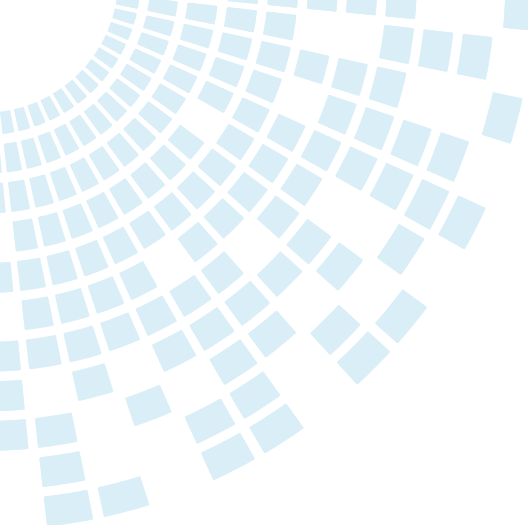




## ModICE® & SHS

Industrial and Commercial Transportation



**cinch**  
CONNECTIVITY SOLUTIONS  
a bel group

+1 630.705.6000

[cinch.com](http://cinch.com)



## Cinch Connectivity Solutions

### Innovative interconnect solutions across the world.

Cinch Connectivity Solutions designs and manufactures a broad range of interconnect products with facilities around the world.

In operation since 1917, Cinch supplies high quality, high performance connectors and cables globally to the Commercial Transportation, Aerospace, Military and Defense, High End Computer, Oil & Gas and other industrial markets.

We aim to exceed our customer's expectations, and to continually provide innovative solutions to the rapidly changing needs of the markets, and customers, we serve.



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## ModICE & SHS

|                        |    |
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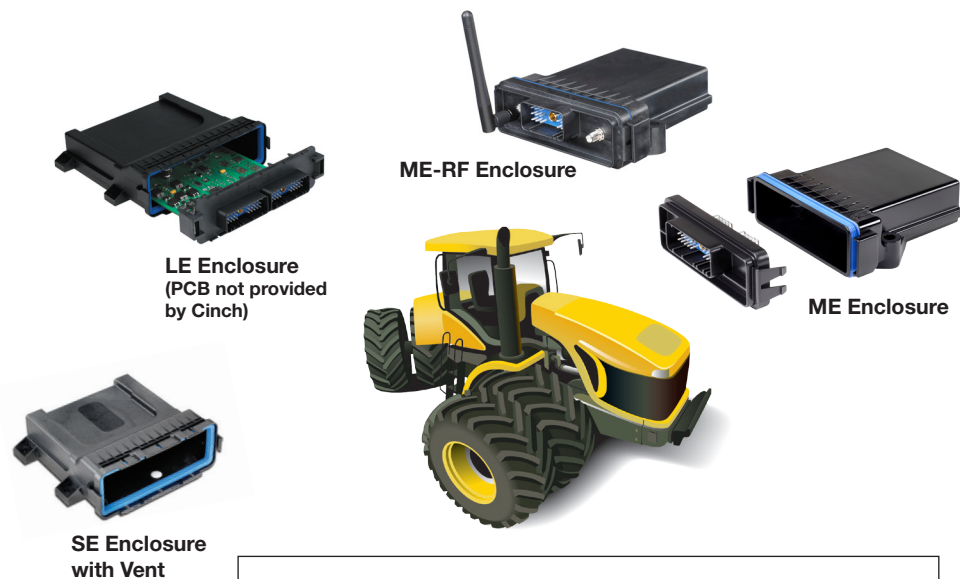


# ModICE® Modular Connector Enclosures

ModICE® is a complete line of connector enclosures that offer sealed packaging solutions for rugged electronic control modules. The Cinch 1.5mm SHS system is the base interconnect technology.

The ModICE® Advantage:

- 3 distinct enclosure sizes (ME, SE, LE)
- Multiple header configurations (18, 30, 48 and 60 I/O)
- Available Options:
  - ME Header with integrated RF Ports (SMA, RP-SMA)
  - Headers with integrated ferrite filtering
  - Blank headers for specific customer applications
  - Enclosures with integrated heat sink (SE and LE)
  - Vented enclosures (Breather vent)
- Simple module assembly with snap-in header/PCB



