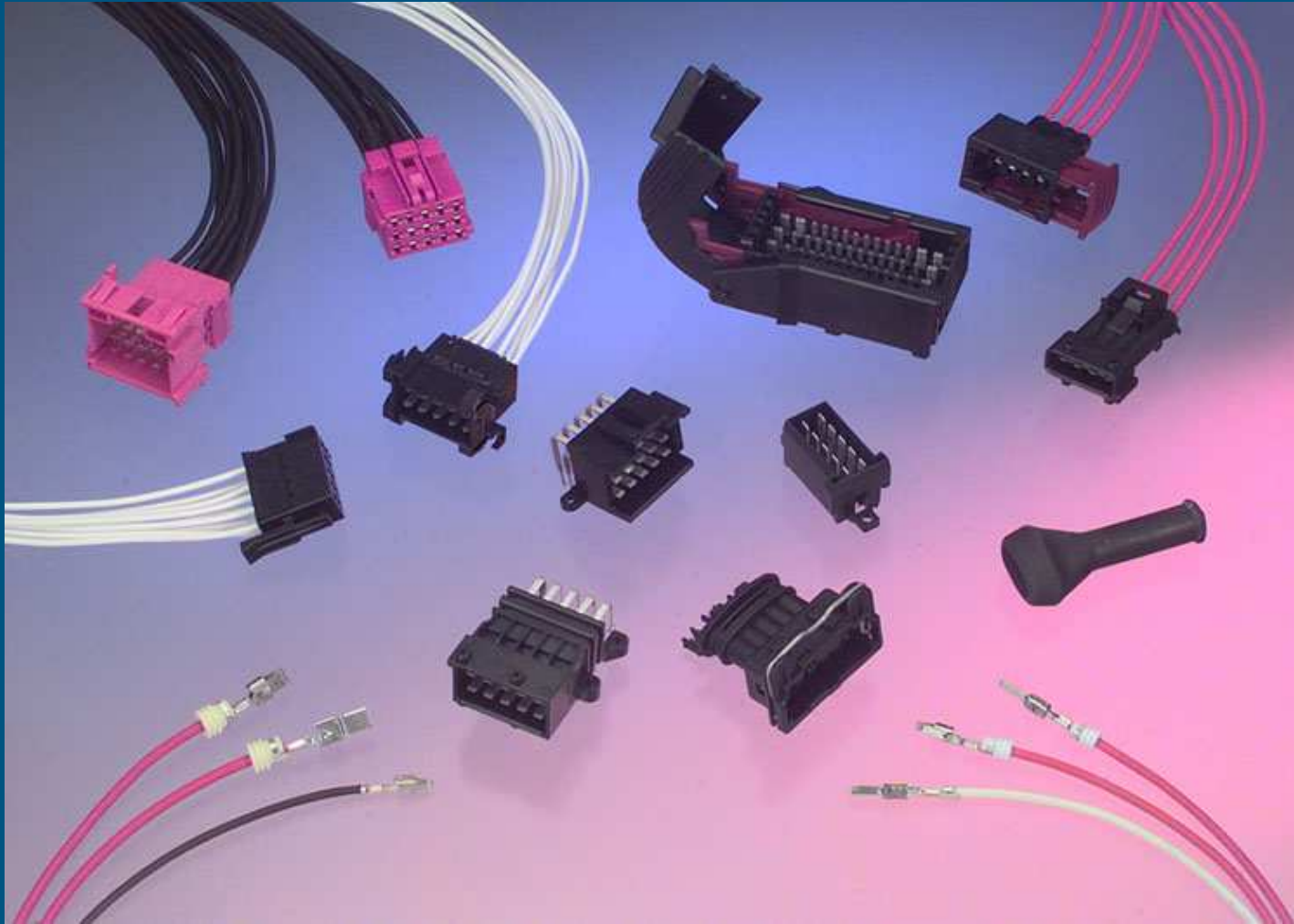


# Global Automotive Division - Americas North

# Timer Product Overview

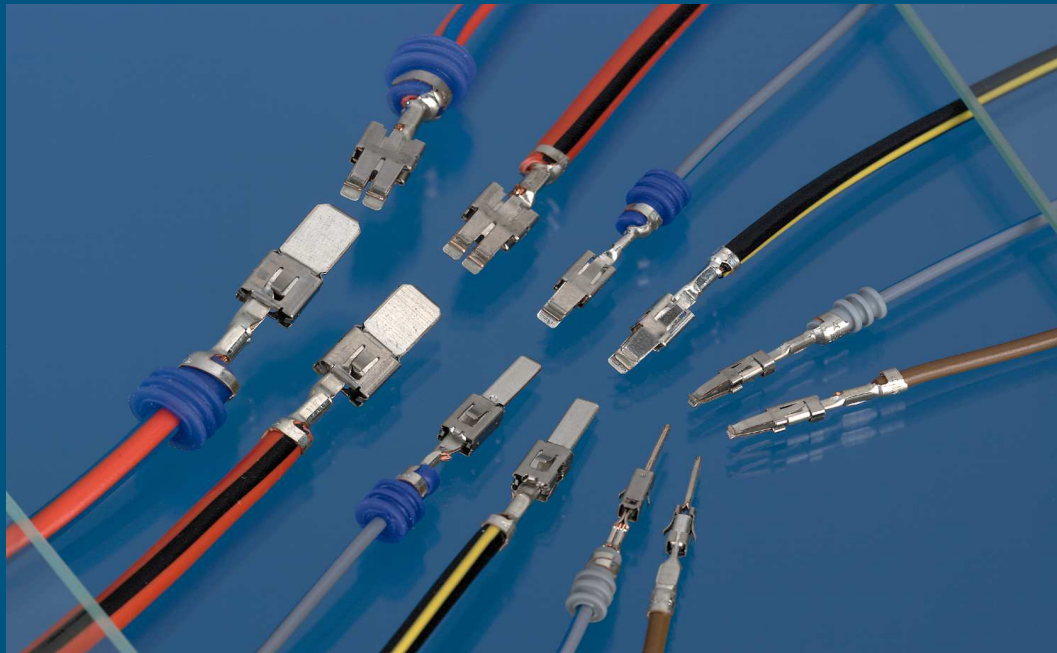


# Product Introduction

---

## •What is Timer?

- Timer refers to a family of contacts consisting of a male flat blade and female box style receptacle.



# Product Line Description

---

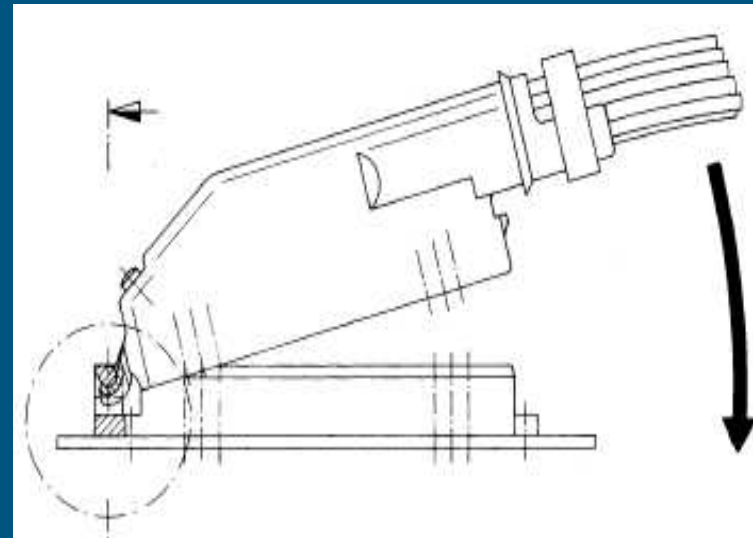
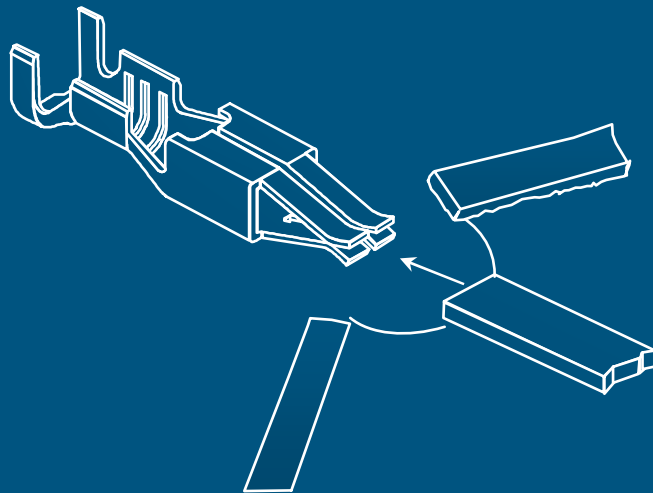
## • Why the name “Timer”?

