

Installation and operating manual

TEF4800 – Navigation lights controller



Document properties (TUM7535)

Revision	Comment	Revision date	Approved
01	First issue	23.11.2022	<Draft>
02	Issued for information	22.03.2023	MRE
03	Revised for approval	17.04.2023	MRE
04	Issued for use	20.11.2023	GRS
05	Add certificates and approvals	30.11.2023	BKF

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1 Warnings and risk levels

DANGER

Non-compliance with the instruction results in risk of severe or fatal injuries to persons

WARNING

Non-compliance with the instruction may result in risk of severe or fatal injuries to persons

CAUTION

Non-compliance with the instruction may result in risk of injuries or damage to equipment

NOTICE

Non-compliance with the instruction may result in reduced lifetime of equipment, malfunctions etc.

2 General Information

TEF4800 is a Navigation light control system developed by R. STAHL TRANBERG AS.

Before installation, make sure to read and understand this installation and operating manual. Observe national/class assembly and installation regulations. Always contact the manufacturer if anything is unclear, or if you notice any faults on the product or in this document.

This installation and operating manual shall be available to anyone operating, installing, inspecting, modifying or repairing the equipment.

3 Marking and intended use

CE marking

DNV type approval

For use in these areas and environments:

- Electric switchboards
- Navigational control bridge or similar

4 Transport and storage

Transport and store the equipment only in the original packaging

Store the equipment in a dry and controlled environment

5 Product description

TEF4800 is a navigation light controller system intended for operation of up to 16 or 32 connected navigation lights in various combinations.

- The controller can operate and monitor both incandescent and LED navigation lights, see chapter 13: Technical data. for specific details.
- Specific set-up of navigation lights for the vessel is configurable from factory.
- Dual power supply inputs, main and emergency, with automatic switchover in case of power loss.
- Possible to have duplex navigation lights with automatic switchover from main to spare, depending on factory configuration.
- Individual outputs for each navigation light protected by 2-pole relay, fuses and current monitoring. Current monitoring limits are configurable from factory.
- Can also monitor and control signal lights.

5.1 Typical system set up

A typical system is made up by the following components:

- 1 panel (max. 2)
- 1 controller (max. 2)



6 Panel



6.1 User keys

Function: The function of the user keys depends on the configuration loaded into the main controller. It is typically used as a *control key* for a navigation light, showing the status of the navigation light and receiving operator commands such as on/off or alert acknowledge. It can also be used as an *F-key*, which turns on and off sets of navigation lights, preset in the configuration.

Indicators: There are two indicators for each user key, green and amber. These can light or flash in different patterns, indicating different states of the navigation light associated with that key.

State	Indication	Description
0	Off	Navigation light off
1	Steady green	Main (or single) navigation light on
2	Slow flashing green	Spare navigation light on
3	Slow flashing amber and green	Spare navigation light on, Main navigation light has failed
4	Flashing amber	Spare (or single) navigation light has failed, unacknowledged
5	Steady amber	Spare (or single) navigation light has failed, acknowledged

Table: User key flash pattern

On/off control: For the off state or states where the green indicator is active (states 0 to 3 in table), a short press on the button will turn the navigation light on or off, respectively. If the navigation light is off, a long press (>3 sec) on the key will turn on the spare navigation light (if there is one).

Alert acknowledge: If the indication is flashing amber (unacknowledged failure), a short press on the key will acknowledge the alert.

6.2 Power key

Power: The power key toggles the controller between active and standby. A short press will set the controller in active mode, press and hold for 1 sec to set the controller to standby mode.

State	Indication	Description
1	Slow flashing green	Controller is in standby mode
2	Steady green	Controller is active
3	Fast flashing green	Panel has lost communication with main controller

Table: Power key flash pattern

6.3 Silence key

Silence: A short press on the silence key will silence any audible alert signals on the controller.

State	Indication	Description
0	Off	No audible alert signal
1	Fast flashing amber	Audible alert signal active
2	Fast flashing amber	Panel has lost communication with main controller

Table: Silence key flash pattern

Acknowledge: For power failure and internal failure, the first press on silence key will silence the audible alert signal, and the next press will acknowledge the alert.