## Product Specification

**Operating Temperature:** -40°C to +85°C

**Current:** 10 Amp @ 85°C

**Contact Resistance:** < 10mΩ

**Insulation Resistance:** > 1000 MΩ

**Sealing:** IP67, IP69K

**Temperature Life:** 1000 Hrs @ 85°C

**Current Cycling:** 500 Hrs @ 10 Amp, 500 cycles 45 min ON – 15 min OFF

**Vibration:** 10 to 2000 to 10 Hz with 15 g's peak level

**Shock:** 50 g's – 20 pulses

**Salt Spray:** 96 Hrs

**Temperature Humidity Cycling:** 320 Hrs

40 – 8 Hrs cycles -40°C to +85°C

**Fluid Resistance:** Resists to most fluids used in industrial applications



# ModICE<sup>®</sup> Enclosures

ME Enclosure



## ME

|                   | Enclosure     | With Breather |
|-------------------|---------------|---------------|
| Without Heat Sink | 581 01 30 065 | 581 01 30 075 |

## SE

|                     | Enclosure     | With Breather |
|---------------------|---------------|---------------|
| Without Heat Sink   | 581 01 30 043 | 581 01 30 059 |
| With One Heat Sink  | 581 01 30 042 | 581 01 30 058 |
| With Two Heat Sinks | 581 01 30 041 | 581 01 30 057 |

## LE

|                     | Enclosure     | With Breather |
|---------------------|---------------|---------------|
| Without Heat Sink   | 581 01 60 033 | 581 01 60 039 |
| With One Heat Sink  | 581 01 60 032 | 581 01 60 038 |
| With Two Heat Sinks | 581 01 60 031 | 581 01 60 037 |

## SE & LE Spring Plate for Heat Sink Option

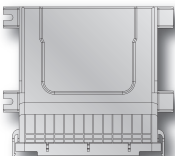
|                | Spring Plates                   |
|----------------|---------------------------------|
| One Heat Sink  | 581 00 00 021                   |
| Two Heat Sinks | 581 00 00 020 and 581 00 00 021 |

\* The heat sink option is only available on the SE and LE Enclosure.

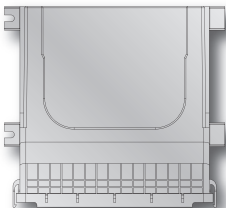
ME



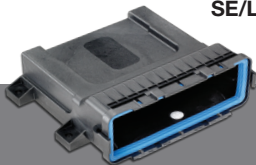
SE



LE



SE/LE Enclosure



For dimensions visit [cinch.com](http://cinch.com)

# ModICE® Headers

ME Header



## ME

| I/O    | With Ferrite  | Without Ferrite |
|--------|---------------|-----------------|
| 18 I/O | 581 01 18 039 | 581 01 18 038   |
| 30 I/O | 581 01 30 072 | 581 01 30 064   |
| 48 I/O | 581 01 48 010 | 581 01 48 009   |
| Blank  |               | 581 00 00 055   |



## SE

| I/O    | With Ferrite  | Without Ferrite |
|--------|---------------|-----------------|
| 18 I/O | 581 01 18 033 | 581 01 18 032   |
| 30 I/O | 581 01 30 046 | 581 01 30 044   |
| 48 I/O | 581 01 48 007 | 581 01 48 005   |
| Blank  |               | 581 00 00 027   |



## LE

| I/O    | With Ferrite  | Without Ferrite |
|--------|---------------|-----------------|
| 30 I/O | 581 01 30 051 | 581 01 30 045   |
| 48 I/O | 581 01 48 008 | 581 01 48 006   |
| 60 I/O | 581 01 60 006 | 581 01 60 005   |
| Blank  |               | 581 00 00 028   |



SE/LE Header

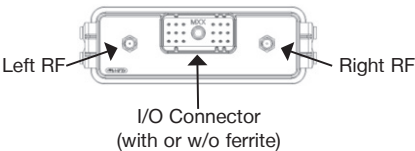




ModICE® ME-RF offers a unique enclosure cover (header) with integrated SMA connectors for quick connect of antenna and other RF devices.