The Timer family originated over 35 years ago to meet the need for a lower force contact system to replace FASTON terminals where multiple position connectors were required in appliance applications.

i.e. - Timer control of clothes washers and dryers; dish washers, etc.

# Product Line Description

- Timer Products are unique because the open front end geometry of the female contact allows the mating of tabs in an oblique condition while maintaining stable contact geometry. This allows the housings to be mated in a pivoting hinged manner. In this way, larger pin count connectors can be mated with reduced force through sequential connection.



# Product Overview

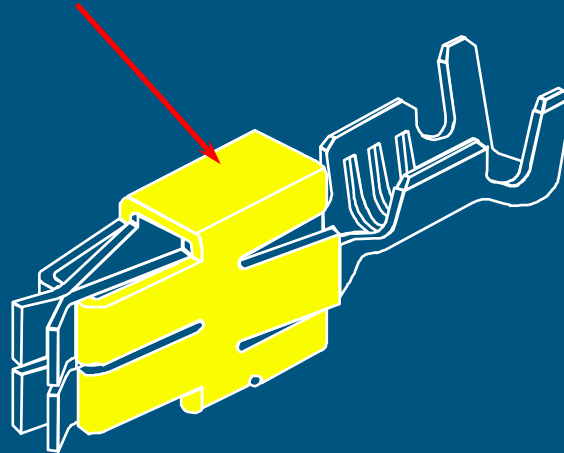
---

- The Timer family is still used in the appliance industry, however the vast majority of applications are in the transportation market. It is used for both under-hood and interior applications.
- The following contact types come in various sealed, unsealed, crimp and IDC versions for wire-to-wire, wire-to-board and wire-to-device applications.
  - Micro Timer 1, 2, and 3
  - Junior Timer and Junior Power Timer
  - Standard Timer and Standard Power Timer
  - Maxi Power Timer

# Key Product Features

---

- All Power Timer versions have a stainless steel secondary jacket which:



- Supports the contact for superior stress relaxation at high temperatures
- Provides support to prevent damage due to abusive mating
- Protects the box spring during harness handling
- Provides higher contact retention in housing due to strength of steel lance
- Maintains stable normal force over time

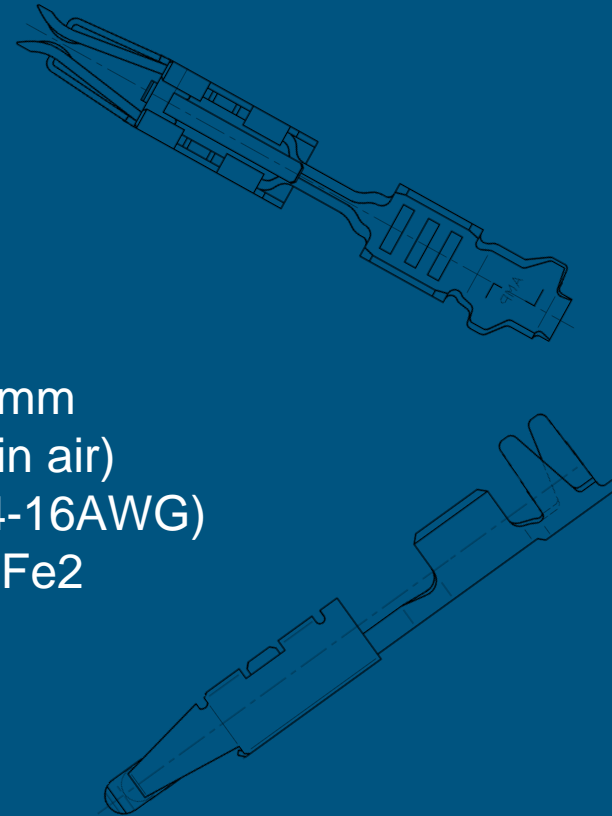
# Micro Timer Contact Overview

## • Micro Timer I

### Product Features



- Lanceless contact design
- Stainless steel jacket
- Two contact beams
- Mating tab 1.5 / 1.6mm x 0.8mm
- Current up to 10 Amps (free in air)
- Wire Range 0.2 - 1.5mm<sup>2</sup> (24-16AWG)
- Base Material - CuSn4 or CuFe2
- Plating - Tin or Select Gold
- **Unsealed** applications only



# Micro Timer Contact Overview

## Micro Timer 1 Support Documentation

- Catalog 889759, 889780, 1654300
- MT I Terminal Product Group Dwg 1703333
- MT I Product Spec 108-18024
- MT I Application Spec 114-18163-1
- 1.6mm Tab Product Group Dwg 1355055 (Type A)
- 1.6mm Tab Product Spec 108-18223
- 1.6mm Tab Application Spec 114-18082-1



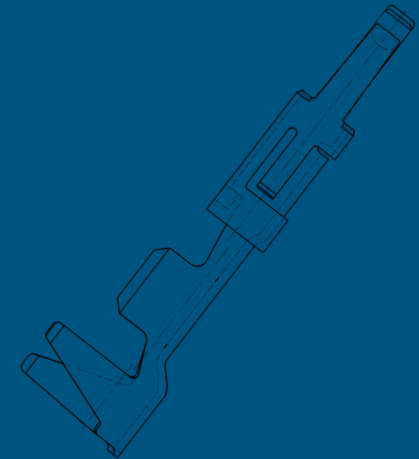
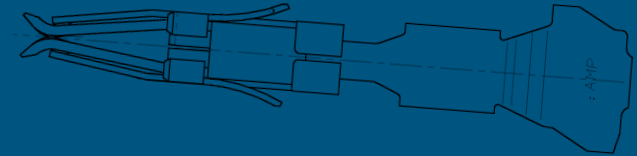
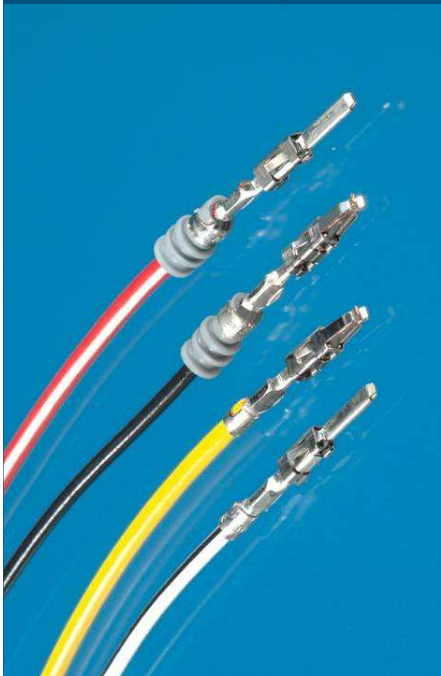


# Micro Timer Contact Overview

## • Micro Timer 2

### Product Features

- Dual locking lance contact design
- Stainless steel jacket
- Two contact beams
- Mating tab 1.5 / 1.6 mm x 0.6 mm
- Current up to 10 Amps (free in air)
- Wire Range 0.2 - 1.0mm<sup>2</sup> (24-18AWG)
- Base Material - CuSn4, CuNiSi or CuFe2
- Plating - Tin or Select Gold
- Sealed and unsealed applications



# Micro Timer Contact Overview

---

## Micro Timer 2 Support Documentation

- Catalog 889759, 889780, 1654300
- MT II Terminal Product Group Dwg 1355045 (Type A)
- MT II Product Spec 108-18055-1
- MT II Application Spec 114-18081-1
- 1.6mm Tab Product Group Dwg 1355055 (Type A)
- 1.6mm Tab Product Spec 108-18223
- 1.6mm Tab Application Spec 114-18082-1