Indicator test: When system is in active state and no audible signal alerts are present, a long press (>3 sec) on this key will start an indicator test on the panel. All indicators on panel will flash alternately to verify that they are in working order. A short press on the silence key will revert to normal operation.

6.4 Backlight Dim key

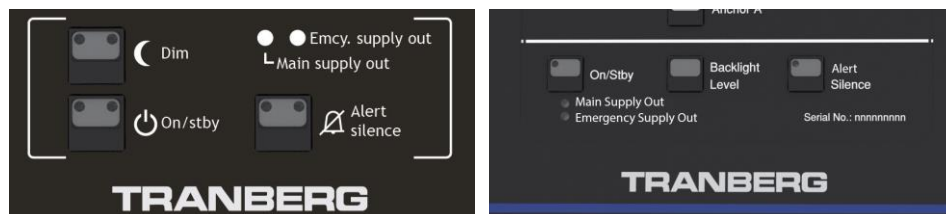
A short press on this key will increase or decrease the backlight and indicator light intensity one-step. The direction of intensity change (increase or decrease) will be the same as the previous key press. Press and hold to change direction (increase/decrease) and to go to max or min intensity (It will stop at either end). There are no indicators in this key.

6.5 Power supply indicators

These indicators shows the status for the available power supplies, main and emergency.

State	Indication	Description
0	Off	Power supply OK
1	Steady amber	Power supply fails

Table: Power supply indicator flash pattern



6.6 Settings on panel

Bus communication address

The address of the panel is set on the rear at the dial labelled ADR. This is pre-set by the factory.

Address on panel	ADR switch setting	Comments / labelling
	0	Do not use
1	1 (default)	Panel no. 1
2	2	Panel no. 2

Number of columns on panel

The number of button columns on the panel is set with the dial labelled COL. The setting is depending on the panel size and will be pre-set from factory.

Columns on panel	COL switch setting	Comments / labelling
	0	Do not use
Panel size 0	1	2 columns
Panel size 1	2	3 columns
Panel Size 2	3/4	4/5 columns

7 Controller

7.1 LED indicators

There are 22 LEDs on each controller module used to indicate operational status or active outputs



Status

Marking	Function	Colour	Comment
R	System status	Red	Controller activity and fault condition
G	System status	Green	Controller activity and status
P	Power	Green	Controller electronics is powered
MO	Manual Override	Orange	Illuminates when manual override is activated, either S1:1 for main supply or S1:2 for emergency supply
M	Main power	Green	Indicates main supply power relay is activated. When on, the outputs are supplied by the main supply.
E	Emergency power	Green	Indicates emergency supply power relay is activated. When on, the outputs are supplied by the emergency supply.

Outputs

Marking	Function	Colour	Comment
1	Output 1	Green	Green light indicates the corresponding output is on (In normal mode and in manual override)
2	Output 2	Green	
3	Output 3	Green	
4	Output 4	Green	
5	Output 5	Green	
6	Output 6	Green	
7	Output 7	Green	
8	Output 8	Green	
9	Output 9	Green	
10	Output 10	Green	
11	Output 11	Green	
12	Output 12	Green	
13	Output 13	Green	
14	Output 14	Green	
15	Output 15	Green	
16	Output 16	Green	

7.2 DIP Switches



DIP-switch S1

Pin no	Function	Comment
1	Main power override	Force manual override – Use Main supply
2	Emcy power override	Force manual override – Use Emergency supply
3	Controller select	Select main or secondary controller mode
4	System	<i>Not in use, set to off</i>

DIP-switch S2

Sw. no	Function	Comment
1	Manual override output 1	S2:1-4 switched to ON-position, activates corresponding output.
2	Manual override output 2	
3	Manual override output 3	
4	Manual override output 4	

DIP-switch S3

Sw. no	Function	Comment
1	Manual override output 5	S3:1-4 switched to ON-position, activates corresponding output.
2	Manual override output 6	
3	Manual override output 7	
4	Manual override output 8	

DIP-switch S4

Sw. no	Function	Comment
1	Manual override output 9	S4:1-4 switched to ON-position, activates corresponding output.
2	Manual override output 10	
3	Manual override output 11	
4	Manual override output 12	

DIP-switch S5

Sw. no	Function	Comment
1	Manual override output 13	S5:1-4 switched to ON-position, activates corresponding output.
2	Manual override output 14	
3	Manual override output 15	
4	Manual override output 16	

7.2.1 Manual override

In manual override mode, the on-board microcontroller will be bypassed and all monitoring and automatic functionality will be disabled. Setting of the DIP-switches will control the supplies and outputs. The manual override mode is enabled when one or both power supply DIP-switches are set to "ON".

