

# **OUR MISSION**

Relieving manufacturers by advising, customising and stocking the right Higo e-bike connector solution.



#### **OUR BACKGROUND**

#### SET-UP OF LTD

Maarten Voermans steps in. Together they set up an Ltd company.

#### **E-BIKE INDUSTRY**

A&C Solutions becomes exclusive distributor of **Higo** connectors in Europe.

#### **NEW PREMISES**

Strong growth requires a move to an office & warehouse building of 1000m<sup>2</sup>.

#### SUSTAINABLE BUSINESS

Start of sustainability plans with the certification of ISO 14001 and the membership of digital supply chain platform Sustainabill.

#### **EXPANSION**

Physical expansion on site to meet the growing need for stock management services. Extra offices & warehouse of 750m<sup>2</sup>.



Launch of our new website













(08) Q











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Franky Vanlerberghe starts as an

Assembly & Connector specialist

with an industrial focus.

**ASML** Preferred supplier



ISO 9001

A&C Solutions is ISO 9001 certified.



**LOCAL MARKET DEVELOPMENT** 

Expansion of sales team in Germany, France, Spain & Portugal.



**SDG GOALS** 

Developing an action plan based on the 17 SDG goals of the United Nations.



**DIGITAL FIRST** 

Investment in the further digitalisation and automation of company processes and future integration of webshop and customer portal

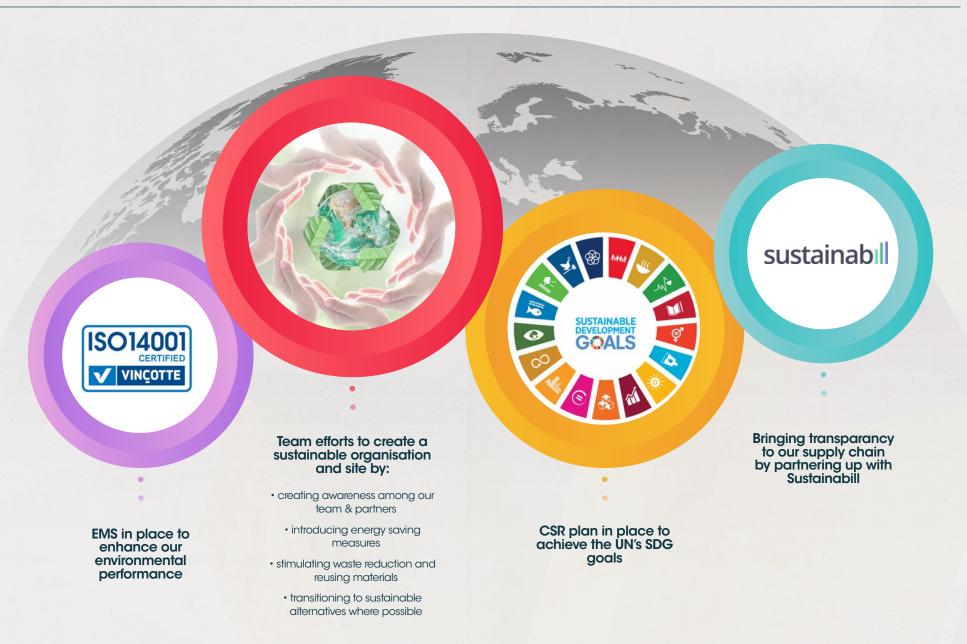
## **OUR VISION**

We want to be the
European online & offline
market leader in E-bike
connectors bringing
to life every customer's
great e-mobility project
by a customer centric
and sustainable
approach with passion for
technology and a clear
focus on JIT delivery and
operational excellence.



# **OUR COMMITMENT TO A MORE SUSTAINABLE WORLD**





## HIGO AND A&C



#### A great e-bike connector experience starts with a great product



#### **INNOVATOR**

**FLEXIBILITY IN** 

**CUSTOMISED** 

**CONNECTORS** 

Higo is a pioneer in e-bike connector manufacturing. It has a strong R&D focus with more than 60 patented designs. Higo is continuously investing in emerging technologies to develop ever smaller e-bike connector designs.



#### FULL SERVICE MANUFACTURER

From 50.000m<sup>2</sup> of production plants, Higo fully manufactures and assembles e-bike cabling projects in-house. This goes from the production of cables, tooling development, the single-handedly turning of contacts to the assembly of connectors or switches.



Higo is able to fully customise connectors, cable harnesses and splitters according to the requirements of each e-bike design.



#### QUALITY LEADS THE WAY

Our ISO 9001 organisations are based on predefined working procedures, incoming and outgoing checks and ongoing self-assessment. Higo also works with an in-house testing laboratory. Besides that, Higo is CQC certified and has UL/CSA approvals.

## YOUR ALL-IN-ONE E-BIKE CONNECTOR PARTNER

A great product complemented with excellent services



#### LOCAL SPECIALISTS

A&C Solutions has a clear focus on e-bike connectors and +30 years of in-house connector experience. We know the market and understand your business. Our team is always nearby to dicuss your project and support you with technical advice in your language.



PROJECT MANAGEMENT

As complementary partners, we manage your customised connector, cable harness or splitter project from design to delivery for any type of e-mobility design.



#### EUROPEAN STOCK MANAGEMENT

A&C Solutions offers a large range of standard Higo signal, battery and motor connectors directly available from stock. From our 1000m² site centrally in Europe we support you with just-in-time stock management services and label options on demand.



PROFESSIONAL SUPPORT

Our customers are our highest good. We are always available during your business hours with quick & professional feedback. When things don't turn out the way they were planned, we also ensure a firm and adequate complaint handling.









# SOME OF OUR CUSTOMERS



# **RIESE & MÜLLER**

Manufacturer of e-bikes, cargo bikes and folding bikes of the highest quality with the most innovative tehnology.

#### **VUF BIKES**

VUF bikes is a French manufacturer of e-trikes for last mile delivery purposes. All VUFs e-trikes are designed and manufactured in France



#### **SUPERNOVA**

Supernova offers bike lighting systems with the best LED technology.



#### PORSCHE EBIKE **PERFORMANCE**

Porsche is a pioneer in the development of lightweight and compact drive systems.



#### **PINION**

Pinion specialises in the design and manufacture of bicycle drivetrain systems, particularly focusing on internally geared transmissions for E-bikes.



# HIGO CONNECTORS FOR THE COMPLETE E-BIKE SYSTEM



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CABLE HARNESSES
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SPLITTERS
PAGE 18 - 19



BATTERY PAGE 34 - 55





CUSTOMISED CONNECTORS

PAGE 14 - 15



MOTOR PAGE 56 - 67

# 'Standard connectors just don't fit the widespread market anymore. Many of the new e-bike designs we come across require more complicated, tailor made connections. We want to be there with the right solution within a short lead time. That's why Higo invested heavily in the further automation of its production lines and accommodated its R&D and sales department in a new location in Suzhou that is designed to quickly respond to prototype requests and perform adequate testing. In the end, we are convinced that it is the power of customisation that makes the difference.' Mathys Huvelin, Business Development Manager France & Italy

#### **CUSTOMISED SOLUTIONS**



**CUSTOMISED CONNECTORS** 

14 - 15



**CABLE HARNESSES** 

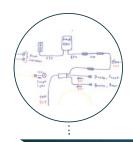
16 - 17



### WE MANAGE YOUR PROJECT FROM DESIGN TO DELIVERY

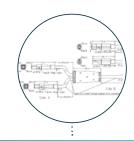
#### INITIAL REQUEST

Every project starts with a drawing or with technical specifications of the cable harness or the customised connector you require.



#### **OUR CONCEPT DRAWING**

When all aspects of the project have been validated, our team creates the drawing with all electrical specifications and materials used.



#### PRODUCTION & QUALITY CHECK

When samples have been approved, production will start-up and required tests are performed in Higo's in-house laboratory.



#### **LOCAL SUPPORT**

During all stages of the project, our specialists are always nearby to support you with technical advice, often even in your own language.





#### **ANALYSING YOUR REQUEST**

Based on your drawing or technical specifications, our specialists analyse your request, check the feasibility and set-up of your requirements.



