

# Automotive high speed signal shield connector (In-line type)

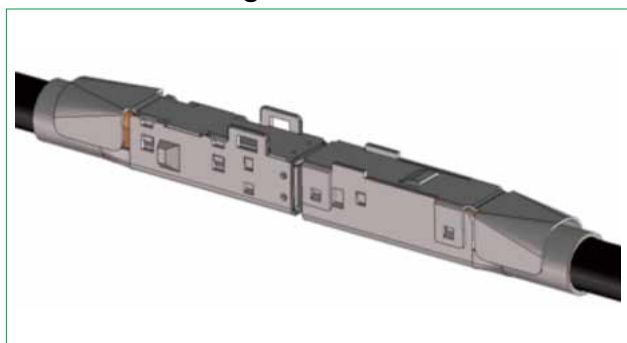
## GT32F Series



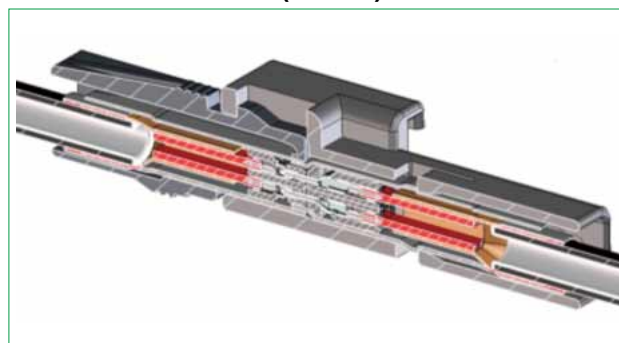
### ■Features

1. 1.5mm pitch, two rows
2. In-line connector
3. Number of contacts : 4
4. Supports high speed differential transmissions  
Transmits signals at a speed equivalent to 3Gbps per pair.  
The impedance has been adjusted in accordance with the termination method.
5. Higher EMI performance through a fully-shielded design  
The fully-shielded design also offers noise resistance.
6. Satisfies rigorous test conditions for automotive devices
7. A robust lock provides a tactile click
8. Crimping termination  
Compatible with 24 to 28AWG.

### ◆Full-shield design when mated



### ◆Internal structure (mated)



### ■High speed transmission property

#### ●Differential impedance (equivalent to 3.4Gbps)

RISE TIME : 200ps 10%-90%  
Impedance standard :  $100\Omega \pm 15\%$

Reference standard : HDMI 1.4a Type A  
TMDS Signals Time Domain Impedance

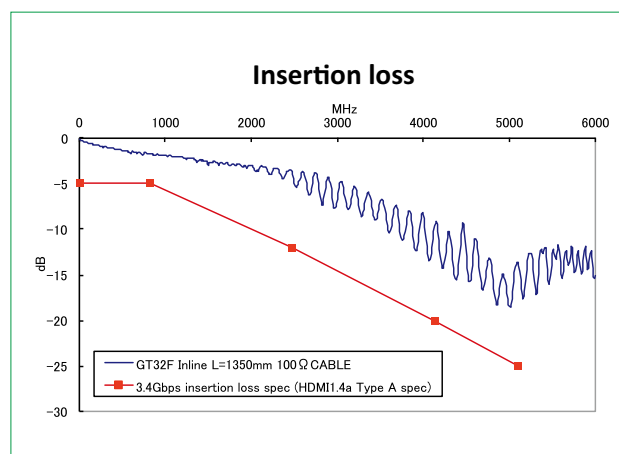
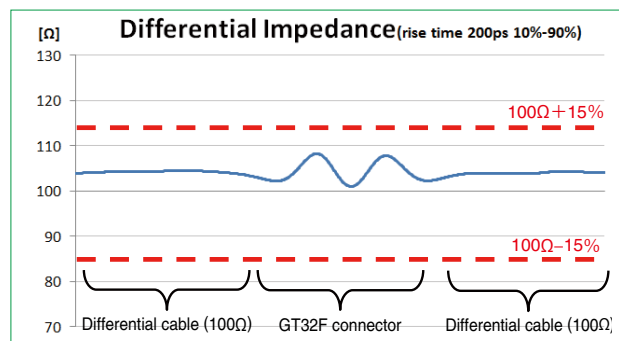
Note : Although the above standard is a transmission standard for 10.2Gbps/3pairs, values have been converted into those per a pair to describe as a reference standard for those equivalent to 3.4Gbps/pair.