Set DIP-switch "M" to "ON" to use the main supply, or "E" to "ON" to use the emergency supply.

Note: Activate only main or emergency DIP-switch at a given time. If both are set to "ON", both power supplies are deselected and no power will be fed to the output relays.



To return to normal mode of operation, set DIP-switch "M" and "E" to "off".

8 Mounting and installation

DANGER

Incorrect mounting and installation may lead to risk for electric shock or fire and risk for equipment malfunction. In turn, this can lead to severe damage and/or injuries.

8.1 Mounting of controller

The TEF4800 controller shall be securely fastened by fixing all 4 lugs in an environment suitable for IP20 electric equipment such as electric switchboards, navigational control bridge or similar.

The controller can be installed remote from bridge and panel, but the controller needs to be accessible to the user, to be able to activate the manual override function.

Ensure a minimum of 50 mm free space on top / bottom side of control module to allow for air convection. See dimensional drawing in technical chapter.

Make sure the connected cables have sufficient strain relief to avoid them pulling on the connectors and/or PE-bar.

CAUTION

TEF4800 panel and controller is a system that shall only be connected together as a system. The communication between panel and controller is proprietary and cannot be directed through any network switch or similar.

The system shall only be utilized as described in this manual and/or associated project documentation from R. STAHL TRANBERG.

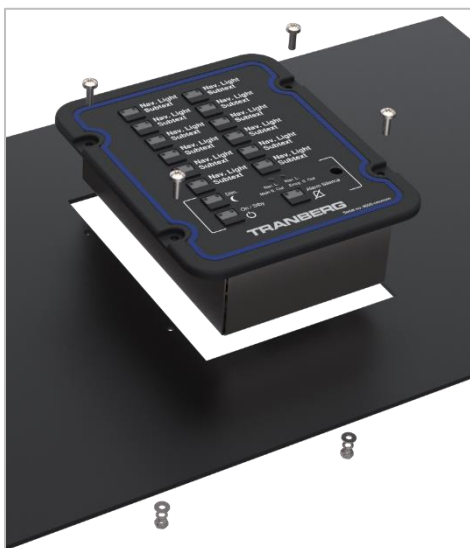
8.2 Mounting of panel

The panels shall be securely fastened by with 4 bolts/screws. The panels are intended for installation in bridge or into electric enclosures.

Refer to the technical data and dimensional drawings for information about cut out in bridge console for mounting of the panel.

NOTICE

Panel size 0 does not have illuminated backlight and shall only be used on vessels allowing this according to class requirements.



8.3 Wiring / Terminations

Main and emergency supply shall be provided as 24 VDC. Refer to technical data what dimensions of wires the controller and panel accepts. If the vessel supplies other voltages and frequencies, a transformer / power supply needs to be in place.

Ensure that all modules are grounded to the same protective earth potential.

The number of controllers, panels and quantity of active outputs are predefined at the factory. Project specific drawings will provide details to the respective outputs to be used for the individual navigation lights.

Power to the panels shall be supplied from the dedicated 24 VDC output at the controller, or the same 24 VDC supply as the controller. If this is difficult due to long distance between controller and panel, the panel shall have its own dedicated/isolated 24 VDC supply.

8.3.1 Controller: Connections

Con.	Type	Type	Voltage	Current
J1	Spring cage	Main/emergency power supply input	18 ... 32 VDC	max. 17 A pr. supply input
J2 ... J33	Spring cage	Outputs x16	18 ... 32 VDC	max. 2 A pr. output
J34	Screw terminal plug	Aux. power input	18 ... 32 VDC	max. 0.5 A
J38/J39	RJ45	Communication to / from panel (RS485)	-	-
J40	Screw terminal plug	Panel power supply output	nom. 24 VDC	max. 0.3 A
J41	Screw terminal plug	External communication port (RS422)	-	-
J42	Screw terminal plug	External Digital I/O	nom. 24 VDC	DO: max. 100 mA, DI: min. 2 mA

