



# VALENTINI

## Wiring manual

**SYNTAX**<sup>®</sup>



## Syntax SGH

### Signal Insert

Inline and Panel Male  
SGH 8.1 | SGH 16.1

Syntax Wireasy Technology



# Preliminary operations

## SGH Male Signal Insert

### Preparation for all versions (both Inline and Panel-mount)

1

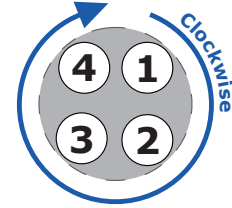


Best practice

#### Cable check

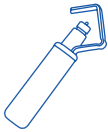
Check the sequence of the Ethernet cables: make sure it progresses **CLOCKWISE** from 1 to 4. If not, use the opposite end of the cable. This operation makes wiring easier and more orderly.

Cable numbering sequence



Front view

2

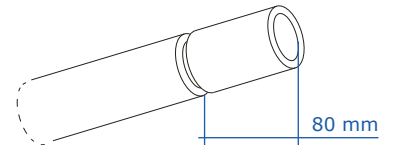


Sheath stripping

#### Outer sheath stripping

From the end of the cable, cut and remove **80 mm** of the **OUTER SHEATH**.

Outer cable sheath



### Inline version

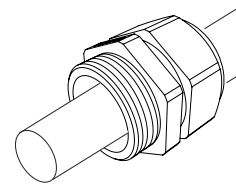
1



Assemble

#### Cable gland insertion

Put the **CABLE GLAND** on the cable. Make sure the threaded part will be nearer the extremity of the cable where the gland is inserted.



Cable gland

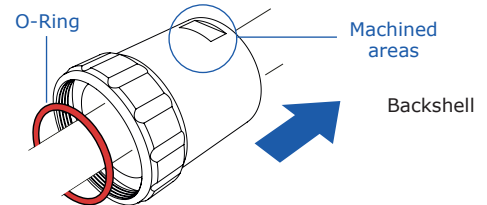
2



Assemble

#### Backshell and O-Ring insertion

Insert the **BACKSHELL** down the cable, in such a way the **REAR** part of the backshell is inserted first. The **REAR** of the backshell is the part where the machined areas for tightening with a wrench are. Then insert the **O-RING** down the cable.



### Panel version

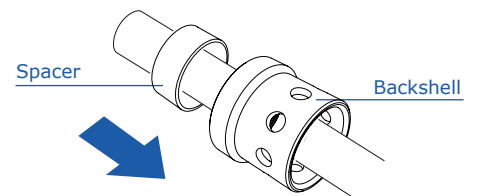
1



Assemble

#### Backshell and Spacer insertion

Insert the **BACKSHELL** down the cable, in such a way the **REAR** part of the backshell with the holes for cable fastening is inserted first. Then insert the **SPACER**.



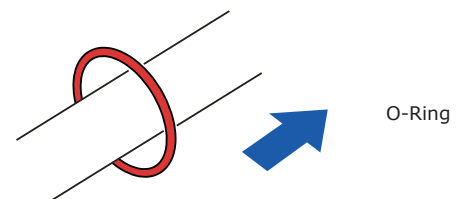
2



Assemble

#### O-Ring insertion

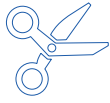
Insert the **O-RING** down the cable.



# Preparation and wiring – Central insert signal cables

## SGH Male Signal Insert

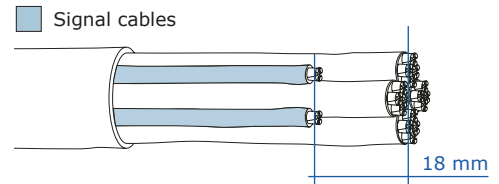
1



Cut off

### Cable preparation

Cut the signal cables **18 mm** shorter.



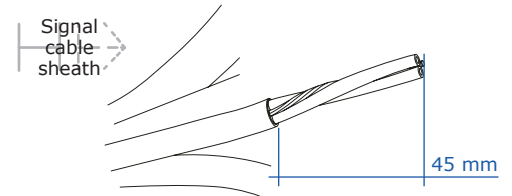
2



Sheath stripping

### Signal cables sheath stripping

Cut and remove **45 mm** of the jackets from all the signal cables.