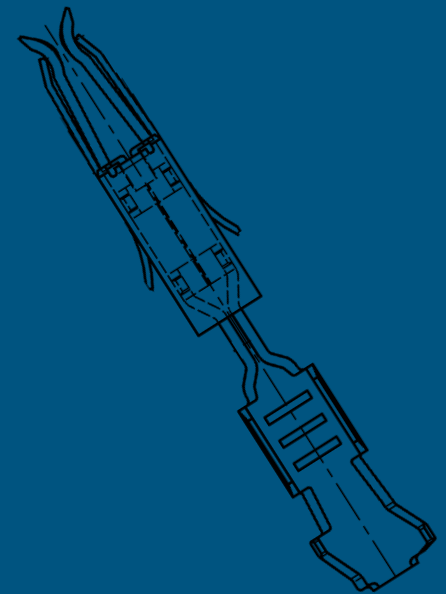
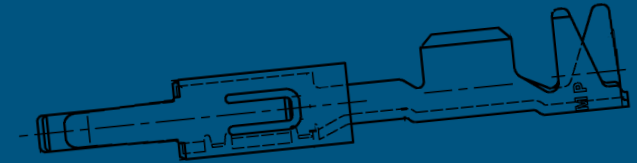
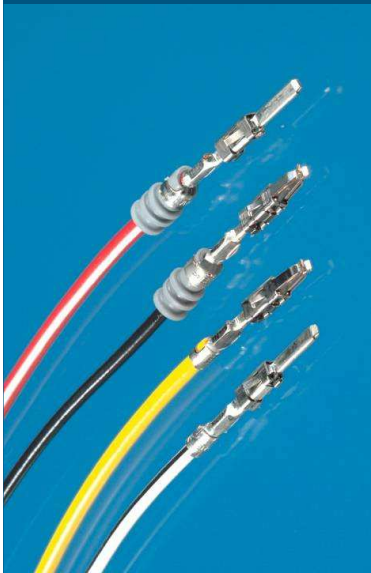


# Micro Timer Contact Overview

## • Micro Timer 3

### Product Features

- Dual locking lance contact design
- Stainless steel jacket
- Two contact beams
- Mating tab 1.5 / 1.6 mm x 0.8 mm
- Current up to 10 Amps (free in air)
- Wire Range 0.2 – 1.0mm<sup>2</sup> (24-18AWG)
- Base Material - CuSn4, CuNiSi or CuFe2
- Plating - Tin or Select Gold
- Sealed and unsealed applications



# Micro Timer Contact Overview

## Micro Timer 3 Support Documentation

- Catalog 889780, 1654300
- MT III Terminal Product Group Dwg 1241916
- MT III Product Spec 108-18386
- MT III Application Spec 114-18081-1
- 1.6mm Tab Product Group Dwg 1355055 (Type A)
- 1.6mm Tab Product Spec 108-18223
- 1.6mm Tab Application Spec 114-18082-1

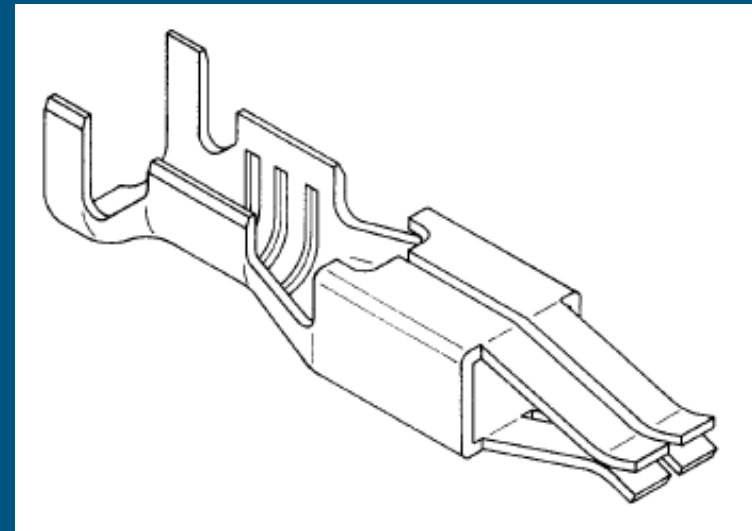


# Junior Timer Contact Overview

## • Junior Timer

### Product Features

- Single locking lance contact design
- Four contact beams
- Mating tab 2.8 / 3.0mm x 0.8mm
- Current up to 20 Amps (free in air)
- Wire Range 0.12 - 2.5mm<sup>2</sup> (26-14AWG)
- Base Material - CuSn or CuZn30
- Plating - Tin, Silver or Select Gold
- **Unsealed** applications only

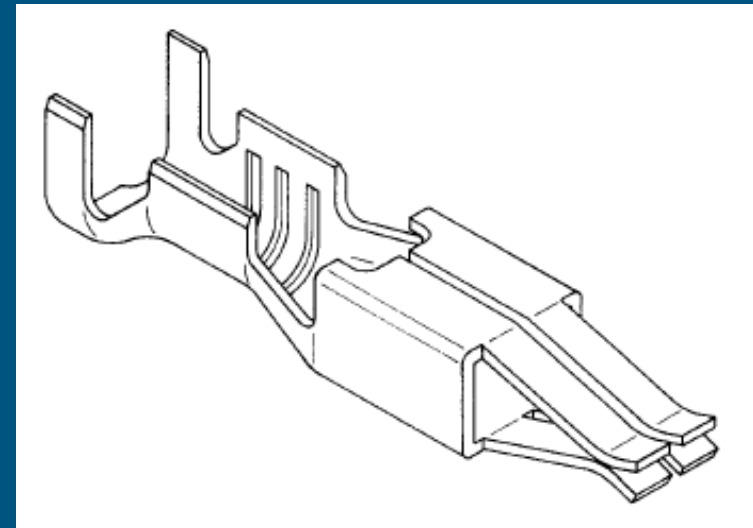


# Junior Timer Contact Overview

---

## Junior Timer Support Documentation

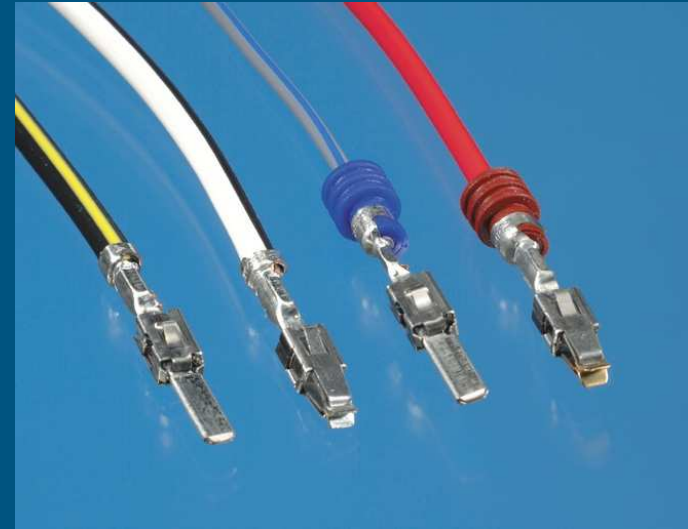
- Catalog 889759, 889780, 1654300
- JT Product Spec 108-18053
- JT Application Spec 114-18079
- 2.8mm Tab Product Spec 108-18299
- 2.8mm Tab Application Spec 114-18014



# JPT Contact Overview

## • Junior Power Timer Product Features

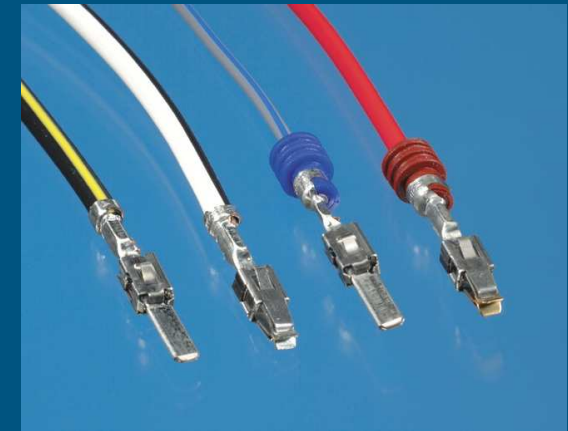
- Dual locking lance contact design
- Stainless steel jacket
- Two contact beams
- Mating tab 2.8 / 3.0mm x 0.8mm
- Current up to 30 Amps (free in air)
- Wire Range 0.35 - 2.5mm<sup>2</sup> (22-14AWG)
- Base Material - CuSn4, CuNiSi or CuFe2
- Plating - Tin, Select Silver or Select Gold
- Sealed and unsealed applications