8.3.2 Controller: Power supply input

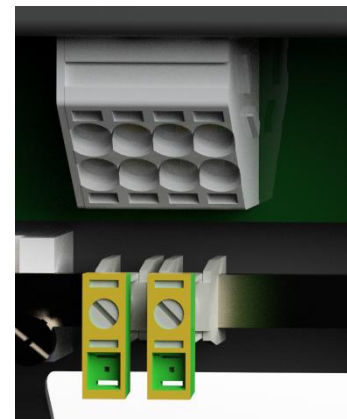
Power supply, main and emergency, shall be terminated to the controller supply terminals. The terminals are double, allowing through wiring to supply the next module if applicable.

Connector J1

Pin no	Marking	Direction
1	EMCY PWR +	Power input
2	EMCY PWR -	Power input
3	MAIN PWR +	Power input
4	MAIN PWR -	Power input

6 mm² spring clamp terminals for both supplies.

See technical info for accepted wire dimensions.



8.3.3 Controller: Auxiliary supply

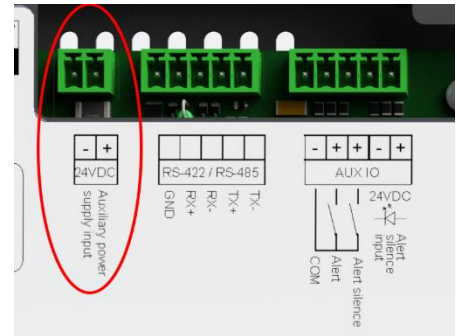
As an optional feature, a galvanic isolated 24 VDC may be supplied to following terminal.

Connector J34

Pin no	Marking	Direction
1	AUX PWR +	Power input
2	AUX PWR -	Power input

This optional 24 VDC input can power the controller even if both main and emergency supply are out.

This power source supplies only the internal circuits and microcontroller. It will not supply power to the outputs.



8.3.4 Controller: Outputs



Fused spring clamp terminals for maximum 2.5 mm² cables. See technical info for accepted wire dimensions.

Connector J2 ... J33

Pin no	Marking	Direction
J2	1+	Power output, channel 1
J3	1-	
J4	2+	Power output, channel 2
J5	2-	
J6	3+	Power output, channel 3
J7	3-	
J8	4+	Power output, channel 4
J9	4-	
J10	5+	Power output, channel 5
J11	5-	
J12	6+	Power output, channel 6
J13	6-	
J14	7+	Power output, channel 7
J15	7-	
J16	8+	Power output, channel 8
J17	8-	

J20	10+	Power output, channel 10
J21	10-	
J22	11+	Power output, channel 11
J23	11-	
J24	12+	Power output, channel 12
J25	12-	
J26	13+	Power output, channel 13
J27	13-	
J28	14+	Power output, channel 14
J29	14-	
J30	15+	Power output, channel 15
J31	15-	
J32	16+	Power output, channel 16
J33	16-	

J18	9+	Power output, channel 9
J19	9-	

Outputs are connected to respective output terminals. Ensure that wires have sufficient strain relief to avoid excessive force to the modules or terminals.

The PE terminals shall be connected to the installations main protective earth and any screens or protective earth from the connected load shall be terminated to the PE-bar on the controller.

Only one navigation light may be connected to one output.

Each output has two fuses, for positive (+) and negative (-) terminals. These are located on top of the terminal to the respective terminal outputs.

NOTICE

Output for navigation lights: Connected LED navigation lights shall be self-monitored and have built in lifetime control. Check with class notation applicable for the specific installation.

8.3.5 Controller: Panel power output

J40, power output to panels. Supplies 24 VDC to the control panel, ensuring that the panel is operational regardless of which of main or emergency power source being active. Max. two panels can be connected to this output.

Connector J34

Pin no	Marking	Direction
1	PANEL PWR +	Power output
2	PANEL PWR -	Power output

8.3.6 Controller: Serial interface

Full-duplex 4-wire RS-485/RS-422, isolated communication interface. Can be connected to BAMS. Interface complies with NMEA / IEC 61162-1 and -2.

