tech Sheet
Wiremount	W/M CONN FOR 18AWG	38102-0018-000 FL	TS-2098
	W/M CONN FOR 20 AWG	38102-F020-H00 FL	TS-2098
	W/M CONN FOR 22 AWG	38102-W022-W00 FL	TS-2098
Boardmount	2P BM STRAIGHT BLACK	38202-62S3-000 PL	TS-2099
	2P BM RABBLACK	38202-52S3-000 PL	TS-2099

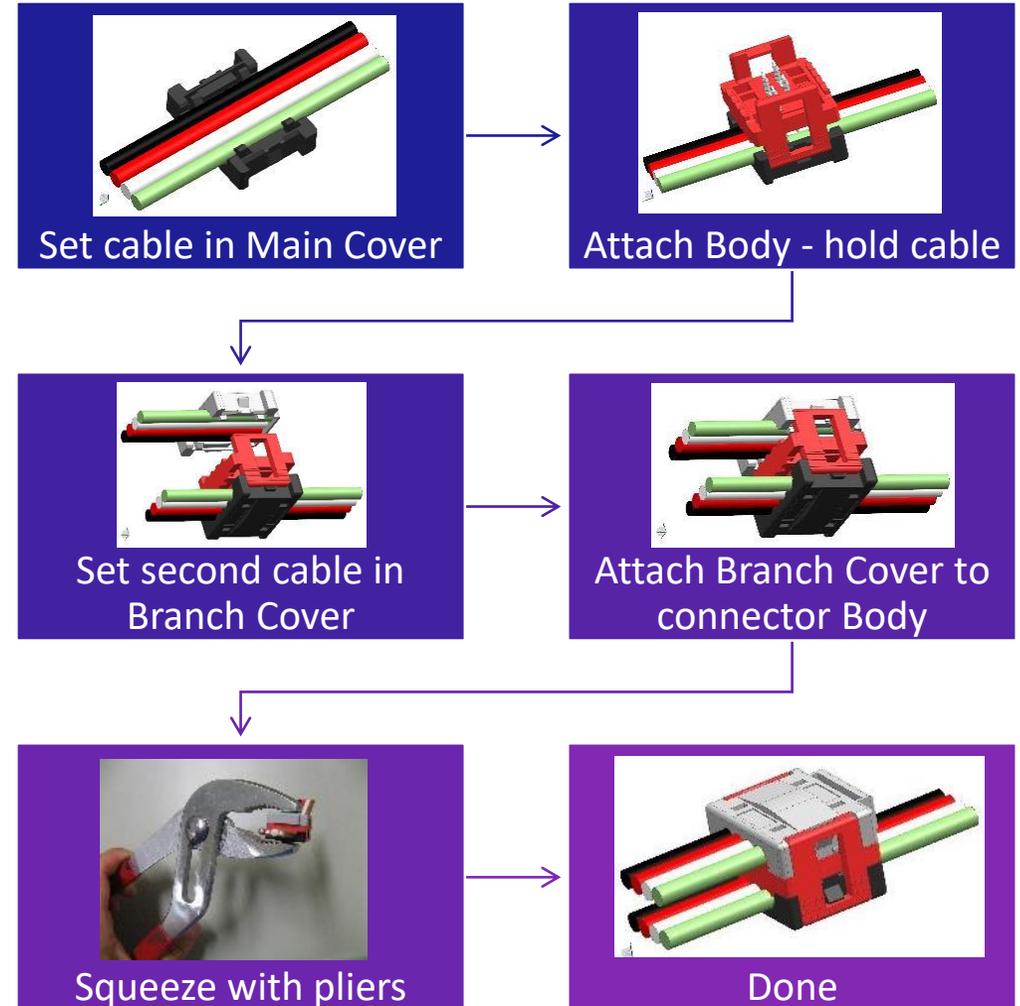
3M™ One Piece Branch Link Connector

*Enables branching from main wire to branch wire with **one connector** in the field with no special equipment*

- Ability to install wire saving system
- Single connector – less parts, less space
- Simple, reliable connection
- No special tooling required



Assembly Process



3M™ Splash-proof One Piece Branch (OPB) Link Connector

Allows for wiring in areas prone to splashing or exposure to high moisture.

