



## IMPORTANT!

Read this instruction carefully before installing the product

**TRANBERG**

**STAHL**

THE STRONGEST LINK.

# TRANBERG® SEARCHLIGHT

TEF 2650 LED51 400W Commander

Safe Area

## USER MANUAL

### R. STAHL TRANBERG AS

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## General Information

### Manufacturer

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### About these operating instructions:

- Read these operating instructions, especially the safety notes, carefully before use.
- Observe all other applicable documents (See also further documents section).
- Keep the operating instructions throughout the service life of the device.
- Make the operating instructions accessible to operating and maintenance personell at all times.
- Pass the operating instructions on to each subsequent owner or user of the device.

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### Further documents for this product:

- Datasheet, TPS7105

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## TEF 2650 LED51 400W Commander Searchlight

### Safe Area

#### 1. Safety

To ensure that the product is used safely and to optimize its life time, the following instructions must be observed and adhered to.

- Only suitably qualified personnel may install the products.
- Observe the locally applicable safety standards and safety regulations.
- The intense light output may damage eyes when stared directly into the light.
- Any type of light source reaches a very high temperature. Do not touch if warm. Never touch with bare skin as this reduces light output.
- The motorized searchlight moves both vertically and horizontally. Be aware of any personnel close to the searchlight when testing or operating.
- Never use force to move the searchlight head on a motorized unit. This may damage the power train inside the motor unit.
- Never open a searchlight head while energized. High voltage is present.
- Always wait until light source and other components have cooled before touching any part.
- Do not clean the product with a high-pressure steam or water jet. This will prevent damage not covered by warranty. Only clean by washing down with cloths / soft brushes.
- Do not use any kind of solvents on the system, to avoid damage to occur.



#### 2. Warranty

The warranty for the searchlight is based on that "The assembly- and maintenance instruction", attached with the product, is fulfilled, and does not cover damage caused by misuse or lack of proper maintenance and care.

- Damage caused by incorrect installation, accidents or external influences, such as a lightning strike or harmonic distortion not within EN 55015 or IEC 61000-4-6 (2008), are not covered by the warranty.

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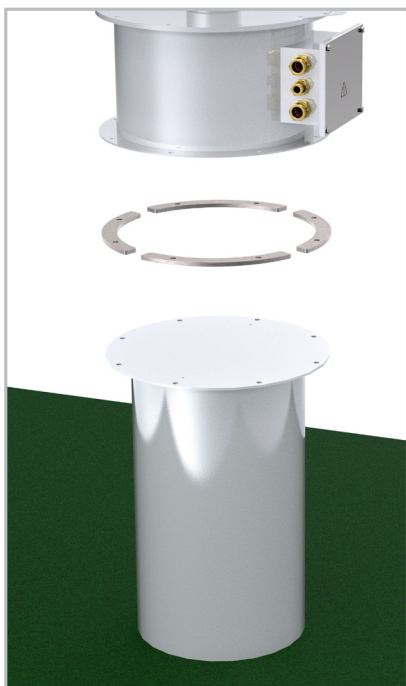
## TEF 2650 LED51 400W Commander Searchlight

### Safe Area

### 3. Installation mechanical

When choosing the place to install the searchlight you should consider the end stop of the horizontal movement, the end stop is placed at the connection box, i.e. when the light head is facing in the same direction as the connection box. Also consider if there are sectors which should not be illuminated.

The searchlight is mounted to the base with 8 pcs M10 bolts. Please note that the motorhousing is equipped with 2 pcs. Ø4 drain holes. For these to have any draining effect, the included TEF 2650 mounting standoff kit (part no: 5024) must be installed between the motorhousing and the base where the searchlight is based (Fig. 1M). For more details on dimensions please see drawing 600A102893 in the drawing section in this manual.



### 4. Installation Electrical

#### 4.1

#### Cabling communication network

- Use 2x twisted pair cable or 1x twisted pair + screen. Characteristic impedance: 100 – 250 ohms. Suitable cables types can be cables made for Profibus, Interbus, Ethernet, Cat5, or similar.
- The communication network must be connected as a bus topology, i.e. from point to point (unit to unit). No loops or star connections are allowed. (See drawing 600A105539)
- No end terminations are necessary.
- Connect A to A, B to B and Ref to Ref. Ref is also called Sh on some units.
- The order of panels and searchlights along the bus can be freely chosen.

**Tip:** A drawing of the system showing the order and addresses of the units can be of great help if troubleshooting should be necessary.

#### NOTE 1:

Keep communication cables away from all power lines.

#### NOTE 2:

Treat/regard Shield/Reference as a signal. It shall under no circumstance be connected to Ground or other Protective Earth potentials. See technical data for details of communication interface.

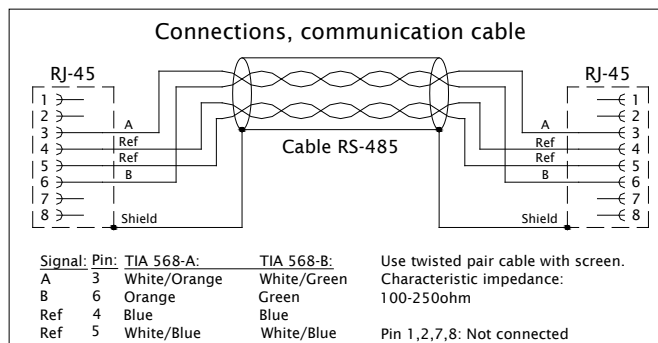
#### 4.2

#### Cabling - Searchlights Mains (230V)

Power to the lamp as well as power to the motor unit are supplied through the same cable. Dimension the cable and fusing according to the wattage of the lamp. Note that the LED drivers have a large inrush current at power-up, so a slow acting circuit breaker with same rating, or a breaker with a higher rating is recommended.

#### 4.3 Address Settings

- Each unit (searchlight or panel) must have its own unique address. Panels and searchlights have separate address spaces, i.e. a panel with setting '2' does not interfere with a searchlight set to address '2'.
- The addressed units (panels and searchlights) can be placed freely along the bus, they don't have to be placed according to their address or in any special order.
- The address of searchlights are normally pre-set from factory. See chapter "changing address on searchlight" if changes are needed.



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## 5. Startup of System

- Check that all connections are correct and no short-circuits or breaks. Check all 230VAC supply lines. Also check the 24VDC supply to the panels and other control modules.
- Turn on power first to the searchlight motor units, then the 24VDC supplies to the panels. If the panels are powered from separate supplies, then first apply power to the slave panels, then to the master panel. Check visually that each searchlight makes a positional scan right after the master panel is powered up. The master panel should now find all searchlights and panels, and be able to communicate with them.
- Check movement and light on /off of all searchlights.
- On the 2613 panel, the indicators in the 'searchlight select' buttons will start flashing in sequence. On the 2612 panel, the indicators in the speed buttons will flash in sequence. Release the speed buttons.
- The sequential flashing will last for a couple of seconds, as long as the scanning of the bus is performed. When the flashing is finished, the system is ready for use.
- Repeat the procedure if necessary.

### 6.3 Re-set of searchlights

- Remove power (230VAC) to the searchlight (motor unit), wait for approx. 10 sec, and reconnect the power. If several searchlights need to be reset, repeat this for each searchlight before commencing to next step.
- Do a re-scan from the master panel. Alternatively, remove and reapply power (24VDC) to the panels, either all or at least the master panel. The searchlight will now move to the right and upwards to find the end positions, and back to center. If necessary, watch the searchlight at this stage to verify the movement.

### 6.4 Re-calibrate end limits of searchlights

- Open the searchlight junction box and set DIP-switch no. 1 to ON.
- Remove power (230VAC) to the searchlight (motor unit), wait for approx. 10 sec, and reconnect the power. If several searchlights need to be reset, repeat this for each searchlight before commencing to the next step.
- Do a re-scan from the master panel. Alternatively, remove and reapply power (24VDC) to the panels, either all or at least the master panel. The searchlight will now do a complete movement up – right– left – center/

down to find the end limit positions, and back to center. If necessary, watch the searchlight at this stage to verify the movement.

- Set the DIP-switch no. 1 back to OFF and close the junction box.

### 6.5 Changing address on a searchlight

- Remove power to the searchlight. Open the lid of the junction box and rotate the address wheel to the address you want to give the searchlight.
- The address needs to be unique on the bus, between 1 and 8.
- Reapply power to the searchlight and perform a re-scan from the main control panel, see section 6.2, "Re-scan of nodes connected to the bus".

## 6. Special procedures

### 6.1 Identifying the master panel

For the following special procedures, the master panel need to be identified.