Connector J41

Pin no	Marking	Direction
1	TX-	Controller transmit
2	TX+	
3	RX-	Controller receive
4	RX+	
5	GND	Signal ground

For interface details about external alert handling, refer to the detailed description in the chapter regarding BAMS interface.

In case of multiple controllers, only the main controller's interface is active.

8.3.7 External alert signals

J42 - Alert silence / Alert output

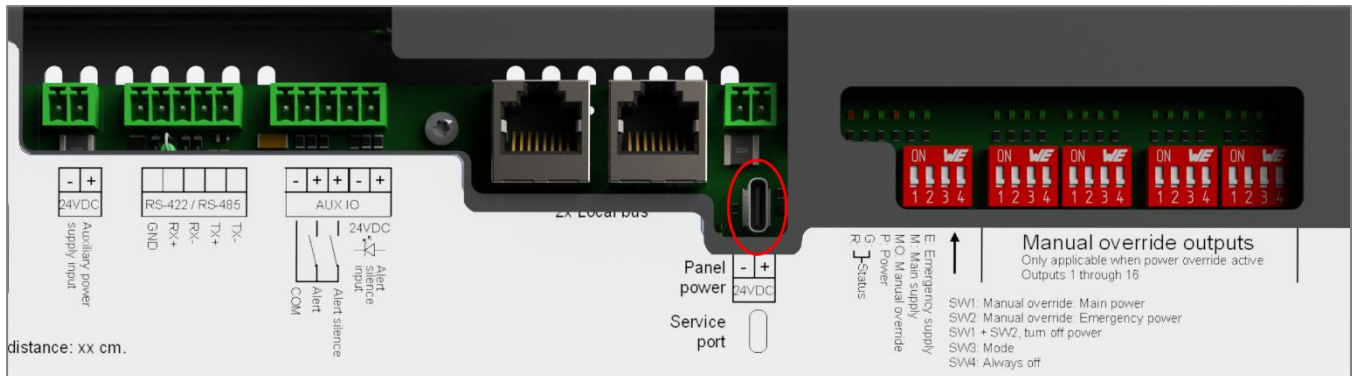
Connector J42

Pin no	Marking	Direction
1	+	24 VDC isolated alert silence input
2	-	
3	Alert silence +	Positive output
4	Alert +	Positive output
5	Com	Common ground

To silence the alert, pulse 24 VDC at pin 1 and 2.

8.3.8 Manufacturer service port

J37, USB-C port is for service by manufacturer only, and shall not be used.

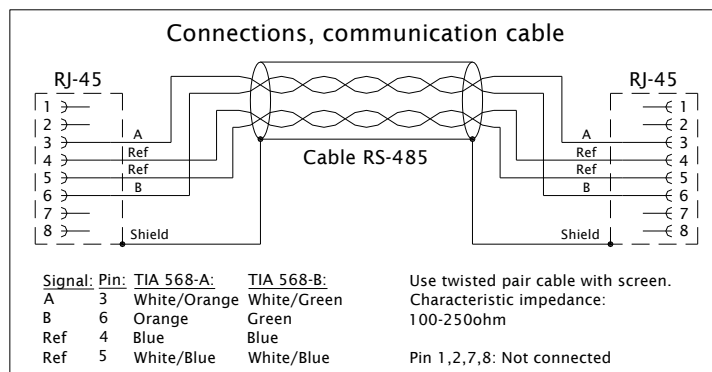


8.3.9 Control system internal communication

J38, J39 – Control system internal RS-485 network

Panels and controllers are interconnected with one communication cable with RJ-45 connector in both panel and controller side. The RJ-45 terminals on panel and controller have equal functionality allowing the installer to use any of the two.

All communication cables between controllers and panels shall be shielded twisted pair, 100 - 250 ohm characteristic impedance. Cables shall be terminated with RJ-45 connectors. Suitable off-the-shelf cables may be CAT5 (or higher) S/FTP network cable. The communication cables shall not be connected in a loop.



NOTICE

The communication network shall only be used for the TEF4800 system components. This shall never be connected to switch/Ethernet applications.