# JPT Contact Overview

## Junior Power Timer Support Documentation

- Catalog 889759, 889780, 1654300
- JPT Terminal Product Group Dwg 1355046
- JPT Terminal Product Group Dwg 1355047 (Type A)
- JPT Product Spec 108-18013-1
- JPT Application Spec 114-18050-1
- 2.8mm Tab Product Group Dwg 1355052
- 2.8mm Tab Product Group Dwg 1355364 (Type A)
- 2.8mm Tab Product Spec 108-18063-1
- 2.8mm Tab Application Spec 114-18051-1



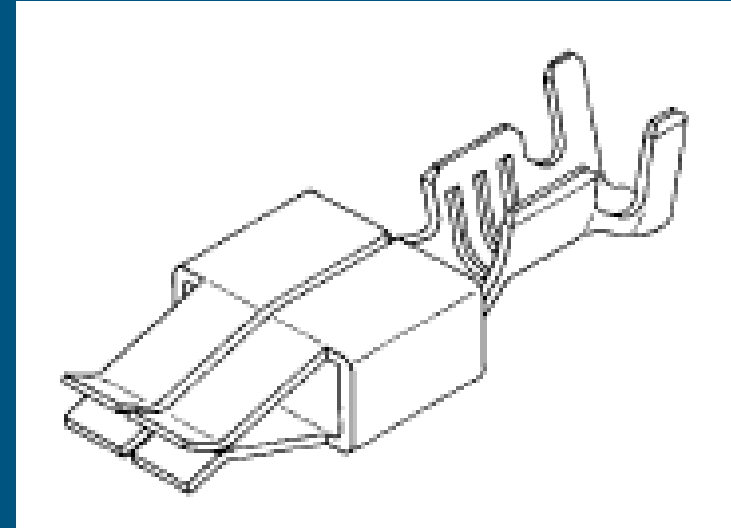


# Standard Timer Contact Overview

## • Standard Timer

### Product Features

- Single locking lance contact design
- Four contact beams
- Mating tab 4.8 / 5.8 / 6.3 mm x 0.8 mm
- Current up to 25 Amps (free in air)
- Wire Range 0.2 - 2.5mm<sup>2</sup> (24-14AWG)
- Base Material - CuSn4, CuFe2 or CuZn30
- Plating - Tin
- **Unsealed** applications only

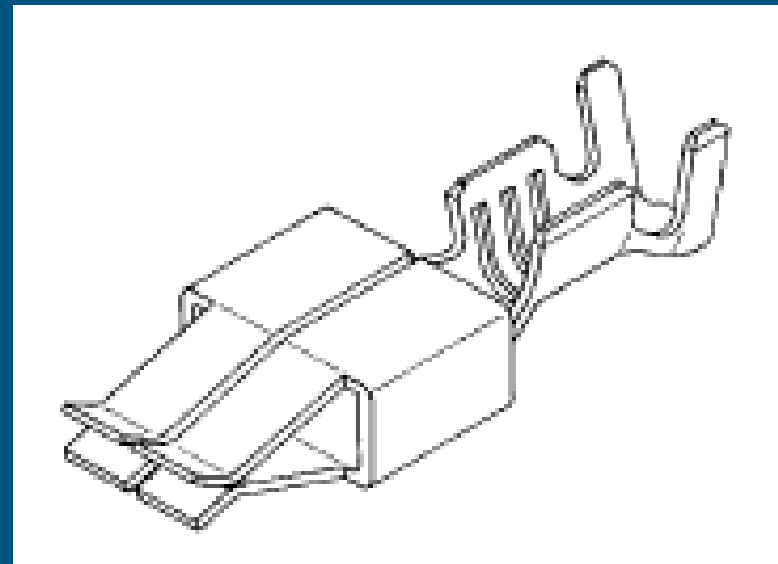


# Standard Timer Contact Overview

---

## Standard Timer Support Material

- Catalog 889759, 889780, 1654300
- Product Spec 108-18054
- Application Spec 114-18080

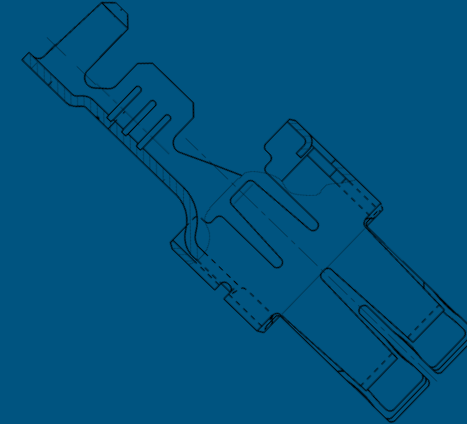


# SPT Contact Overview

## • Standard Power Timer

### Product Features

- Dual locking lance contact design
- Stainless steel jacket
- Four contact beams
- Mating tab 4.8 / 5.8 / 6.3 mm x 0.8 mm
- Current up to 40 Amps (free in air)
- Wire Range 0.2 - 6.0mm<sup>2</sup> (24-10AWG)
- Base Material - CuSn4 or CuFe2
- Plating - Tin, Select Silver or Select Gold
- Sealed and Unsealed applications



# SPT Contact Overview

---

## Standard Power Timer Support Documentation

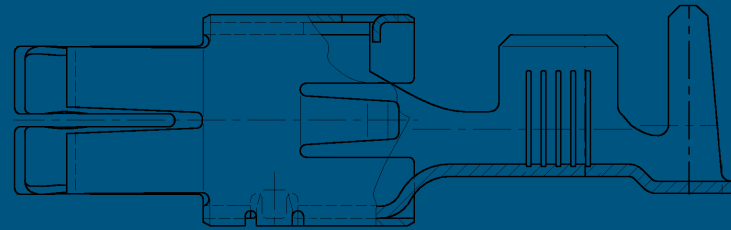
- Catalog 889759, 889780, 1654300
- SPT Terminal Product Group Dwg 1355048
- SPT Terminal Product Group Dwg 1355049 (Type A)
- SPT Product Spec 108-18025-1
- SPT Application Spec 114-18037-1
- 5.8mm Tab Product Group Dwg 1241895
- 5.8mm Tab Product Group Dwg 1394011 (Type A)
- 4.8/5.8mm Tab Product Spec 108-18064
- 4.8/5.8mm Tab Application Spec 114-18052



# Maxi Power Timer Contact Overview

## • Maxi Power Timer Product Features

- Dual locking lance contact design
- Stainless steel jacket
- Four contact beams
- Mating tab 9.5mm x 1.2mm
- Current up to **78** Amps (free in air)
- Wire Range >2.5 - 10.0mm<sup>2</sup> (12-7AWG)
- Base Material - CuNiSi
- Plating - Tin
- Sealed and unsealed applications



# Maxi Power Timer Contact Overview

---

## Maxi Power Timer Support Documentation

- Catalog 889759, 889780, 1654300
- MaPT Terminal Product Group Dwg 1355046
- MaPT Product Spec 108-18047-1
- MaPT Application Spec 114-18075-1
- 9.5mm Tab Product Spec 108-18047-1
- 9.5mm Tab Application Spec 114-18076



# Timer Contact Overview

---

- **Generic vs. Type A (Modified Spring) Terminals**

- How do I tell the difference?