#### PROTOTYPE SAMPLES & TESTING

Higo will first start manufacturing a prototype and samples for you to test if all requirements of your application are met.



#### **EUROPEAN STOCK MANAGEMENT**

A&C Solutions ensures that the production of your e-mobility design continues to run smoothly with quick & timely deliveries of your final product.



#### PROJECT GO LIVE

When a project comes to live, we are just as proud as you are. Watch here an example of such a project:



# GI

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# CUSTOMISED CONNECTORS



ANGLED BATTERY CONNECTOR FOR PCB



CONNECTOR FOR CHARGING STATION



ANGLED MOTOR CONNECTOR FOR PCB



MOTOR CONNECTOR

www.higoconnector.com www.ac-solutions.be

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# CUSTOMISED CONNECTORS





MINI F PANEL MOUNT FOR PCB



ANGLED TERMINALS FOR PCB MOUNTING



PCB ASSEMBLY FOR POWER & SIGNAL



**CUSTOMISED TERMINAL BLOCK** 



HIGH POWER BATTERY CONNECTOR WITH LOCKING LEVER



**CUSTOMISED INTERFACE WITH 180° MATING** 

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# CABLE HARNESSES



OVERMOULDED HEADER



**FULL CABLE HARNESS** 



OVERMOULDED SWITCHES



SPLITTER WITH INTEGRATED BUTTON AND LED LIGHT

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# CABLE HARNESSES





LARGE SPLITTER FOR POWER DISTRIBUTION



**CABLE MARKING AND LASER ENGRAVING** 



**GROMMET WITH CLIP** 



SPLITTER WITH INTEGRATED CONNECTOR



SMALL SPLITTER FOR SIGNAL DISTRIBUTION



**SPLITTER WITH 2 INTEGRATED PANEL MOUNTS** 

www.higoconnector.com www.ac-solutions.be

# SPLITTERS

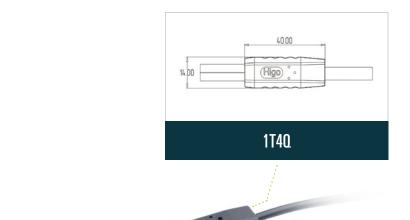
1T4B

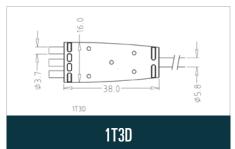


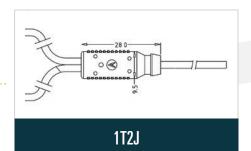
A&C Solutions offers you endless possibilities to create your customised splitter solution. Based on your wiring diagram, you are free to determine:

- the length of each cable on both sides that your application requires
- how many and which Higo and/or other connector(s) you need on both sides
- and which splitter design you prefer or which dimensions (LxWxH) it should have

Besides that it's also up to you to decide the cable type (PVC or TPU) and the level of finishing (crimped, stripped or with a different contact). These splitter designs are already available in smaller quantities.









www.higoconnector.com www.ac-solutions.be

# SPLITTERS



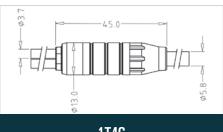
10.01

1T2W

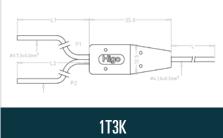
1T2S

1T2M





1T4G





SCAN ME





'We clearly see that more and more customers try to further enhance the e-bike experience by adding extra features like tracking systems, GPS, electrical locks, heat grips and even heated seats. So along with an even more compact design, there is a need for extra connections and a higher data transmission. This trend keeps our R&D colleagues at Higo constantly focussed on creating smaller designs with an increasing number of poles so that in the end all connectors can still be nicely hidden away in e-bike frames.'

Joni Ivens, Account Manager

# SCAN ME For a complete overview of signal connectors

#### **SIGNAL CONNECTORS**







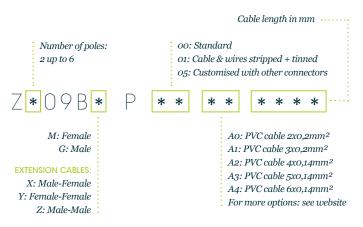


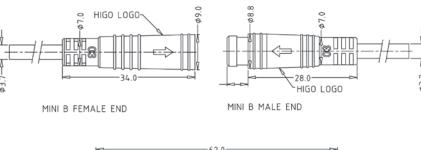


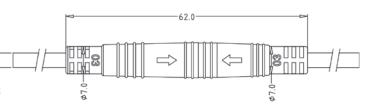
# SIGNAL CONNECTORS MINI B PLUG (I)



#### **ARTICLE NUMBER BUILD-UP:**

















#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 2A

Contact Resistance:  $\leq 10 \text{m}\Omega$ Insulation Resistance:  $\geq 20 \text{M}\Omega$ Protection Level: IP66

Mating Cycles: 200 times
Outside Diameter: 9,0mm
Fitting Length: 62,0mm

Wire Specification: 0,14mm²/ 0,2mm²



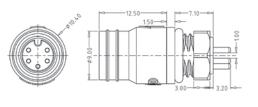


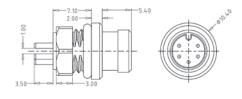


# SIGNAL CONNECTORS MINI B PANEL MOUNT (1)







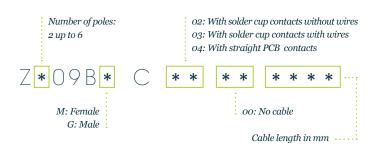


MALE END

**FEMALE END** 



#### ARTICLE NUMBER BUILD-UP:



#### **CHARACTERISTICS**

-25°C up to +80°C Temperature Range: Rated Voltage: 48V AC / 60V DC

Rated Current: 2A <10m0 Contact Resistance: >20M0 Insulation Resistance:

IP66 Protection Level:

Mating Cycles: 200 times 9.0mm Outside Diameter: Fitting Length: 62,0mm

Wire Specification: 0,14mm<sup>2</sup>/ 0,2mm<sup>2</sup>

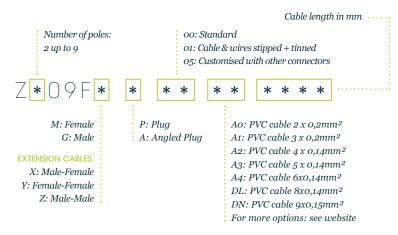
# CONNECTOR



# SIGNAL CONNECTORS MINI F PLUG (1)



#### ARTICLE NUMBER BUILD-UP:



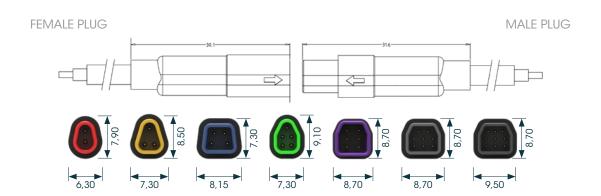
#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

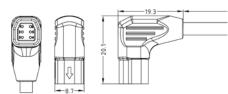
Rated Current: 2A

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP66/IP67
Mating Cycles: 200 times
Fitting Length: 55,0mm

Wire Specification: 0,14mm²/ 0,2mm²









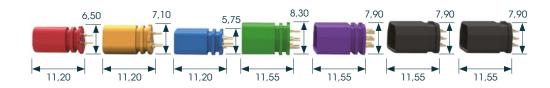




# SIGNAL CONNECTORS MINIF PANEL MOUNT

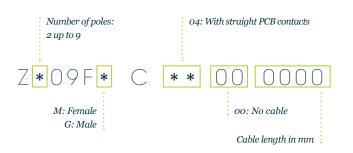


Covers for male and female connectors available from 2 to 9 poles





#### **ARTICLE NUMBER BUILD-UP:**



Female only available in 2,3,6 and 8 poles Contact our sales team for a tailor made backshell for your design