#### ●Insertion loss

Cable length : 1350mm  
Including a GT32F In-line connector.

Reference standard : HDMI 1.4a Type A  
Cate.2 "Sufficient Condition" 5Db Attenuation

Note : Although the above standard is a transmission standard for 10.2Gbps/3pairs, values have been converted into those per a pair to describe as a reference standard for those equivalent to 3.4Gbps/pair.



## Product Specifications

|         |                                               |                                             |
|---------|-----------------------------------------------|---------------------------------------------|
| Ratings | Current : 1A                                  | Voltage : 30V AC                            |
|         | Operating temperature range : -40°C to +105°C | Storage temperature range : -40°C to +105°C |

| Items                                  | Specifications                                                                                                                                                                                           | Conditions                                                                                                     |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 1. Contact resistance                  | Signal : 30mΩ max, External : 60mΩ max                                                                                                                                                                   | Measured at 1A DC.                                                                                             |
| 2. Insulation resistance               | 100MΩ min                                                                                                                                                                                                | Measured at 500V DC.                                                                                           |
| 3. Withstanding voltage                | There shall be no flashover or dielectric breakdown.                                                                                                                                                     | Apply 500V AC for one minute.                                                                                  |
| 4. Vibration resistance                | ① There shall be no electrical discontinuity lasting for a minimum of 10μs.<br>② Contact resistance : Signal : 60mΩ max<br>External : 120mΩ max<br>③ There shall be no damage, cracks or loosened parts. | Frequency : 20 to 200Hz, acceleration : 43.1m/s <sup>2</sup> , 3 directions, 3 cycles each.                    |
| 5. Humidity resistance in steady state | ① Contact resistance : Signal : 60mΩ max<br>External : 120mΩ max<br>② Insulation resistance : 100MΩ min<br>③ There shall be no damage, cracks or loosened parts.                                         | Temperature : 60°C, relative humidity : 90 to 95%, leave 500 hours.                                            |
| 6. Thermal shock                       | ① Contact resistance : Signal : 60mΩ max<br>External : 120mΩ max<br>② Insulation resistance : 100MΩ min<br>③ There shall be no damage, cracks or loosened parts.                                         | Temperature -40 → Room temperature → 85°C → Room temperature<br>Time : 30 → 5 → 30 → 5 minutes<br>1000 cycles. |
| 7. Repeated action                     | ① Contact resistance : Signal : 60mΩ max<br>External : 120mΩ max<br>② There shall be no damage, cracks or loosened parts.                                                                                | 30 mating cycles.                                                                                              |

## Product Number Structure

Refer to the chart below when determining the product specifications from the product number.

Please select from the product numbers listed in this catalog when placing orders.

### ●Female connector crimp contact, Male connector crimp contact

**GT 32 – 2428 SCF**

① ② ③ ④

|               |                                                                                             |                                     |                                                                                                                            |
|---------------|---------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| ① Series Name | GT                                                                                          | ③ Applicable wire size              | 2428 : 24 to 28AWG                                                                                                         |
| ② Series No.  | 32 (used for Female connector crimp contact)<br>32A (used for Male connector crimp contact) | ④ Form/Packaging<br>/Packaging type | SCF : Female connector crimp contact/reel packaging products<br>PCF : Male connector crimp contact/reel packaging products |

### ●Female connector insulation case, Male connector insulation case

**GT 32F – 4 D S – 1.5 C**

① ② ③ ④ ⑤ ⑥ ⑦

|                      |               |                  |                                            |
|----------------------|---------------|------------------|--------------------------------------------|
| ① Series Name        | GT            | ⑤ Connector type | S : Female connector<br>P : Male connector |
| ② Series No.         | 32F           | ⑥ Contact pitch  | 1.5 : 1.5mm pitch                          |
| ③ Number of contacts | 4             | ⑦ Part type      | C : Insulation case                        |
| ④ Number of columns  | D : 2 columns |                  |                                            |

