# Quick Installation Guide

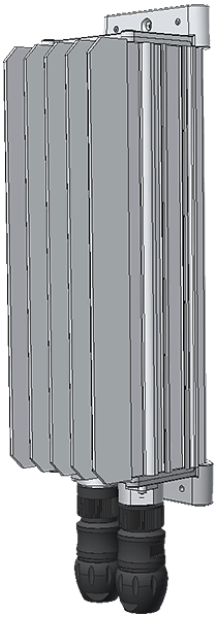
Installation and Commissioning

356849.103

# Chameleon Stand-alone

Power Supply Module, 48 VDC, 650W, HE, IP65

Low Power Outdoor Applications



Power Supply System ~ Telecom & Industrial



ELTEK
A Delta Group Company

356800.183, 3v5 (-15)

# SAFETY and ENVIRONMENTAL PRECAUTIONS

The **product warranty** becomes invalid if the following safety precautions are not followed during handling, installation, commissioning and general use/operation of *Eltek* power supply systems.

## General Precautions


Device Hazard

G1

**CAUTION:** Even though the product incorporates protection circuitry and other safeguards, it can be **damaged, perform poorly or have a reduced lifetime** if it is exposed to **incorrect treatment** during transport, installation or service. Always handle the equipment using proper lifting techniques, do not roll, climb or drill hole in the cabinets or enclosures.


Electric Shock

G2

**WARNING: Opening the equipment may cause terminal injury — even if the mains AC supply is disconnected. Hazardous voltages may be present inside, as large capacitors may still be charged.**

## Environmental Precautions


Ventilated Hot Surface

E1

**CAUTION:** To avoid damage the equipment, **keep objects clear of system ventilation inlets, outlets and system fans**, if any, ensuring the **airflow** through the units is **not obstructed**, and that the fans rotate freely. Use caution with power modules, as they can reach **extreme temperatures** under load and normal operation.


Current Surge Protection

E2

**WARNING: The installer/user is responsible for ensuring that the power system is not damaged by current surges, over-voltages, etc. caused by external transients, lightning, electrostatic discharge, etc. To avoid damage and obtain the expected system reliability, it is mandatory to always install SPDs in Eltek's power supply systems. Follow the instructions given in "Guidelines for Lightning and Surge Protection", doc. 2024623**.


Humidity & Dust Protection

E3

**WARNING: The electronics in the power supply system are designed for indoor, clean environment. When installed in outdoor enclosures — using heat sinks or closed loop heat management systems — it is important to maintain the equipment closed and tight during operation, to avoid external air entering the enclosure. Also, when using open loop heat management systems, it is important to replace the filters on a regular basis. Indoor installations in dusty or humid areas require appropriate air filtering of the room, or filtering of the air entering the power system. Follow the instructions given in "Generic Guidelines Environmental Protection.", doc. 2038879**

## Precautions during Installation


Qualified Personnel

I1

**CAUTION: Read the user documentation carefully** before installing and using the equipment, as installation and operation is to be performed as described in it. Always tighten screws and bolts with the **torque values recommended** in the documentation. For safety reasons, the **commissioning and configuration of the equipment is only to be performed** by *Eltek*'s personnel or by authorized and qualified persons.


EMC, NEC/CEC Regard

I2

**CAUTION:** This product is tested and verified according to international safety, environmental and EMC standards. Any **non-*Eltek* equipment** installed into this product after delivery might influence the performance and **could infringe the original approvals**. The **installer is responsible** for ensuring that the environmental properties of this product/ system do not deteriorate during installation, and that it is performed in accordance with applying regulations.

**Installations in USA and Canada** must comply with NEC/CEC requirements.


Device Hazard

I3

**CAUTION:** Before you start the electrical installation, you must **always disconnect** all external supply fuses, as well as internal battery and load fuses/ breakers, if any.


Electric Shock

I4

**WARNING: For safety reasons (high leakage current / high touch current) you must always connect the AC earth wire (PE) to the terminals, before you connect the AC input cable(s).**

**The batteries, if any, represent a major energy hazard. To avoid short-circuit of battery poles, you must always remove metallic objects — uninsulated tools, rings, watches, etc. — from the vicinity of the batteries.**

356849.103, 2v1-2015-08

## Warnings


**WARNING:**

**Hazardous voltages** may be present inside the Chameleon module, Part # 241125.155, as long as **10 minutes after it is switched OFF** (discharge time)

**WARNING:**

– If used as PERMANENTLY CONNECTED, a readily accessible disconnect device shall be incorporated external to the equipment

– If used as PLUGGABLE EQUIPMENT, the socket-outlet shall be installed near the equipment and shall be easily accessible.

– Maximum operational ambient temperature of this equipment is 60°C or, if installed in a RESTRICTED ACCESS LOCATION, 70°C

**NOTICE:**

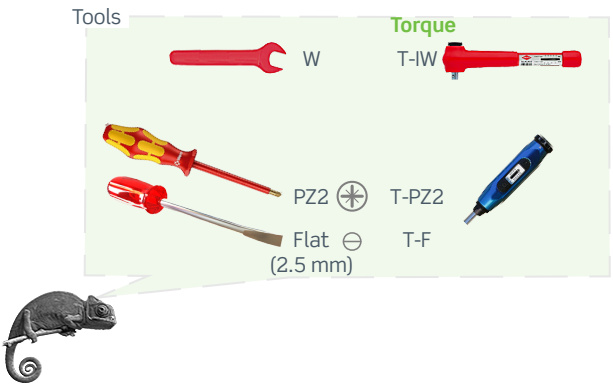
This guide describes the modules:
- Part 241125.105, Chameleon Module 48V, 650W, HE, IP65
- Part 241125.155, Chameleon Module 48V, 650W, HE, IP65, 200ms
- Part 241125.185, Chameleon Module 48V, 650W, HE, IP65, UI

For technical **specifications and functionality description**, refer to the following:

- 241125.1XX.DS3, Datasheet *Chameleon* 48V, 650W, HE, Rectifiers

- For generic power system functionality, refer to *CWUI Online Help*

## Tools & Torque Recommendations




| Torque Recommendations | | |
|---|---|---|
| Type & Size | | Torque (Nm) |
| T1 | M5 screws (2x) (fastening module to clamps) | 5.0 |
| T2 | M5 bolts (4x) (fastening half pole clamps) | 3.0** |
| T3 | AC Mains Input Terminals (4x) | 0.3 |
| T4 | DC Output Terminals (7x) | 0.4 |
| T5 | Coupling rings on the cable connectors' inserts | 1.5 |
| T6 | Cable connectors' sleeves | 0.5 |
| T7 | Cable connectors' pressing screws. See *Table 3 on page 9* | |