#### CHARACTERISTICS

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 2A

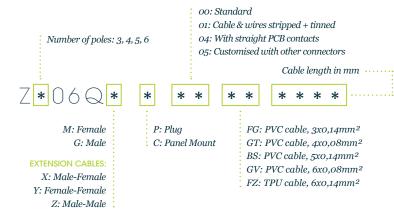
Contact Resistance:  $\leq 10 \text{m}\Omega$ Insulation Resistance:  $\geq 20 \text{M}\Omega$ Protection Level: IP66/IP67

Mating Cycles: 200 times



# SIGNAL CONNECTORS MICRO Q PLUG & PANEL MOUNT

#### **ARTICLE NUMBER BUILD-UP:**

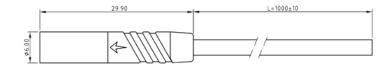


-25°C up to +80°C

48V AC / 60V DC

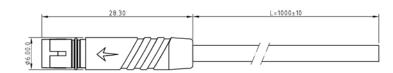


MALE END





FEMALE END

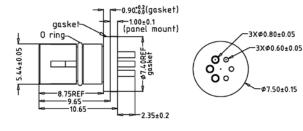








FEMALE PANEL MOUNT





<10m0 Contact Resistance: Insulation Resistance: >20M0

2A

IP67 Protection Level:

**CHARACTERISTICS** 

Temperature Range:

Rated Voltage:

Rated Current:

Mating Cycles: 50 times Outside Diameter: 6,0mm Fitting Length: 50,0mm

Wire Specification: 0,08mm<sup>2</sup> / 0,14mm<sup>2</sup>

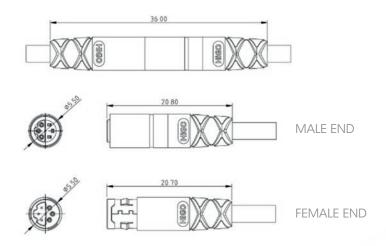








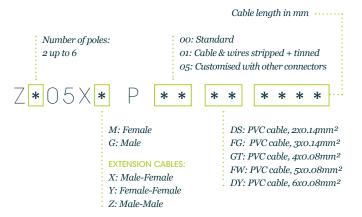
# SIGNAL CONNECTORS MICRO X PLUG





# CONNECTOR

#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 2A

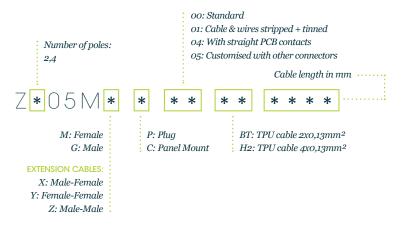
Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP67

Mating Cycles: 200 times
Outside Diameter: 5,5mm
Fitting Length: 36,0mm

Wire Specification: 0,08mm² / 0,14mm²

# SIGNAL CONNECTORS MICRO M PLUG

#### **ARTICLE NUMBER BUILD-UP:**





Rated Current: 2A

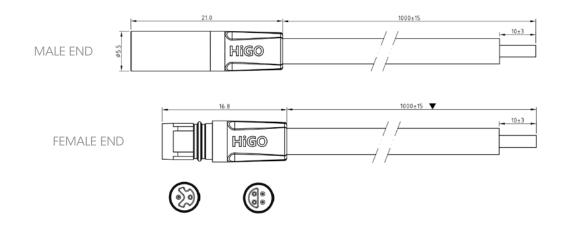
Contact Resistance: <10m0 Insulation Resistance >20M0 Protection Level: IP67

Mating Cycles: 50 times Outside Diameter: 5,5mm Fitting Length: 30,0mm

0,13mm<sup>2</sup>

Wire Specification:







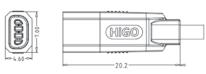




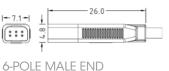
# SIGNAL CONNECTORS MICROT PLUG & PANEL MOUNT



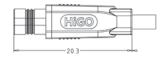




3-POLE MALE END

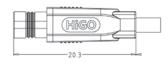




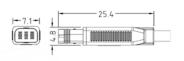


2-POLE FEMALE END





3-POLE FEMALE END

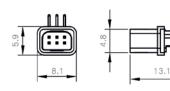


6-POLE FEMALE END

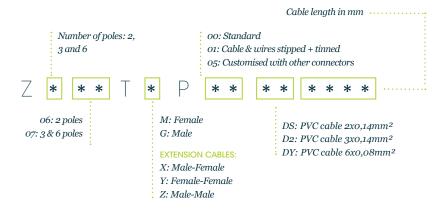




6-POLE PANEL MOUNT



#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 2A

<10m0 Contact Resistance: Insulation Resistance: >20M0 IP67 Protection Level:

200 times Mating Cycles:

2 poles: 5,8mm, 3&6 poles: 7mm Outside Diameter: Fitting Length: 2&3 poles: 35mm, 6 poles: 45mm

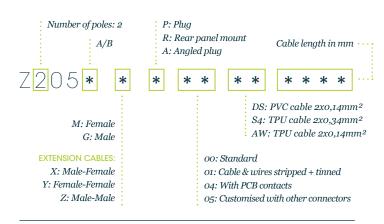
Wire Specification: 0,08mm<sup>2</sup> / 0,14mm<sup>2</sup>

# **CONNECTOR**

# SIGNAL CONNECTORS MICRO A/B\* 2-POLE PLUG & PANEL MOUNT



#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

-25°C up to +80°C Temperature Range:

Rated Voltage: 48V AC/DC

Rated Current: 2A (DS/AW) / 5A (S4)

Contact Resistance: <10m0Insulation Resistance: >20M0 IP67 Protection Level:

Mating Cycles: 200 times

4,8mm (A), 5,3mm (B) Outside Diameter: Fitting Length: 35,4mm (A), 29,5mm (B)

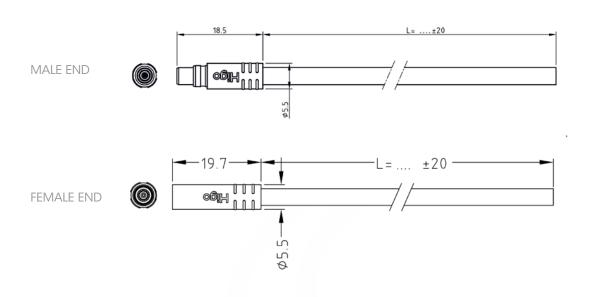
0,14mm<sup>2</sup> (A/B) / 0,34mm<sup>2</sup> (B) Wire Specification:



<sup>\*</sup> A or B are indicated when a specification is only applicable for one or the other



# SIGNAL CONNECTORS MICRO A 3-POLE PLUG



# Number of poles: 3 oo: Standard oi: Cable & wires stipped + tinned o5: Customised with other connectors M: Female G: Male FV: PVC cable, 3x0,14mm<sup>2</sup> Cable length in mm

#### **CHARACTERISTICS**

EXTENSION CABLES: X: Male-Female

Y: Female-Female Z: Male-Male

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 2A

ARTICLE NUMBER BUILD-UP:

Contact Resistance:  $\leq 10 \text{m}\Omega$ Insulation Resistance:  $\geq 20 \text{M}\Omega$ Protection Level: IP66

Mating Cycles: 200 times
Outside Diameter: 5,5mm
Fitting Length: 31,7mm
Wire Specification: 0,14mm²

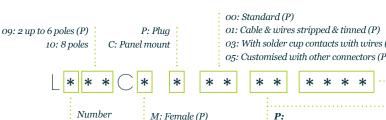
**CONNECTOR** 

# SIGNAL CONNECTORS MINI C PLUG (P) & PANEL MOUNT (C)\*

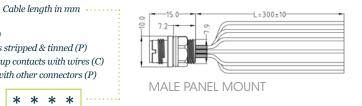


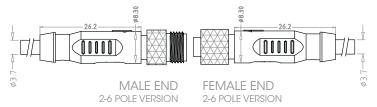


#### **ARTICLE NUMBER BUILD-UP:**



03: With solder cup contacts with wires (C) *05:* Customised with other connectors (P)





of poles: 2,3,4,5,6, 8(P)

G: Male

EXTENSION CABLES:

X: Male-Female Y: Female-Female Z: Male-Male

Ao: PVC cable 2x0,2mm<sup>2</sup> A1: PVC cable 3x0,2mm<sup>2</sup>

A2: PVC cable 4x0,14mm<sup>2</sup> A3: PVC cable 5x0,14mm<sup>2</sup>

*A4: PVC cable 6x0,14mm*<sup>2</sup>

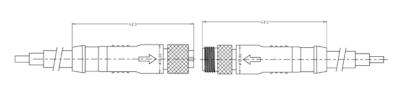
A5: PVC cable 8x0,20mm<sup>2</sup> For more options: see website C:

00: PVC wires 2x0,2mm2 00: PVC wires 3x0,34mm2

00: PVC wires 4x0,2mm<sup>2</sup>

00: PVC wires 5x0,34mm<sup>2</sup>

00: PVC wires 6x0.2mm2



**FEMALE END** 8- POLE VERSION MALE END 8- POLE VERSION

#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C 48V AC / 60V DC Rated Voltage:

Rated Current: 2A

Contact Resistance: ≤10mΩ≥20MΩ Insulation Resistance: IP67 Protection Level:

200 times Mating Cycles:

9,0mm (P) / 10,0mm (C) Outside Diameter:

Fitting Length (P): 68,6mm (2-6p) / 80,0mm (8p)

Wire Specification: 0,14mm<sup>2</sup> / 0,2mm<sup>2</sup> (P)

0,2mm<sup>2</sup> / 0,34mm<sup>2</sup> (C)













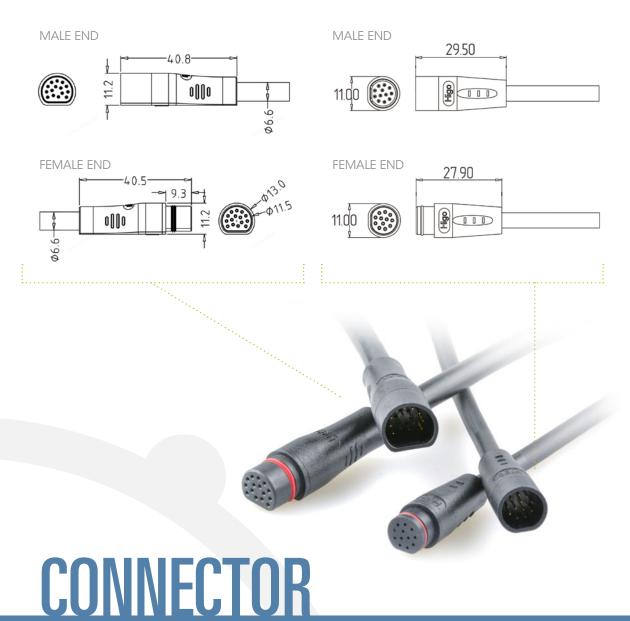




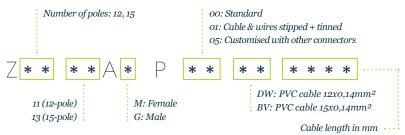
<sup>\*</sup> P or C are indicated when a specification is only applicable for one or the other



# SIGNAL CONNECTORS MAIN PLUG



#### ARTICLE NUMBER BUILD-UP:



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C
Rated Voltage: 48V AC / 60V DC

Rated Current: 2A

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP67

Mating Cycles: 200 times

Outside Diameter: 11,0mm (Z1211A) / 13,0mm (Z1513A)
Fitting Length: 53,0mm (Z1211A) / 72,0mm (Z1513A)

Wire Specification: 0,14mm<sup>2</sup>



# 🗓 SCAN ME For a complete overview of battery connectors

#### **BATTERY CONNECTORS**











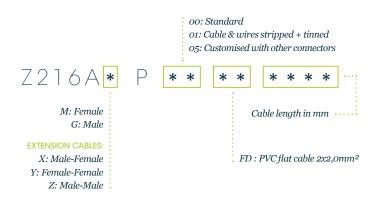


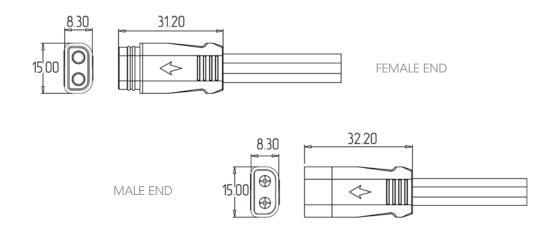
# BATTERY CONNECTORS PUSH-ON (1)





#### **ARTICLE NUMBER BUILD-UP:**





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C 48V AC / 60V DC Rated Voltage:

Rated Current: 25A Contact Resistance: ≤10mΩInsulation Resistance: ≥20MΩ IP67 Protection Level:

Mating Cycles: 200 times

Outside Diameter: 15.0mm x 8.30mm

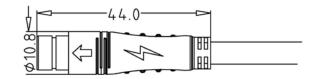
Fitting Length: 51.0mm Wire Specification: 2.0mm<sup>2</sup>



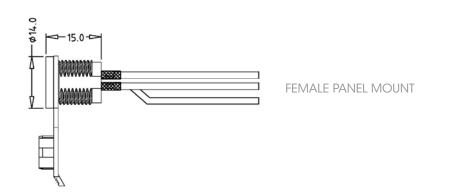




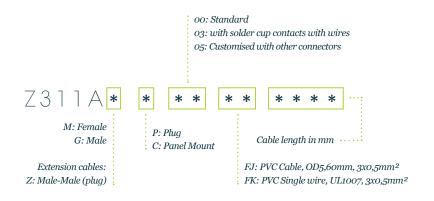








#### **ARTICLE NUMBER BUILD-UP:**



#### CHARACTERISTICS

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 5A

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP66

Mating Cycles: 3000 times

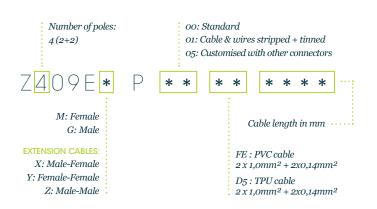
Outside Diameter: 10,8mm (P) / 14,0mm (C)

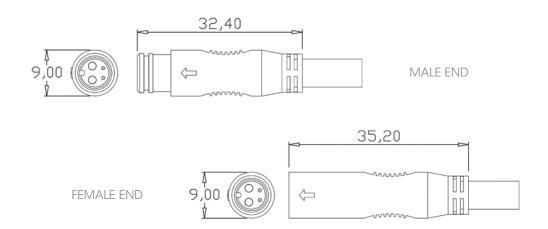
Wire Specification: 0,5mm²

**CONNECTOR** 



#### **ARTICLE NUMBER BUILD-UP:**





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

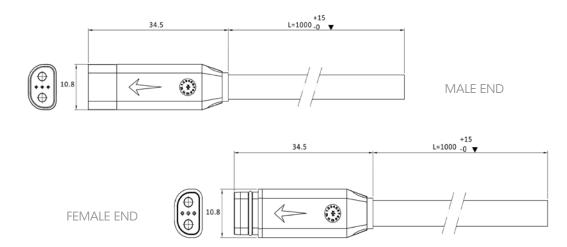
Rated Current: 15A / 2AContact Resistance:  $\leq 10m\Omega$ Insulation Resistance:  $\geq 20M\Omega$ Protection Level: IP67

Mating Cycles: 200 times
Outside Diameter: 9,0mm
Fitting Length: 61,0mm

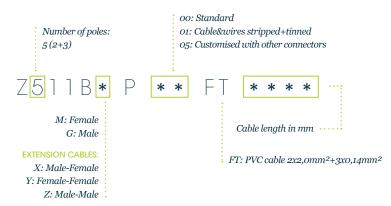
Wire Specification: 2 x 1,0mm² + 2 x 0,14mm²







#### ARTICLE NUMBER BUILD-UP:





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 20A / 2A Contact Resistance: ≤10m $\Omega$  Insulation Resistance: ≥20M $\Omega$  Protection Level: IP67

