VALENTINI
Wiring manual

SYNTAX®

Syntax SGH

Power Insert

Inline and Panel Female
SGH 8.1 | SGH 16.1

Syntax Wireasy Technology

Preliminary operations
SGH Female Power Insert

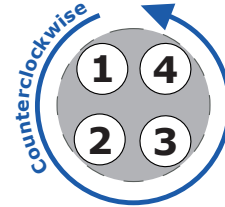## Preparation for all versions (both Inline and Panel-mount)

1

Best practice

Cable check

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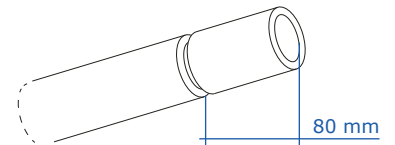
Cable numbering sequence

Counterclockwise

Front view

2

Sheath stripping

Outer sheath stripping

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

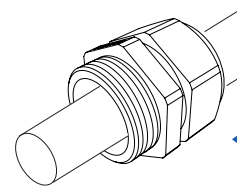Outer cable sheath

80 mm

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.
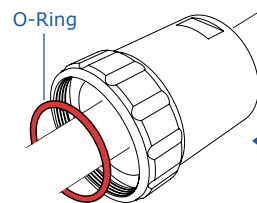
Cable Gland

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.
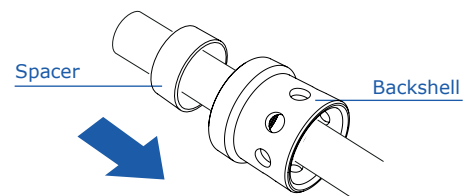
O-Ring

Backshell

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**.
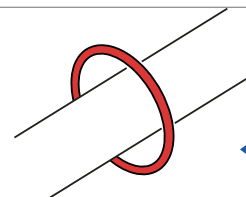
Spacer

Backshell

2

Assemble

O-Ring insertion

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

O-Ring

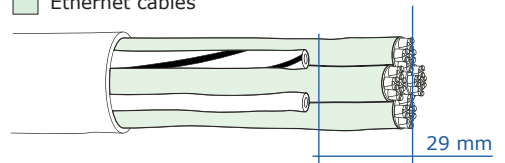# Preparation and wiring – Power cables
SGH Female Power Insert

1 Cut off

Cable preparation
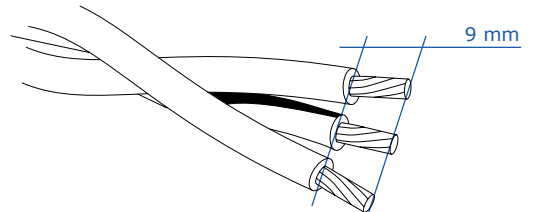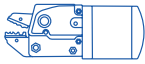Cut the power cables **29 mm** shorter.

Ethernet cables

29 mm

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2 Wire stripping

Power contacts crimping
Strip all the power conductors removing **9 mm** of their jackets.

9 mm

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3 Crimp

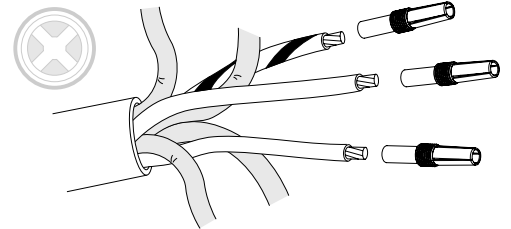### Power contacts crimping
Set the crimping tool for the needed cable section (6 mm2 for 32amp connector; 2.5mm2 for the 16amp connector).