Traditional Approach: **Waterproof Case**

Requires:

- Wiring cutting
- Insulator removal
- Screw tightening of wire
- Screw tightening of the case
- Preparation of dedicated bush
- Cable insertion into bush
- Etc

If **only splash-protection** is required, 3M offers **simple, reliable installation** with a single connector

3M Solution:

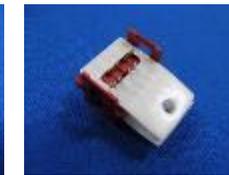
3M™ Splash-proof (IPX4) OPB Connector

3M #38704-FF880-PA - Connector

Main Cover

Branch Cover

Body

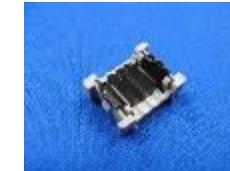
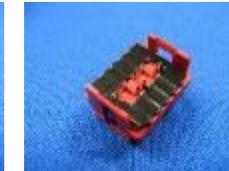
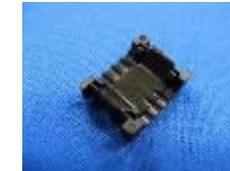


3M #38700-C01

Cable cap



Peel application sheet to leave 3M EMS pad*



Set Cap



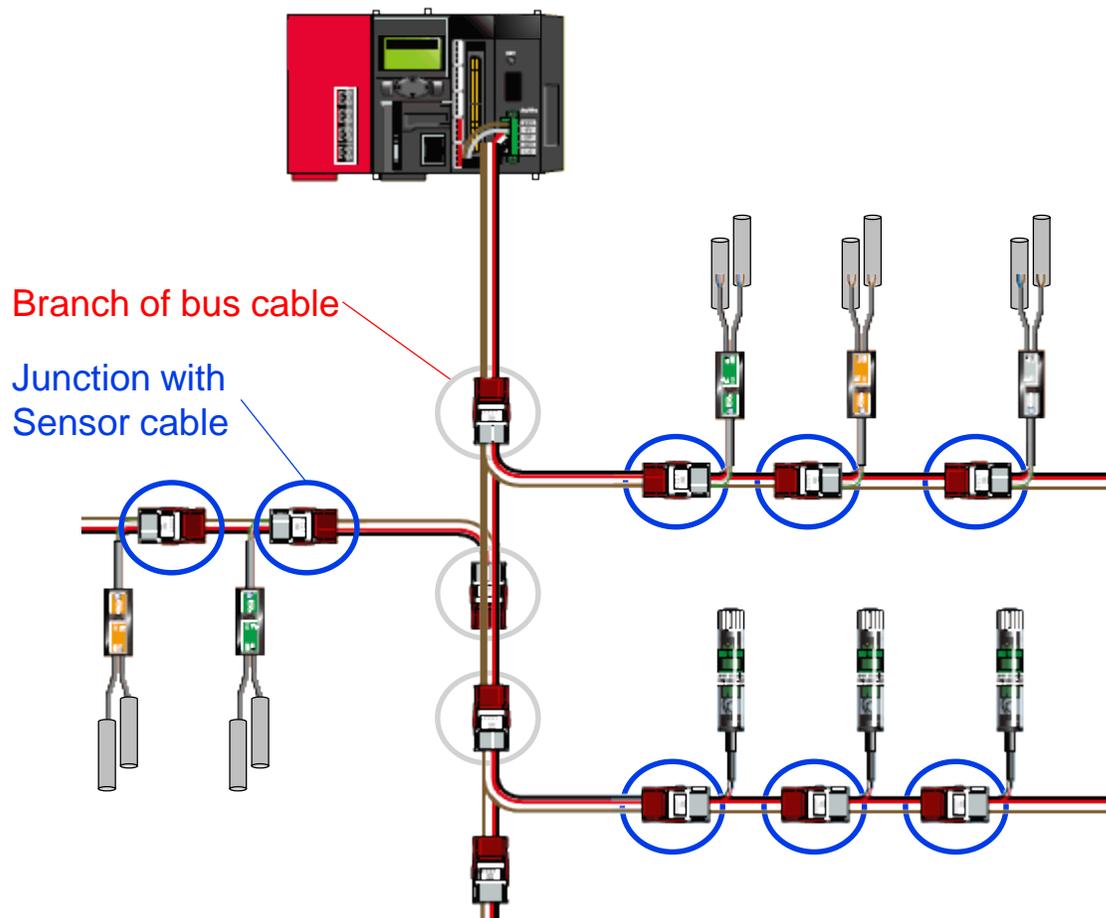
Standard 3M One Piece Branch connector wiring process