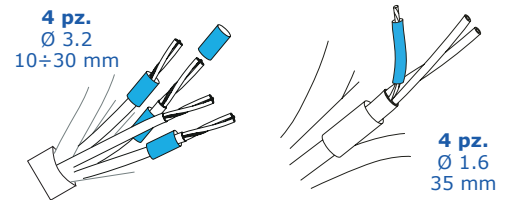
3



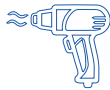
Heat shrink tubes Assemble

### Heat shrink tubes

Cut 4 heat shrink tubes **Ø 3.2 mm**, length **20 mm** each and insert one of them on each signal cable. Then, cut 4 heat shrink tubes **Ø 1.6 mm**, length **35 mm** each and insert one of them on each drain wire of the signal cables.



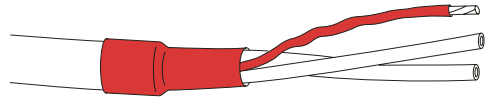
4



Heat

### Heat shrinking

Place the bigger heat shrink tube in such a way as to overlap both the overall jacket and the conductors inside the cable. Make sure the smaller heat shrink is completely inserted on the drain wire. Repeat these operations for all the other signal cables. Apply heat and shrink the tubes.



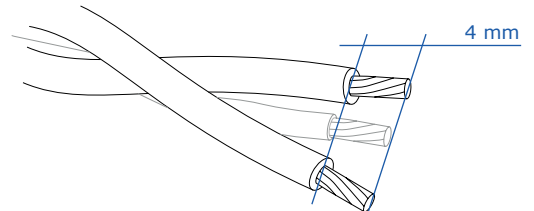
5



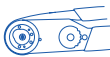
Wire stripping

### Signal cables stripping

Strip **4 mm** of the signal cable conductors.



6

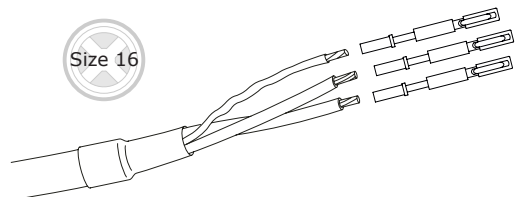


Crimp

### Signal contacts crimping

Set the crimping tool for **size 16** contacts. Crimp the signal and drain wire contacts.

*\*This setting refers to DMC AF8 tools, part no. SVKTCRIMP*



# Preparation and wiring - data cables

## SGH Male Signal Insert

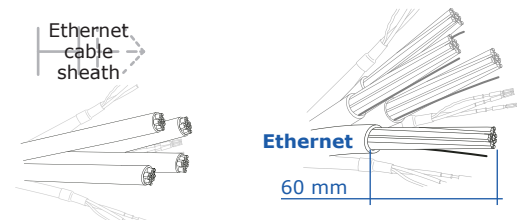
1



Sheath stripping

### Ethernet cable jacket removal

Cut and remove **60 mm** of the insulating jacket from the **ETHERNET** cables. Repeat this operation for each ethernet cable.



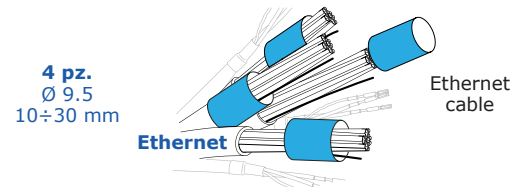
2



Heat shrink tubes Assemble

### Heat shrink tubes on ETHERNET cables

Cut 4 heat shrink tubes  $\varnothing$  **9.5 mm**, length **20 mm** each and insert them on the **ETHERNET** cables.



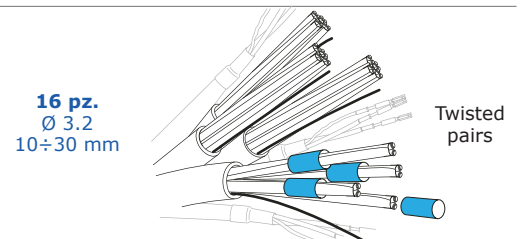
3



Heat shrink tubes Assemble

### Heat shrink tubes on twisted pairs

Cut 16 heat shrink tubes  $\varnothing$  **3.2 mm**, length **20 mm** and insert them on each of the shielded twisted pairs on each **ETHERNET** cable.



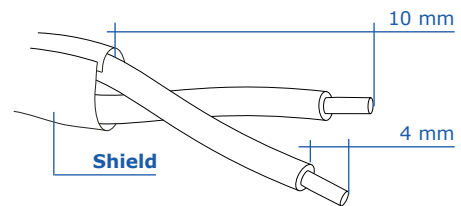
4



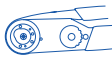
Wire stripping

### Twisted pairs stripping

Remove **10 mm** of the shield. Strip **4 mm** of the **TWISTED PAIRS** of the ethernet cables.