The master panel can be recognized by the yellow indicator in the power button. When you turn off power by pressing this button, the yellow indicator will be continuously lit in the master panel. It will blink slowly (1 sec. on, 1 sec off) on a slave panel.

### 6.2 Re-scan of nodes connected to the bus

If necessary, the master panel can do a bus scan when powered up using the following procedure: A panel can do both this alternate re-scan procedure as well as the previous procedure.

**(Note:** Do not operate or use any panels or searchlights during this procedure. Ensure that all are powered up.)

- Set all panels to standby ("turn off") by using the on/stdby button. The backlight will turn off. Locate the master panel (see ch. 3.2), and turn it on again.
- Press and hold both speed buttons ('fast' and 'slow') for at least 5 seconds.

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TEF 2613 Control panel



TEF 2612 Control panel

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## TEF 2650 LED51 400W Commander Searchlight

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## 7. Operation

### 7.1 Start-up procedure

**Power-up:** Apply power in the following sequence:

- Apply the 230 VAC power to the searchlights first.
- Apply the 24 VDC power to the panels next. If the panels have several separate supplies, ensure that the master panel is powered up last. The panels will be in the 'on' mode when powered up.

### 7.2 Control panel

#### General

Any user can control any searchlight at any time. When the lamp on a searchlight is turned on, it will be indicated in all the other panels by the indicator for that searchlight (In the select buttons) flashing slowly. If the same searchlight is selected from another panel (the select button is pressed), then the other panel gains control over that searchlight, and the first panel will lose its control. As this happens the searchlight will maintain the previous lamp on or off setting, but the speed setting will be dependent on the setting of the new control panel.

When the control panel is turned off, the searchlights last operated from this panel will automatically be turned off.

**NOTE:** Slow flashing is 1 sec on, 1 sec off. Fast flashing is 2 flashes per second.

#### 1. "ON/STBY" or "POWER"

On/Standby button, activates the panel. The backlight will turn on. Press momentarily to turn on, press and hold for 1 sec to go to standby. In standby the panel will turn off all searchlights that was used by that panel. The yellow indicator will light steady if it is a master panel, or flash slowly if it is a slave panel

#### 2. "DIM"

Adjusts the panel backlight level. Press shortly to change level one step, press and hold to change the level to min or max.

#### 3. SEARCHLIGHT SELECT BUTTONS

To select which searchlight you want to operate, press the buttons on the top row. The first is used to select searchlight no. 1 and 5. The first press selects searchlight no. 1, press once more (within a second) to select searchlight no. 5. For the three other buttons works the same way. It is only possible to select searchlights that are connected. The panel may operate up to 8 searchlights and the system will automatically detect the number and addresses of the searchlights that are connected..

#### 4. "Light"

To turn the light on or off. A green indicator light will light steady if the lamp is on. Flashes rapidly when the group function is activated.

#### 5. "NARROW" and "WIDE"

Not applicable for LED searchlights.

#### 6. POSITION INDICATORS

##### Arrow left and right:

##### **Steady light:**

The searchlight is in the sector left or right for the home position.

##### **Slow flashing:**

The searchlight is at the normal left or right end position.

##### **Fast flashing:**

The searchlight has stopped due to mechanical overload or at the end limit switches.

##### Square:

##### **Steady light:**

The searchlight is at its horizontal home position.

##### **Slow flashing:**

The searchlight is at its horizontal and vertical home position.

##### **Fast flashing:**

The panel has sent a "set home position" command to the searchlight.

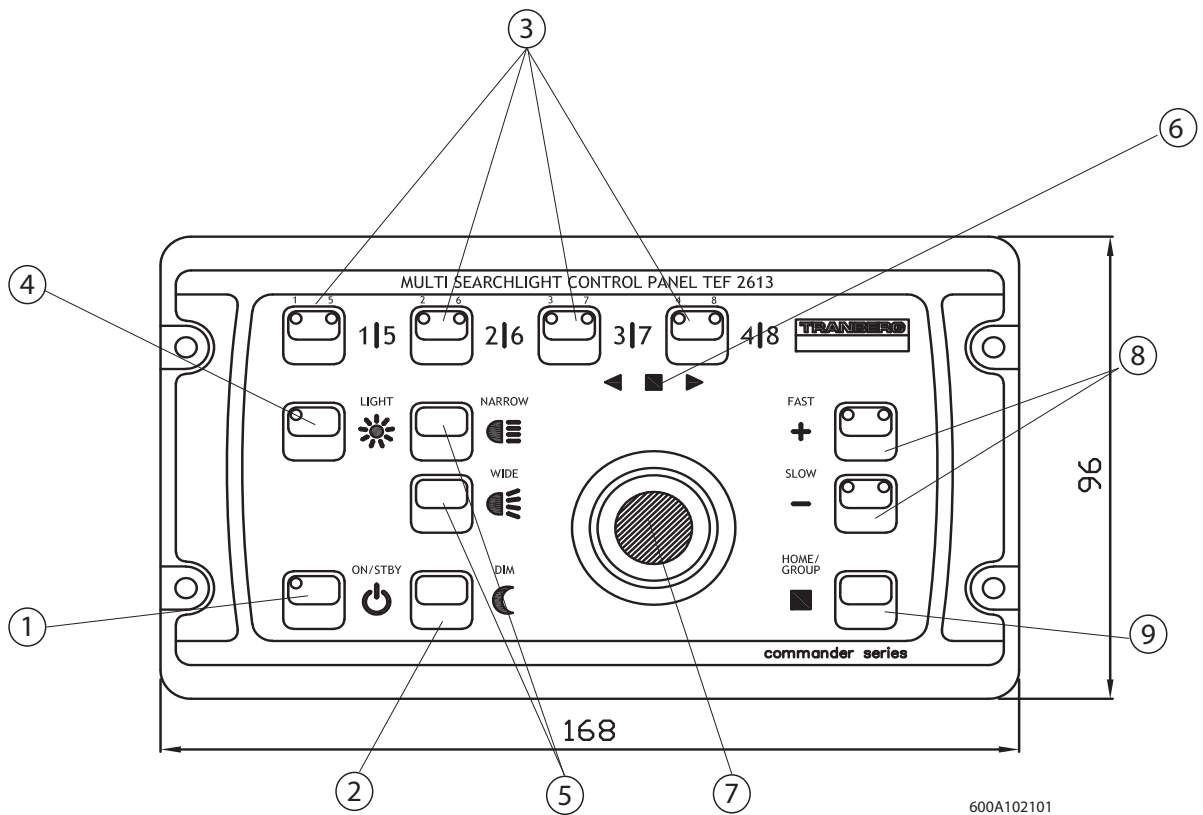
*Explanation of points 7, 8 & 9 continues on page 10.*



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## TEF 2650 LED51 400W Commander Searchlight

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## 7. JOYSTICK

Left – right. Up for light downwards, down for light upwards.

Speed	1 slow	2, 3	4, 5, 6	7, 8	9 fast
Fast					
Slow					

## 8. "FAST" and "SLOW"

Adjust motor speed. 9 Steps, 5 Indications

## 9. "HOME / GROUP"

### DUAL FUNCTION:

**HOME:** Move to "home"

If only one searchlight is selected (or has been used from a panel), a short press on this button will command the searchlight to go to its (preset) home-position. A long press (> 5s) will set the searchlight's current position as the new home position for that searchlight.

**GROUP:** Move several searchlights

If two or more searchlights have been turned on from the same panel, a short press on this button will start the group-function. The selected searchlights will then move simultaneously.

### INDICATOR TEST:

1. To see if all indicators on the front of the panel are working, proceed as follows:
2. Turn off panel with the 'ON/STBY' button.
3. Press and hold the 'ON/STBY' button for at least 5 seconds.
4. While holding the 'ON/STBY' button, press (and release) the 'DIM' button shortly.
5. Release the 'ON/STBY' button. All indicators on the front of the panel will now flash rapidly.
6. If joystick or buttons are operated during

this test, a corresponding LED (s) will extinguish as long as the button is held.

7. Press (and release) shortly the 'ON/STBY' button to exit lamp test mode and to turn on panel.

**NOTE:** Slow flashing is 1 sec. on, 1 sec. off.  
Fast flashing is 2 flashes per second.

## 8. Maintenance

### 8.1 CLEANING

#### PANEL:

The control panel may be cleaned with a mild detergent on any parts.

#### SEARCHLIGHT:

Keep the searchlight and lens clean. Use only water and soft cloth to clean the searchlight. Clean the front glass / lens only when the light is off and has cooled down. Ensure that all remains of the cleaning solvent are removed.