### ●Female connector shell, Male connector shell

### ●Female connector shield cover, Male connector shield cover

### ●Female connector housing, Male connector housing

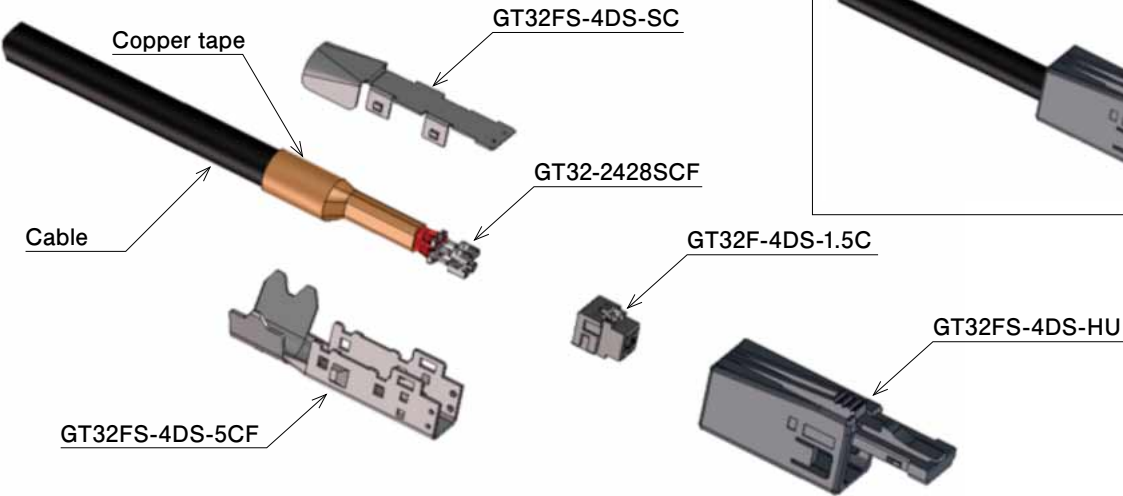
**GT 32F S – 4 D S – 5CF**

① ② ③ ④ ⑤ ⑥ ⑦

|                      |              |                     |                                                                             |
|----------------------|--------------|---------------------|-----------------------------------------------------------------------------|
| ① Series Name        | GT           | ⑤ Number of columns | D : 2 rows                                                                  |
| ② Series No.         | 32F          | ⑥ Connector type    | S : Female connector<br>P : Male connector                                  |
| ③ Shape              | S : Straight | ⑦ Part type         | 5CF : φ4.6 to 5.0 sheath crimp contact<br>SC : Shield cover<br>HU : Housing |
| ④ Number of contacts | 4            |                     |                                                                             |