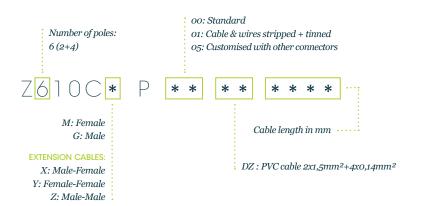
Mating Cycles: 200 times
Outside Diameter: 10,8mm
Fitting Length: 63,0mm

Wire Specification: 2 x 2,0mm<sup>2</sup> + 3 x 0,14mm<sup>2</sup>

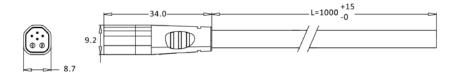
# **CONNECTOR**



#### ARTICLE NUMBER BUILD-UP:



MALE END



FEMALE END



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 15A / 2A Contact Resistance:  $\leq 10 m\Omega$  Insulation Resistance:  $\geq 20 M\Omega$  Protection Level: IP67

Mating Cycles: 200 times

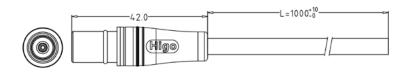
Outside Diameter: 8,70mm x 9,20mm

Fitting length: 59,0mm

Wire Specification: 2 x 1,5mm² + 4 x 0,14mm²

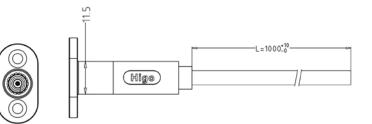






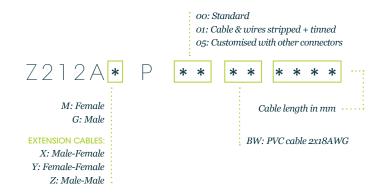
MALE END

FEMALE END





#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 8A

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP67

Mating Cycles: 3000 times
Outside diameter: 11,5mm

## CONNECTOR



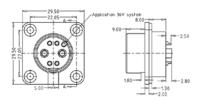
#### ARTICLE NUMBER BUILD-UP:

(Coding only for 36v applications)

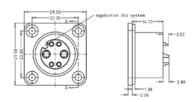
00: Standard Number of poles: 01: Cable & wires stripped + tinned 6 (2+4) 03: with solder cup contacts with wires 05: Customised with other connectors Z624C\* P: Plug M: Female Cable length in mm · · · · · · G: Male C: Panel Mount

**EXTENSION CABLES:** 

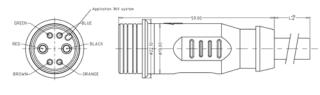
X: Male-Female Y: Female-Female Z: Male-Male DR: PVC single wires 2x4,0mm<sup>2</sup> + 4x0,2mm<sup>2</sup> D1: PVC single wires 2xAWG14 + 4xAWG22 B6: PVC single wires 2xAWG16 + 4xAWG22 D9: PVC single wires 2xAWG18 + 4xAWG22 FH: TPU cable 2x2,0mm<sup>2</sup> + 4x0,34mm<sup>2</sup>



MALE PANEL MOUNT



FEMALE PANEL MOUNT



MALE PLUG

#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C 48V AC / 60V DC Rated Voltage:

Rated Current: 40A / 5A Contact Resistance: ≤10mΩ≥20MΩ Insulation Resistance: Protection Level: IP67

Mating Cycles: 3000 times

19,0mm (P) / 29,5mm (C) Outside Diameter:



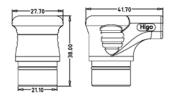




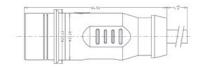
## BATTERY CONNECTORS PUSH-ON, 48 V



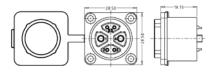




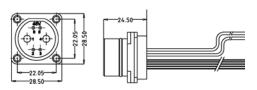
MALE ANGLED PLUG



MALE PLUG



FEMALE PANEL MOUNT

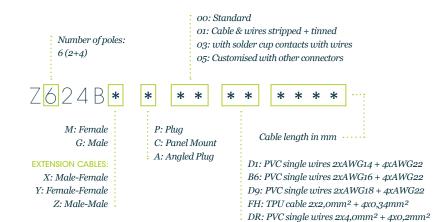


MALE PANEL MOUNT



#### ARTICLE NUMBER BUILD-UP:

(Coding only for 48v applications)



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 40A / 5A Contact Resistance: ≤10mΩInsulation Resistance: ≥20MΩ IP67 Protection Level:

Mating Cycles: 3000 times

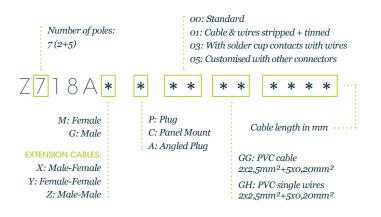
21,2mm (P) / 28,5mm (C) Outside Diameter:

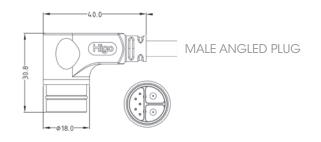
# **CONNECTOR**

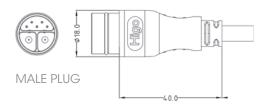
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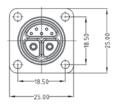


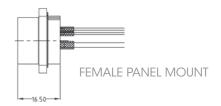
#### **ARTICLE NUMBER BUILD-UP:**











#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 25A / 2AContact Resistance: ≤ $10m\Omega$ Insulation Resistance: ≥ $20M\Omega$ Protection Level: IP67

Mating Cycles: 3000 times
Outside Diameter: 17mm

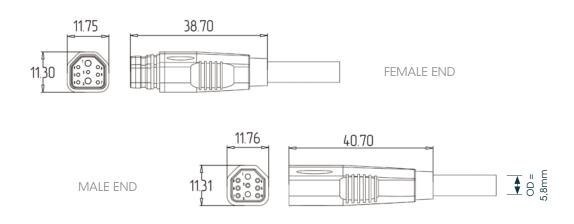
Fitting Length: 30 to 50mm

Wire Specification: 2 x 2,5mm² + 5 x 0,20mm²





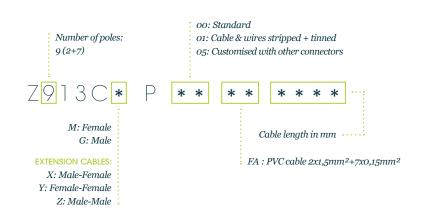






# CONNECTOR

#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 15A / 2AContact Resistance: ≤ $10m\Omega$ Insulation Resistance: ≥ $20M\Omega$ Protection Level: IP67

Mating Cycles: 200 times

Outside diameter: 11,31mm x 11,76mm

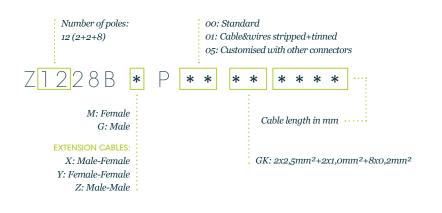
Fitting length: 71,0mm

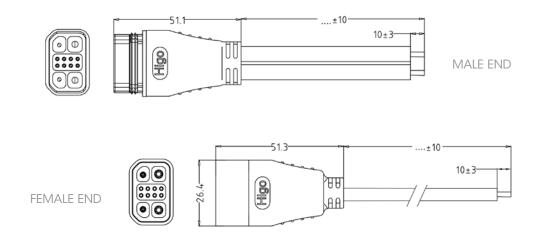
Wire Specification: 2 x 1,5mm² + 7 x 0,15mm²

## BATTERY CONNECTORS CHARGING & DISCHARGING IN 1, PUSH-ON



#### **ARTICLE NUMBER BUILD-UP:**





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C 48V AC / 60V DC Rated Voltage: Rated Current: 25A / 10A / 2A

Contact Resistance: ≤10mΩInsulation Resistance: ≥20MΩ IP67 Protection Level:

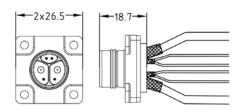
Mating Cycles: 3000 times Outside Diameter: 28,0mm Fitting Length: 90,8mm

Wire Specification:  $2 \times 2.5 \text{mm}^2 + 2 \times 1.0 \text{mm}^2 + 8 \times 0.2 \text{mm}^2$ 