5

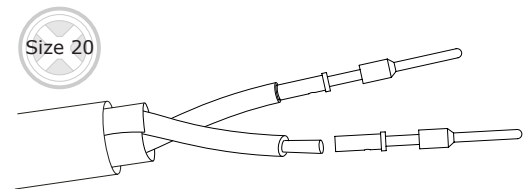


Crimp

### Data contacts crimping

Set the **CRIMPING TOOL** on **SIZE 20\*** and crimp the contacts

*\*This setting refers to DMC AF8 tools, part no. **SVKTCRIMP***



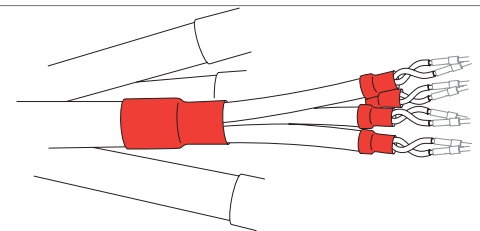
6



Heat

### Heat shrinking

Place the bigger heat shrink tubes in such a way as to overlap both the jacket and the shield of the twisted pairs. Place the smaller heat shrink tubes in such a way that the end of the tube nearer the contacts completely overlaps the shield. Repeat these operations for all the other signal cables. Apply heat and shrink the tubes.



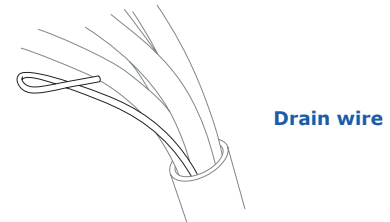
7



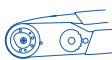
Best practice

### Drain wire

Each **ETHERNET** cable has a **DRAIN WIRE** for the shields. Bend the drain wire on itself and make it double. This operation will double up the section of the drain wire for easier crimping.



8

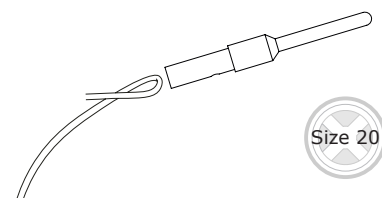


Crimp

### Shield drain contacts crimping

Set the **CRIMPING TOOL** on **SIZE 20\*** and crimp the shield drain contacts.

*\*This setting refers to DMC AF8 tools, part no. **SVKTCRIMP***



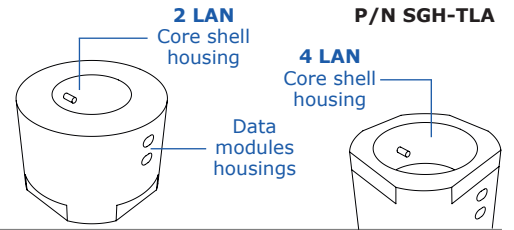
# Insertion of contacts, central insert and outer modules

## SGH Male Signal Insert



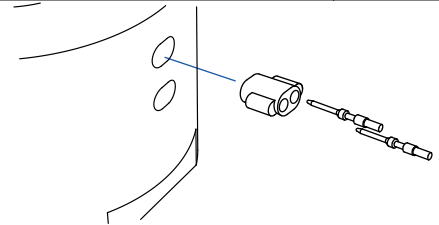
### Tool for modules insertion

A specific tool allows easy contact insertion inside the modules. On the tool, there are two housings on the front side where the **DATA CONTACT MODULES** are placed, and a housing on both the top and the bottom for the central insert and **CORE SHELL** (one of those housings is for the 8.1 model, the other is for the 16.1 model). For correct usage of the tool, clamp it on a **VISE**.



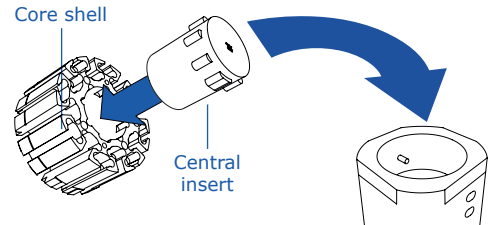
### Insertion of contacts inside the data contact modules

Insert the data modules in the upper slot on the front side of the SGH-TLA tool. Use pliers to insert the contacts all the way down until they are locked in place. The color of the modules are compliant with the color patterns according to 568A/B. At this stage, the polarity of modules is not important, but it is however preferable to insert the contact of the solid-colored wire on the right of the module.