*For both these contact sizes, we recommend using hydraulic or pneumatic tools.
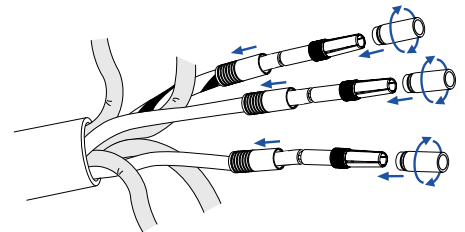
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4 Assemble

Rear insulating half-capsule insertion & front insulating half-capsule screwing
Insert the knurled insulating half-capsule down the contact until reaching the cable, then insert the smooth half-capsule and screw it on the contact.
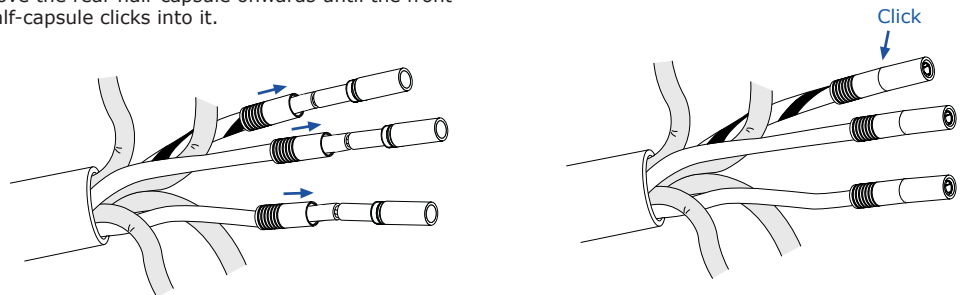
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5 Assemble

Capsulock assembling
Move the rear half-capsule onwards until the front half-capsule clicks into it.

Click

Preparation and wiring – data cables
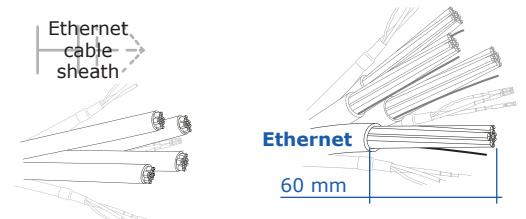## SGH Female Power Insert

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.
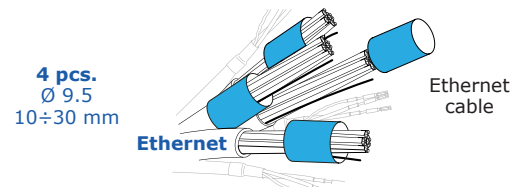
Ethernet
cable
sheath

Ethernet

60 mm

2

Heat shrink
tubes
Assemble

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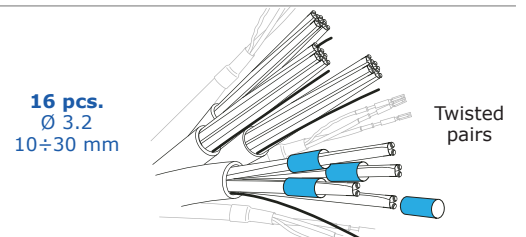Cut 4 heat shrink tubes **Ø 9.5 mm**, length **20 mm** each and insert them on the **ETHERNET** cables.

4 pcs.
Ø 9.5
10÷30 mm

Ethernet

Ethernet
cable

3

Heat shrink
tubes
Assemble

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

16 pcs.
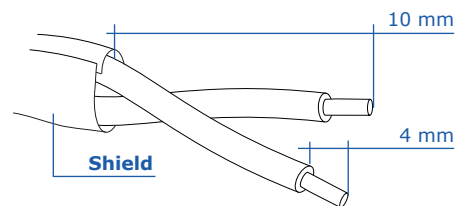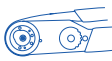Ø 3.2
10÷30 mm

Twisted
pairs

4

Wire
stripping

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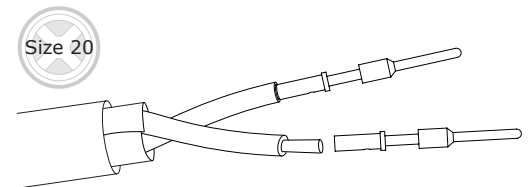
10 mm