### 8.2 LUBRICATION

The lubrication point at the bottom of the U-pieces should be greased every two years. Use grease which is resistant to temperatures down to -50°C.

### 8.3 MECHANICAL

- Check all external screws on the searchlight periodically and tighten if needed.
- Control that the lamphouse moves smoothly and with low friction both horizontally and vertically. Do not overtighten the four bolts in which the lamphouse is hinged, as this may hinder the movement of the searchlight.
- Remove build-up of ice on and around the searchlight. The motor unit and the lamphouse optional have both an internally mounted heater to avoid condensation, but it is not designed for de-icing the searchlight.

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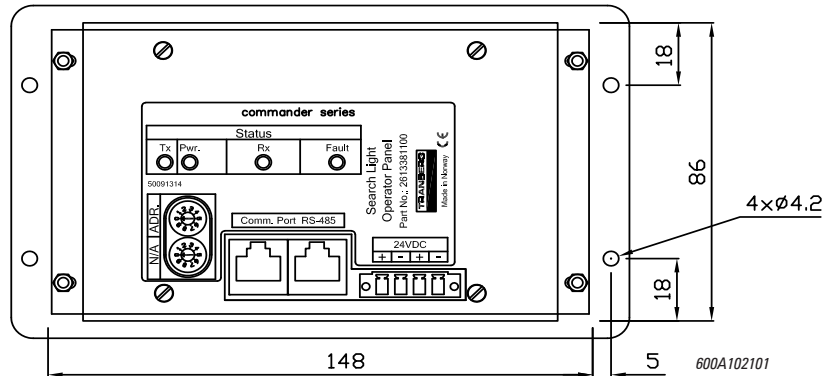
## TEF 2650 LED51 400W Commander Searchlight

### Safe Area

## 9. Connections, settings and indicators

### 9.1 PANELS

**TEF 2613** Multi is the standard panel for control of up to 8 searchlights. The panel have 13 keys.



### Connections

Pin	Color (TIA 568-A)	Color (TIA 568-B)	Signal
1	White / Green	White / Orange	N/C
2	Green	Orange	N/C
3	White / Orange	White / Green	A
4	Blue	Blue	Reference
5	White / Blue	White / Blue	Reference
6	Orange	Green	B
7	White / Brown	White / Brown	N/C
8	Brown	Brown	N/C
Shield	-	-	Shield

### Settings

Rotary Switch		Settings		
N/A	ADR	Address	Mode	Panel Type
0	0	0	Master	
0	1-7	1-7	Slave	TEF 2613
1	0-7	8-15		

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## TEF 2650 LED51 400W Commander Searchlight

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### INDICATORS

#### Settings

Priority	Power btn LED	Fault LED	Description
1	Fast flash	Fast	Power on or off. Network error: No messages received.
2	Fast flash	Slow	Power on or off. Network error: The module receives messages on the bus, but none to its own address.
-	Steady on	Off	Power off/ standby, Master Panel
-	Slow flash	Off	Power off/ standby, Slave Panel (Receives messages from master)
-	Off	Off	Power on, Master- or slave panel

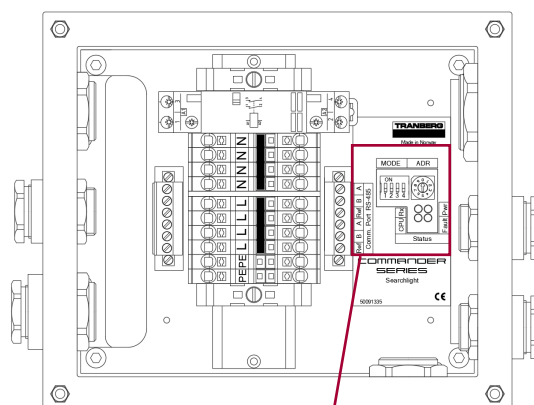
If a master panel do not get any answers/ messages from any other slave or node, then the master will signal 'No messages received'.

Slow flash: 1 sec. on, 1 sec off  
Fast flash: 2 blink per second.

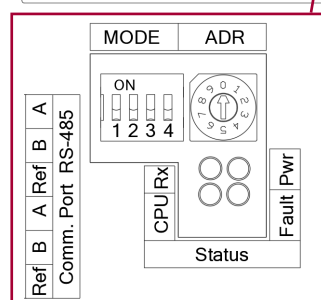
The yellow Rx and Tx LEDs shows the activity on the bus, and will flicker at normal bus activity.

The green Power LED will light steady when 24VDC is applied / supplied.

### 9.2 SEARCHLIGHT MOTOR UNIT



600A104858



#### Connections

Pin	Signal	Comment
6	A	
5	B	
4	Sh	Reference
3	A	
2	B	
1	Sh	Reference

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## TEF 2650 LED51 400W Commander Searchlight

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#### Mode

DIP Switch	Description
1	If set to 1: Do a full positional re-scan at next power-up/bus query (deletes and replaces the previous memorized endpositions).
2-4	Not in use

#### Rotary switch

Address	Description
0	
1-9	Set address equal to number 1=1 (A) on panel, 2=2 (B) on panel, etc.

For safety reasons the motors in the searchlight will stop after 1.5 seconds without communication on the bus.

#### Indicators:

**Rx (Yellow):** shows the activity on the bus, and will flicker at normal bus activity

**Pwr (Green):** light steady when the internal 24VDC is OK.

Priority	CPU LED	Description
1	Steady on	Is on for 5 sec, when power is applied.
2	Fast flash	All OK and receiving messages from the bus master.
3	Slow flash	OK, but not receiving messages to itself from the bus.
-	Off	

#### Fault (red)

Priority	Fault LED	Description
1	Steady on	Output stage of drive electronics has an overtemperature condition. During positional scan at power-up. If one of the conditions for fast or slow blinking occur at this phase, it will start blinking correspondingly.
2	Fast flash	Overcurrent/overload at one or both motors. Will continue to blink fast until both motors are driven at the same time.
3	Slow flash	Not receiving any messages to itself. Delayed 5 sec. after the CPU LED.
-	Off	Normal condition

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## TEF 2650 LED51 400W Commander Searchlight

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## 9.3 CONTROL MODULES

### SIM and RCM Module

Priority	Fault LED	Description
1	Steady on	Functional error: Can be several causes.
2	Fast flash	Network error: No messages received.
3	Slow flash	Network error: The module receives messages on the bus, but none to its own address.
-	Off	Module and outputs OK.

## 10. FAULT FINDING

### 10.1 GENERAL

1. Check which searchlights and from which panels the problem exists on. Can the fault be isolated to a particular searchlight or panel?
2. If it is a system with a radio control module (RCM), check if the same problems exists with the ordinary (wired) panels.
3. When changing a setting/address on a unit, remove and reapply power to let the change become operative.

### 10.2 PROBLEMS WITH MOVEMENT

1. No movement: Check if light is able to turn on/off: do a re-scan on the master panel (see ch. 5.2 or 5.3).
2. Limited or shifted range of movement: possible problems with end limit switches. Try resetting the searchlight (see ch. 5.4).
3. The searchlight moves with low speed only (And incorrect position indication on panel): Possible problems with position sensors. Try resetting the searchlight (ch. 5.4) or a recalibration of end limits (ch. 5.5).
4. Spurious movement when joystick or panel is not operated: Possible electrical noise or interference on the communication network. Check if this happens under special operation conditions of the ship or other

equipment. Alternatively, try resetting the searchlight (ch. 5.4)

5. Not able to select a searchlight from any of the panels. Possible failure of power supply or power dip (230VAC) to the searchlight. Do a re-scan on the master panel (see ch. 5.2 or 5.3).

### 10.3 PROBLEMS TURNING ON OR OFF THE LAMP

1. Check if movement functions normally. If yes, then the communication with the searchlight is OK and the fault may be in the lamp circuits: Check the lamp itself, electrical wiring and relays. If no, first try to reestablish the communication with the searchlight: Do a re-scan on the master panel (see ch. 5.2 or 5.3).
2. Check if green indicator in "light" button functions normally (toggles on/off when pushing the button). If yes, then the communication with the searchlight is OK and the fault may be in the lamp circuits: Check the lamp itself, electrical wiring and relays. If no, the communication network may be faulty or being influenced by interference, or the searchlight may have a power loss (230VAC). Try to reestablish the communication with the searchlight: Do a re-scan on the master panel (see ch. 5.2 or 5.3).