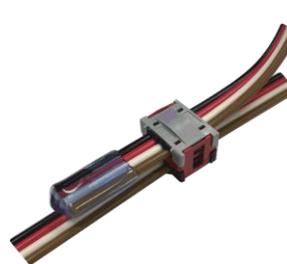
- EMS = Electrical Moisture Sealant Pads

3M™ Splash-proof OPB Connector – Application Example

Wire saving system for sensor network



3M Splash-proof One Piece Branch Connector



For branch of bus cable



For sensor cable junction



Example Applications:

- Customer cold storage system requires protection against drop of condensation in cold storage warehouse.
- Production line for food, cosmetic and pharmaceuticals which need to be washed and splash-proof connector is required.

3M™ One Piece Branch Link Connector Product Portfolio Offering

General Market Products*:

- Standard: 38704-FF880
- Splash-proof: 38704-FF880-PA
- Cable: 79100-075-4F1

* Other sizes available as custom



3M™ Round Conductor Flat Cable for Link Connector

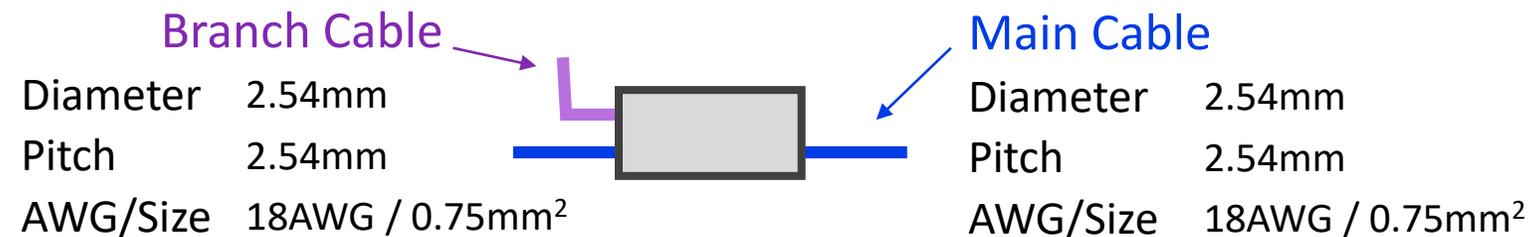
Part #: 79100-075-4F1

AWG: 18AWG / 0.75mm²

Wires: 30 stands x 33AWG / 0.18mm²

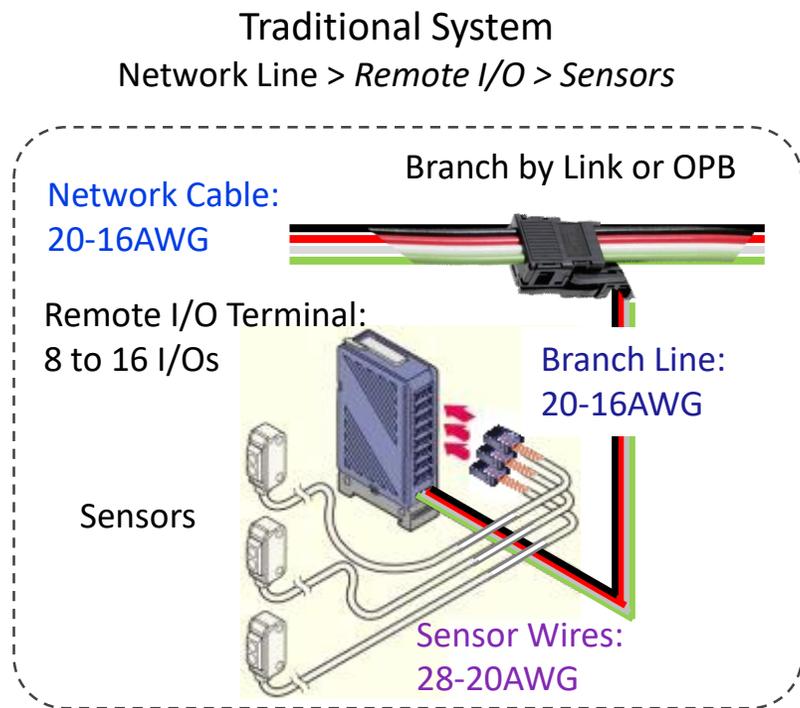
Rating: CL2

3M Tech Sheet #2323



3M™ Branch Mini-Clamp Link Connector

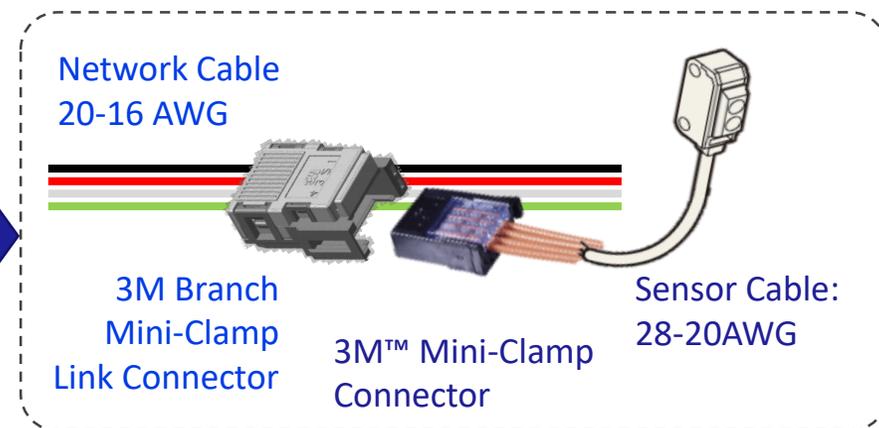
Enables direct connection from sensor wires to network cable (Bus Line)



3M enables simpler system with direct to network connection

- Less cable
- Lower latency

System with 3M™ Branch Mini-Clamp Link Connector
Network Line > Sensors



Part #	Conductor Size	Related Product
38A04-0016-200 FL	16AWG / 1.25mm ²	3M™ 4-wire, 18AWG cable: 79100-075-4F1