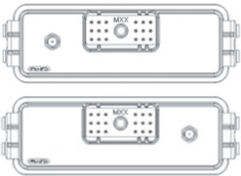


Header Arrangement  
(Face View – 18 I/O shown)



Features include:

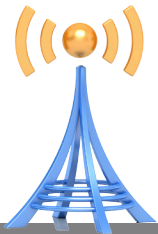
- Main connector - 18 or 30 I/O (with or without ferrite)
- 1 or 2 SMA
- Standard or Reverse Polarity SMA (50Ω)
- SMA soldered to PC board



ME-RF Headers

| # SMA | I/O    | Left RF | Right RF | With Ferrite | Without Ferrite |
|-------|--------|---------|----------|--------------|-----------------|
| 1     | 18 I/O | N/A     | SMA      | 5810618004   | 5810618003      |
| 1     | 18 I/O | RP-SMA  | N/A      | 5810618006   | 5810618005      |
| 1     | 30 I/O | N/A     | SMA      | 5810630004   | 5810630003      |
| 1     | 30 I/O | RP-SMA  | N/A      | 5810630006   | 5810630005      |
| 2     | 18 I/O | RP-SMA  | SMA      | 5810618002   | 5810618001      |
| 2     | 18 I/O | RP-SMA  | RP-SMA   | 5810618008   | 5810618007      |
| 2     | 18 I/O | SMA     | SMA      | 5810618010   | 5810618009      |
| 2     | 30 I/O | RP-SMA  | SMA      | 5810630002   | 5810630001      |
| 2     | 30 I/O | RP-SMA  | RP-SMA   | 5810630008   | 5810630007      |
| 2     | 30 I/O | SMA     | SMA      | 5810630010   | 5810630009      |

See page 6 for or ME Enclosure part numbers





# ModICE® Tooling

| ModICE Tooling              |               |
|-----------------------------|---------------|
| Tool to assemble ModICE® SE | 599 11 11 687 |
| Tool to assemble ModICE® LE | 599 11 11 688 |
| Tool to assemble ModICE® ME | 599 11 11 652 |
| Tool to open ModICE® SE     | 599 11 11 611 |
| Tool to open ModICE® LE     | 599 11 11 612 |
| Tool to open ModICE® ME     | 599 11 11 440 |

See [www.cinch.com](http://www.cinch.com) for ModICE® Assembly Instructions

## ModICE® Header/ SHS Harness Connector Matrix

| ModICE® Header | Size       | I/O | Connector Mate 1 | Connector Mate 2 |
|----------------|------------|-----|------------------|------------------|
| 581 01 18 xxx  | ME, SE     | 18  | 581 01 18 023    | N/A              |
| 581 01 30 xxx  | ME, SE     | 30  | 581 01 30 029    | N/A              |
| 581 01 48 xxx  | ME, SE, LE | 48  | 581 01 18 023    | 581 01 30 029    |
| 581 01 60 xxx  | LE         | 60  | 581 01 30 028    | 581 01 30 029    |
| 581 06 18 xxx  | ME-RF      | 18  | 581 01 18 023    | SMA              |
| 581 06 30 xxx  | ME-RF      | 30  | 581 01 30 029    | SMA              |

See page 15 for SHS Harness Connectors





# SHS Headers

SHS is a complete line of sealed rugged I/O connectors. This product family is designed to perform on electronic control modules that function in extreme environmental conditions commonly found on commercial and off-road vehicles and industrial equipment.

The SHS Header Advantage:

- Robust panel-mount PCB connector
- 4 header sizes (18, 30, 48 and 60 I/O)
- Integrated ferrite filtering available
- 1.5mm connector technology
- Multiple colors and keying configurations available

SHS Header  
48 I/O



SHS Header  
30 I/O



## Product Specification

**Operating Temperature:** -40°C to +125°C

**Current:** 10 Amp @ 85°C

**Contact Resistance:** < 10mΩ

**Insulation Resistance:** > 1000 MΩ

**Sealing:** IP67, IP69K

**Temperature Life:** 1000 Hrs @ 125°C

**Current Cycling:** 500 Hrs @ 10 Amp

500 cycles 45 min ON – 15 min OFF

**Vibration:** 10 to 2000 to 10 Hz with 15 g's peak level

**Shock:** 50 g's – 20 pulses

**Salt Spray:** 96 Hrs

**Temperature Humidity Cycling:** 320 Hrs

40 – 8 Hrs cycles -40°C to +125°C

**Fluid Resistance:** Resists to most fluids used in industrial applications



# SHS Headers



| I/O    | With Ferrite  | Without Ferrite | Color   |
|--------|---------------|-----------------|---------|
| 18 I/O | 581 01 18 001 | 581 01 18 011   | Black   |
| 18 I/O | 581 01 18 002 | 581 01 18 012   | Natural |
| 30 I/O | 581 01 30 001 | 581 01 30 011   | Grey    |
| 30 I/O | 581 01 30 002 | 581 01 30 013   | Black   |
| 48 I/O | 581 01 48 001 | 581 01 48 011   | Black   |
| 48 I/O | 581 01 48 002 | 581 01 48 012   | Natural |
| 48 I/O | 581 01 48 003 | 581 01 48 013   | Grey    |
| 60 I/O | 581 01 60 001 | 581 01 60 011   | Black   |
| 60 I/O | 581 01 60 002 | 581 01 60 012   | Natural |