Note: General tolerance: ±10%

** T2's exact tightening moment may vary a little depending on the type of half pole clamps used and the diameter of the pole

*Table 1. Torque recommendations*

## Recommended External AC Fuses

**Recommended External AC Fuses**
*Chameleon* 48V, 650W, HE Stand-alone Modules

Rectifier: Chameleon 48/650 HE

| AC Type | | Fuse Type |
|---|---|---|
| 230VAC 1 phase | 20A C-char or 16A D-char | Th/Mag |

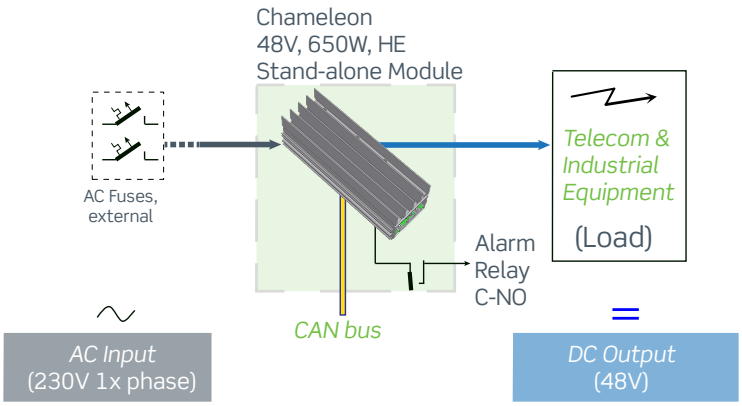
(Doc 2126770, 1v0)

*Table 2. Recommended external AC fuses*

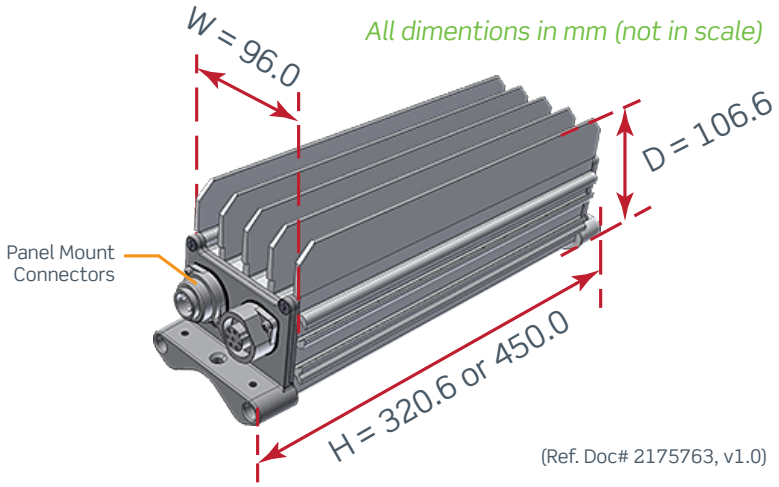
# Introduction

## Overview

### *Block Diagram Chameleon* Stand-alone Power Supply Module




### Dimensions Chameleon Stand-alone Module




Chameleon Stand-alone Module
Part 241125.105 (2.8Kg, H=320.6)
Part 241125.185 (2.8Kg, H=320.6)
Part 241125.155 (3.6Kg, H=450.0)



356849.103, 2v1-2015-08

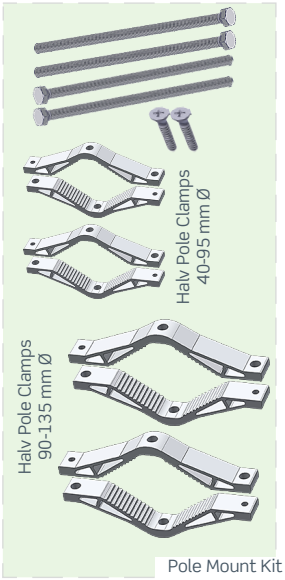
## Fastening the Chameleon Module to a Surface or Pole

**NOTICE:**

Use **acid proof (A4) screws or bolts** (not included) suitable for the mounting surface and outdoor environment, to fasten the Chameleon module to the wall or support surface (e.g. wall plugs, expansion bolts, molly bolts, etc.)

Or use **suitable half pole clamps** (included in Pole Mount Kit, Part 241125.910), if the module is to be pole mounted

*Suitable Screws or Bolts*




Pole Mount Kit
Part 241125.910

**CAUTION:**

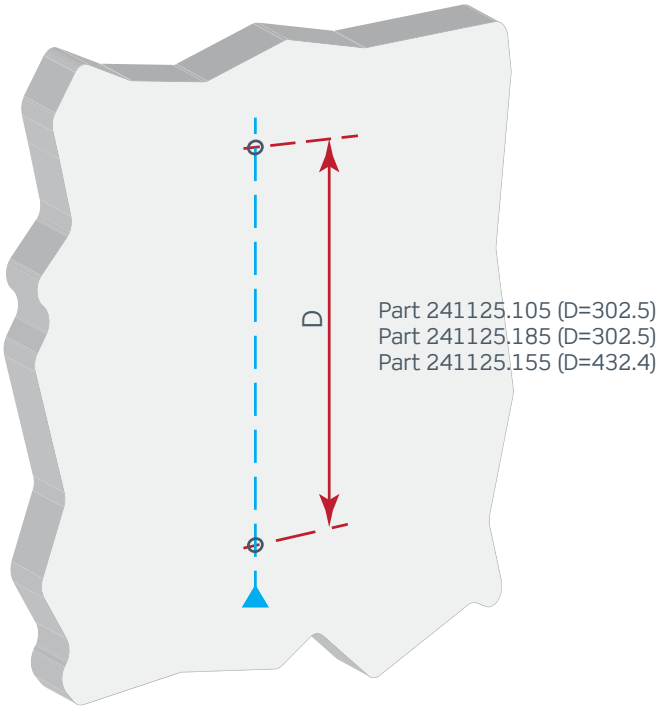
The wall or support surface or pole must be **capable of supporting** the equipment: 2.8 Kg or 3.6 Kg, ±10%, depending on the Chameleon Stand-alone Module