38A04-0018-000 FL	18AWG / 0.75mm ²	
38A04-0020-100 FL	20AWG / 0.50mm ²	3M™ Mini-Clamp, 4 pos: 37104-xxxx-x00 FL

3M™ Link Connector – Product Portfolio Offering

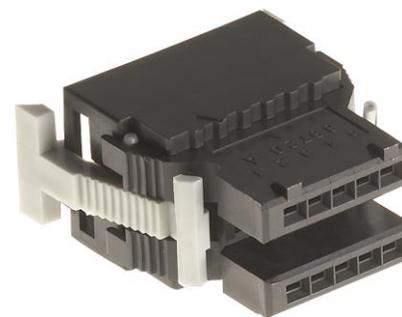
Additional product offerings not shown: Boardmount sockets

Size of Conductor	Cable Style	Wire Jacketing Outside Diameter	Detachable 2-Piece Type		Branch Mini-Clamp Type
			2 position	4 position	
22AWG (0.3mm ²)	Round	Ø1.1 - 1.4mm			
20AWG (0.5mm ²)	Round	Ø1.8 - 2.1mm	381021-W022-W00 FL	38104-H022-K00 FL	----
	Round	Ø2.1 - 2.4mm	38102-F020-H00 FL	38104-F020-H00 FL	----
	Flat	Ø2.54mm	----	38104-E020-G00 FL	----
18AWG (0.75mm ²)	Flat	Ø2.54mm	----	38104-0020-100 FL	38A04-0020-100 FL
	Round	Ø1.8 - 2.1mm	----	38104-E018-E00 FL	----
	Round	Ø2.1 - 2.4mm	----	38104-0018-000 FL	----
16AWG (1.25mm ²)	Flat	Ø2.54mm	38102-0018-000 FL	38104-0018-000 FL	38A04-0018-000 FL
	Flat	Ø2.54mm	38102-0016-200 FL	----	38A04-0016-200 FL

One Piece Branch (OPB) Type				Related Accessories
Main Line Cable	Branch Line Cable	Standard	Splash-proof (IPX4)	
				3M 4-wire cable, 18AWG / 0.75mm² 79100-075-4F1
18AWG (0.75mm ²) / Flat	18AWG (0.75mm ²) / Flat	38704-FF880	38704-FF880-PA-C	3M OPB Splash-proof Cable Cap 38700-C01
20 - 16AWG (0.5 - 1.25mm ²) / Flat	20 - 16AWG (0.5 - 1.25mm ²) / Flat; Thinner gauges / Discrete	Custom option	Custom option	3M™ IDC Termination Tool for OPB 38900-10