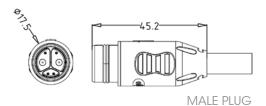


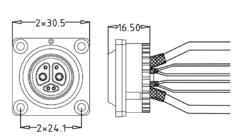


## BATTERY CONNECTORS PUSH-ON FLEXIBLE

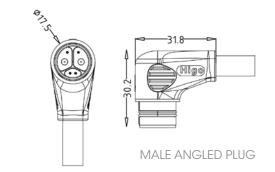


MALE PANEL MOUNT



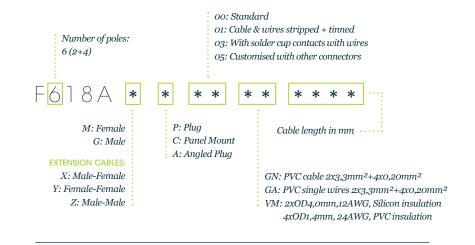


FEMALE PANEL MOUNT



# **CONNECTOR**

#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 30A / 2A Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance: ≥20M $\Omega$ Protection Level: IP67

3000 times Mating Cycles: Outside diameter: 18mm

Fitting length: 20 to 40mm

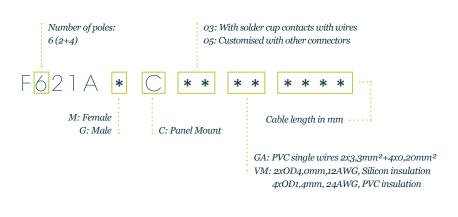
Wire Specification: 2 x 3.3mm<sup>2</sup> + 4 x 0.20mm<sup>2</sup>

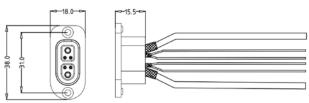
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## BATTERY CONNECTORS PUSH-ON FLEXIBLE



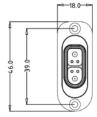
#### **ARTICLE NUMBER BUILD-UP:**

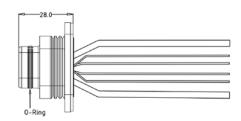




FEMALE PANEL MOUNT







#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C 48V AC / 60V DC Rated Voltage:

30A / 2A Rated Current: Contact Resistance: ≤10mΩInsulation Resistance: ≥20MΩ IP67 Protection Level:

Mating Cycles: 3000 times

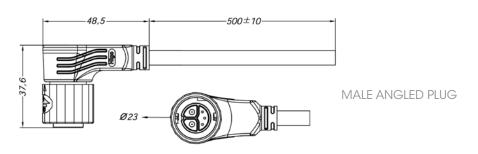
Wire Specification: 2 x 3,3mm<sup>2</sup> + 4 x 0,20mm<sup>2</sup>





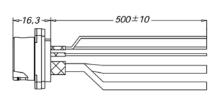


## BATTERY CONNECTORS SELF-LOCKING

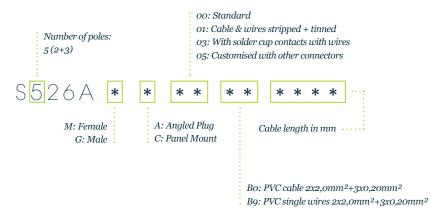








#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 25A / 2A Contact Resistance: ≤10mΩInsulation Resistance: ≥20M $\Omega$ Protection Level: IP67

Mating Cycles: 3000 times Outside diameter: 26mm Fitting length: 40mm

Wire Specification: 2 x 2.0mm<sup>2</sup> + 3 x 0.20mm<sup>2</sup>



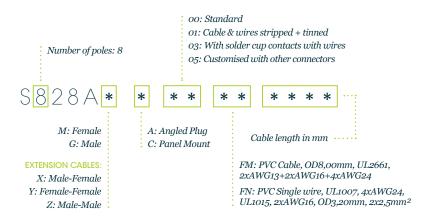
# **CONNECTOR**

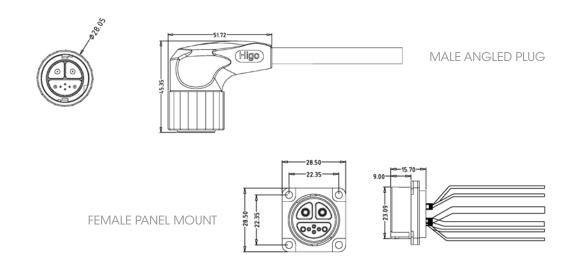
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## BATTERY CONNECTORS charging & discharging in 1, self-locking



#### ARTICLE NUMBER BUILD-UP:





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC/ 60V DC 25A / 10A / 2A Rated Current:

≤10mΩContact Resistance: Insulation Resistance: ≥20MΩ IP67 Protection Level:

Mating Cycles: 3000 times

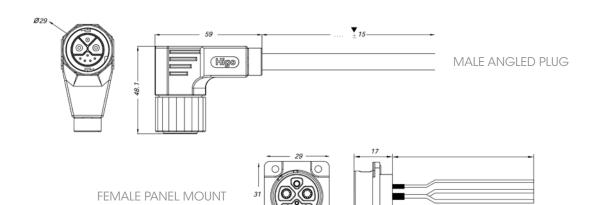
28,05mm (P) / 23,09mm (C) Outside diameter: Wire Specifications: 2,5mm<sup>2</sup> / 1,5mm<sup>2</sup> / 0,8mm<sup>2</sup>



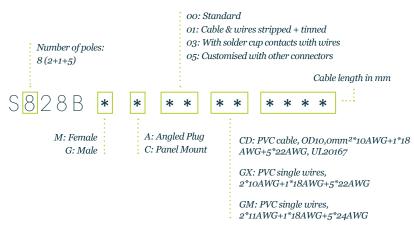




## BATTERY CONNECTORS charging & discharging in 1, self-locking



#### ARTICLE NUMBER BUILD-UP:





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC Rated Current: 50A / 15A / 2A

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance: ≥20M $\Omega$ Protection Level: IP67

3000 times Mating Cycles: Outside diameter: 28<sub>mm</sub> Fitting length: 50mm

2\*10AWG+1\*18AWG+5\*22AWG Wire Specification:

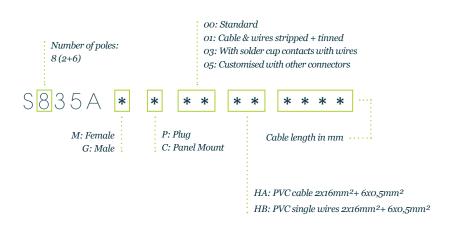
# **CONNECTOR**

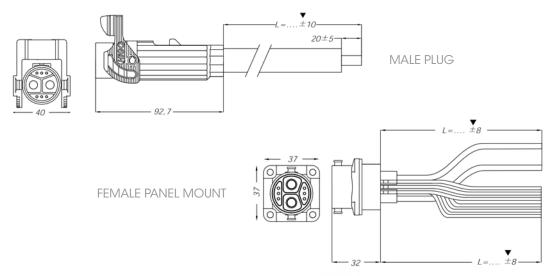
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## BATTERY CONNECTORS MANUAL LOCKING



#### **ARTICLE NUMBER BUILD-UP:**





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 100A / 2AContact Resistance:  $≤10m\Omega$ Insulation Resistance:  $≥20M\Omega$ Protection Level: IP67