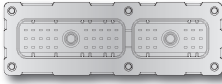
**18 I/O**



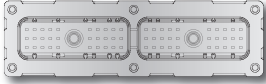
**30 I/O**



**48 I/O**



**60 I/O**



For dimensions visit [cinch.com](http://cinch.com)

# SHS Headers/SHS Harness Connector Matrix

| SHS Header    | I/O | SHS Harness Connector<br>Mate 1 | SHS Harness Connector<br>Mate 2 |
|---------------|-----|---------------------------------|---------------------------------|
| 581 01 18 001 | 18  | 581 01 18 023                   | N/A                             |
| 581 01 18 002 | 18  | 581 01 18 024                   | N/A                             |
| 581 01 18 011 | 18  | 581 01 18 023                   | N/A                             |
| 581 01 18 012 | 18  | 581 01 18 024                   | N/A                             |
| 581 01 30 001 | 30  | 581 01 30 027                   | N/A                             |
| 581 01 30 002 | 30  | 581 01 30 028                   | N/A                             |
| 581 01 30 011 | 30  | 581 01 30 027                   | N/A                             |
| 581 01 30 013 | 30  | 581 01 30 028                   | N/A                             |
| 581 01 48 001 | 48  | 581 01 18 023                   | 581 01 30 029                   |
| 581 01 48 002 | 48  | 581 01 18 024                   | 581 01 30 030                   |
| 581 01 48 003 | 48  | 581 01 18 023                   | 581 01 30 027                   |
| 581 01 48 011 | 48  | 581 01 18 023                   | 581 01 30 029                   |
| 581 01 48 012 | 48  | 581 01 18 024                   | 581 01 30 030                   |
| 581 01 48 013 | 48  | 581 01 18 023                   | 581 01 30 027                   |
| 581 01 60 001 | 60  | 581 01 30 028                   | 581 01 30 029                   |
| 581 01 60 002 | 60  | 581 01 30 030                   | 581 01 30 031                   |
| 581 01 60 011 | 60  | 581 01 30 028                   | 581 01 30 029                   |
| 581 01 60 012 | 60  | 581 01 30 030                   | 581 01 30 031                   |

See page 15 for SHS Harness Connectors







# SHS Harness Connector

The SHS Harness Connector is the mate to ModICE® and SHS Headers.

The SHS Connector Advantage:

- 2 connector sizes (18, 30 way)
- 1.5mm terminal technology
- Push-to-seat terminals
- Integrated wire grommet seals with protective back-plate
- Terminal position assurance
- Robust jack-post mating to the header



## Product Specification

**Operating Temperature:** -40°C to +125°C

**Current:** 10 Amp @ 85°C

**Contact Resistance:** < 10mΩ

**Insulation Resistance:** > 1000 MΩ

**Sealing:** IP67, IP69K

**Temperature Life:** 1000 Hrs @ 125°C

**Current Cycling:** 500 Hrs @ 10 Amp

500 cycles 45 min ON – 15 min OFF

**Vibration:** 10 to 2000 to 10 Hz with 15 g's peak level

**Shock:** 50 g's – 20 pulses

**Salt Spray:** 96 Hrs

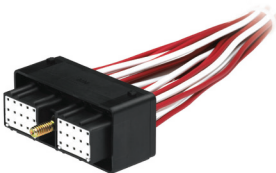
**Temperature Humidity Cycling:** 320 Hrs

40 – 8 Hrs cycles -40°C to +125°C

**Fluid Resistance:** Resists to most fluids used in industrial applications



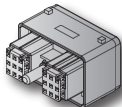
# SHS Harness Connector



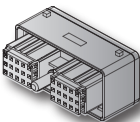
## Harness Connectors

| Position | Connector     | Color   |
|----------|---------------|---------|
| 18       | 581 01 18 023 | Black   |
| 18       | 581 01 18 024 | Natural |
| 30       | 581 01 30 027 | Grey    |
| 30       | 581 01 30 028 | Black   |
| 30       | 581 01 30 029 | Black   |
| 30       | 581 01 30 030 | Natural |
| 30       | 581 01 30 031 | Natural |

Connector 18 pos.

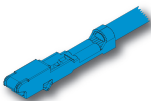


Connector 30 pos.