Product configurations

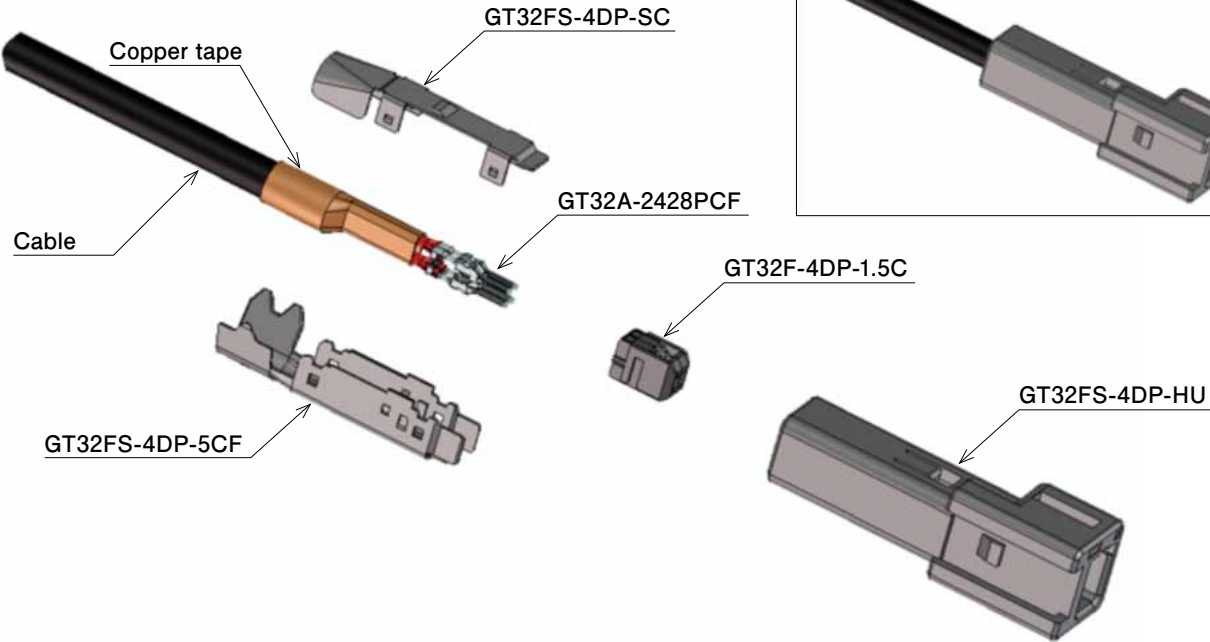
Female connector



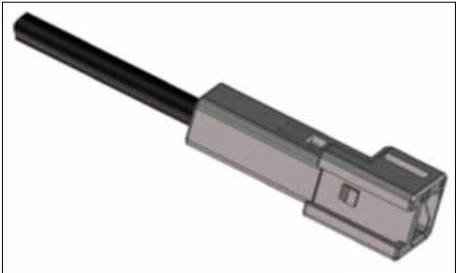
Female connector (complete)



Male connector



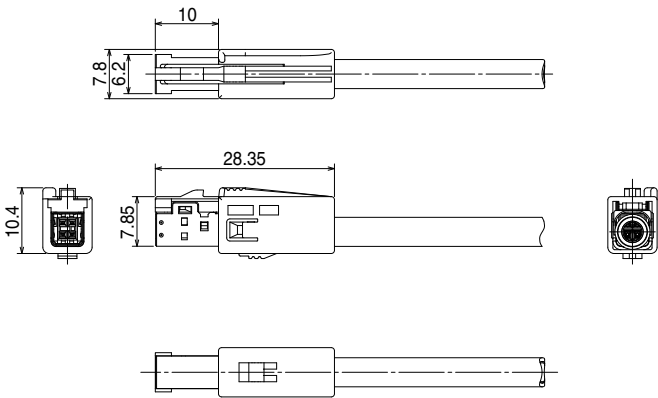
Male connector (complete)



GT32 Series Mating table

| Female connector                         |                            | Male connector                     |                            |
|------------------------------------------|----------------------------|------------------------------------|----------------------------|
| GT32F 4 cores<br>Straight plug connector | Configuration product name | GT32F 4 cores<br>In-line connector | Configuration product name |
|                                          | GT32-2428SCF               |                                    | GT32A-2428PCF              |
|                                          | GT32F-4DS-1.5C             |                                    | GT32F-4DP-1.5C             |
|                                          | GT32FS-4DS-5CF             |                                    | GT32FS-4DP-5CF             |
|                                          | GT32FS-4DS-SC              |                                    | GT32FS-4DP-SC              |
|                                          | GT32FS-4DS-HU              |                                    | GT32FS-4DP-HU              |

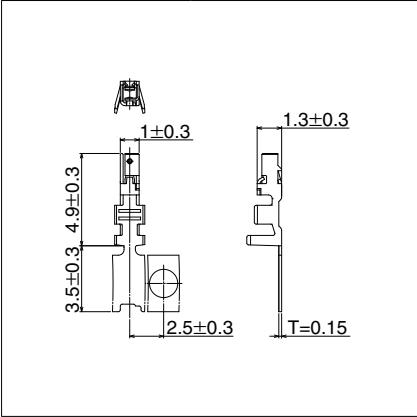
4-core straight plug connector (Female connector)



This product includes the following parts.

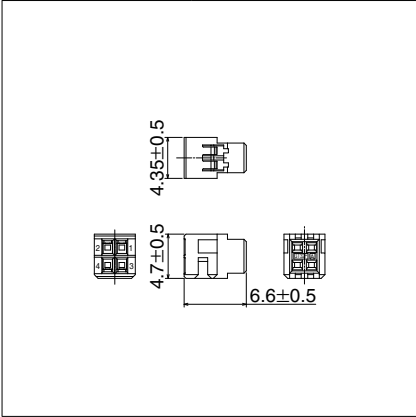
Crimp contact

|                        |                 |
|------------------------|-----------------|
| Part No.               | GT32-2428SCF    |
| HRS No.                | 782-0007-8 00   |
| Core cable size        | 24 to 28AWG     |
| Material/finish, color | Copper alloy    |
| Sales unit             | 10,000 pcs/reel |
| RoHS                   | ○               |