9 Commissioning

9.1 Applying power for the first time

Before applying power for the first time, do the following:

- Ensure all termination is correct and properly done.
- Then apply power to the power sources that feed the controller (main and emergency supply).
- The controller(s) lights up a green LED (P: Power) indicating power is present.
- The status LED G will start flashing indicating that the CPU is functioning.
- The main controller starts communicating. At the back of the panel this can be confirmed by a yellow flashing LED (Rx).

9.2 Testing the system

Start the system testing:

- Turn the panel off / standby by pressing the power button. The backlight will turn off and the power button LED will flash. When a panel is turned off, all corresponding outputs will be turned off. Even though the panel is turned off, all communication in the system continues.
- Turn the panel back on. The power button LED light steady, and the panel backlight, if present, will turn on again.
- Test the various functions by pressing each button and verify that its intended operation is carried out.
- Press a button and verify an audible feedback (click). As the corresponding output is turned on, the green LED in the button will switch on to a steady light. Note that depending on the configuration, some buttons may be disabled. See panel description for more information.
- A faulty lamp or fuse will be detected by the controller. As a response to this, the green and amber LED in the button will flash to announce a faulty condition.
- Always refer to the system configuration and/or termination drawings when testing a system.

10 Troubleshooting

If a failure is detected:

- Ensure the output is correctly connected and that the fuse and lamp is ok. Use only fuses of correct type, see chapter 8.3.4 Controller: Outputs.
- Check whether the corresponding output responds to the action.
- Turn power off and reapply power.

11 Maintenance and cleaning

Clean only with a damp cloth and mild detergents. Avoid chemicals with high or low pH, abrasives, strong detergents, solvents, petroleum- or alcohol based cleaning agents and similar. Avoid any corrosive media.

12 Disposal

CAUTION

This equipment or part of this equipment is considered EE-Waste, and shall be handled accordingly