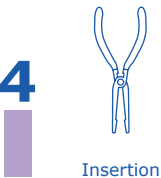
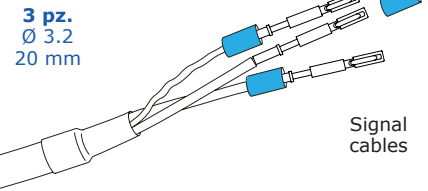
### Central Insert and Core shell assembling

Fit the rubber central insert in the housing at the center of the core shell, paying attention to the keyways. Thanks to the keyways, the two elements are automatically interlocked in the right position. Place the two components with their front side facing downwards when fitting them in the housing on the top of the insertion **TOOL**.



### Heat shrink tubes on signal cables

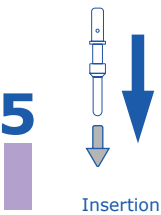
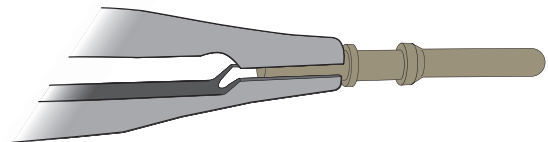
Cut 3 heat shrink tubes  $\varnothing$  3.2 mm, length 20 mm and insert them on each of the signal cables with their crimped contacts.



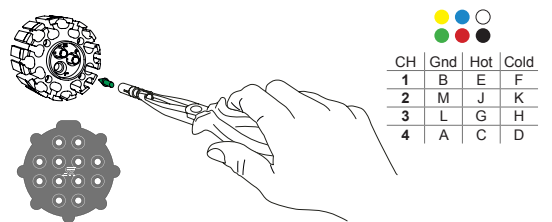
### Insertion of contacts in the central insert

With a suitable insertion tool, hold the crimping terminal of the contact.

Insertion pliers P/N SVKTINS16

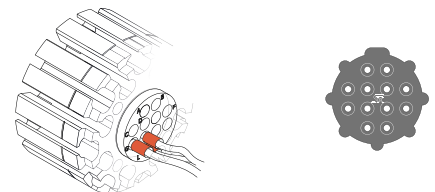


Referring to the diagram on the right, insert the contact in the correct cavity, pressing it inside until it is felt as locked in its position.



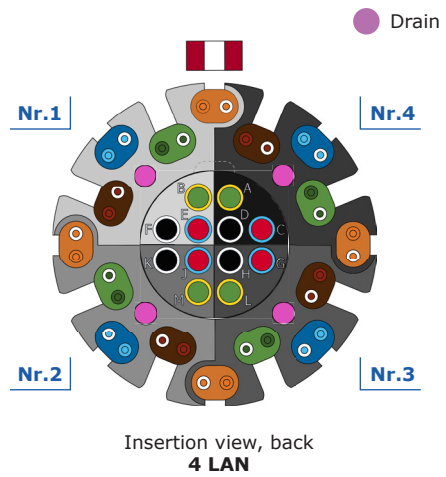
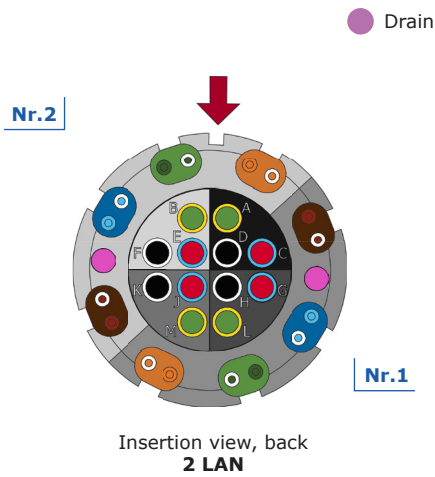
### Heat shrinking

Slide down all the heat shrink tubes previously fitted on the cable and place them against the central insert. Apply heat and shrink the tubes.



# Data modules placement sequence

SGH Male Signal Insert



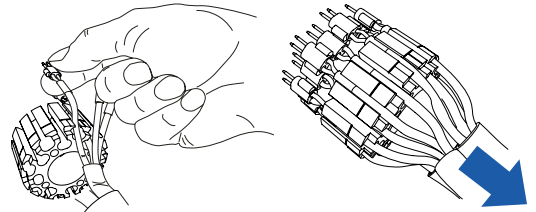
1



Assemble

### Modules placement

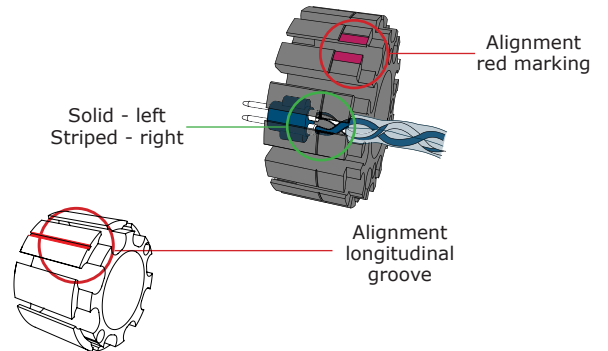
Insert the modules in the correct housings according to the wiring diagram. Pass the cable through the open slots of the core shell. Pay attention to the color of the modules and to the color and position of the striped and solid wires of the twisted pairs.