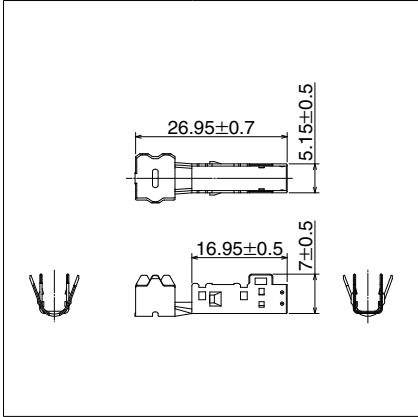
Insulation case

|                        |                |
|------------------------|----------------|
| Part No.               | GT32F-4DS-1.5C |
| HRS No.                | 782-0051-0 00  |
| Material/finish, color | PBT/light gray |
| Sales unit             | 1 piece        |
| RoHS                   | ○              |



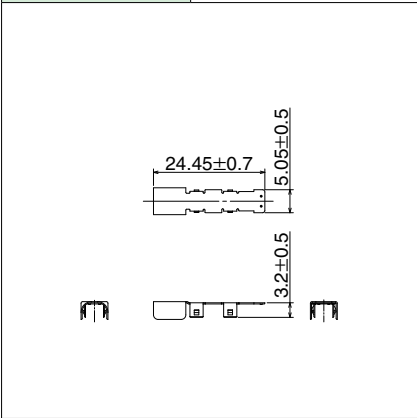
Shell

|                        |                           |
|------------------------|---------------------------|
| Part No.               | GT32FS-4DS-5CF            |
| HRS No.                | 782-0052-2 00             |
| Cable size             | φ4.6~5.0mm                |
| Material/finish, color | Copper alloy, tin plating |
| Sales unit             | 1 piece                   |
| RoHS                   | ○                         |



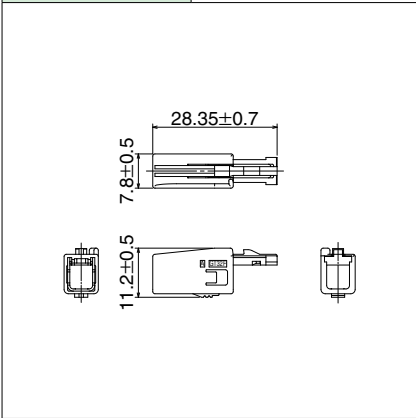
Shield cover

|                        |                           |
|------------------------|---------------------------|
| Part No.               | GT32FS-4DS-SC             |
| HRS No.                | 782-0053-5 00             |
| Material/finish, color | Copper alloy, tin plating |
| Sales unit             | 1 piece                   |
| RoHS                   | ○                         |

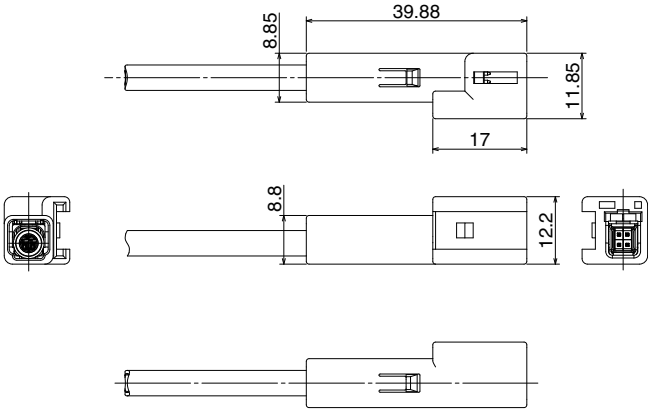


Housing

|                        |               |
|------------------------|---------------|
| Part No.               | GT32FS-4DS-HU |
| HRS No.                | 782-0054-8 00 |
| Material/finish, color | PBT/dark gray |
| Sales unit             | 1 piece       |
| RoHS                   | ○             |



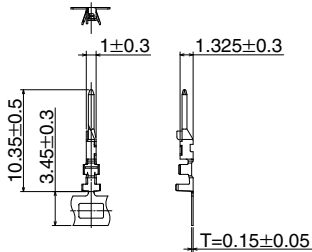
4-core In-line connector (Male connector)



This product includes the following parts.