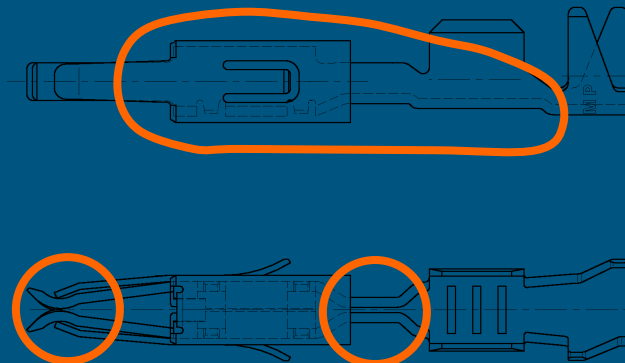
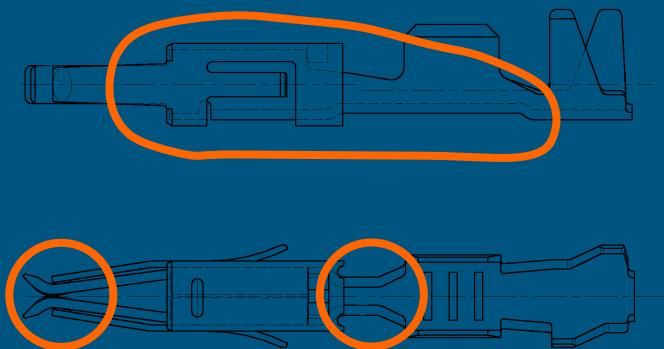
- Box spring design
- Mating area lead in design
- Locking lance design
- Terminal body transition from box spring to wire barrel

# MT2 Contact Differences

## • MT2 Terminals – Generic vs. Type A

MT2 Unsealed – Generic  
Ref base PN 962943

MT2 Unsealed – Type A  
Ref dwg 1355045



- Box spring design
- Mating area lead in design
- Locking lance design
- Terminal body transition from box spring to wire barrel

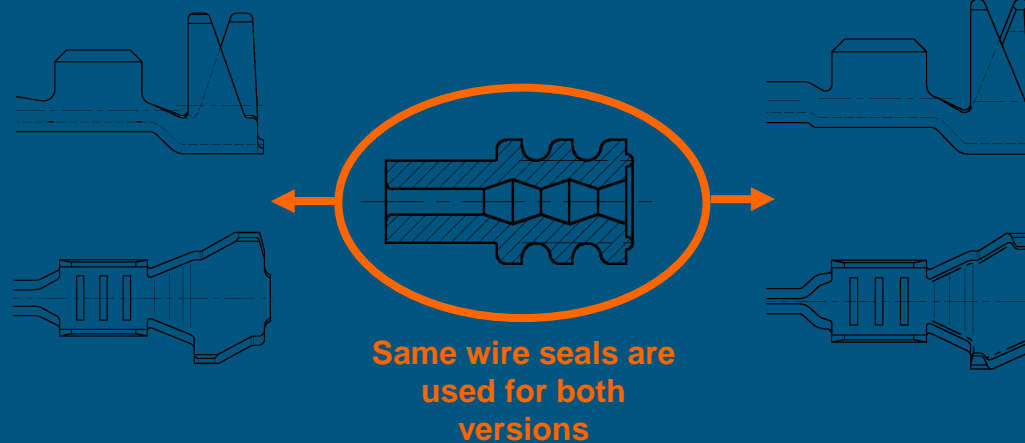


# MT2 Contact Sealing

## • MT2 Terminals – Generic vs. Type A

MT2 Sealed – Generic  
Ref base PN 962876

MT2 Sealed – Type A  
Ref dwg 1355045

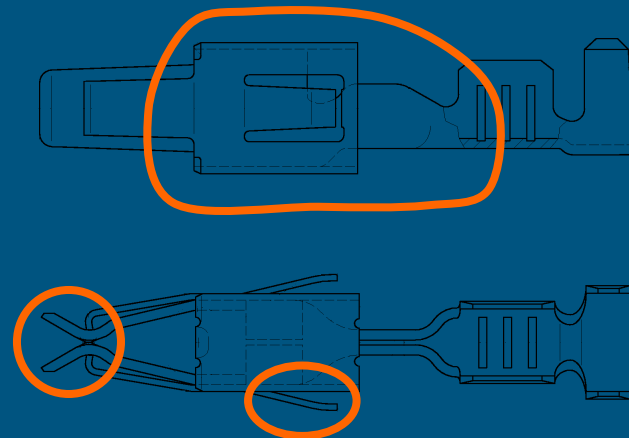
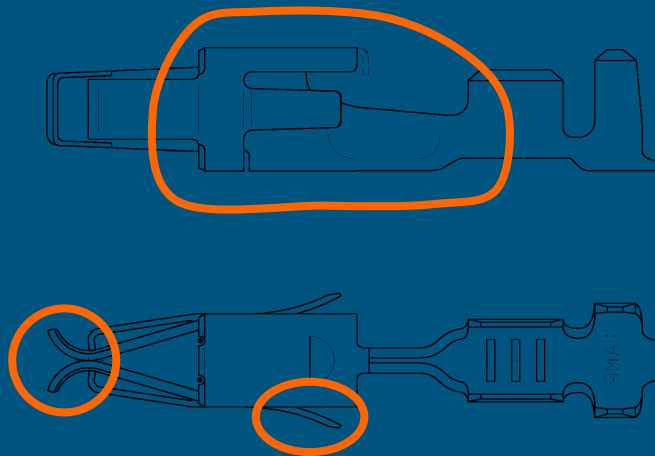


# JPT Contact Differences

## • JPT Terminals – Generic vs. Type A

JPT Unsealed – Generic  
Ref dwg 1355046

JPT Unsealed – Type A  
Ref dwg 1355047

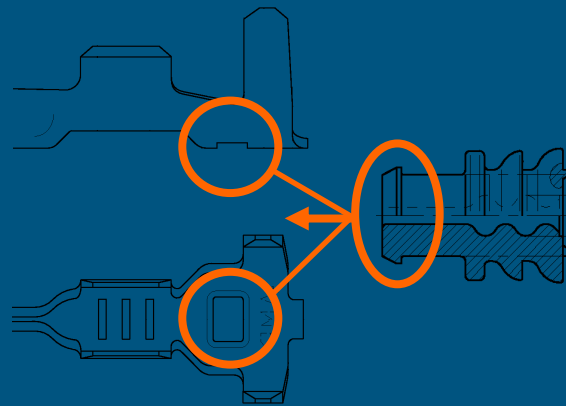


- Box spring design
- Mating area lead in design
- Locking lance design
- Terminal body transition from box spring to wire barrel