4 mm

Shield

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
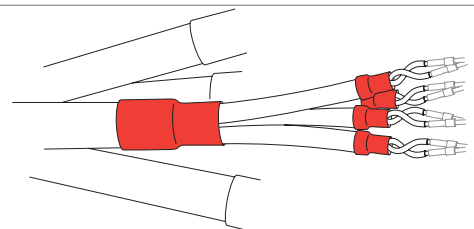
Size 20

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.
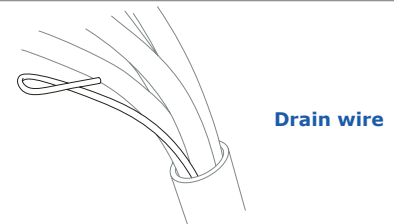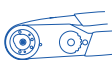

7

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.

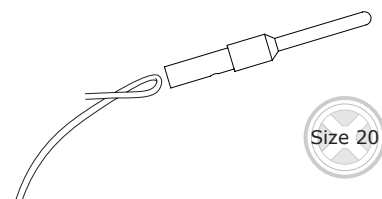**Drain wire**

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

Size 20

Insertion of contacts, central insert and outer modules
SGH Female Power Insert

8.1/2 LAN
Core shell housing

**16.1/4 LAN**
Core shell housing

Data modules housings

–

Best practice

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**.
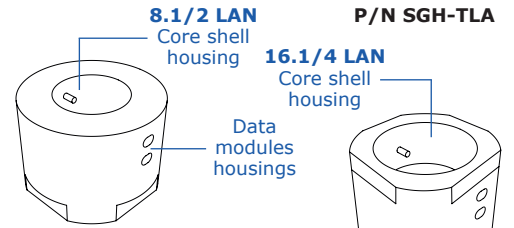

1

Insertion

Insertion of contacts inside the data contact modules

Insert the data modules in the lower 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.
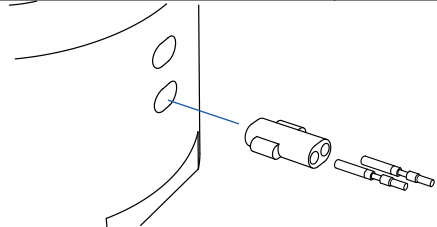

2

Assemble

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**.
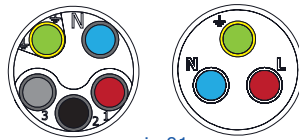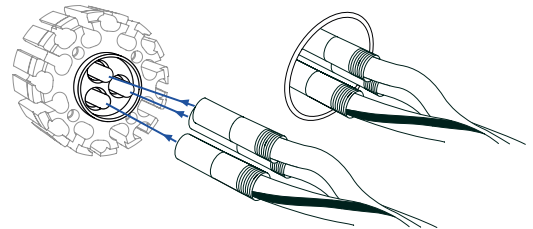
Core shell
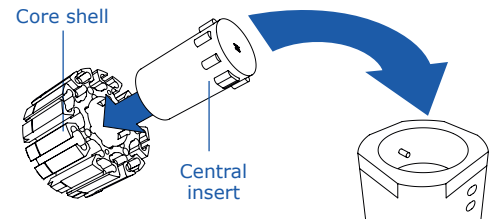
Central insert