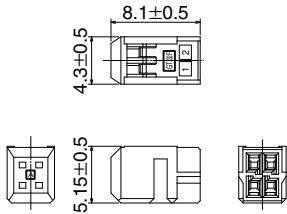
Crimp contact

|                        |                 |
|------------------------|-----------------|
| Part No.               | GT32A-2428PCF   |
| HRS No.                | 782-0050-7 00   |
| Core cable size        | 24 to 28AWG     |
| Material/finish, color | Copper alloy    |
| Sales unit             | 10,000 pcs/reel |
| RoHS                   | ○               |



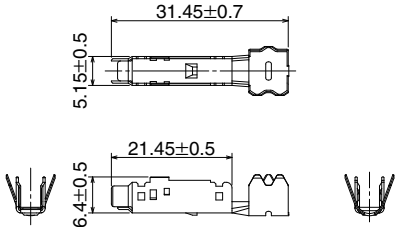
Insulation case

|                        |                |
|------------------------|----------------|
| Part No.               | GT32F-4DP-1.5C |
| HRS No.                | 782-0046-0 00  |
| Material/finish, color | PBT/light gray |
| Sales unit             | 1 piece        |
| RoHS                   | ○              |



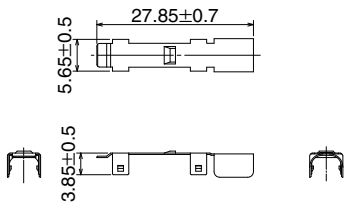
Shell

|                        |                           |
|------------------------|---------------------------|
| Part No.               | GT32FS-4DP-5CF            |
| HRS No.                | 782-0047-2 00             |
| Cable size             | φ4.6~5.0mm                |
| Material/finish, color | Copper alloy, tin plating |
| Sales unit             | 1 piece                   |
| RoHS                   | ○                         |



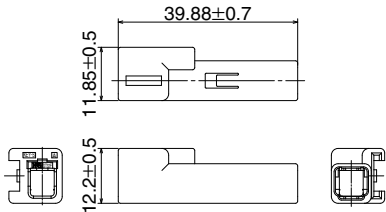
Shield cover

|                        |                           |
|------------------------|---------------------------|
| Part No.               | GT32FS-4DP-SC             |
| HRS No.                | 782-0048-5 00             |
| Material/finish, color | Copper alloy, tin plating |
| Sales unit             | 1 piece                   |
| RoHS                   | ○                         |



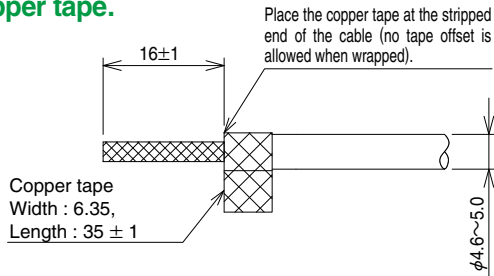
Housing

|                        |               |
|------------------------|---------------|
| Part No.               | GT32FS-4DP-HU |
| HRS No.                | 782-0049-8 00 |
| Material/finish, color | PBT/dark gray |
| Sales unit             | 1 piece       |
| RoHS                   | ○             |

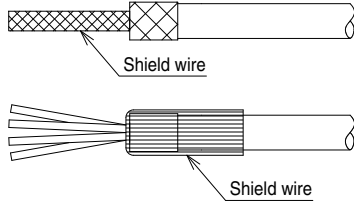


## ◆GT32F Series Female Connector Termination Method

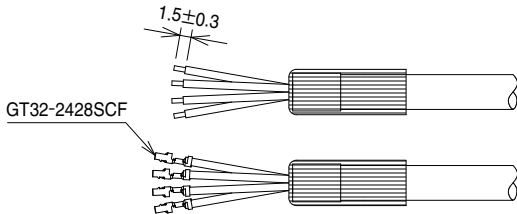
①Strip the external sheath and wrap with copper tape.



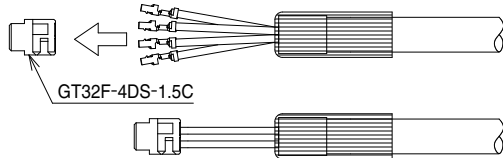
②Fold the shield wire.



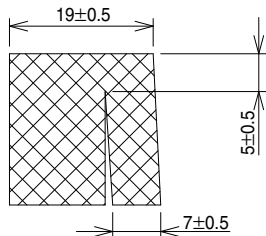
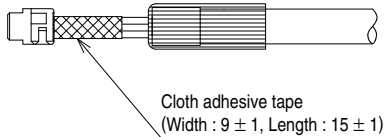
③Strip the core cable to crimp a GT32-2428SCF contact.