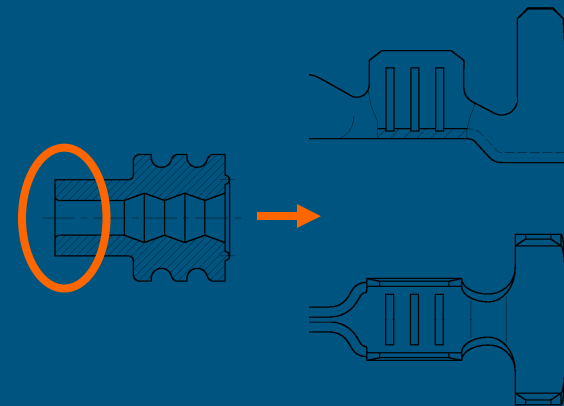
# JPT Contact Sealing

- JPT Terminals – Generic vs. Type A

JPT Sealed – Generic  
Ref dwg 1355046



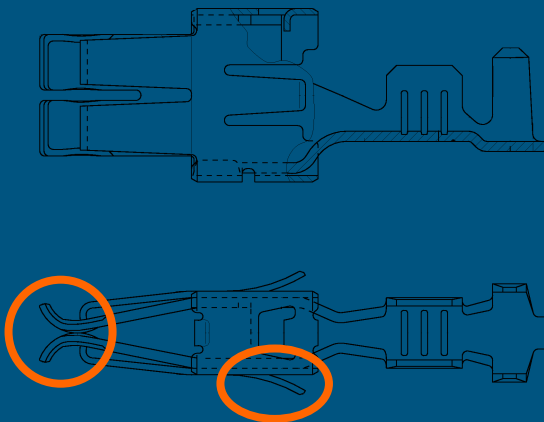
JPT Sealed – Type A  
Ref dwg 1355047



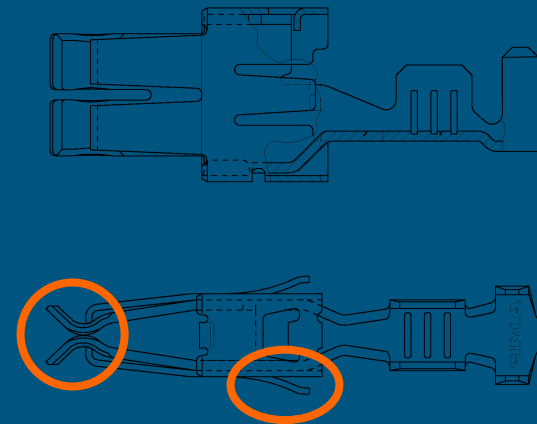
# SPT Contact Differences

## • SPT Terminals – Generic vs. Type A

SPT Unsealed – Generic  
Ref dwg 1355048



SPT Unsealed – Type A  
Ref dwg 1355049



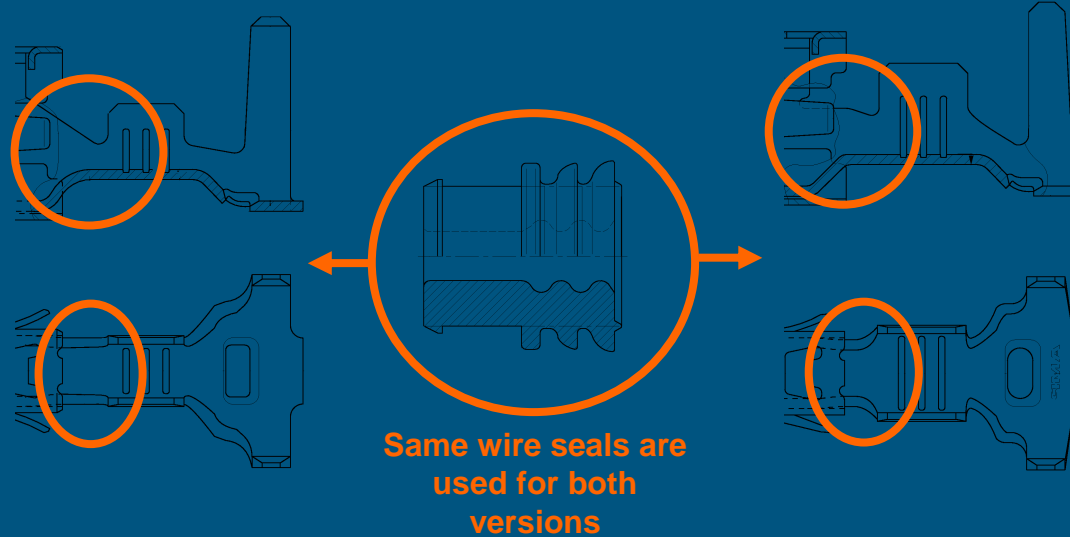
- Mating area lead in design
- Locking lance design

# SPT Contact Sealing

- **SPT Terminals – Generic vs. Type A**

SPT Sealed – Generic  
Ref dwg 1355048

SPT Sealed – Type A  
Ref dwg 1355049



# Timer Tab Contact Overview

---

## • **Symmetric vs. Asymmetric Tab Terminals**

### Symmetric tab terminals

- Definition – Correspondence in size, shape, and relative position of parts on opposite sides of a dividing line or median plane or about a center or axis
- Blade runs on the same centerline as the terminal body
- The “norm” in typical applications

### Asymmetric tab terminals

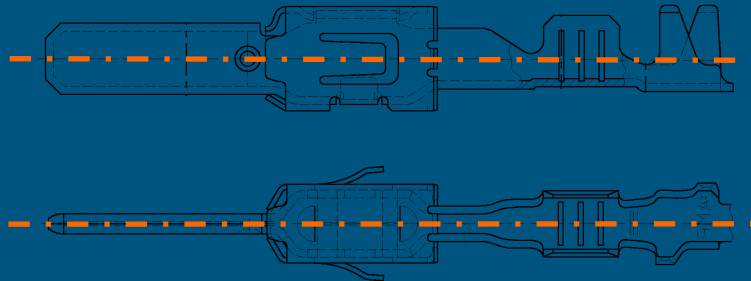
- Definition – not symmetric!
- Typically designated for use in specific VW / Audi restricted tab housings
- Applies to 2.8mm and 4.8mm tab width only

# Timer Tab Contact Symmetry

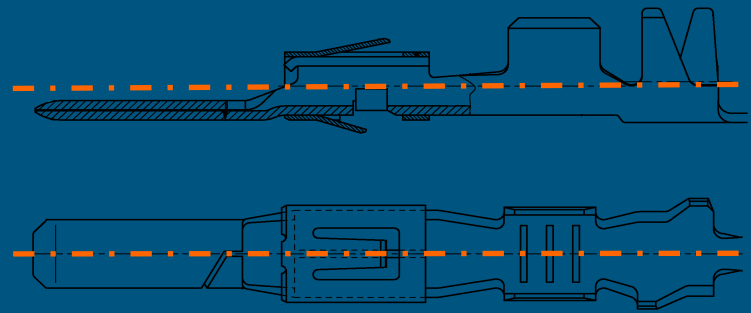
- **Symmetric vs. Asymmetric Tab Terminals**

– How do I tell the difference?

2.8mm Symmetric Tab



2.8mm Asymmetric Tab

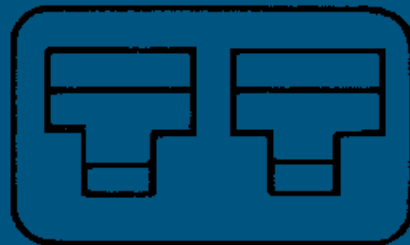
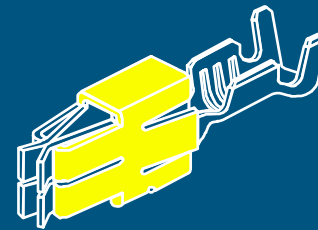
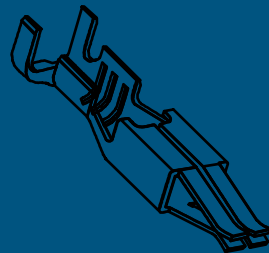


# Timer Housing Overview

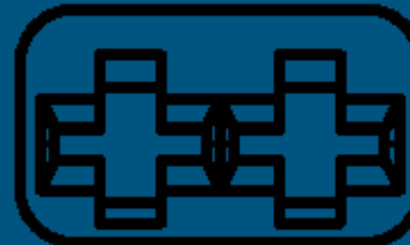
- **Timer vs. Power Timer Housings**

- How do I tell the difference?

- Mating face circuit cavity detail



Timer has "T" Shaped  
Circuit Cavity Window



Power Timer has "+" Cross Shaped  
Circuit Cavity Window



# Timer Housing Overview

---

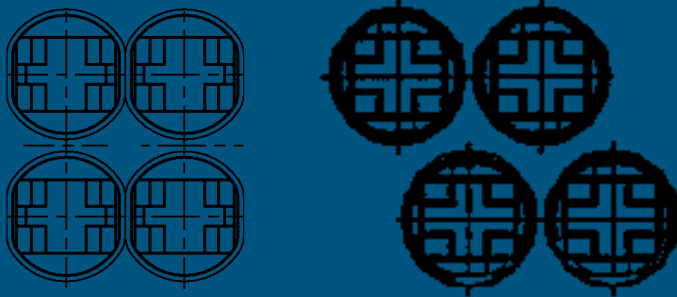
- **Sealed vs. Unsealed Housings**

- How do I tell the difference?

- Circuit cavity wire exit detail

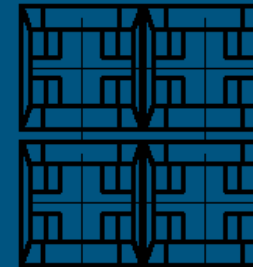
Sealed =

Oval or Round Circuit Cavities  
(Power Version Only)



Unsealed =

Rectangular Circuit Cavities



# Timer Housing Overview

## • Housing vs. Terminal Size

– How do I tell what terminal to use?