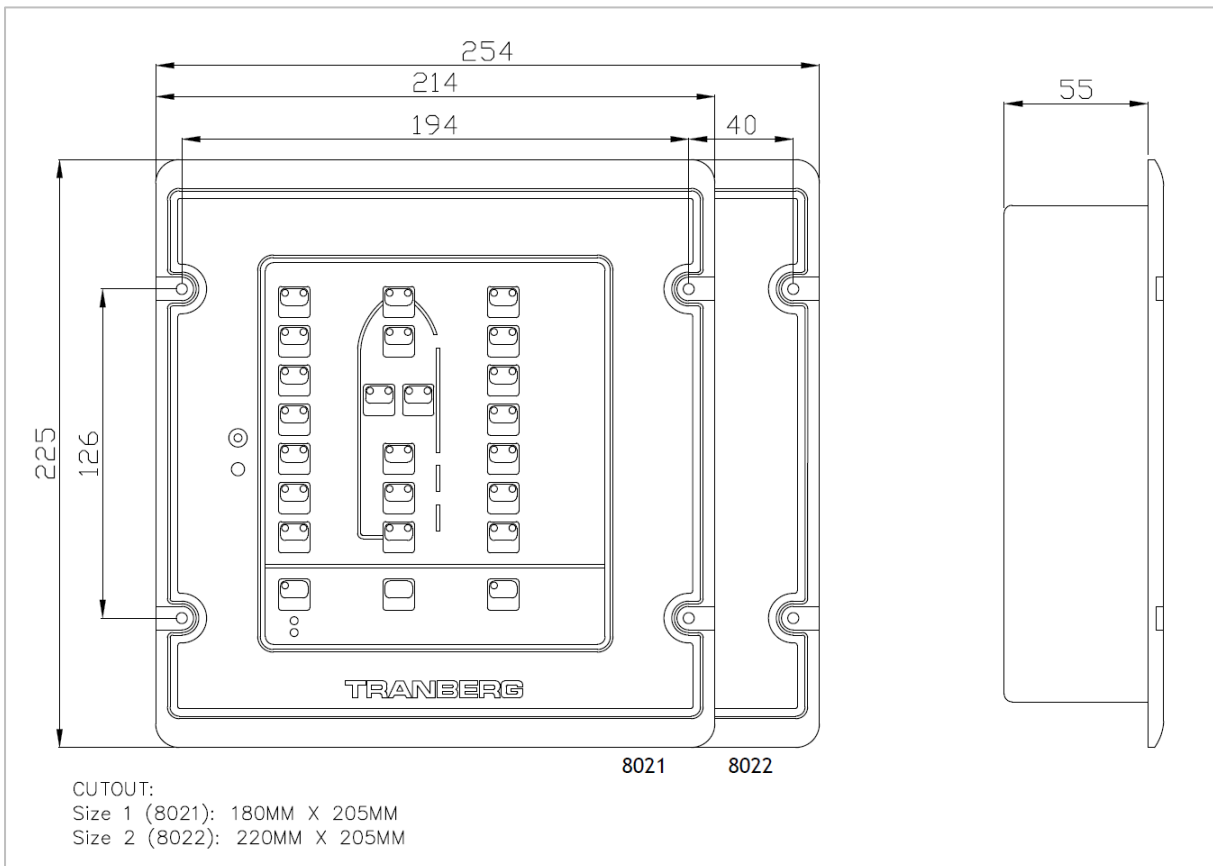
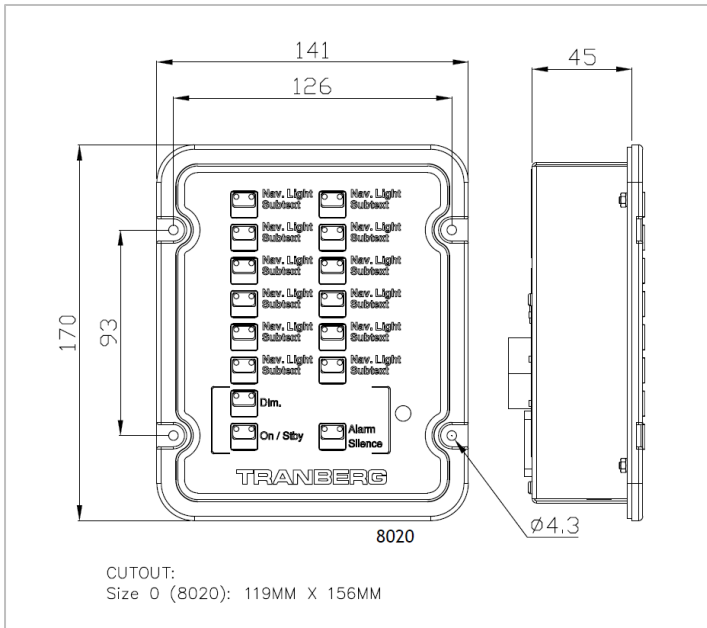
- Observe national and local regulations and statutory regulations regarding disposal.
- Separate materials when sending it for recycling.
- Ensure environmentally friendly disposal of all components.
- No component or packaging shall end up in the sea during any stage of the product's lifetime.

13 Technical data

13.1 Panel

	Size 0	Size 1	Size 2
Input voltage and frequency:	24 VDC		
Max power consumption:	2.5 W	5 W	6 W
Terminals			
Power:	Screw terminal, plug 1.5 mm ²		
Communication:	RJ-45		
Ingress protection:	IP20		
Housing material:	Anodized aluminium, aluminium		
Dimensions [mm]:	141 x 170 x 45	214 x 225 x 55	254 x 225 x 55
Cut out [mm]:	119 x 156	180 x 205	220 x 205
Mounting holes [mm]:	4 x Ø4, 126 x 93	4 x Ø4, 194 x 126	4 x Ø4, 234 x 126
Weight:	520 g.	1.3 kg.	1.4 kg.
Backlight:	None	Dimmable LED	
Buttons reserved:	3		
Buttons for outputs or F-Keys:	12	21	29/37