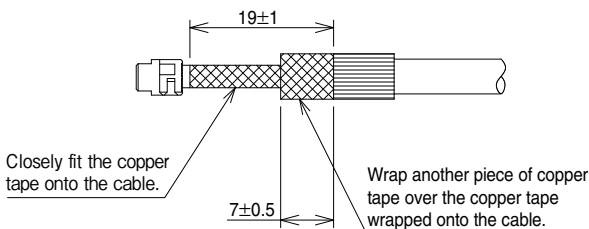
④After crimped, insert the GT32-2428SCF contact into GT32F-4DS-1.5C.



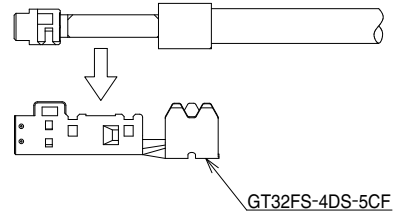
⑤Wrap a piece of cloth adhesive tape onto the end of the GT32F-4DS-1.5C, and then cut the copper tape as shown below and wrap it around the cable.



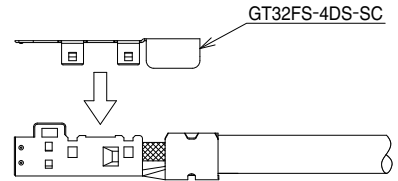
■Shield adhesive tape cut dimension



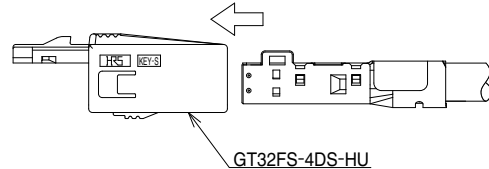
⑥Cut an excess shield wire from the copper tape, and then insert the cable into GT32FS-4DS-5CF.



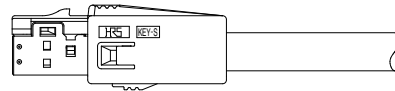
⑦Crimp the GT32FS-4DS-5CF, and then cover it with GT32FS-4DS-SC.



⑧Assemble GT32FS-4DS-HU.



⑨Completed assembly

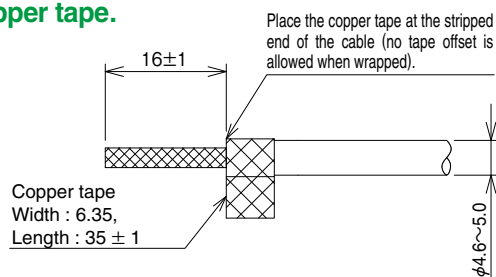


Note 1 : The harness method may differ depending on the configuration and material of the cable.

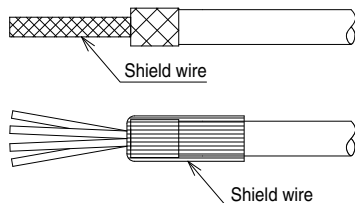
Note 2 : The crimp height must be set per cable. Follow the crimping condition table.

## ◆GT32F Series Male Connector Termination Method

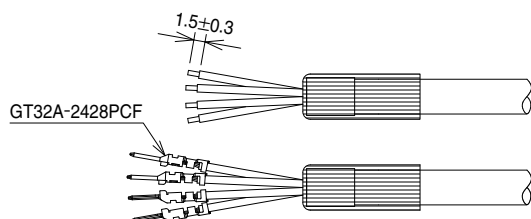
- ① Strip the external sheath and wrap with copper tape.



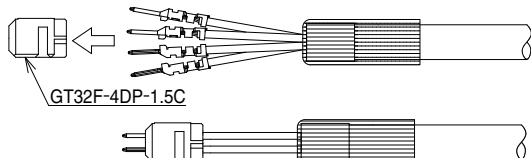
- ② Fold the shield wire.



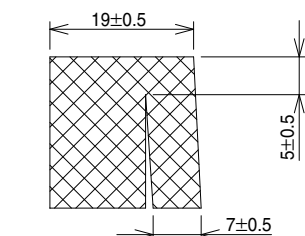
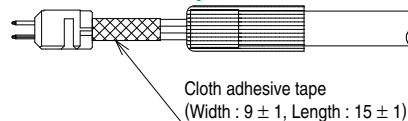
- ③ Strip the core cable to crimp a GT32A-2428PCF contact.