**WARNING:**

**Never** mount the Chameleon Stand-alone Module in the vicinity of heaters or **above hot sources**

### Option 1: Surface Mounting ~ Prepare the Surface

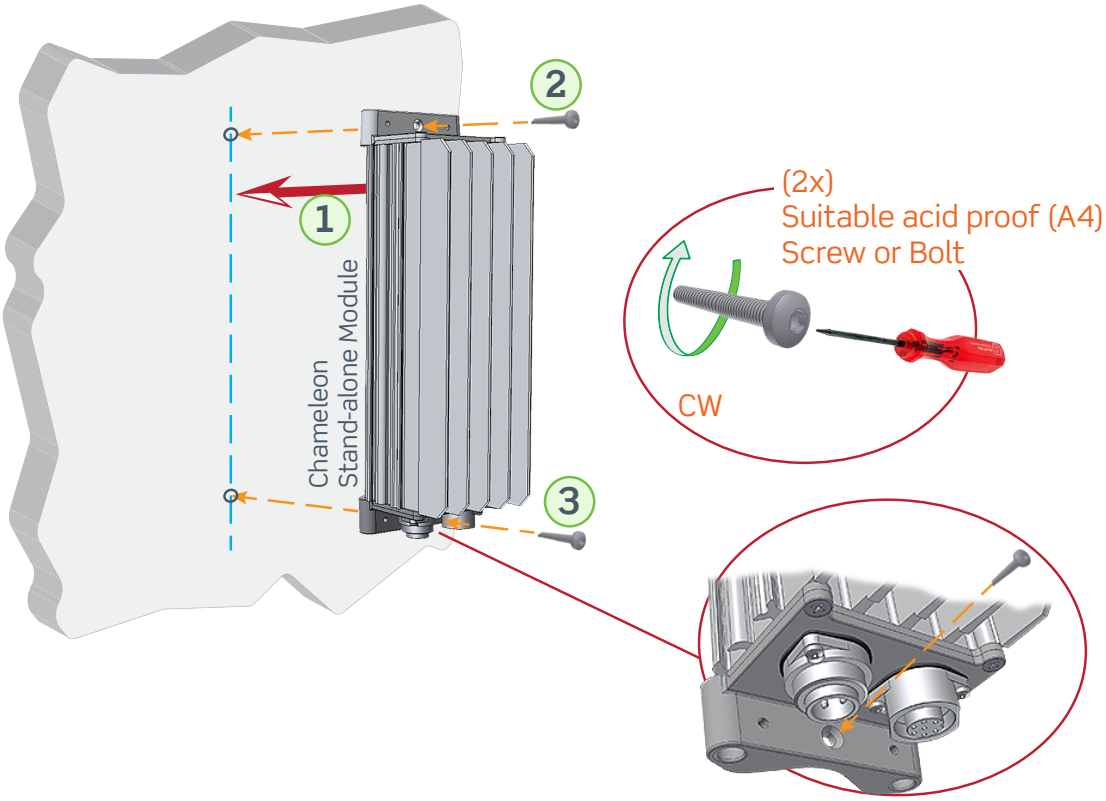
1. Get ready suitable acid proof (A4) screws or bolts (2x)
2. Mark the center line, then drill 2 suitable holes in the wall