- Circuit cavity centerline spacing

- MTI, MT2 & MT3 – 4 mm

- JT & JPT – 5 mm or 5.5 mm

- JPT Type A – 6 mm

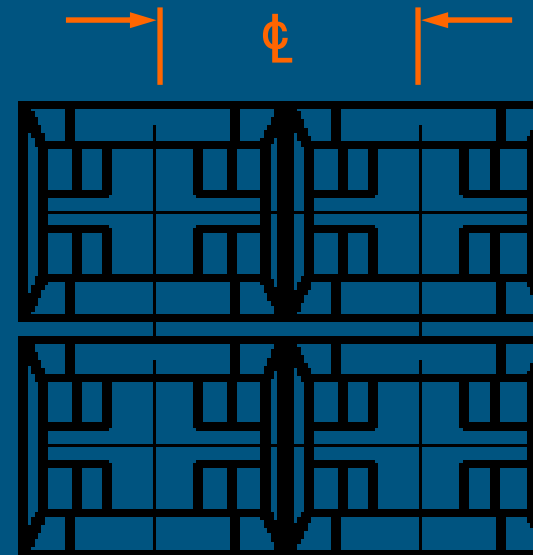
- ST & SPT – 7.5 or 7.6 mm

- SPT Type A – 7.5 mm

- Maxi PT – 11.5 mm

- Dimensions provided are for standard cable sizes only.

- Increased cable sizes may result in increased pitch.

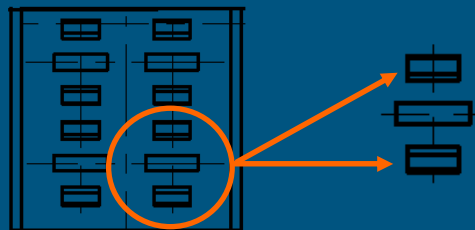


# Timer Housing Overview

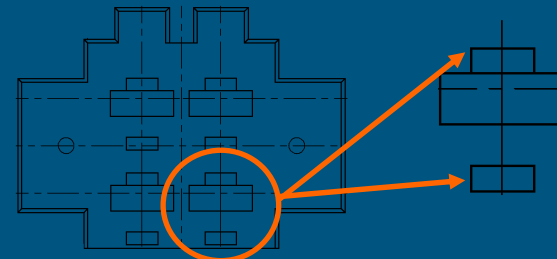
## • Symmetric vs. Asymmetric Tab Housings

– How do I tell what type of housing it is?

- The windows adjacent to the circuit on the mating face of a symmetric tab housing windows are dimensioned equally from the circuit  $\Phi$
- The windows adjacent to the circuit on the mating face of asymmetric tab housings are not dimensioned equally from the circuit  $\Phi$



Symmetric Tab Housing



Asymmetric Tab Housing

# Timer Application Tooling

---

- **Manual, Semi-Automatic, and Fully-Automatic Tooling**
  - ERGOCRIMP™ Hand Tool
  - PP3 Mini Stripper Crimper
  - Quick-Change Miniature HD-I Applicator
  - High-Speed BT 711 Komax Leadmaker
  - BT 700 SCAT Module for Manual Workstation

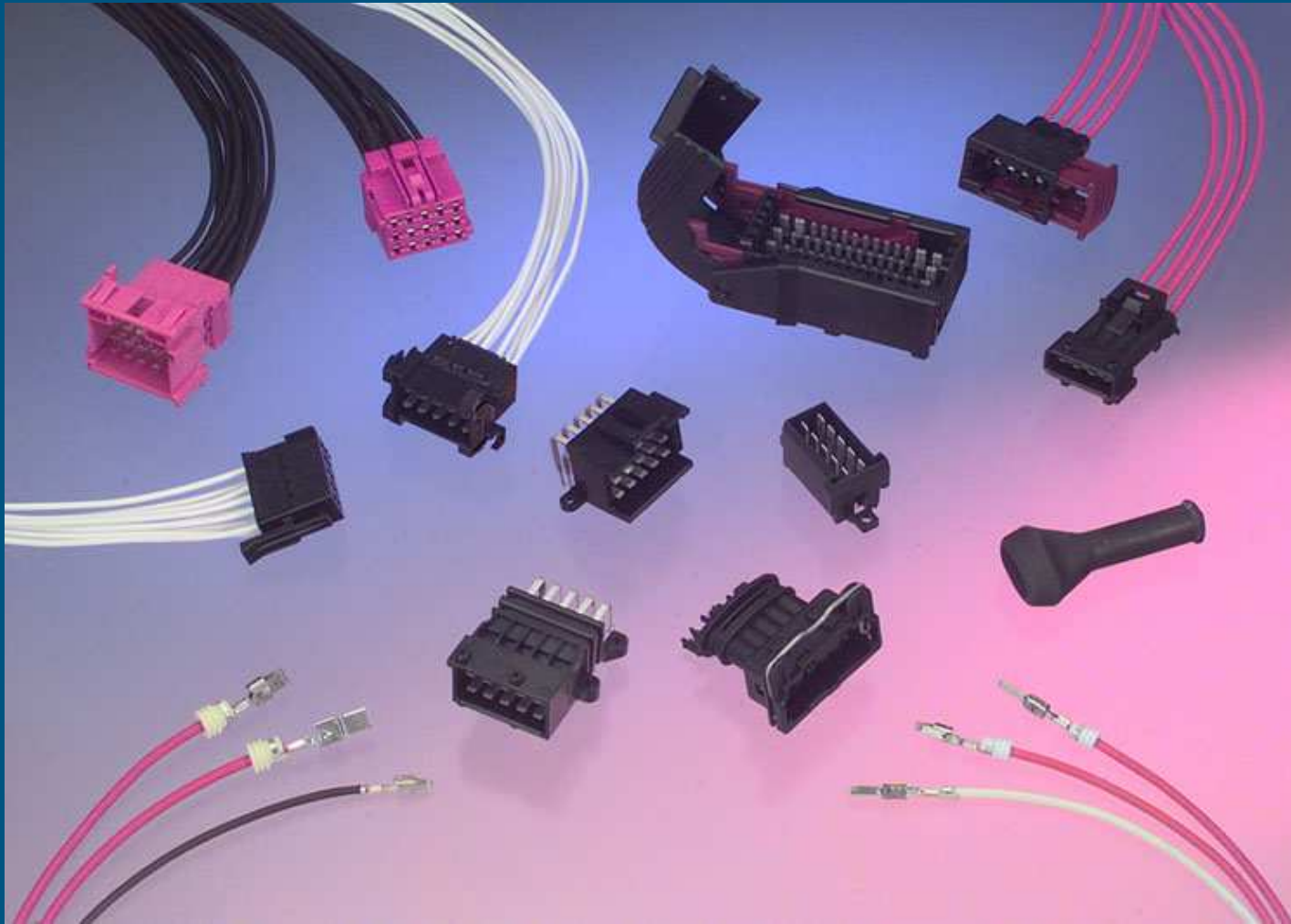
# Automotive Timer Application Space

---

- Powertrain Systems
- Chassis Systems
- Safety Systems
- Door to Body
- Security Systems
- Driver Information
- Convenience
- Entertainment