3. Check relay in the lamp power supply circuit: Contactor in junction box, relay on motor drive electronics.

### 10.4 PROBLEMS WITH PANELS

1. A master panel is required to get the system to function. If the panel set to master is faulty, the system will not function. Change address on one of the other (slave) panels to '0', remove and reapply power (to the panel), and the panel will function as master. See also ch. 5.2 and 5.3 for re-scan from the master panel.
2. If a button or a joystick is faulty, do the indicator test described in ch. 2.2.

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#### 10.5 PROBLEMS AT INSTALLATION

1. Check correct wiring (A is always connected to A, likewise for B and Ref. No grounding of Ref or connected to protective earth). Tip: if one unit in the middle of the comm. network bus does not respond, it may be that A and B are swapped both for the incoming and the outgoing cable.
2. Jerky movement (and/or light goes uncontrolled on/off) can be caused by electrical noise on the network. Check correct wiring, especially mix-up of Ref and A or B.
3. Two or several searchlights move simultaneously when only one is selected from the panel: Check the addresses of the searchlights (same address on two units).
4. Not possible to select any searchlight, or strange behaviour of the indicators on one or more panels. Check the addresses on the panels, two or more set at the same address.
5. Master panel: There shall be one and only one panel set to master (ADR = 0) in a system. If no panel is set as master, the system will appear "dead", if more than one, the panels will have an unpredictable behaviour.
6. If several faults are present on a system, try to isolate one panel and one searchlight and get this to work, then add more units step by step.
7. To decide whether cabling or searchlight is erroneous, power a panel (set to master) with a 9V battery and connect the communication network directly to a searchlight.

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## 11. TECHNICAL DATA

Dimensions	
Height:	1084 mm
Width:	450 mm
Height w/pedestal:	1684 mm
Weight searchlight:	56 kg

Electrical	
Line input voltage (*):	230 VAC (202-254 VAC)
Line input current (max):	1,5 A
Standard cable gland diameter:	2 pcs. E204/2A/M20 Ø6,4-Ø11,8
Communication interface:	RS-485 , Galvanically isolated
Required cable impedance:	typ. 100-250Ω

Optical System	
Lamp power:	400W
Working voltage (other voltage on request):	230V
Lamp lifetime (approx.):	50 000 h
Luminous flux:	30 000 lm
Divergence:	4,3° FWHM
Range at 1 lux (theoretical calculation):	Approx. 2000 m
CRI:	67,5
Color temp:	6200 K

Motion (motor unit)	
Vertical range (positive = up):	50° (+20°...-30°)
Vertical speed:	0,7°... 11° per sec.
Horizontal range (positive = right):	370° (±185°)
Horizontal speed:	2°...40° per sec.

Materials, IP and operating temperature	
Lamphouse and motor unit:	Stainless steel
Backlid of lamphouse:	Molded seawater resistant aluminium
Base:	Stainless steel
Fork and lifting rod:	Stainless steel
Screw joint material:	Stainless steel
Surface treatment:	All white surface powder coated (RAL 9010) to 70-80 µM
Ingress protection (DIN40050):	IP56 (EN 60529)
Operating temperature	-40°C ... +50°C

Compass Safe Distance	
Standard compass:	130 cm
Other compass:	180 cm



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## TEF 2613 Control Panel

Length:	163 mm
Width:	96 mm
Height:	62 mm
Height w/ joystick:	105 mm
Weight:	360 g
Mounting:	Flush
Input voltage:	12-28 VDC
Input current (at 24V):	max. 120 mA
Ingress protection (EN 60529):	IP20
Operating temperature:	0°C ... +40°C
Storage temperature:	-20°C ... +60°C

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## 12. SYSTEM OVERVIEW

The Tranberg Commander Searchlight uses a serial communication network to control and monitor the searchlights. This makes it possible to freely choose and combine the number of searchlights and panels. All panels can control all searchlights, one at a time, by using selection buttons on the panel.

The communication network is connected as a bus topology, i.e. the communication cable is connected from unit to unit as a chain. In that way, all units can communicate with all the other units, and can receive every message sent over the network. Each unit connected to a bus must be uniquely identified by a number (address). This address is set either by thumbwheels, or programmed and stored in internal non-volatile memory.

One of the units has to control the communication on the bus. The unit performing this function is called a master,

and in the Commander Searchlight system this function is assigned to the panel with address '0'. When the master is powered up it will check what units are present on the bus by querying each unit. If one unit is not powered up in this phase, and thus does not answer the query, it will be regarded as not present and will not be able to communicate with the other units on the bus. It is therefore important that all searchlights are powered up before the panels.

### SEARCHLIGHT MOTION CONTROL:

The Commander Searchlights are equipped with positional sensors for both motors/axes. This makes it possible to let the searchlight automatically move to pre-defined positions, and also results in a smooth, controlled motion.

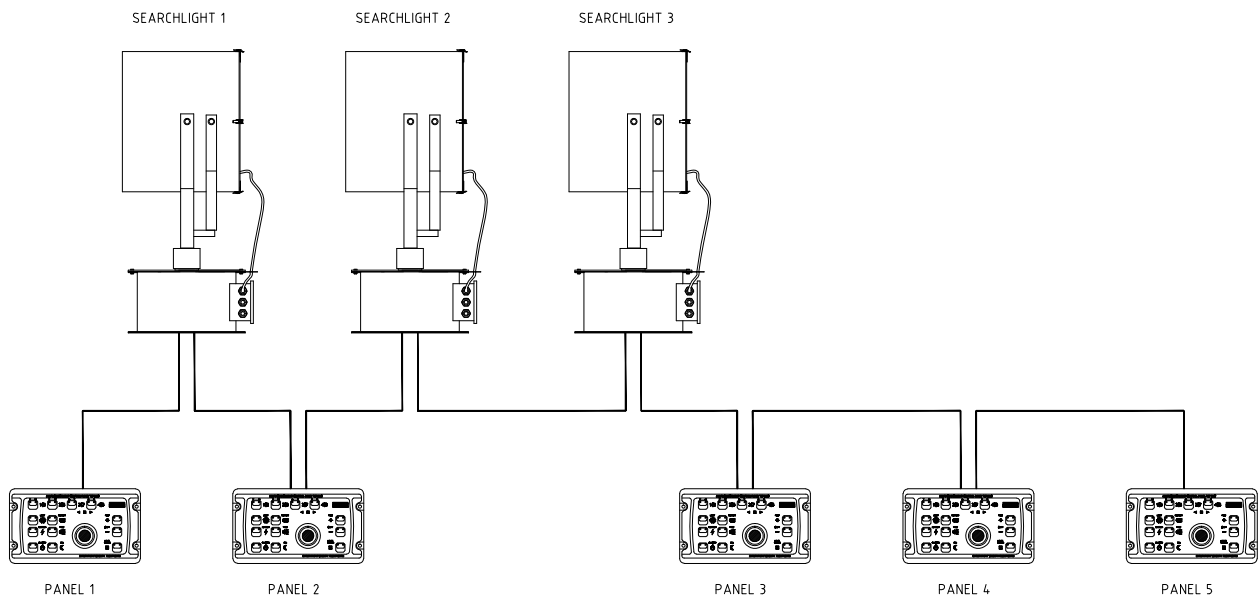
The searchlights can rotate more than one full revolution, approx. 370°, and the end stop is located at the connection box. The vertical

movement is from approx. 20° upwards to approx. 30° downwards.

### TYPES OF SEARCHLIGHTS/LIGHT SOURCES:

Available light sources:

- LED searchlight has a
- Daylight colour, narrow beam, long range and integrated power supply. All powered directly by 230VAC
- Xenon has a narrow, extra long range beam. Daylight colour, part of the spectrum is ultraviolet (UV) making it useful for seeing ice (visual ice detection). Needs a separate power supply and cabling.



# USER MANUAL

TEF 2650 LED51 400W Commander Searchlight

Safe Area

## 13. RECYCLING

For recycling the fixture, agreements have been made with local agencies within the framework of the WEEE.

We refer you to your local partner (see chapter `Contact details'). The local partner will take care of the further processing.