Mating Cycles: 3000 times

Outside diameter: 28mm

Fitting length: 97mm

Wire Specification: 2 x 16,0mm² + 6 x 0,5mm²

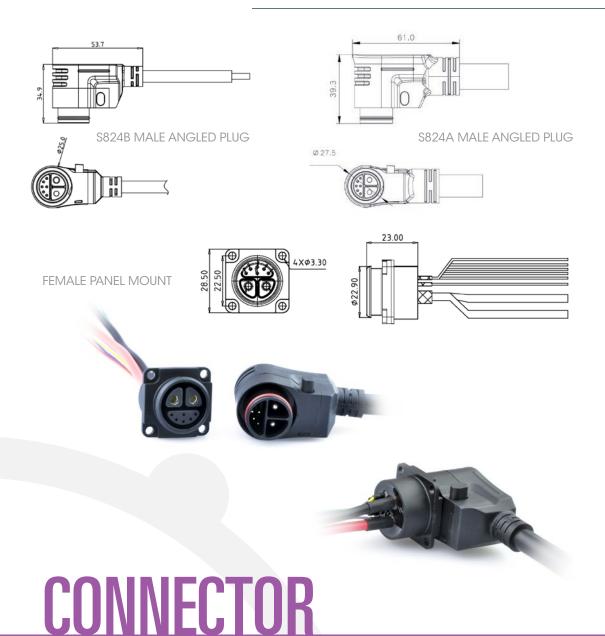




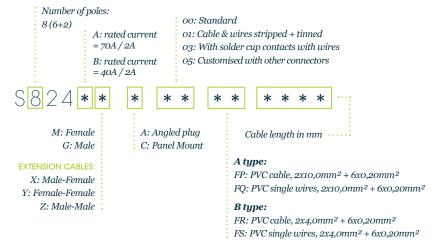
53



## BATTERY CONNECTORS SELF-LOCKING, BUTTON RELEASE



#### ARTICLE NUMBER BUILD-UP:



#### **CHARACTERISTICS**

Outside diameter:

-25°C up to +80°C Temperature Range: Rated Voltage: 48V AC / 60V DC

Rated Current: 70A (A) or 40A (B) / 2A

Contact Resistance: ≤10mΩInsulation Resistance: ≥20MΩ IP67 Protection Level:

Mating Cycles: 3000 times

25,0mm<sup>2</sup> (P) / 22,9mm<sup>2</sup> (C) 6 x 0,2mm<sup>2</sup> + 2 x 10,0mm<sup>2</sup> (A) / Wire Specification:

 $6 \times 0.2 \text{mm}^2 + 2 \times 4.0 \text{mm}^2$  (B)

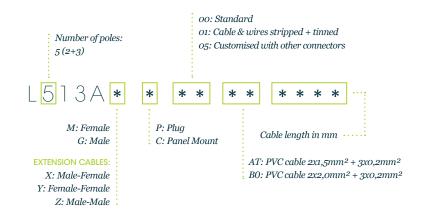
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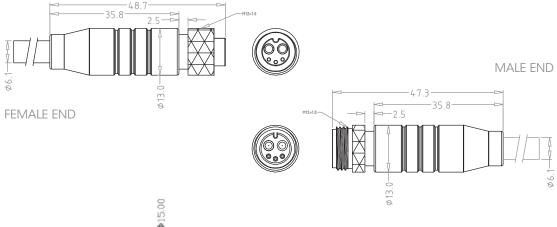
## BATTERY CONNECTORS SCREW-LOCKING



19.20-

#### **ARTICLE NUMBER BUILD-UP:**





FEMALE FRONT PANEL MOUNT

#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

25A / 2A Rated Current: <10m0 Contact Resistance: Insulation Resistance: >20M0 Protection Level: IP67

Mating cycles: 200 times Outside Diameter: 13,0mm Fitting length: 96,0mm

Wire Specification:  $1.5 \text{mm}^2 + 0.2 \text{mm}^2 / 2.0 \text{mm}^2 + 0.2 \text{mm}^2$ 





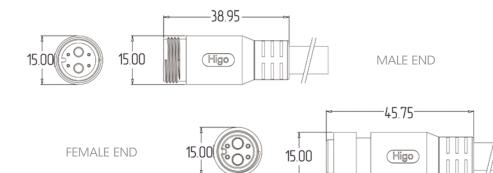
55

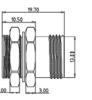




## BATTERY CONNECTORS SCREW-LOCKING (UL)









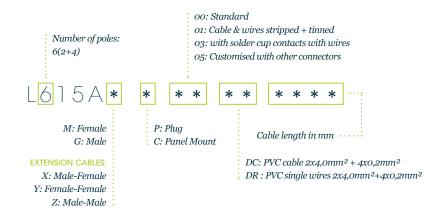
MALE FRONT PANEL MOUNT





# **CONNECTOR**

#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC/ 60V DC

Rated Current: 40A / 2A Contact Resistance: ≤10mΩInsulation Resistance: ≥20M $\Omega$ Protection Level: IP67 200 times Mating Cycles:

15,0mm Outside diameter: Fitting length: 77.5mm

2 x 4,0mm<sup>2</sup> / 4 x 0,2mm<sup>2</sup> Wire Specifications:

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### **MOTOR CONNECTORS**









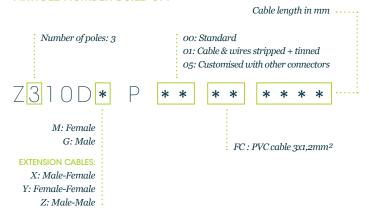




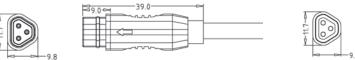
## MOTOR CONNECTORS PUSH-ON

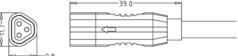


#### **ARTICLE NUMBER BUILD-UP:**

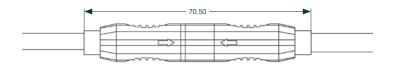


MALE END





FEMALE END



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 15A

Contact Resistance: ≤10mΩ

Insulation Resistance: ≥20MΩ

Protection Level: IP67

Mating Cycles: 200 times

Outside Diameter: 11,72mm x 9,8mm

Fitting Length: 71,0mm
Wire Specification: 1,2mm²



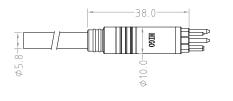




## MOTOR CONNECTORS PUSH-ON (I)





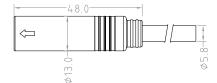




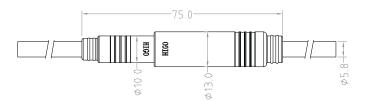


MALE END

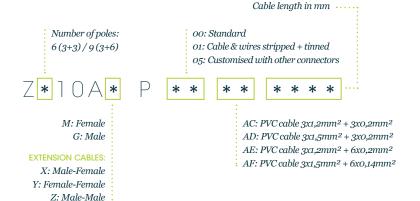




**FEMALE END** 



#### ARTICLE NUMBER BUILD-UP:



#### **CHARACTERISTICS**

-25°C up to +80°C Temperature Range: Rated Voltage: 48V AC / 60V DC

Rated Current: 15A / 2A Contact Resistance:  $\leq 10 m\Omega$ ≥20MΩ Insulation Resistance: IP66 Protection Level:

Mating Cycles: 200 times Outside Diameter: 13,0mm Fitting Length: 75,0mm

Wire Specification: 1,2mm<sup>2</sup> / 1,5mm<sup>2</sup>+0,2mm<sup>2</sup>

# **CONNECTOR**

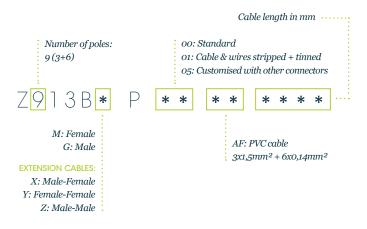
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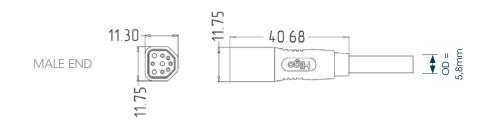
59

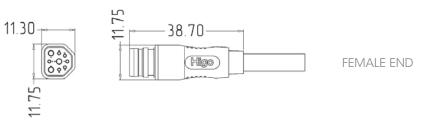
## MOTOR CONNECTORS PUSH-ON



#### ARTICLE NUMBER BUILD-UP:







#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 15A / 2A Contact Resistance: ≤10m $\Omega$  Insulation Resistance: ≥20M $\Omega$  Protection Level: IP67

Mating Cycles: 200 times

Outside Diameter: 11,75mm x 11,30mm

Fitting Length: 70,7mm

Wire Specification:  $3 \times 1,5mm^2 + 6 \times 0,14mm^2 / 3 \times 1,2mm^2 + 6 \times 0,2mm^2$ 