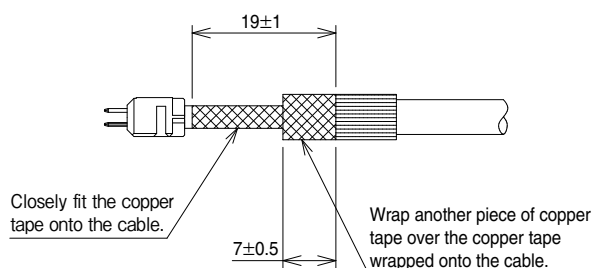
- ④ After crimped, insert the GT32A-2428PCF contact into GT32F-4DP-1.5C.



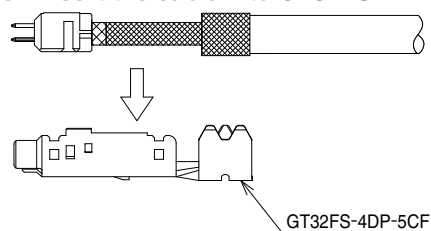
- ⑤ Wrap a piece of cloth adhesive tape onto the end of the GT32F-4DP-1.5C, and then cut the copper tape as shown below and wrap it around the cable.



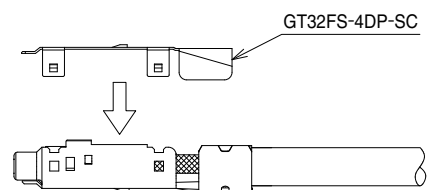
### ■Copper tape cut dimension



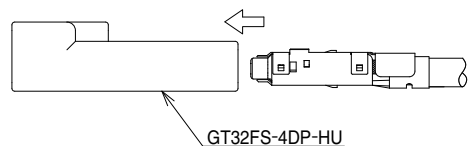
- ⑥ Cut an excess shield wire from the copper tape, and then insert the cable into GT32FS-4DP-5CF.



- ⑦ Crimp the GT32FS-4DP-5CF, and then cover it with GT32FS-4DP-SC.



- ⑧ Assemble GT32FS-4DP-HU.



- ⑨ Completed assembly



Note 1 : The harness method may differ depending on the configuration and material of the cable.

Note 2 : The crimp height must be set per cable. Follow the crimping condition table.

## ◆Crimping tools

User manuals are available. Please ask your Hirose Electric account representative.

### ●Automatic Crimping Machine



#### Specifications

| Item              | Specification              | Remarks       |
|-------------------|----------------------------|---------------|
| Press capacity    | 1.5Ton                     |               |
| Stroke            | 30mm                       |               |
| Number of strokes | 200spm (50Hz)              | 240spm (60Hz) |
| Weight            | 75kg                       |               |
| Motor             | 0.2kw                      | AC 100V       |
| Crimping speed    | 2000 to 4000 pcs. per hour |               |

#### Part No. CM-105C

Note : Please refer to the table below for applicator product numbers.

### ●Applicator (for use with the automatic crimping machine)

| Terminal Part No. | Terminal HRS No. | Tool Part No.     | Tool HRS No.      |
|-------------------|------------------|-------------------|-------------------|
| GT32-2428SCF      | 782-0007-8 00    | AP105-GT32-2428S  | 901-5223-2 00     |
| GT32A-2428PCF     | 782-0050-7 00    | Under development | Under development |

Note 1 : Crimp heights may differ depending on the cable specification, so please consult a HRS representative for assistance.

Note 2 : Before purchasing Hirose tooling, please make sure that your selected cable will work with the Hirose applicator.

Note 3 : Cables that are different from those specified by Hirose may not be suitable and may require modification to the applicator to obtain a proper crimp.

### ●Hand press



#### Part No. HOS-7

### ●Crimp tool for outer shield (Module for HOS-7)

| Terminal Part No. | Terminal HRS No. | Tool Part No.     | Tool HRS No.      |
|-------------------|------------------|-------------------|-------------------|
| GT32FS-4DS-5CF    | 782-0052-2 00    | Under development | Under development |
| GT32FS-4DP-5CF    | 782-0047-2 00    | Under development | Under development |

Note 1 : (01) is set unit (HOS-7 and Crimp tool).

Note 2 : Crimp height sets for each cable. Please ask HRS sales in detail. Take time to define new crimp height.

Note 3 : Please ask Crimp height for your cable when you use HRS tool.

Note 4 : Applicable tool may be changed by specic cable.



## HIROSE ELECTRIC CO.,LTD.

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