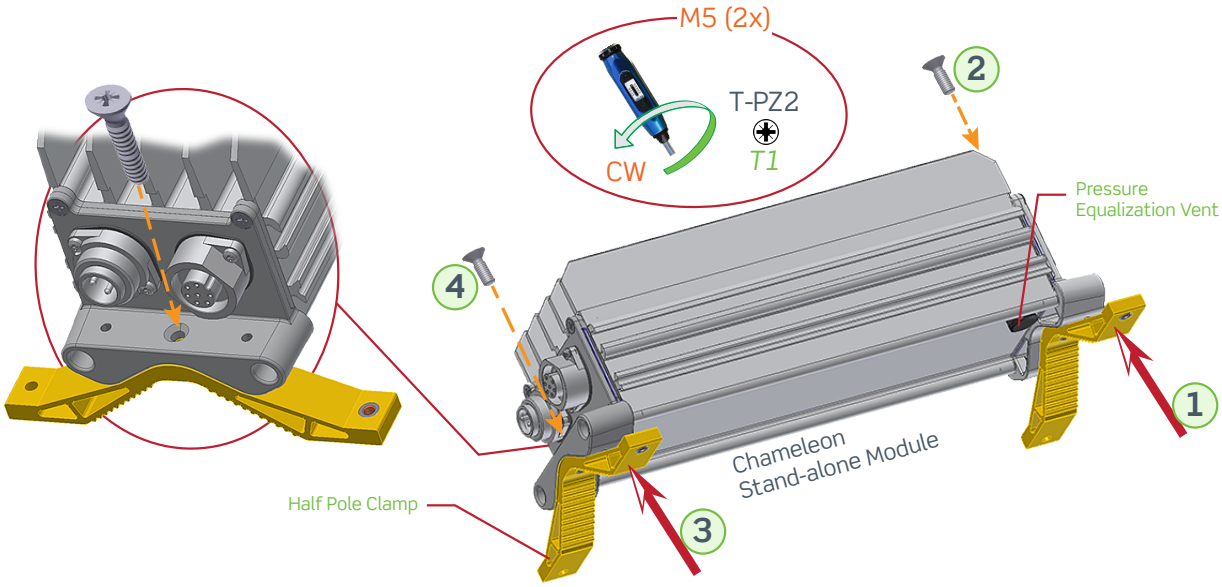

*All dimentions in mm (not in scale)*

# Mechanical Installation

## Option 1: Surface Mounting ~ Fasten the Chameleon Module




## Option 2: Pole Mounting ~ Fasten Half Pole Clamps to the Module




Device Hazard

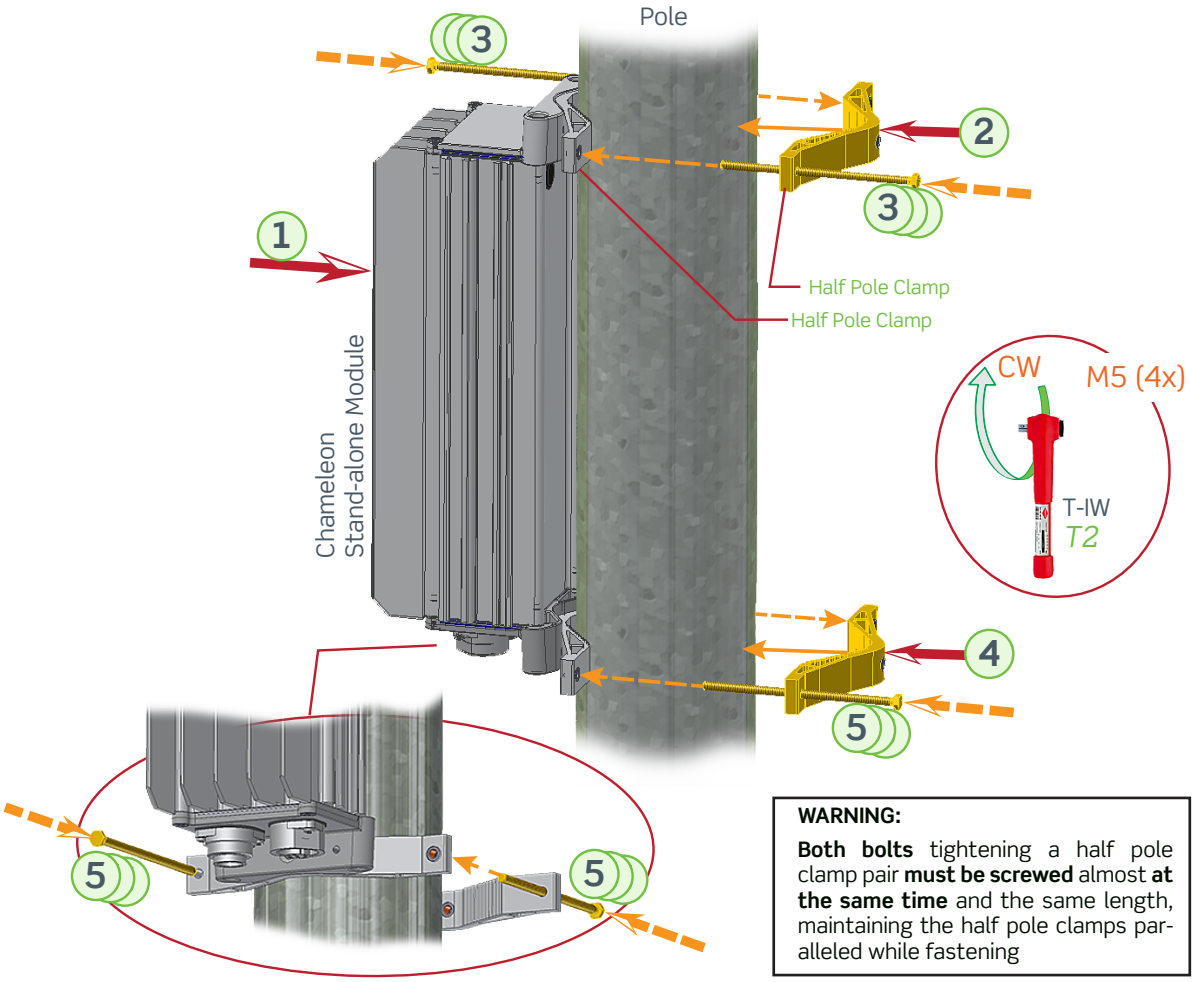
**WARNING:**

Do not open, close or change the Pressure Equalization Vent, which provides pressure equalization and condensation reduction, and resists liquid immersion, dust and dirt while allowing the product to breath during changing environmental conditions



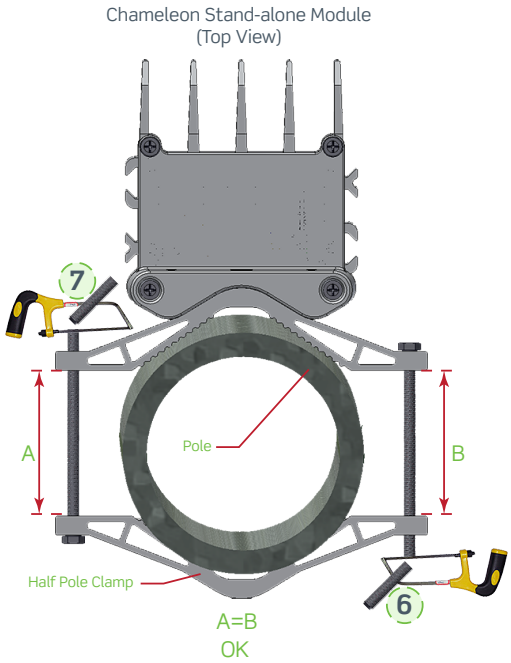

356849.103, 2v1-2015-08

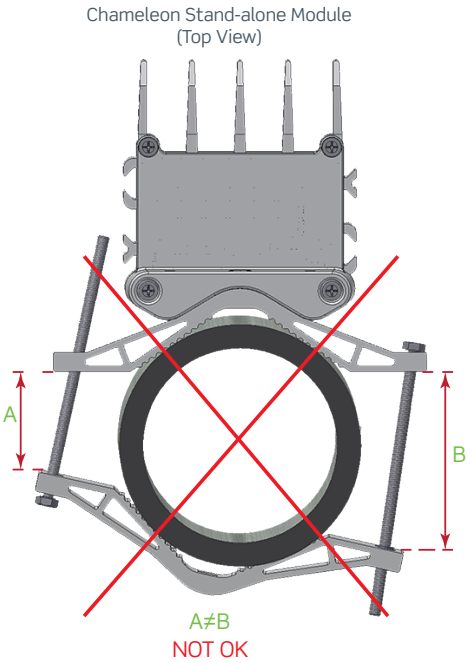
## Option 2: Pole Mounting ~ Fasten the Chameleon Module to the Pole




**WARNING:**

**Both bolts** tightening a half pole clamp pair **must be screwed** almost **at the same time** and the same length, maintaining the half pole clamps paralleled while fastening