3

Assemble

Connecting electric ferrules with power contacts

Connect the ferrules (complete with their insulating capsules) onto the power contacts in the central insert. Make sure that the contacts and cables correspond to the polarity information embossed on the insert (pic.01).
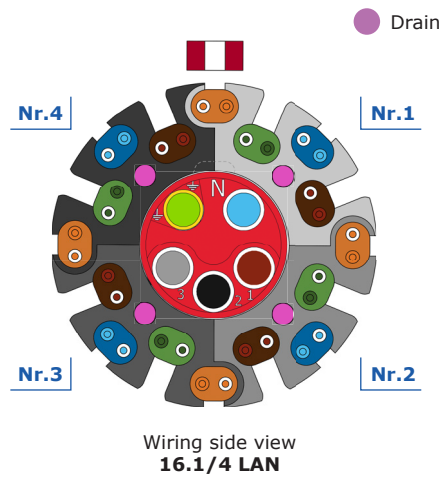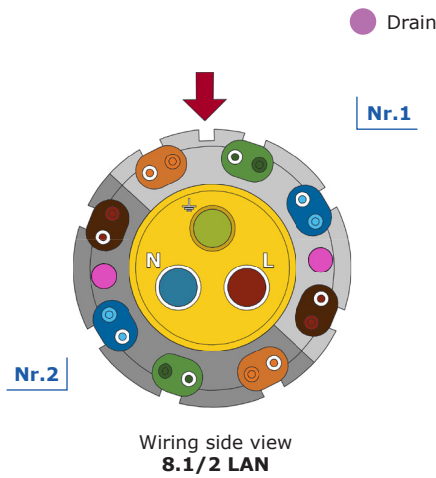
pic.01

Data modules placement sequence

SGH Female Power Insert

Drain

Nr.1

Nr.2

Wiring side view
8.1/2 LAN

Drain

Nr.4

Nr.1

Nr.3

Nr.2

Wiring side view
16.1/4 LAN

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.
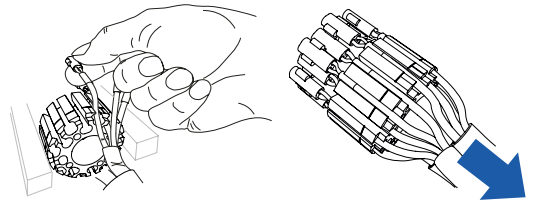
Best practice

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.

Alignment red marking

Solid - right
Striped - left

Alignment longitudinal groove
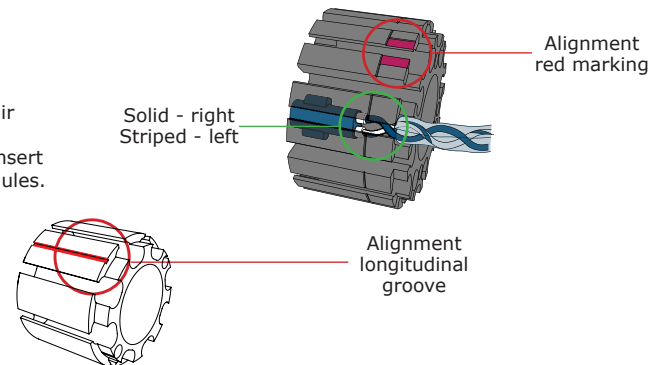
Inline version: final operations
SGH Female Signal Insert
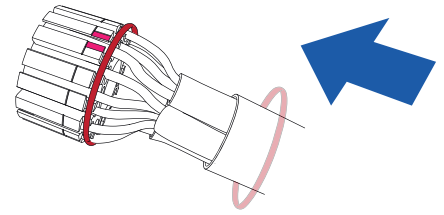
1 — Assemble

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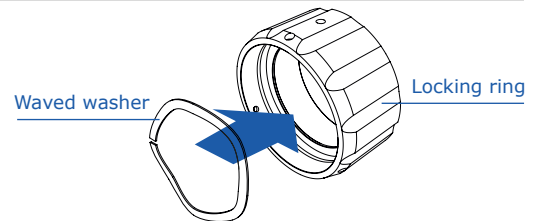

2 — Assemble

Waved washer and locking ring assembling
Insert the **WAVED WASHER** into the locking ring from the side where the roller pins are, and place it past the roller pins.
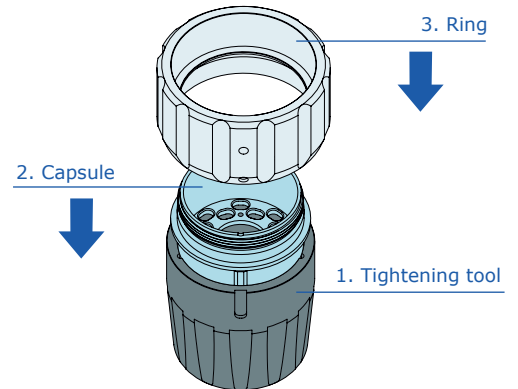
Waved washer — Locking ring

3 — Best practice

Tightening tool
Fasten the tightening tool firmly on a flat surface. Fit the connector's metal capsule on the tool, making sure the threaded part of the capsule faces upwards.