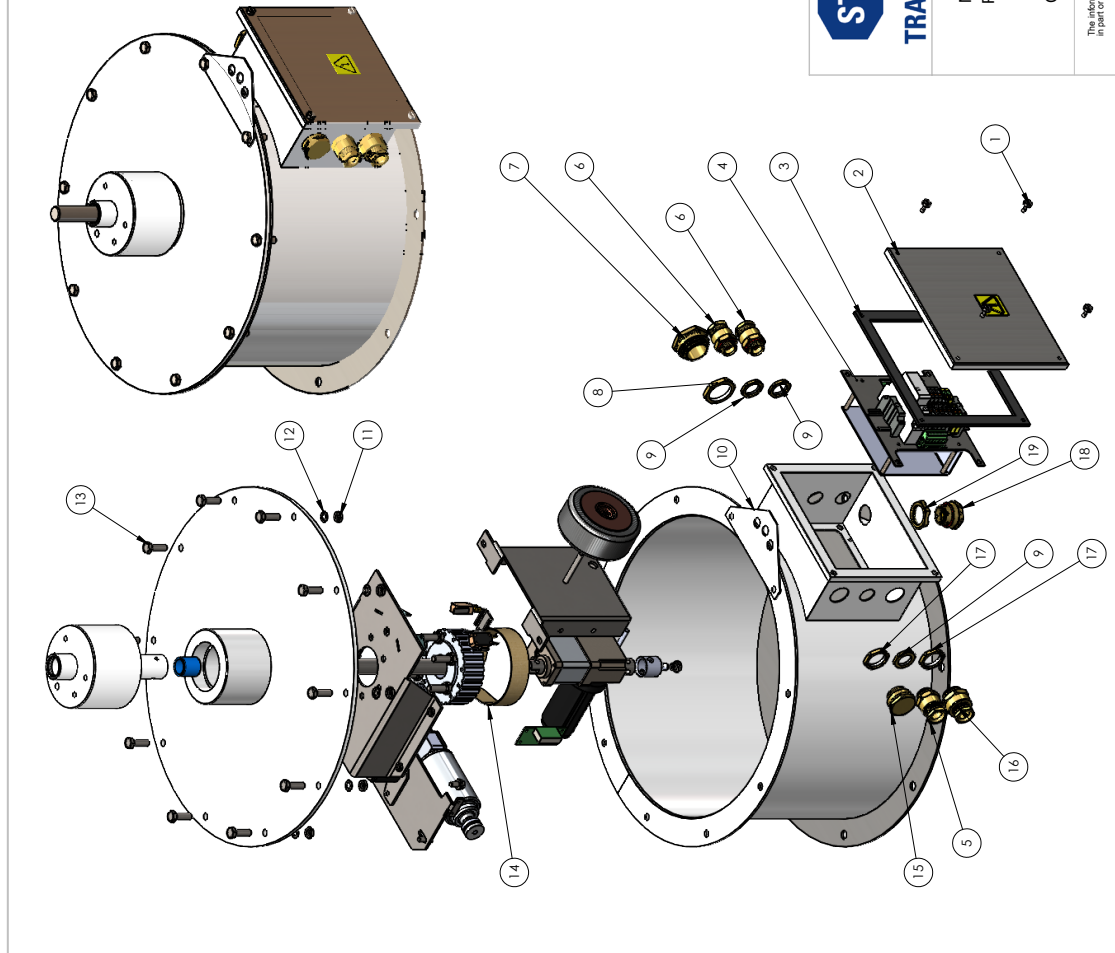
# USER MANUAL

## TEF 2650 LED51 400W Commander Searchlight

### Safe Area

### DRAWING 600A118623 - MOTORHOUSE ASSEMBLY

ITEM NO.	DESCRIPTION	PartNo	QTY.
1	SLOTTED BOLT M8x12	51012033	4
2	LID FOR JB	3127	1
3	GASKET FOR LID JB	50030077	1
4	CONTROL MODULE HALOGEN	4978	1
5	Cable Gland Exe: E204/G22 M20/C1/9mm (Ø9.0-14.3mm)	6222010	1
6	Cable Gland Exe: E204/G22 M20/C2/9mm (Ø6.0-10.0mm)	6222000	2
7	Stopping Plug Exe: TEF794/G50 M32/9mm	6503200	1
8	Lock Nut M32	7957005	1
9	LOCK NUT M20	7957003	3
10	BRACKET FOR ABUTMENT	4307	1
11	Nut M8	98991005	10
12	Spring lock washer M8		16
13	Hex screw M8x25	51014008	16
14	Bell	56000101	1
15	Stopping Plug Exe: TEF794/G50 M25/9mm	6502500	1
16	Cable Gland Exe: E204/G22 M25/C3/9mm (Ø8.5-13.0mm)	6222500	1
17	LOCK NUT M25	7957004	2
18	TEF 730 Drain plug M25	7302101	1
19	LOCK NUT FOR DRAIN	7957201	1



**STAHl**  
**TRANBERG**

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Strandsvingen 6, N-4032 Stavanger, Norway  
Luitropen 2, N-1470 Lørenskog, Norway  
info@stahl-tranberg.com  
www.stahl-tranberg.com

Unless otherwise specified, Dimensions are in mm, tolerances according to ISO 2768-M

Projection

Drw. no.: **600A118623**

Rev:

Subst for:

Subst by:

Scale: **1:5**

Date: **30.06.2021**

Design: **CR**

Format: **A3**

Motorhouse Assembly for TEF 2650 Searchlight

Part NO: 5555

Customer Drawing

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# USER MANUAL

TEF 2650 LED51 400W Commander Searchlight

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## DRAWING 600A118622 COMPLETE LED INSERT

Projection	Unless otherwise specified: Dimensions are in mm. Tolerances according to ISO 2768-M	Rev.
	Drw. no.: <b>600A118622</b> Subst. for: Subst. by: Scale: <b>1:5</b>	Format: <b>A3</b>
R. Stahl Tranberg AS Strandsvingen 6, N-4032 Stavanger, Norway Luhtoppen 2, N-1470 Lørenskog, Norway info@stahl-tranberg.com www.stahl-tranberg.com		Date: <b>30.06.2021</b> Design: <b>CKR</b>
<b>STAHl</b> <b>TRANBERG</b>		TEF 26x0 LED51 Retrofit Unit Part No: 5225 Customer Drawing
<small>The information contained in this drawing is the sole property of R. Stahl Tranberg AS. Any reproduction in part or as a whole without the written permission of R. Stahl Tranberg AS is prohibited.</small>		

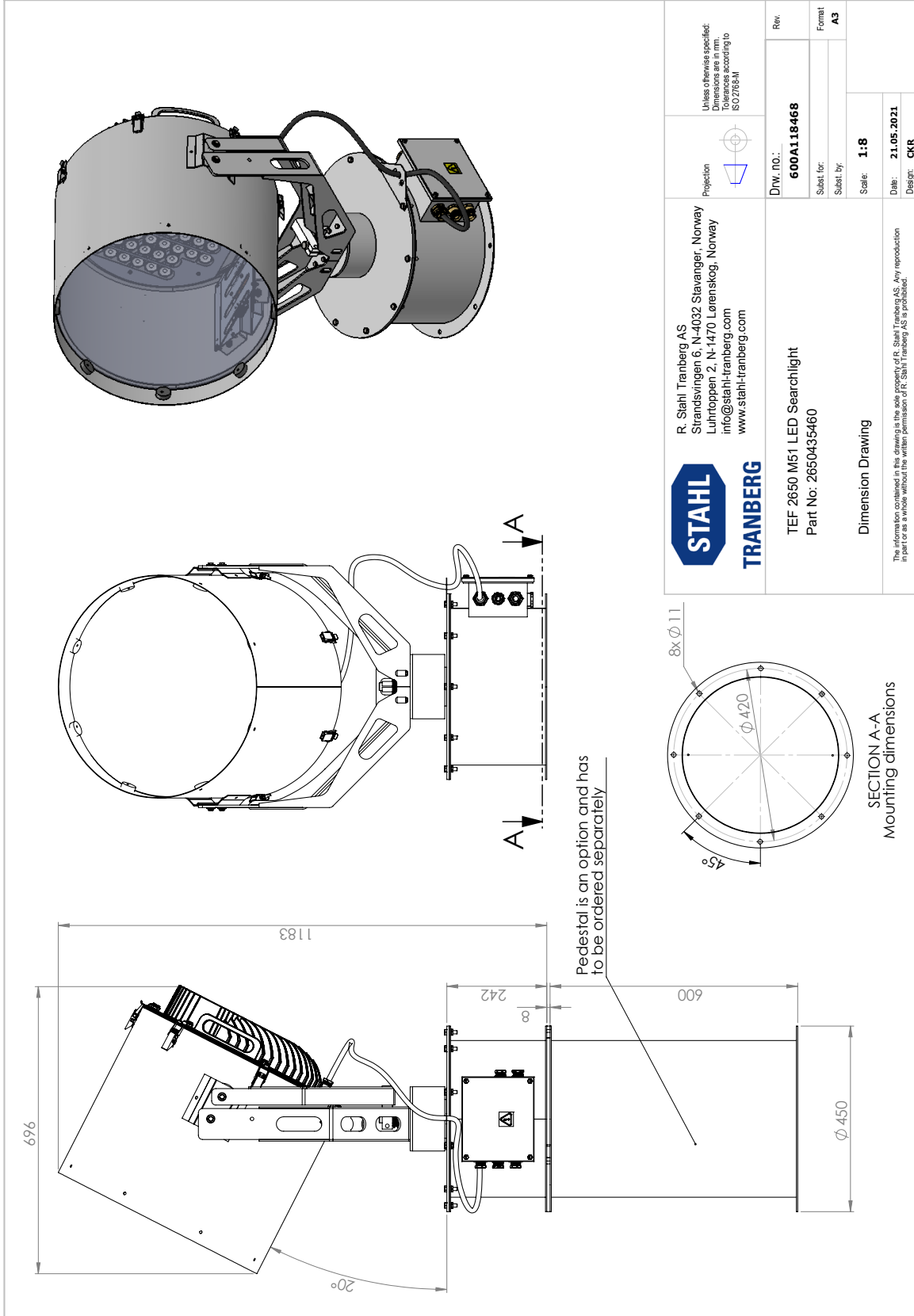
Can be inserted into searchlight with lighthousing (drum) diameter 510mm.