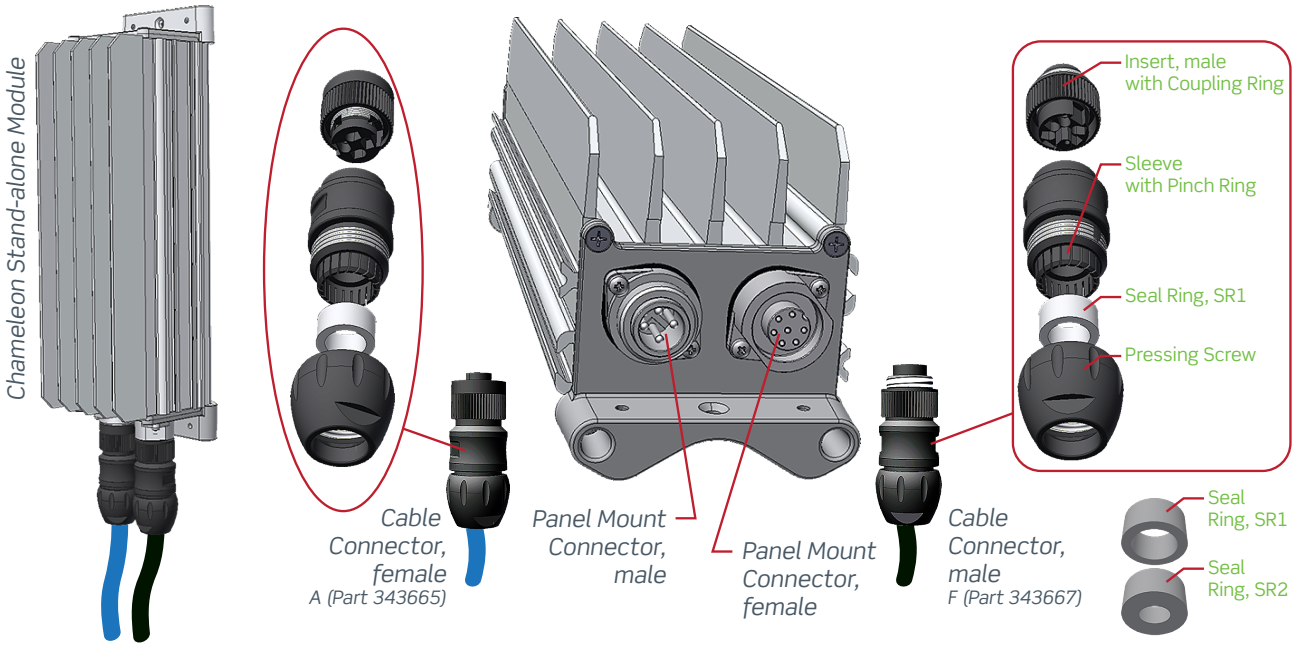

Optionally, you can cut the clamp bolts to suitable lengths after fastening them (steps 6 and 7).

# Electrical Installation

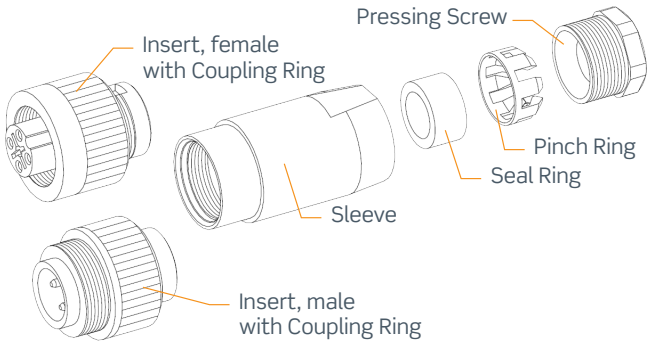
## Location of Terminals & Cable Management

*Power is OFF!*

### Cable Management




Cable connectors A and F shown above are suitable for a wider cable outer diameter range. Cable connectors B-E and G-J are shown below. Refer to *"Table 3. Selection of Cable Connectors" on page 9*






356849.103, 2v1-2015-08

## Check Lists Pullout

Pull out the pages with the gray outer band,
and use them as check lists

# COMMISSIONING PROCEDURE

## System Data

*Chameleon Module*

| | | | |
|---|---|---|---|
| Supplier's Order No.: | *Chameleon Stand-alone Module*, type: | | Article No.: |
| Site, name: | | | |
| Serial No.: | Software, version No.: | | |
| AC Input Voltage, measured: | | | Commissioning carried out by, name: |

## I Pre-Start Check

Power is OFF!



| CHECK FOLLOWING: | OK |
|---|---|
| 1. Chameleon Stand-alone installation is completed;<br>All cabling is securely terminated | ☐ |
| 2. Site specific parameters are known | ☐ |
| 3. All external load MCBs/ fuses are switched OFF | ☐ |
| 4. All external AC mains MCBs/ fuses are switched OFF; AC supply is OFF<br>Hazardous voltages are present inside Chameleon module, Part # 241125.155, as long as 10 min. after switch OFF | ☐ |
| 5. Both cable connectors are correct type<br>The correct type must be suitable for the cables' outer diameter. Refer to the QI guide, doc. 356849.103 | ☐ |
| 6. AC input cable and AC earth wire (PE) are terminated in the input cable connector | ☐ |
| 7. DC output cable is terminated in the output cable connector | ☐ |
| 8. The input and the output cable connectors are plugged in the Chameleon module | ☐ |

## II Start-up, No-Load Measurements

Power is ON!


| CARRY OUT FOLLOWING: | OK |
|---|---|
| **1.** Unplug the Output Cable Connector from the module | ☐ |
| **2.** Switch ON the system (external AC MCBs/fuses ON) | ☐ |
| **3.** DC output voltage;<br>Measure at the module's output **panel mount connector**, pin1 & 2<br>Verify correct output voltage (-43V to 58V, ±1V) | ☐ |
| **4.** Alarm relay test;<br>Verify that the alarm contacts (max. 30VDC, 2A), on the module's output **panel mount connector,** work OK<br>Measure resistance between pin 5 & 6 (AL C — AL NC)<br>R> 100MΩ → normal condition, coil energized<br>Unplug the AC Input Cable Connector<br>R≈ 0Ω → alarm condition, coil de-energized<br>Plug again the AC Input Cable Connector | ☐ |
| **5.** Plug again the Output Cable Connector to the module | ☐ |
| **6.** Switch ON external load MCBs/ fuses,<br>If possible, verify that the load is supplied with correct voltage (-43V to 58V, ±1V) | ☐ |

## Approval

| | | |
|---|---|---|
| Responsible of commissioning, sign.: | Date: | Approved by customer, sign.: |



www.eltek.com
Headquarters:
**Eltek**
Gråterudv. 8, PB 2340 Strømsø, 3003 Drammen, Norway
Phone: +47 32 20 32 00 Fax: +47 32 20 32 10

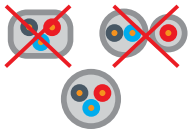
## Check Lists Pullout

Pull out the pages with the gray outer band,
and use them as check lists

Select the cable connector type that corresponds to your cable outer diameter, ±0.2 mm

| Cable Connectors Selection Table | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cable Type | | | Cable Connector Type | | | | |
| Function | Outer Diameter | | | Connector Type | Eltek's Part No. | Binder's Part Number | Pressing Screw's Torque |
| Input Cable | 12—17 mm<br>7.0—13 mm | ➔ | A | Input Connector (SR1)<br>Input Connector (SR2) | 343665 | 99-4222-300-04 (3+PE) | 1.6—2.0 Nm<br>0.8—1.4 Nm |
| Input Cable | 6.0—9.5 mm | ➔ | B | Input Connector | 334321 | 99-4222-00-04 (3+PE) | 0.8—1.0 Nm |
| Input Cable | 8—10 mm | ➔ | C | Input Connector | 334322 | 99-4222-110-04 (3+PE) | 1.0—1.4 Nm |
| Input Cable | 10—12 mm | ➔ | D | Input Connector | 334323 | 99-4222-14-04 (3+PE) | 1.0—1.4 Nm |
| Input Cable | 12—14 mm | ➔ | E | Input Connector | 314804 | 99-4222-160-04 (3+PE) | 1.0—1.4 Nm |
| Output Cable | 12—17 mm<br>7.0—13 mm | ➔ | F | Output Connector (SR1)<br>Output Connector (SR2) | 343667 | 99-4217-300-07 (6+PE) | 1.6—2.0 Nm<br>0.8—1.4 Nm |
| Output Cable | 6—8 mm | ➔ | G | Output Connector | 334328 | 99-4217-00-07 (6+PE) | 0.8—1.0 Nm |
| Output Cable | 8—10 mm | ➔ | H | Output Connector | 334329 | 99-4217-110-07 (6+PE) | 1.0—1.4 Nm |
| Output Cable | 10—12 mm | ➔ | I | Output Connector | 334330 | 99-4217-14-07 (6+PE) | 1.0—1.4 Nm |
| Output Cable | 12—14 mm | ➔ | J | Output Connector | 314805 | 99-4217-160-07 (6+PE) | 1.0—1.4 Nm |