3M™ Power Clamp Connectors



3M™ Power Clamp Connectors

Splicing adapter with fast, reliable installation

- Smaller connector size than most standard screw-type alternatives.
- Supports 250 Volts, 10A max (1 line), 7A max (all lines)*.
- Supports 20 to 18AWG wire.
- Compatible with CC-Link Communication Interconnect Standard.

Max Current Rating:

18 AWG:

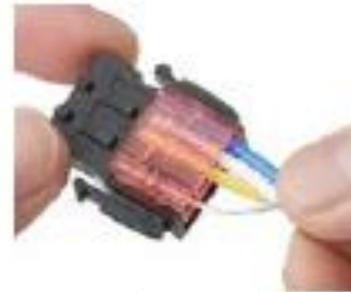
- 10A (1 contact/socket)
- 7A (2 - 5 contacts/socket)

20 AWG:

- 9A (1 contact/socket)
- 6A (2 - 5 contacts/socket)

Simple Installation

One-touch latching mechanism maintains a **reliable connection** in demanding **field applications** and only **requires one hand to easily mate and unmate**



Just insert wires with insulation



Squeeze with a pair of standard pliers

Application Example

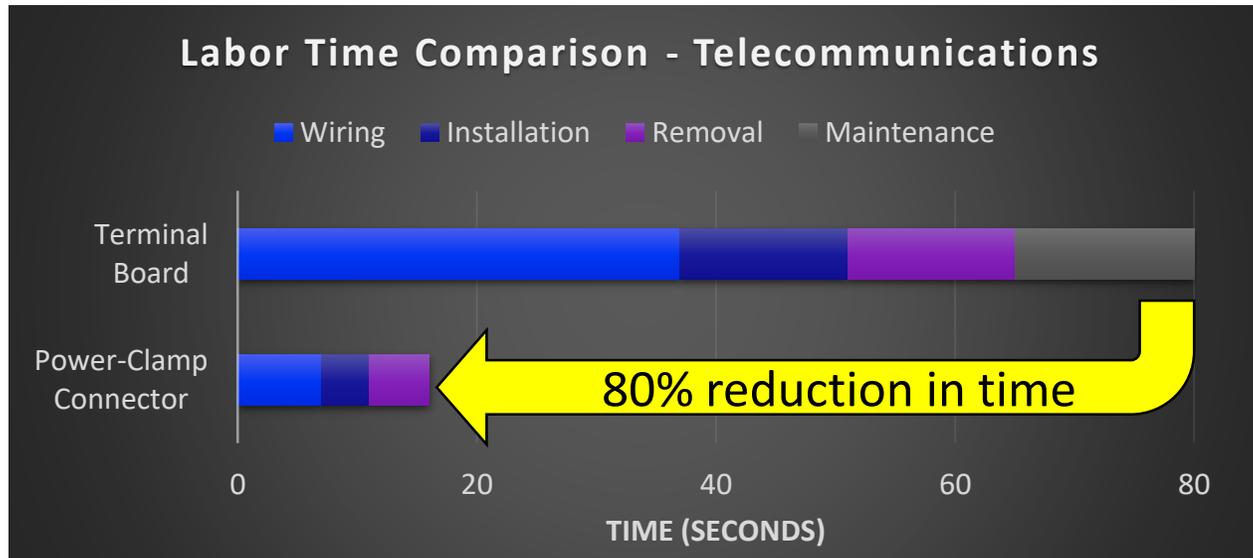


Enable unit modularity with spliced connector network

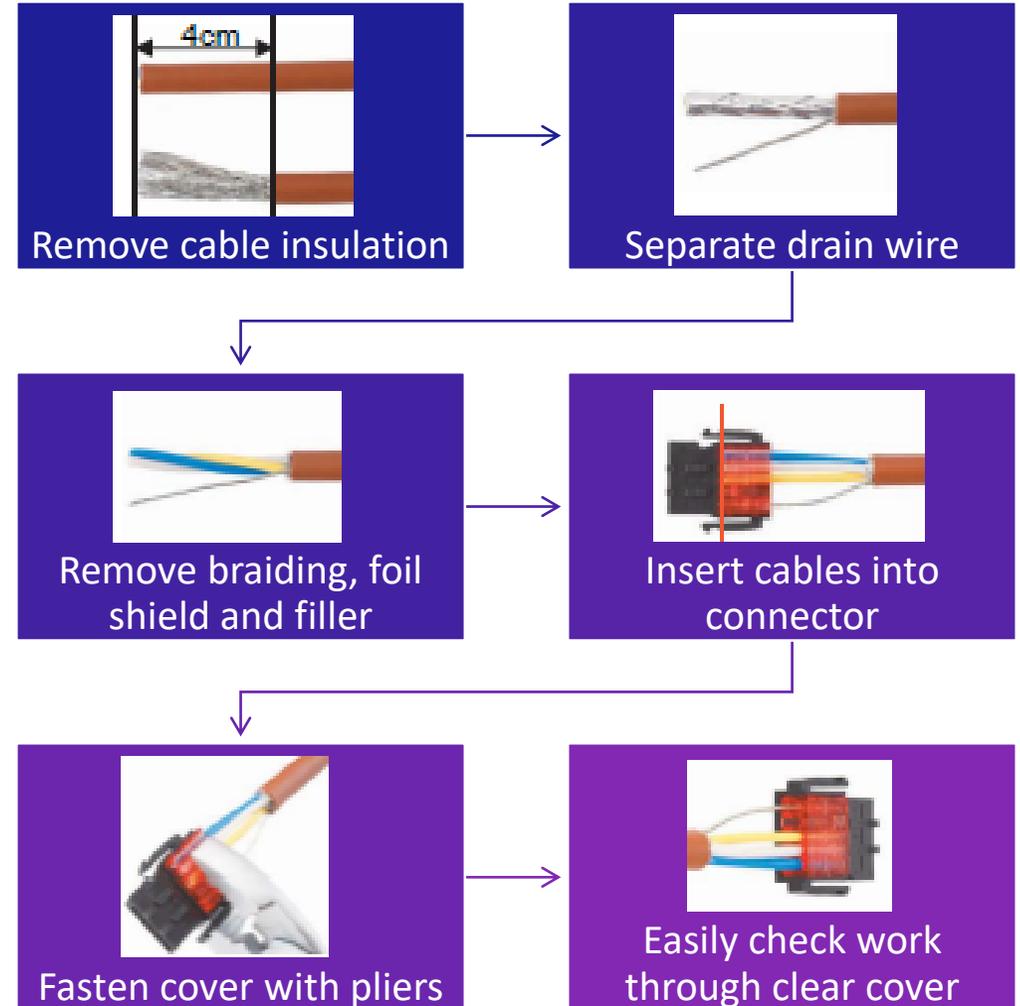
3M™ Power Clamp Connector