# USER MANUAL

## TEF 2650 LED51 400W Commander Searchlight

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### DRAWING 600A118468 DIMENSIONS SEARCHLIGHT



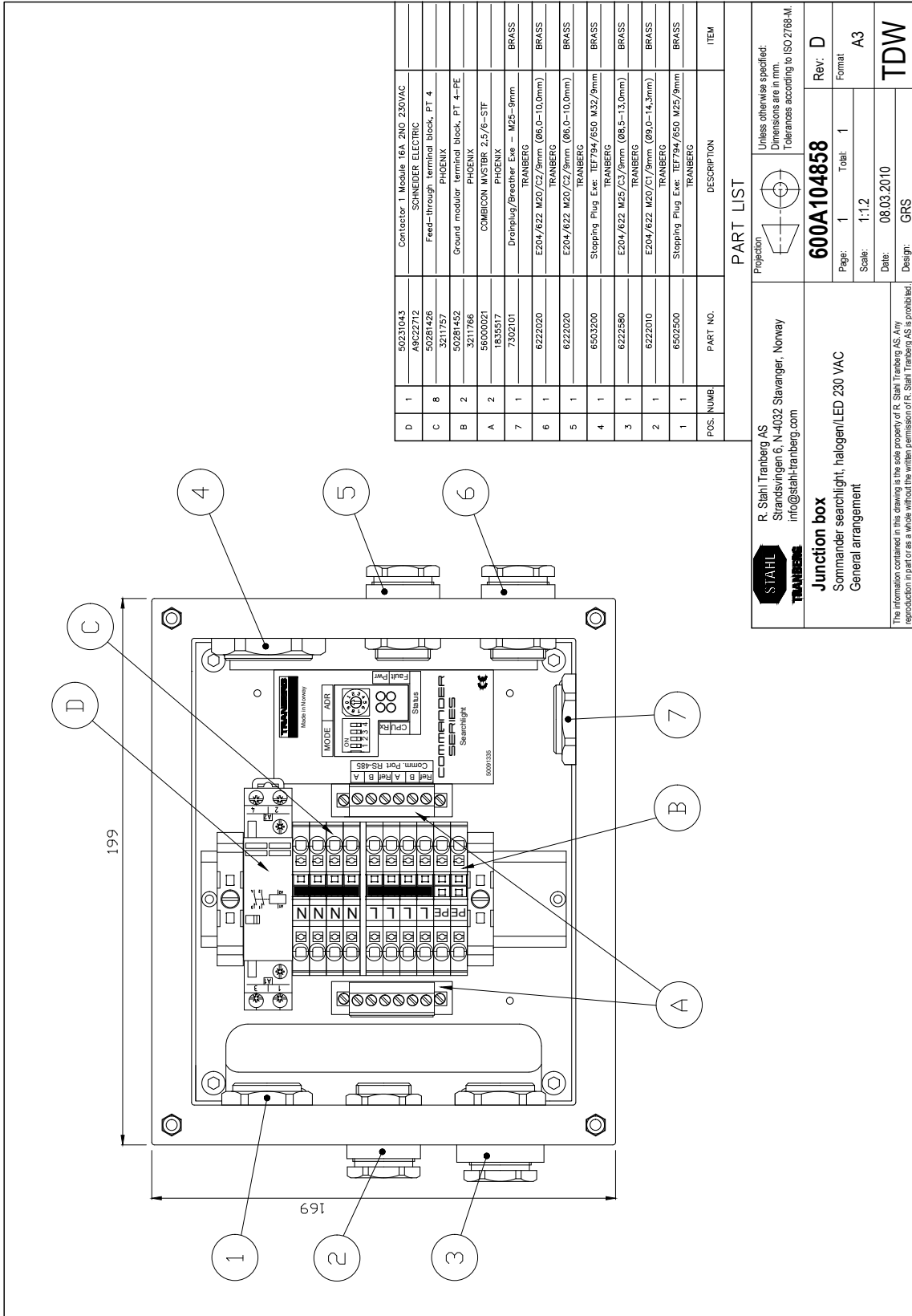
	R. Stahl, Tranberg AS Strandsvingen 6, N-4032 Stavanger, Norway Luntoppen 2, N-1470 Lørenskog, Norway info@stahl-tranberg.com www.stahl-tranberg.com	Projection 	Unless otherwise specified: Dimensions are in mm. Tolerances according to ISO 2768-M
		D/w. no.: <b>600A118468</b>	Rev. 1
TEF 2650 M51 LED Searchlight Part No: 2650435460		Subject for: Subject by:	Format <b>A3</b>
Dimension Drawing		Scale: <b>1:8</b>	Date: <b>21.05.2021</b> Design: <b>CKR</b>
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# USER MANUAL

TEF 2650 LED51 400W Commander Searchlight

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## DRAWING 600A104858 JUNCTION BOX GENERAL ARRANGEMENT



D	1	50231043	Contactor 1 Module 16A 2NO 230VAC
		A9C2712	SCHNEIDER ELECTRIC
C	8	50281426	Feed-through terminal block, PT 4
		3211757	PHOENIX
B	2	50281452	Ground modular terminal block, PT 4-PE
		3211766	PHOENIX
A	2	5600021	COMBICON MUSTER 2,5/6-STF
		1835517	PHOENIX
	7	7302101	Dripplug/Breather, Exe - M25-9mm
			TRANBERG
	6	6222020	E204/622 M20/C2/9mm (Ø6,0-10,0mm)
			TRANBERG
	5	6222020	E204/622 M20/C2/9mm (Ø6,0-10,0mm)
			TRANBERG
	4	6503200	Stopping Plug Exe: TEF794/650 M32/9mm
			TRANBERG
	3	6222590	E204/622 M25/C3/9mm (Ø8,5-13,0mm)
			TRANBERG
	2	6222010	E204/622 M20/C1/9mm (Ø8,0-14,3mm)
			TRANBERG
	1	6502500	Stopping Plug Exe: TEF794/650 M25/9mm
			TRANBERG
POS. NUMB.			DESCRIPTION
			ITEM

### PART LIST

Projection

Unless otherwise specified:  
Dimensions are in mm.  
Tolerances according to ISO 2768-M.