*Table 3. Selection of Cable Connectors*



Circular Cross Section

**WARNING:**

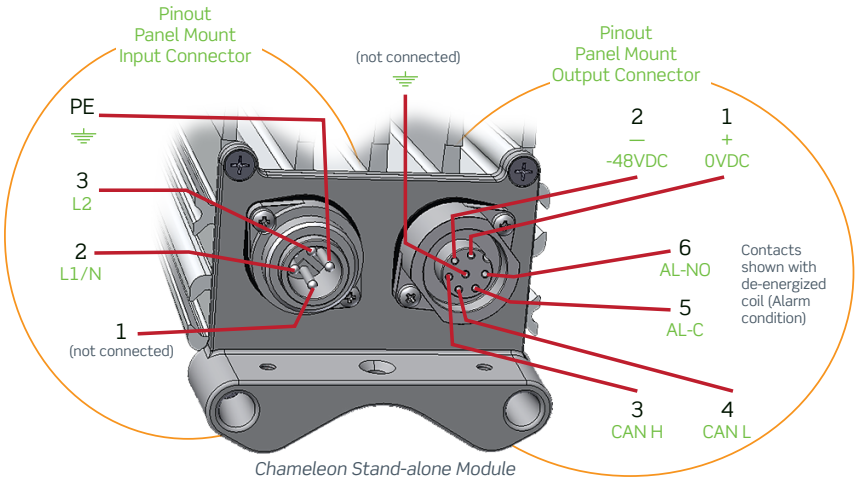
— To avoid corrosion of the screw terminals and field failures not covered by the warranty, always use cables with **circular cross section,** and cable **connectors and seal rings suitable for the cable's outer diameter**

— The cable connectors in *Table 3 on page 9* are suitable for PUR and PVC type cables with circular cable cross section

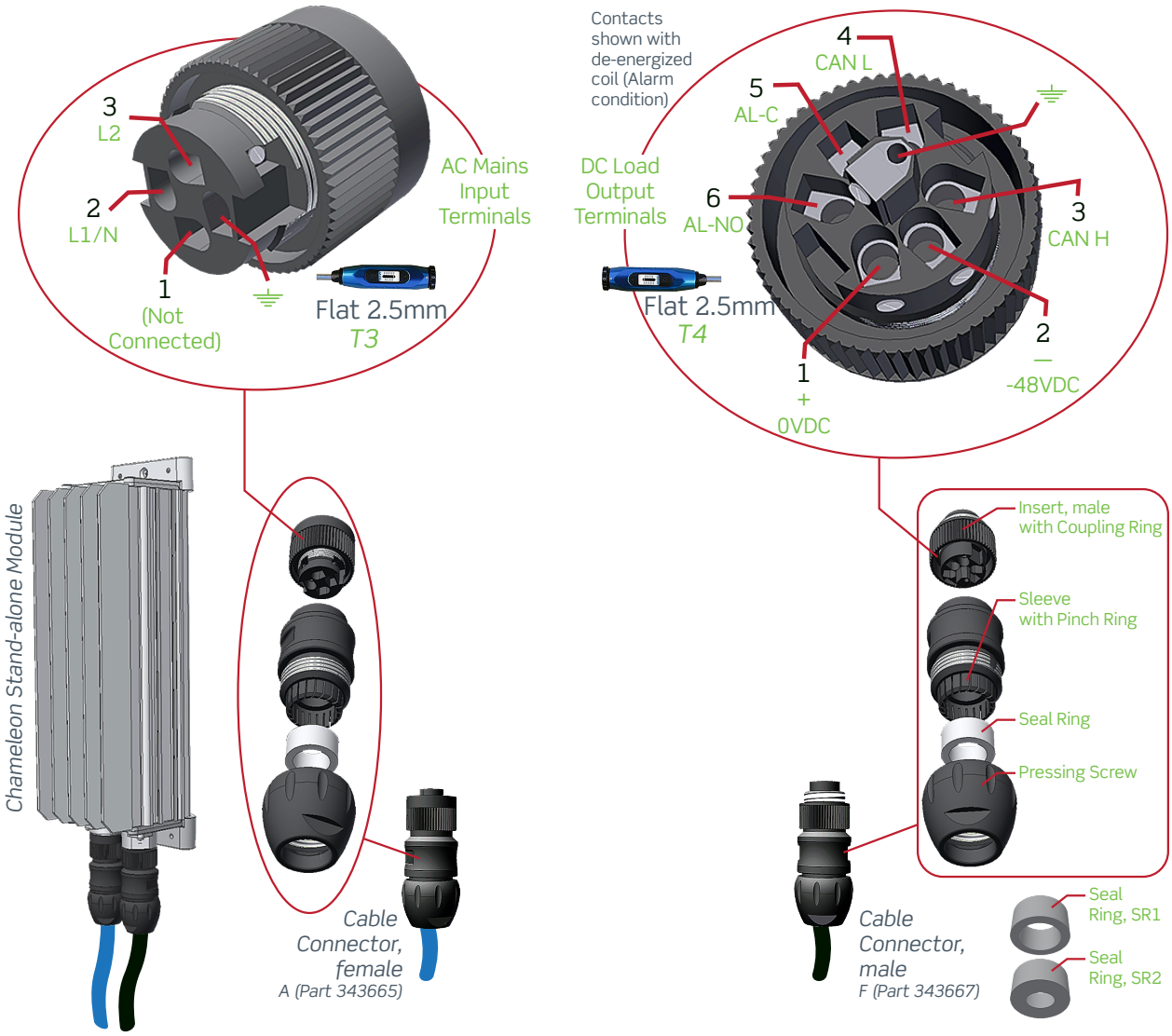
Device Hazard

# Electrical Installation

## Pinout ~ Panel Mount Connectors




## Location of Terminals ~ Cable Connectors




For torque reference T3, T4, read *"Tools & Torque Recommendations" on page 3*



356849.103, 2v1-2015-08

## Connections

*Power is OFF!*

### Switch OFF External Fuses

Current Surge Protection

**WARNING:**

For outdoor applications where the product may be subject to transient overvoltages exceeding those for Overvoltage Category II, **an AC Overvoltage Protection Device (OVP)** complying with IEC 61643-series **must be installed** on the AC supply. This device will reduce the overvoltages to levels corresponding to Overvoltage Category II

U5

U2a

**CAUTION:**

Suitable for connection to IT networks

A1

**For installations in USA and Canada only!**

The installation has to comply with the NEC/CEC requirements

Device Hazard

**WARNING:**

The other ends of the AC input and DC output cables must be terminated in a protected box or plug of at least IP 65 rating, or in an indoor environment

1. Switch OFF external AC Mains MCBs/Fuses
2. Switch OFF external Load MCBs/Fuses

Electric Shock 10 min.