## Terminals

| Wire Size           | Terminal      |
|---------------------|---------------|
| 20GXL, 18TXL        | 425 00 00 872 |
| 18GXL, 16TXL, 16GXL | 425 00 00 873 |

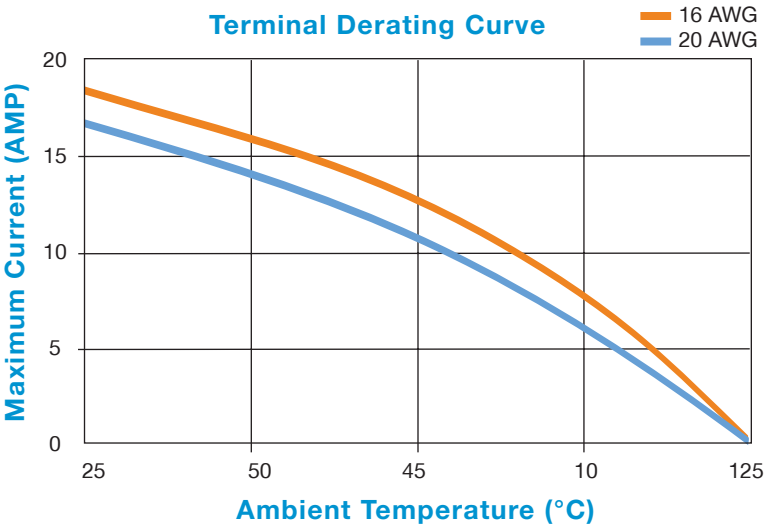


## Seal Plug

|                            | Seal Plug     |
|----------------------------|---------------|
| For connector 18 & 30 pos. | 581 00 00 011 |



# SHS Harness Connector



## SHS Application Tooling

| SHS Harness Connector Repair Tooling |                                       |                            |
|--------------------------------------|---------------------------------------|----------------------------|
| 599 11 11 628                        | Secondary Lock removal Tool (Tweezer) | For connector 18 & 30 pos. |
| 581 01 18 920                        | Terminal Removal Tool                 | For connector 18 & 30 pos. |

| SHS Harness Connector Crimp Tooling |                 |                            |
|-------------------------------------|-----------------|----------------------------|
| 599 11 11 615                       | Hand Crimp Tool | For terminal 425 00 00 872 |
| 599 11 11 616                       | Hand Crimp Tool | For terminal 425 00 00 873 |
| 599 11 11 621                       | Applicator      | For terminal 425 00 00 872 |
| 599 11 11 622                       | Applicator      | For terminal 425 00 00 873 |
| 599 11 11 623                       | Punch/Anvil kit | For terminal 425 00 00 872 |
| 599 11 11 624                       | Punch/Anvil kit | For terminal 425 00 00 873 |

Crimp specification and connector assembly information is available at [cinch.com](http://cinch.com)



# Custom Capabilities

## Connectors and Cable Assemblies

Over the years, Cinch has developed capabilities to support its customers most demanding applications. Our custom range of products include connectors and cable assemblies used in the Commercial Aircraft, Military/Aerospace, Supercomputing, On/Off Highway, Agriculture, and Industrial markets.

Please contact Cinch for your special connector and connectivity requirements.



**Connector Enclosure for  
Engine Controller**



**Cable Assemblies for  
4WD Transmission  
Actuators**



**High Pin-Count Connector for  
Electronic Controller**



**RF Enclosure  
Telematics**



**Diesel Pressure Sensor Cap  
CIN::APSE Compression Technology**





## Proven Excellence

For over 70 years, Cinch has been a supplier of quality connector and interconnect products to the computer, telecom, aerospace, military and transportation industries. We are a multi-national manufacturer with facilities in the US, Mexico and the UK supplying global customers.

Cinch applies its extensive expertise in interconnection technology to engineer and manufacture connectors, cables and harnesses using state of the art technology and tooling. Mechanical design is accomplished using Pro/E 3D solid modeling supported by nonlinear and linear Finite Element Analysis and Mold Flow software.

Our engineers utilize in-house capabilities in high frequency interconnect simulation, SPICE model generation and high frequency testing to develop the optimum product. All products are validated in our first article, mechanical, electrical and environmental test facilities ensuring the finished products meet our customers' most stringent specifications.

Simply stated, your connectors are manufactured in state of the art facilities that are committed to customer satisfaction and continuous improvement.

### Cinch Connectivity Solutions

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[cinch.com](http://cinch.com)



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