**600A104858** Rev: D

Page: 1 Total: 1 Format: A3

Scale: 1:1.2

Date: 08.03.2010

Design: GRS

**TDW**

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Strandsvingen 6, N-4032 Stavanger, Norway  
info@stahl-tranberg.com

**Junction box**  
Commander searchlight, halogen/LED 230 VAC  
General arrangement

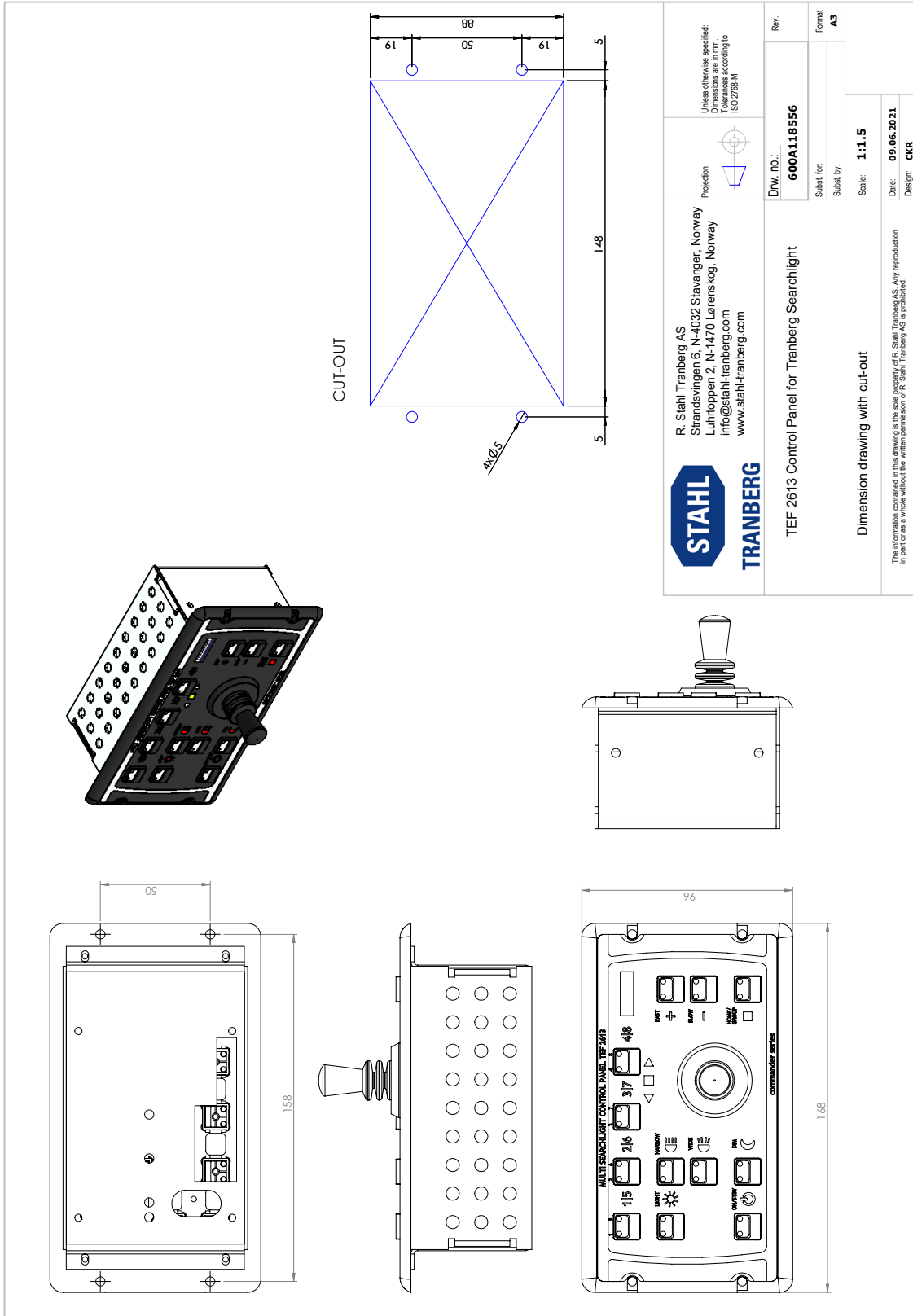
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# USER MANUAL

TEF 2650 LED51 400W Commander Searchlight

Safe Area

## DRAWING 600A102101 SEARCHLIGHT CONTROL PANEL



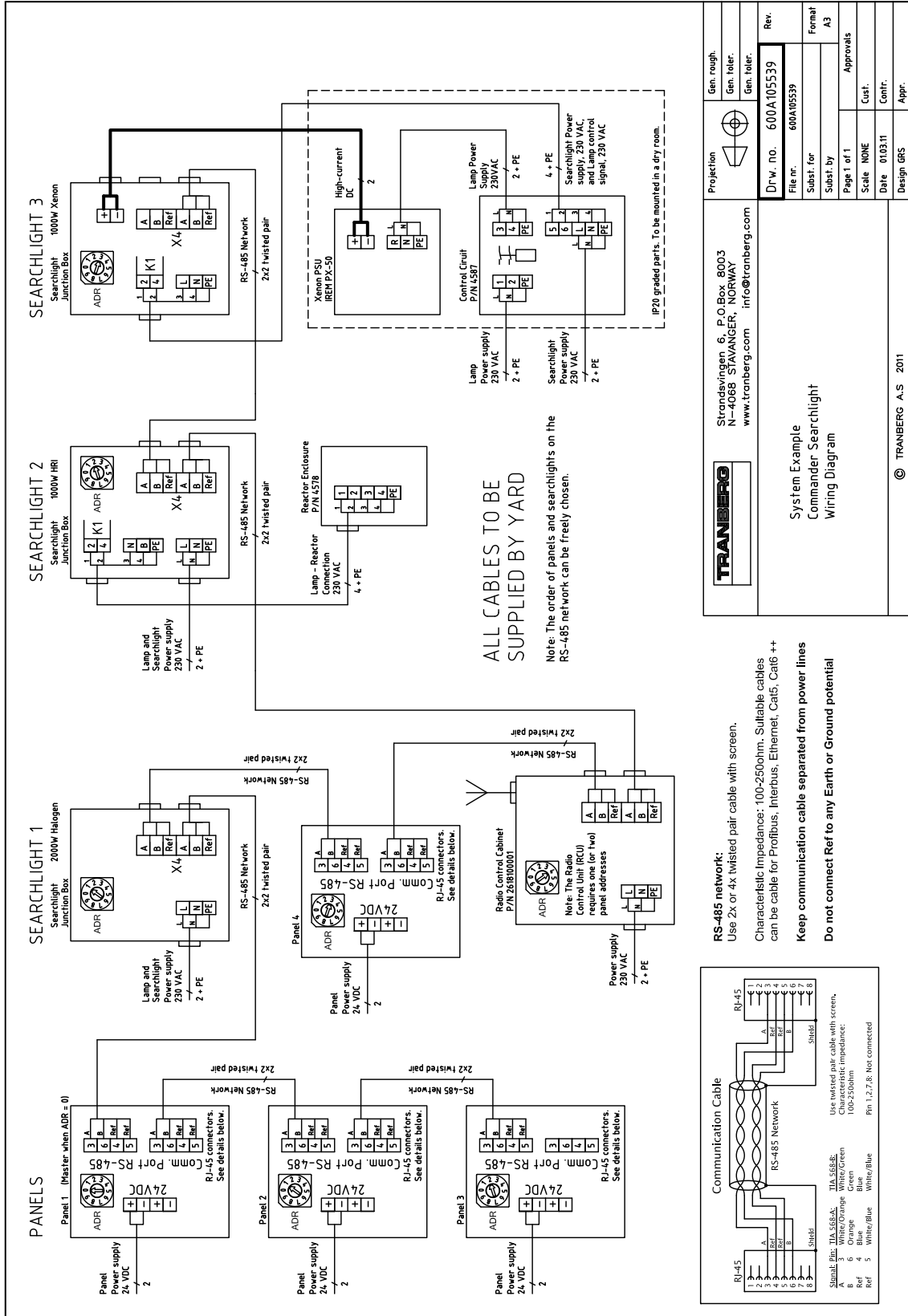


# USER MANUAL

## TEF 2650 LED51 400W Commander Searchlight

### Safe Area

### DRAWING 600A105539 SYSTEM EXAMPLE



**ALL CABLES TO BE SUPPLIED BY YARD**

Note: The order of panels and searchlights on the RS-485 network can be freely chosen.

		Strandsvingen 6, P.O.Box 8003 N-4068 STAVANGER, NORWAY www.tranberg.com info@tranberg.com
System Example Commander Searchlight Wiring Diagram	Project: Gen. rough. Gen. toler. Gen. toler.	Rev. 600A105539 File nr. 600A105539 Subst. for: Page 1 of 1 Scale NONE Date 01.03.11 Design GRS
© TRANBERG A.S 2011		Approvals Cust. Appr.