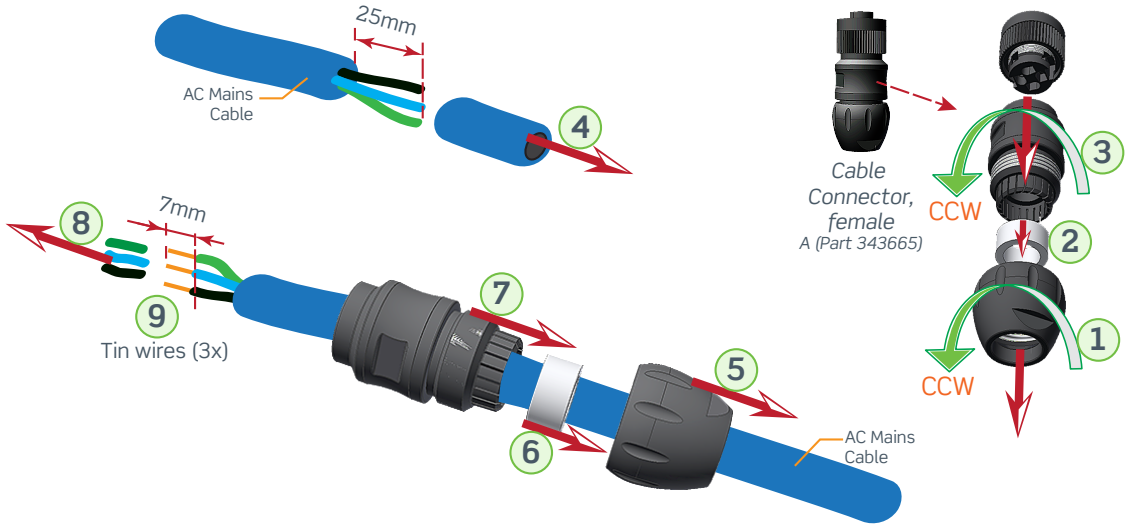
**WARNING:**

**Hazardous voltages** may be present inside the Chameleon module, Part # 241125.155, as long as **10 minutes after it is switched OFF** (discharge time)