Best practice

### Alignment markings

The purpose of the **red marking** for the 16.1 series or the **longitudinal groove** for the 8.1 series is to provide a reference for a correct sequence of the colors of the signal contact pair modules. For a correct polarity of the **twisted pairs**, looking at the wiring side of the shell, insert the solid-colored wires on the right of the modules.



# Inline version: final operations

## SGH Male Signal Insert

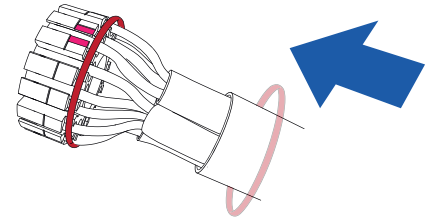
1



Assemble

### O-ring assembling

Slide the **O-RING** down the cable onto the core shell and place it in its specific position.



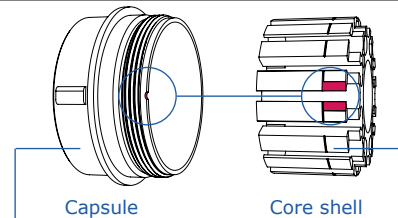
2



Assemble

### Core shell and capsule assembling

Insert the wired **CORE SHELL** inside the **CAPSULE** which is still fitted on the tightening tool, making sure that the **ALIGNMENT MARKING** on the core shell is aligned with the red mark on the capsule.



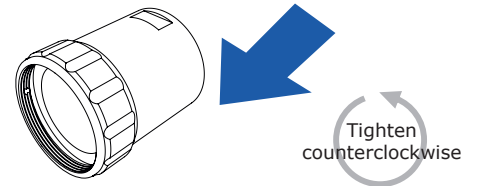
3



Assemble

### Backshell tightening

Slide the **BACKSHELL** down the cable onto the capsule, then tighten the backshell screwing it counterclockwise. Use a suitable wrench to tighten.



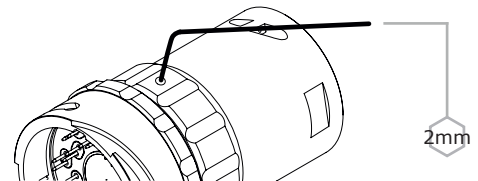
4



Assemble

### Anti-rotation grub screw tightening

Use a **2mm** allen screw to tighten the grub screw.



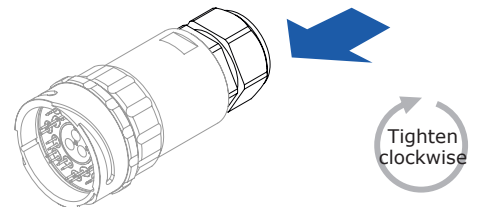
5



Assemble

### Cable gland assembling

Slide the cable gland down the cable onto the backshell. Hold the backshell firmly and screw the cable gland clockwise on the backshell.



# Panel version: final operation

## SGH Male Signal Insert

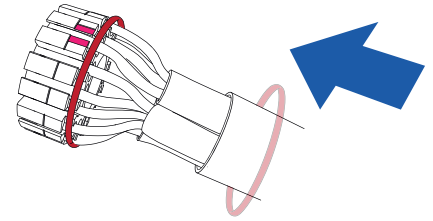
1



Assemble

### O-ring assembling

Slide the **O-RING** down the cable onto the core shell and place it in its specific position.



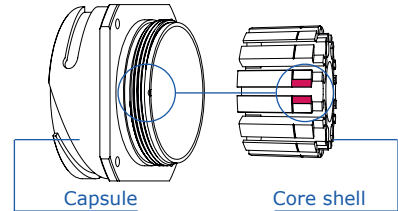
2



Assemble

### Waved washer and locking ring assembling

Insert the wired **CORE SHELL** inside the **CAPSULE** which is still fitted on the tightening tool, making sure that the **ALIGNMENT MARKING** on the core shell is aligned with the red mark on the capsule.



3



Best practice

### Backshell tightening

Slide the **BACKSHELL** down the cable onto the flanged capsule. In so doing, the spacer will automatically be fitted inside the backshell. Then, tighten the backshell screwing it counterclockwise. Use a suitable wrench to tighten.