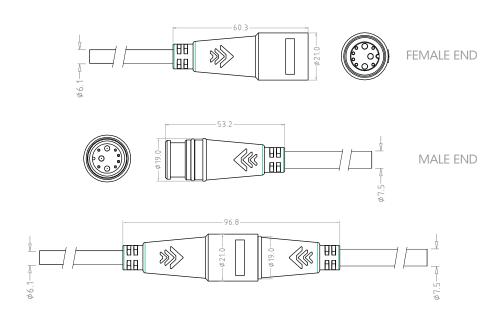




61

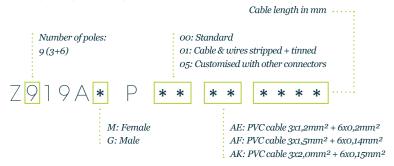


## MOTOR CONNECTORS PUSH-ON





#### **ARTICLE NUMBER BUILD-UP:**



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C
Rated Voltage: 48V AC / 60V DC

Rated Current: 30A / 2A, 3 power pin loaded

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP66

Contact Durability: 200 times
Outside Diameter: 21,0mm
Fitting Length: 96,8mm

Wire Specification: 2,0mm<sup>2</sup> + 0,15mm<sup>2</sup>

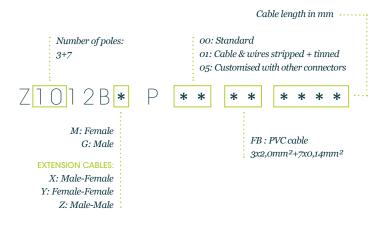
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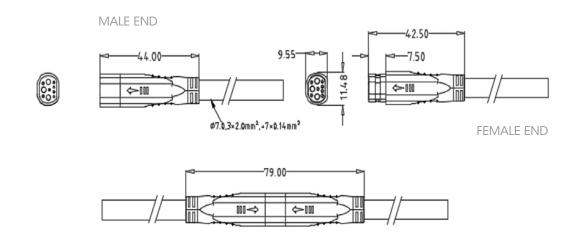
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## MOTOR CONNECTORS PUSH-ON



#### **ARTICLE NUMBER BUILD-UP:**





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

20A / 2A Rated Current: ≤10mΩContact Resistance: Insulation Resistance: ≥20MΩ Protection Level: IP67

Mating Cycles: 200 times

11,48mm x 9,55mm Outside Diameter:

Fitting Length: 79,0mm

Wire Specification:  $3 \times 2,0$ mm<sup>2</sup> +  $7 \times 0,14$ mm<sup>2</sup> /

 $3 \times 1.5 \text{mm}^2 + 7 \times 0.14 \text{mm}^2$ 



63



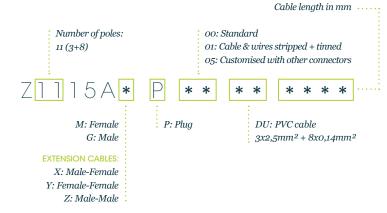
## MOTOR CONNECTORS PUSH-ON (I)





## 39.9 15.0 MALE END

#### ARTICLE NUMBER BUILD-UP:





#### **CHARACTERISTICS**

-25°C up to +80°C Temperature Range: Rated Voltage: 48V AC / 60V DC

25A / 2A Rated Current: Contact Resistance: ≤10mΩ ≥20MΩ Insulation Resistance: Protection Level: IP67

200 times Mating Cycles: 15,0mm Outside Diameter: Fitting Length: 70,0mm

Wire Specification: 3 x 2.5mm<sup>2</sup> + 8 x 0.14mm<sup>2</sup>

# **CONNECTOR**

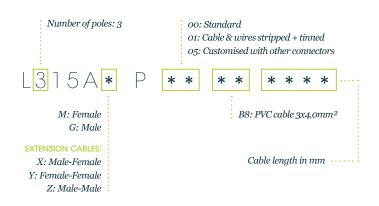
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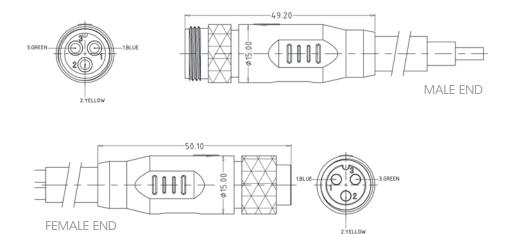
**FEMALE END** 

## MOTOR CONNECTORS SCREW LOCKING



#### **ARTICLE NUMBER BUILD-UP:**





#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 35A, 2 power pin loaded

28A, 3 power pin loaded

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP67

Mating Cycles: 200 times

Outside Diameter: 15,0mm

Fitting Length: 90,0mm

Wire Specification: 3 x 4,0mm²





65



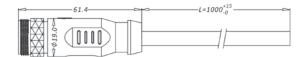


## MOTOR CONNECTORS SCREW LOCKING (UL



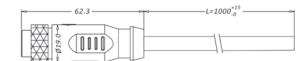




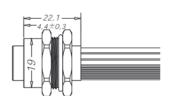


FEMALE PLUG



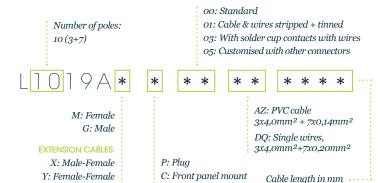






FEMALE REAR PANEL MOUNT

#### **ARTICLE NUMBER BUILD-UP:**



R: Rear panel mount

#### **CHARACTERISTICS**

Z: Male-Male

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 30A / 2A, 3 power pin loaded

Contact Resistance: ≤10mΩInsulation Resistance: ≥20M $\Omega$ IP67 Protection Level:

Mating Cycles: 200 times Outside Diameter: 19.0mm Fitting Length: 114,0mm

Wire Specification:  $3 \times 4.0 \text{mm}^2 + 7 \times 0.14 \text{mm}^2$ 

# **CONNECTOR**

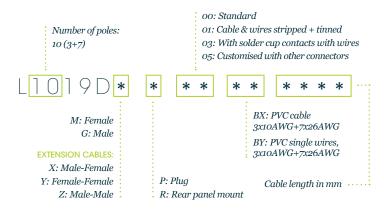
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## MOTOR CONNECTORS SCREW LOCKING

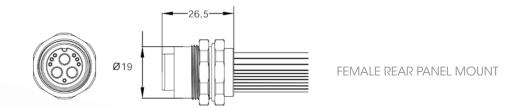


#### **ARTICLE NUMBER BUILD-UP:**





MALE PLUG FEMALE PLUG



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 45A / 2A, 2 power pin loaded

40A / 2A, 3 power pin loaded

Contact Resistance:  $\leq 10 m\Omega$ Insulation Resistance:  $\geq 20 M\Omega$ Protection Level: IP67

Mating Cycles: 200 times
Outside Diameter: 19,0mm
Fitting Length: 114,0mm

Wire Specification: 3 x 10AWG + 7 x 26AWG



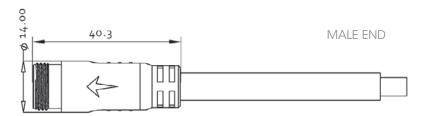


67



## MOTOR CONNECTORS SCREW LOCKING



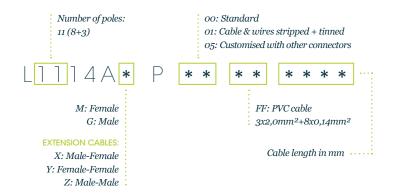








#### ARTICLE NUMBER BUILD-UP:



#### **CHARACTERISTICS**

Temperature Range: -25°C up to +80°C Rated Voltage: 48V AC / 60V DC

Rated Current: 20A / 2A Contact Resistance: ≤ $10m\Omega$  Insulation Resistance: ≥ $20M\Omega$  Protection Level: IP67

Mating Cycles: 200 times
Outside Diameter: 14,0mm
Fitting Length: 80,0mm

Wire Specification: 2,0mm² / 0,14mm²

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