356849.103, 2v1-2015-08

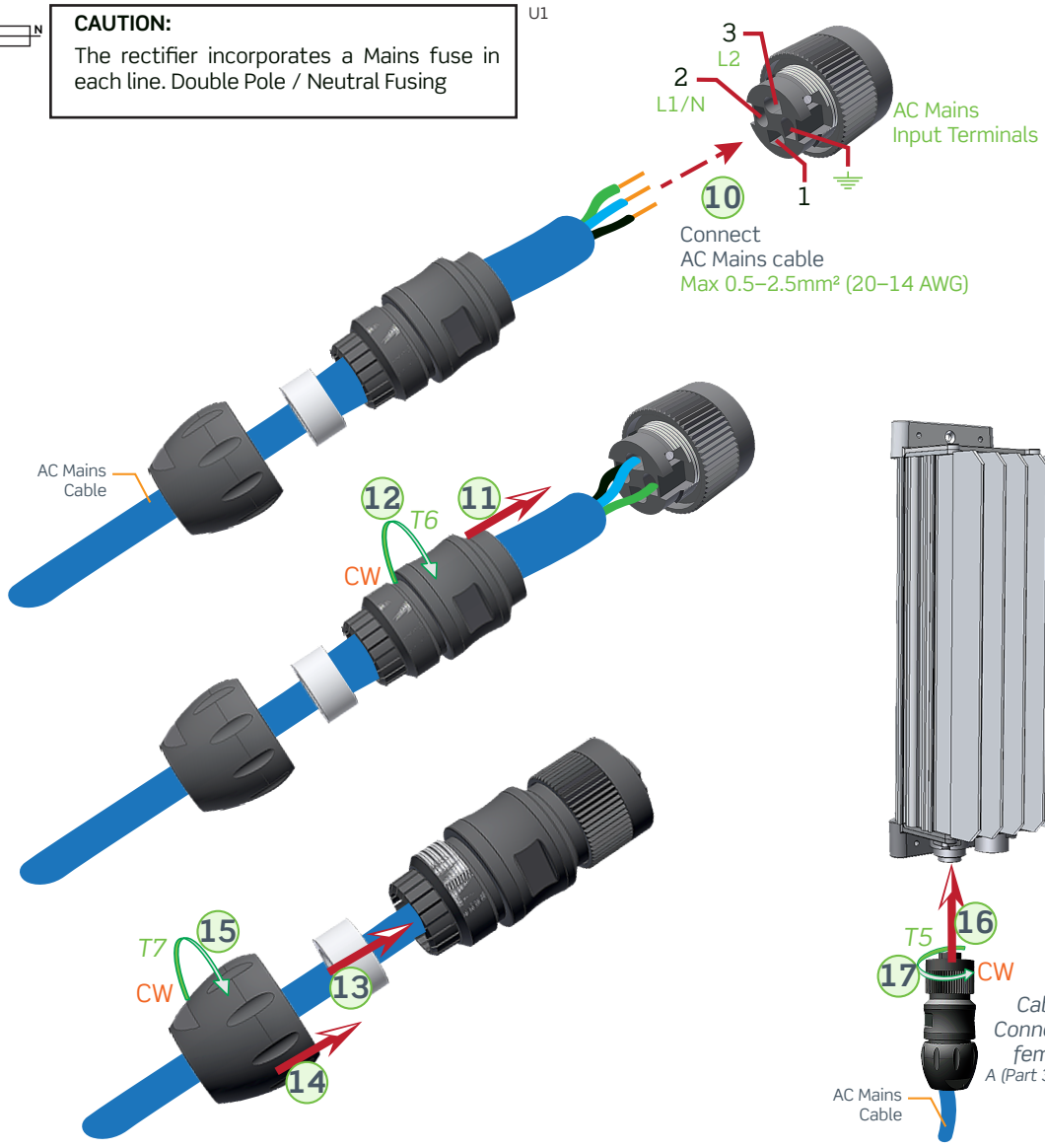
# Electrical Installation

## Connect the AC Input Cable




**CAUTION:**
The rectifier incorporates a Mains fuse in each line. Double Pole / Neutral Fusing

U1



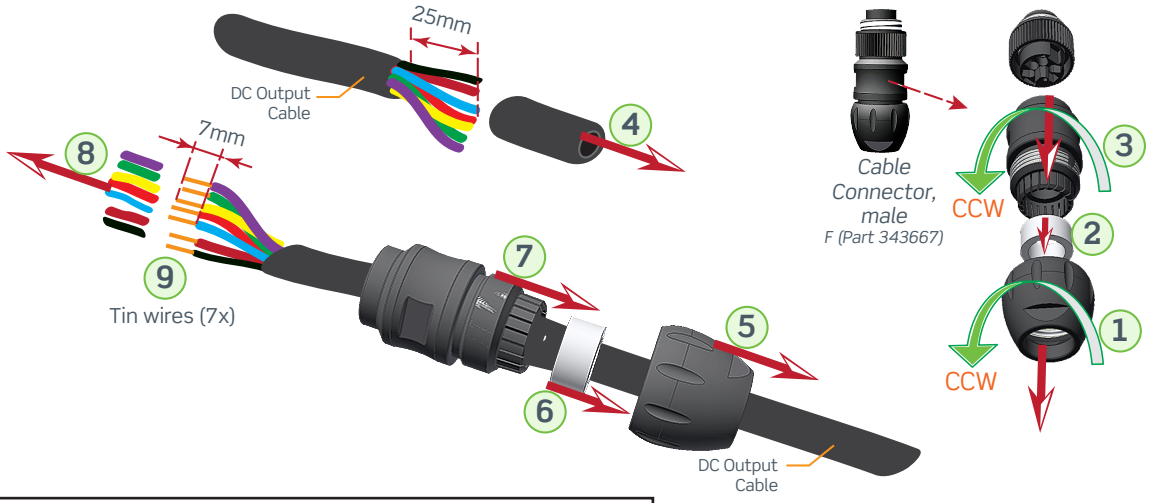

Use similar connection procedure for input cable connectors B through E

For torque reference T5-T7, read *"Tools & Torque Recommendations" on page 3*



356849.103, 2v1-2015-08

## Connect the DC Output Cable



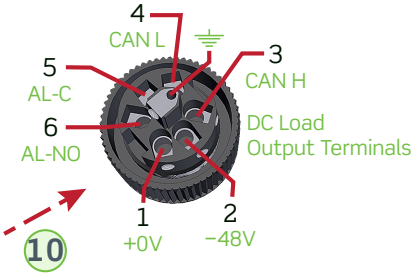

**WARNING:**

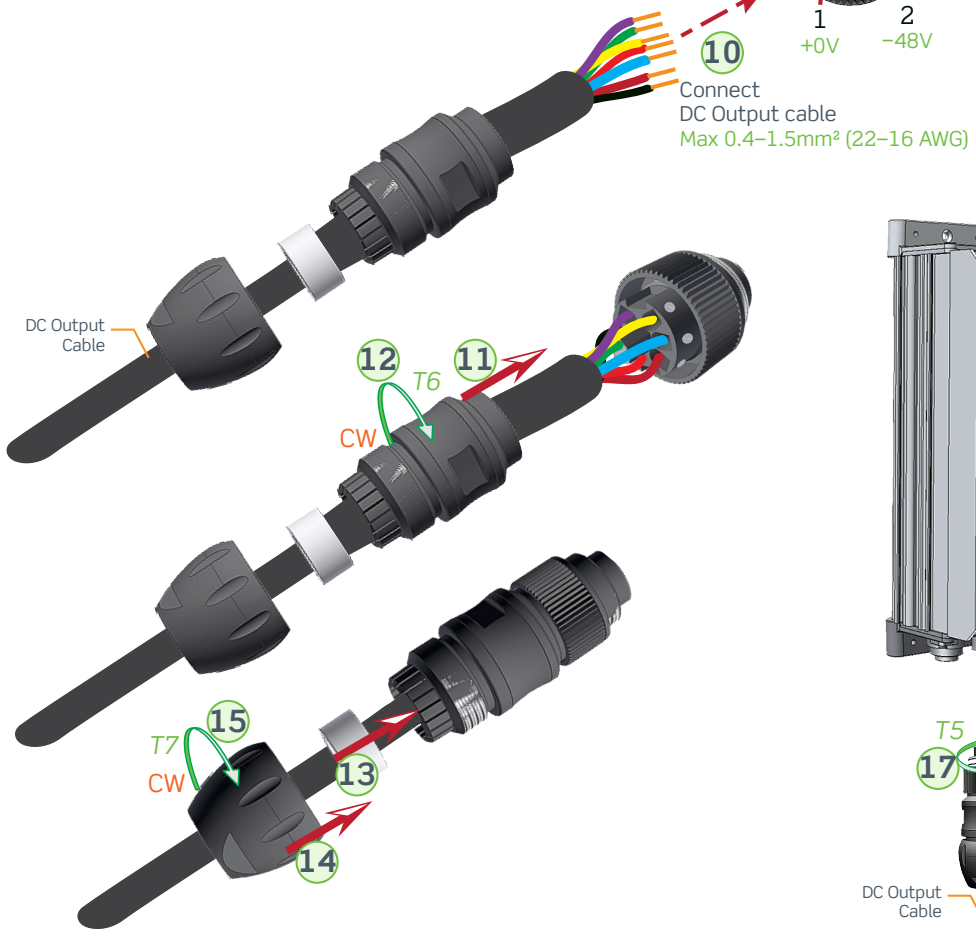
— Careful! Use correct polarity!

— The DC Load's wire cross section must be 1.5 mm² (pin 1 & 2)

— Relay contacts shown with de-energized coil (Alarm condition)

— The Earth terminal in the output panel mount connector is not connected inside the module




Use similar connection procedure for output cable connectors G through J

For torque reference T5-T7, read *"Tools & Torque Recommendations" on page 3*

356849.103, 2v1-2015-08

Refer to the steps in the pull-out form “Commissioning Procedure”

356849.103, 2v1-2015-08

ELTEK
A Delta Group Company

356849.103, 2v1-2015-08, Published 2015-11-25

This product is CE marked and complies with all current requirements for relevant standards and directives.

CE

www.eltek.com

Headquarters: **Eltek**
Visitor address: Gråterudveien 8, 3036 Drammen, Norway
Phone: +47 32 20 32 00 Fax: +47 32 20 32 10