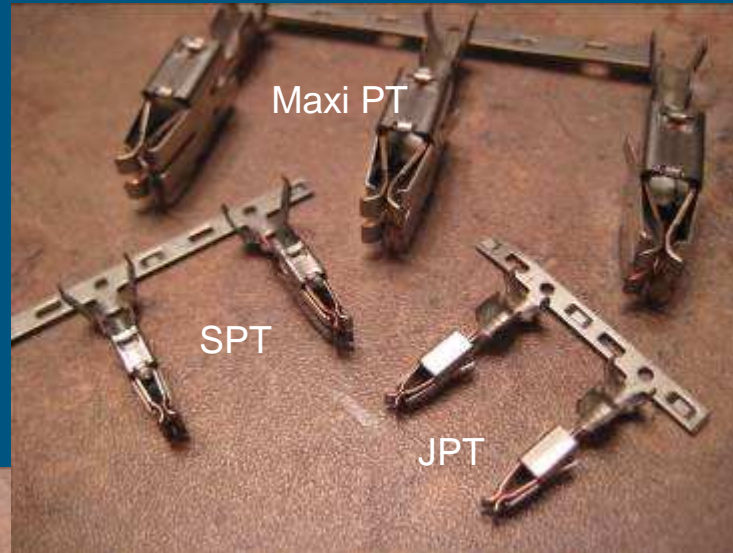


# General Timer WTW / WTB Applications

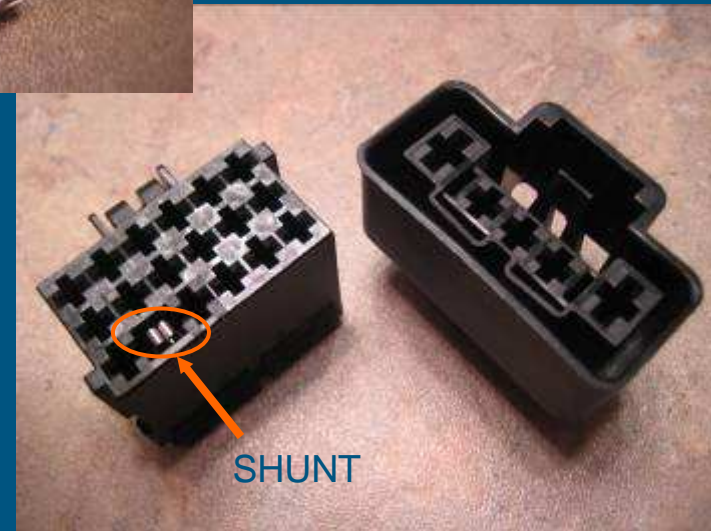


# Unsealed Timer Applications

18P RECEPTACLE  
UNSEALED HOUSING,  
18X JPT



5P MIXED RECEPTACLE  
UNSEALED HOUSING,  
3X JPT / 2X SPT





# Classic Timer Applications



3P Timer Housings with TYP C locking spring

2 Pocket Mixed Tab R/A Header with Lever actuated 2 pocket plug



R/A tab header, interfacial seal, and slide actuated plug





# Typical Timer Applications



25P JT R/A Header for  
Radio I/O

4P JPT Plug for Wiper  
Motor I/O



2P MT Cap for LED lighting  
I/O, integrated flange &  
mounting clip

# Typical Timer Applications

---

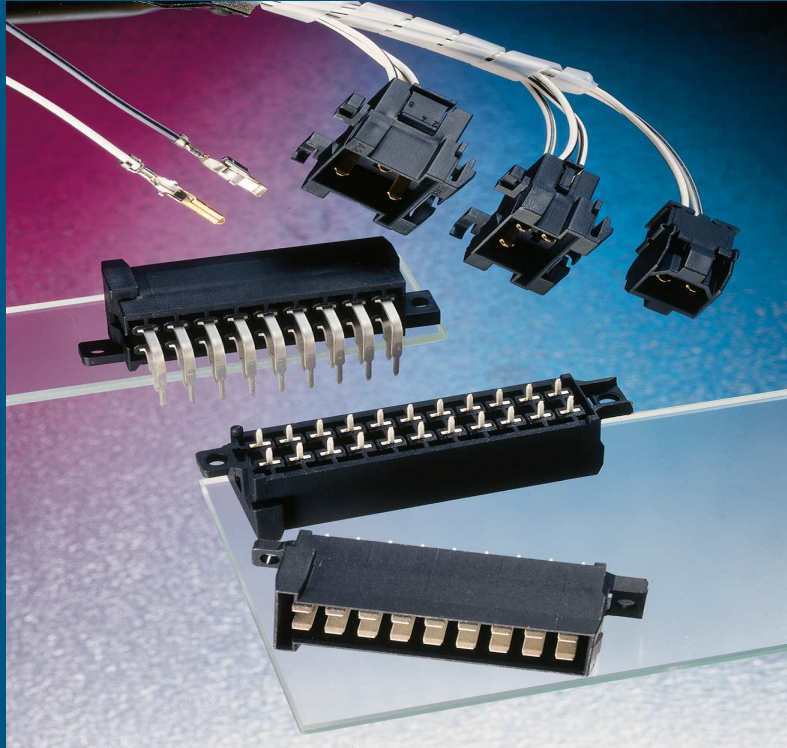


1X4 MT Cap with integrated  
R/A wire dress cover /  
mounting interface



2 Pocket Mixed R/A Tab Header + Mating  
Plugs with slide latches & wire dress covers

# Classic Timer Applications (con't)



UNSEALED



SEALED



# Typical Timer Applications



Sealed Micro Timer Global Door Latch Family  
(developed for GM) 4P / 6P / 10P variants =  
large volumes and many global platforms

# Plug-In Relay Timer Applications

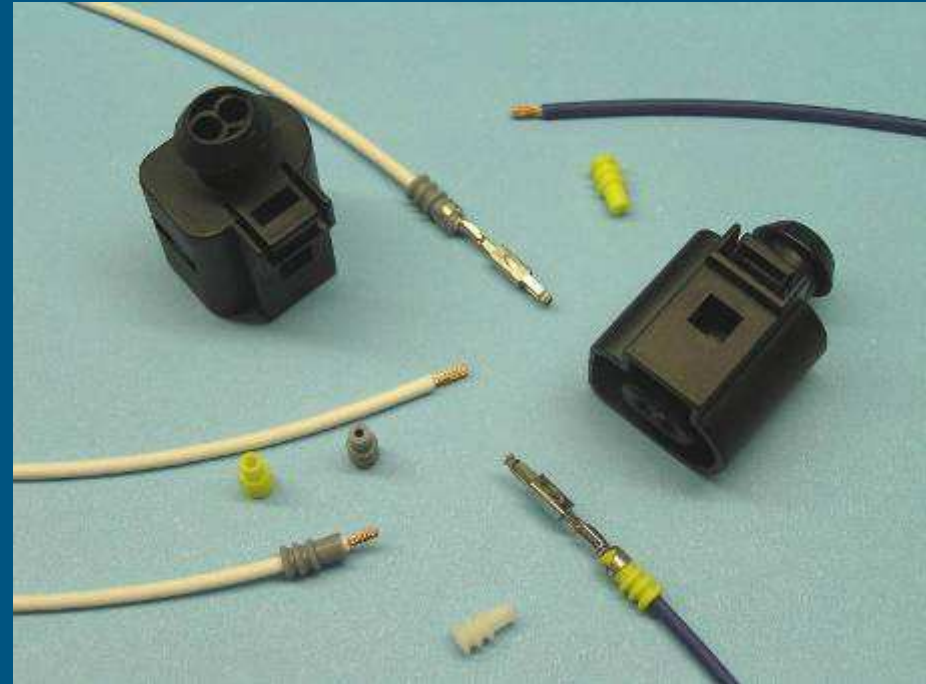


Micro / Mini Plug-In Relay  
Interface Modules in PDC  
typically use Timer JPT/  
SPT terminals

# Sealed WTW Timer Applications



14P (8X MT / 6X JPT) Wire to  
Wire Sealed Plug & Cap



2P Micro Timer Wire to Wire  
Sealed Plugs



# Custom Sealed Timer Applications

6P Sealed Glow Plug  
Connector, (2X SPT, 4X JPT)  
with secondary retainer



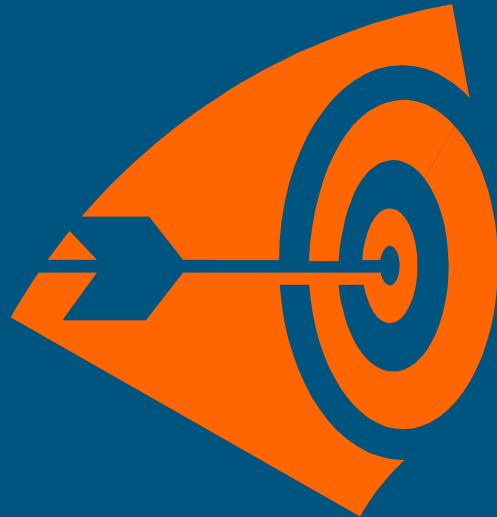
2X4 (8X MT2) Sealed  
Integrated Connector Cap for  
Emissions SCR Pump Motor  
End Cap with M16 thread boss  
for pressure fitting and retainer

Global Automotive Division - Americas North

# Timer Product Overview

---

THANKS FOR YOUR TIME AND  
ATTENTION !



QUESTIONS ?