Can provide up to 80% assembly time savings compared to terminal boards

- Utilizes 3M's IDC technology
- High connection reliability
- Simple, reliable connection
- No special tooling required



Assembly Process



3M™ Power Clamp Connectors – Product Portfolio

# Positions	Size of Conductor	Wire Jacketing Outside Diameter	Wiremount Socket	Wiremount Plug x: 0=Standard, P=Panel Mount	Related Products
					Termination Resistor 35T05-6M00-B0M GF Branch Connector: Type H: 35720-L200-A00 AK Type Y: 35715-L010-A00 AK 
5	20AWG (0.5mm ²)	Ø1.6 - 2.0mm	35505-6200-A00 GF	35805-6200-Ax0 GF	
	18AWG (0.75mm ²)	Ø2.2 - 3.0mm	35505-6080-A00 GF	35805-6080-Ax0 GF	
		Ø2.0 - 2.3mm	35505-6180-A00 GF	35805-6180-Ax0 GF	
	Bar Terminal Diameter	Ø1.05 - 1.15mm	35A05-60S0-A00 GF	35B05-60S0-Ax0 GF	
4 (CC-Link)	20AWG (0.5mm ²)	Ø2.2 - 3.0mm	35505-6000-B0M GF	35805-6000-BxM GF	
	Bar Terminal Diameter	Ø1.05 - 1.15mm	35A05-60S0-B0M GF	35B05-60S0-BxM GF	



Questions?

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