4 — Assemble

Locking ring assembling
Place the locking ring (complete with its waved washer) so as the roller pins are fitted in their recessed housings inside the tightening tool.
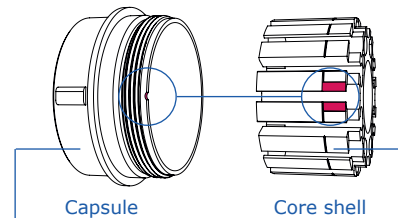
3. Ring
2. Capsule
1. Tightening tool

5 — 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.
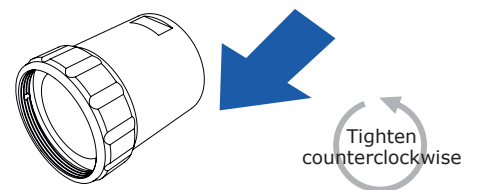
Capsule — Core shell

6 — 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.
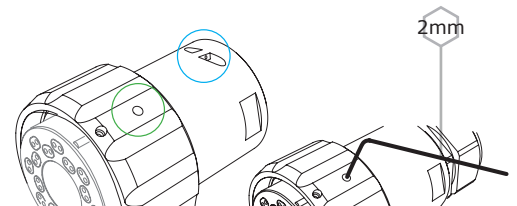
Tighten counterclockwise

7 — Best practice

Anti-rotation grub screw tightening
Hold the backshell so that the **machined housing for the Dust cap lacing** is upwards. Spin the locking ring until the grub screw is visible and aligned below **the hole on the locking ring**. Use a **2mm** allen screw to tighten the grub screw.
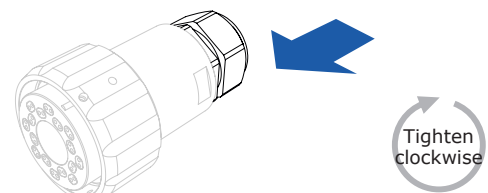
2mm

8 — 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.

Tighten clockwise

Panel version: final operation
SGH Female Power Insert

1 Assemble

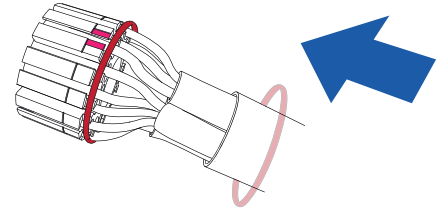### O-ring assembling
Slide the **O-RING** down the cable onto the core shell and place it in its specific position.
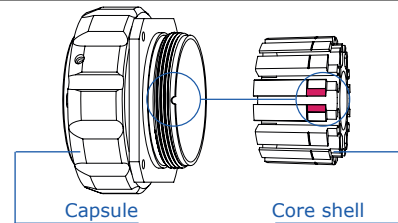

2 Assemble

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.
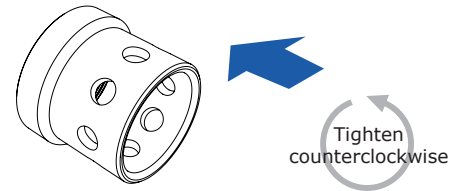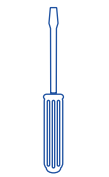

Capsule   Core shell

3 Assemble

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.

Tighten counterclockwise

4 Assemble

Panel mounting
Insert four M3 button-head bolts into the corresponding holes on the connector's flange. To access the holes and tighten the bolts, spin the locking ring until the groove for the screwdriver is aligned with the holes

Tightening groove

M3   M3

M3   M3