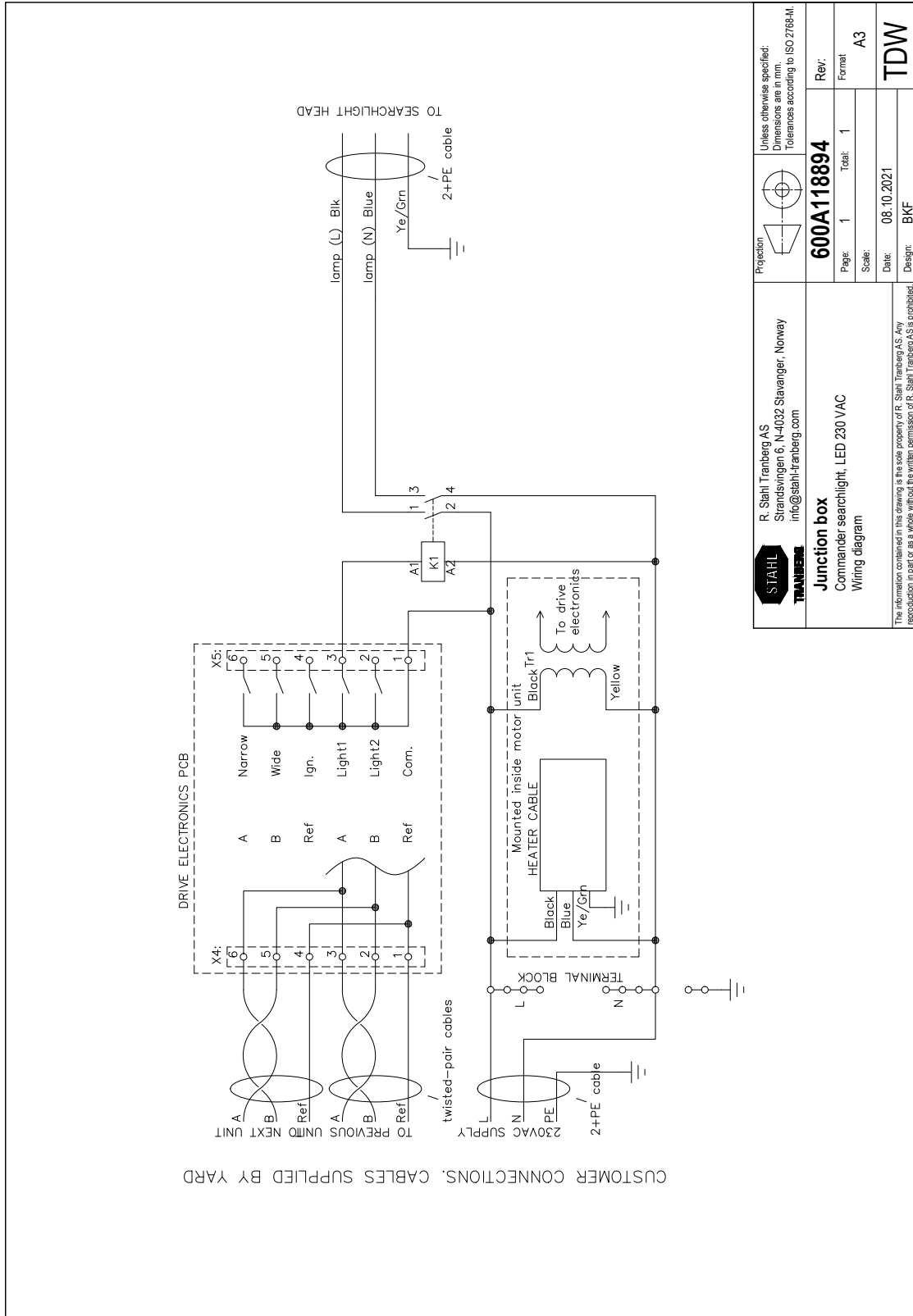
**RS-485 network:**  
Use 2x or 4x twisted pair cable with screen.  
Characteristic impedance: 100-250ohm. Suitable cables can be cable for Profibus, Interbus, Ethernet, Cat5, Cat6 ++  
**Keep communication cable separated from power lines**  
**Do not connect Ref to any Earth or Ground potential**

# USER MANUAL

TEF 2650 LED51 400W Commander Searchlight

Safe Area

## DRAWING 600A118894 JUNCTION BOX WIRING DIAGRAM



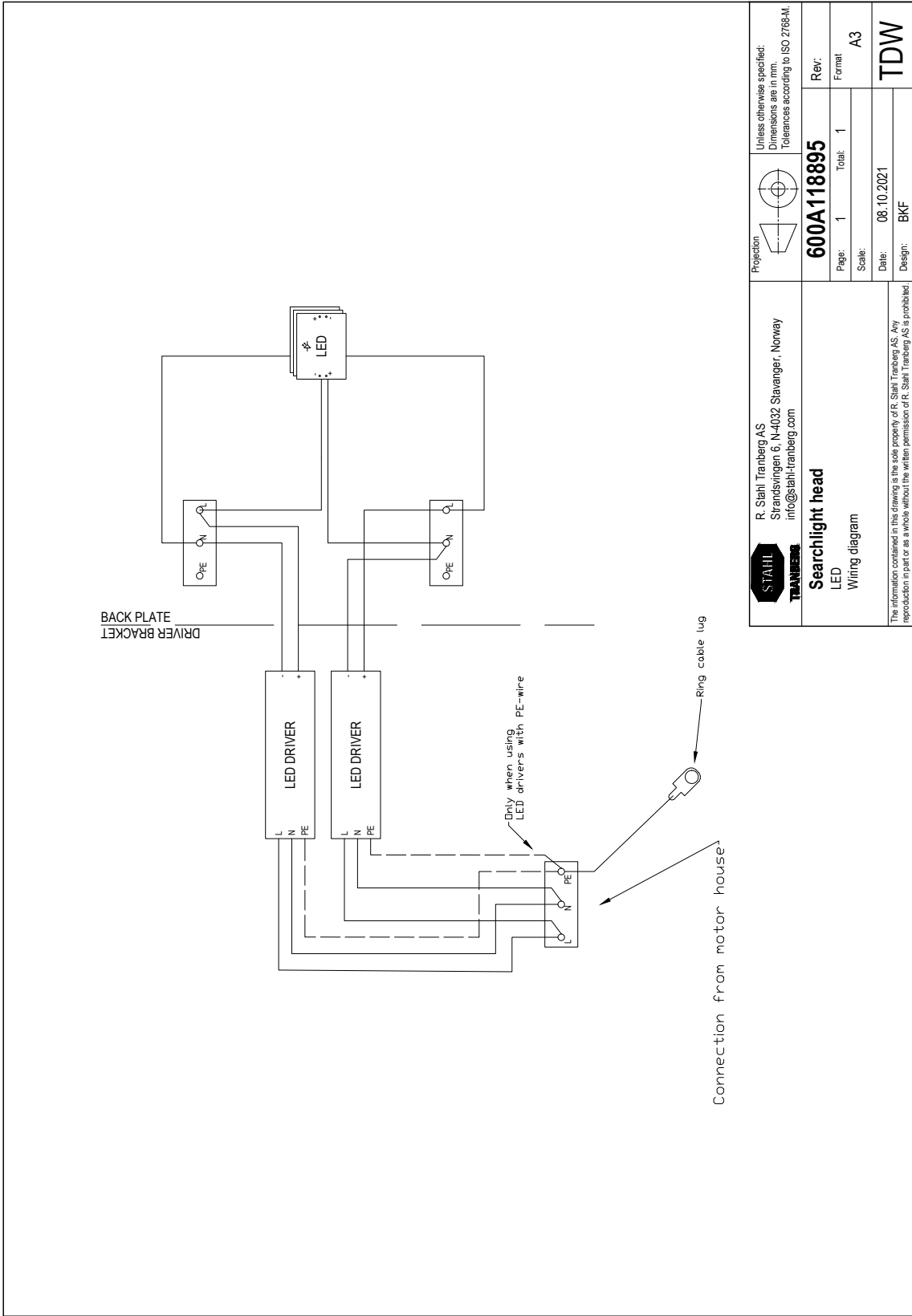
<p>R. Ståhl Tranberg AS Strandsvingen 6, N-4032 Stavanger, Norway info@stahl-tranberg.com</p>	<p>Projection</p> <p>Unless otherwise specified: Dimensions are in mm. Tolerances according to ISO 2768-Mf.</p>
	<p>600A118894</p> <p>Page: 1 Total: 1</p> <p>Scale:</p> <p>Date: 08.10.2021</p> <p>Design: BKF</p>
<p><b>Junction box</b> Commander searchlight, LED 230 VAC Wiring diagram</p>	<p>Rev: Format: A3</p>
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<p><b>TDW</b></p>	

# USER MANUAL

TEF 2650 LED51 400W Commander Searchlight

Safe Area

## DRAWING 600A118895 SEARCHLIGHT HEAD



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	Page: 1 Total: 1 Scale:	Rev: Format: A3
<b>600A118895</b> Searchlight head LED Wiring diagram		Date: 08.10.2021 Design: BKF
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TUM7106 12.11.2021 *Subject to change without prior notice*



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