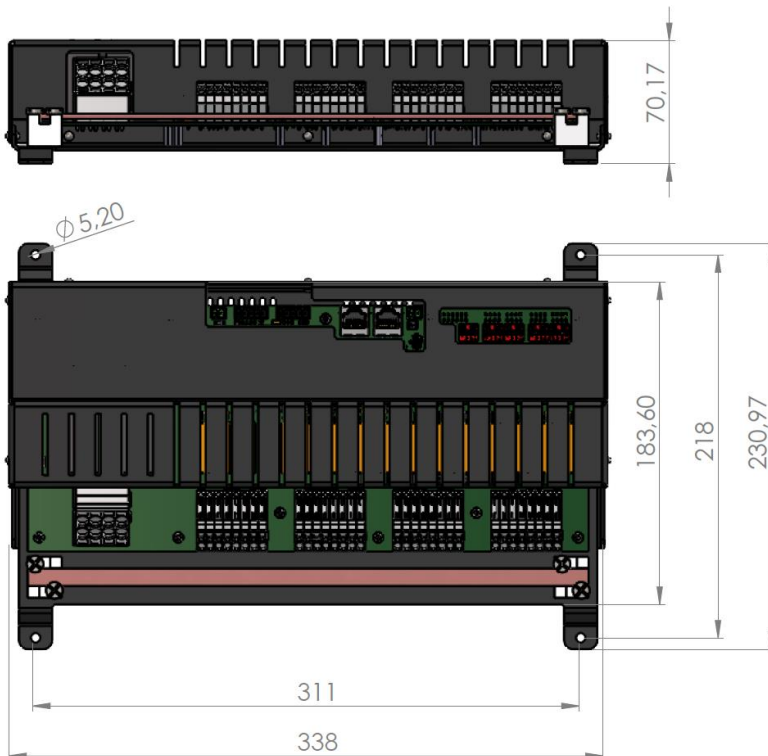
13.1.1 Dimensional drawings



13.2 Controller

	Value
Input voltage and frequency:	
Main power supply:	24 VDC dedicated supply
Emergency power supply:	24 VDC dedicated supply
Auxiliary power:	24 VDC (for controller only)
Max power consumption:	400 W
Outputs:	16 outputs per module Max. 2 A per output Max. 17 A total
External Communication:	4-wire RS-485
Digital input/output	
Alert silence input	24 VDC input
Alert silence output	24 VDC solid state relay output
Alert active output	24 VDC solid state relay output
Power output:	24 VDC supply to panel, max. 300 mA
Terminals:	
	Spring clamp terminals:
Input: (without/with ferrule):	0.5/0.5 ... 10/6 mm ²
Output: (without/with ferrule):	0.08/0.25 ... 2.5/1.5 mm ²
	Screw terminals:
Auxiliary contacts:	0.14/0.25 ... 1.5/1.5 mm ²
Dimensions:	338 x 231 x 70 mm
Mounting holes:	4 x Ø5.2 mm, 311 x 218 mm
Weight:	1,4 kg.
Ingress protection:	IP20
Housing material:	Aluminium

13.2.1 Dimensional drawing



14 Recommended spare parts

Tranberg part no. 50232046: 4A blade fuse for TEF4800

15 Compliance/Conformity

- DNV Type approval certificate: TAA00003BZ
 - DNV rules for classification – Ships
 - IMO Res.MSC.253(83) Performance standards for navigation lights, navigation light controllers and associated equipment

- Environmental testing: IEC 60945 (2022) incl. IEC 60945 Corr. 1:2008,
- Performance testing: IMO Res.253(83)
- Presentation: IEC 62288 (2022)
- Bridge Alert Management (BAM) IEC 62923-1 (2018) and IEC 62923-2 (2018)

Appendix I - BAMS Alert list

1 TEF4800 BAM Implementation

1.1 Serial interface

Electrical level: RS485/RS422 4-wire balanced signals, 2 send and 2 receive. See also ch. 8.3.6

Controller: Serial interface.

Baud rate: 38 400 bps. Communication format: Asynchronous UART, 8 bit, 1 start bit, No parity

1.2 Function type

Function type for Tranberg TEF4800 Navigation Light Controller is: **P** (BAM compliant equipment).

1.3 Alert List

Event	Cat.	Prio.	ID	Short text	Description
Output failure	A	W	3008	LOST NAVLIGHT	A Navigation Light is not working, no spare available
Output failure	A	C	3009	LOST NAVLIGHT	A Navigation Light is not working, spare is available
Power supply fail main or emcy	A	C	3023	POWER FAIL	Navigation Lights power supply failure, main or emcy
NLC internal fault	A	C	3063*	INTERNAL FAULT	Navigation Lights Controller internal fault

Alert priority: W – Warning, C – Caution

*: Alert ID 3063 is not listed in table A.1 in IEC62923-2.

Category

TEF4800 uses category A alerts for all alert types. This means that the operator must approach the NLC panel to see which NL is failing (or other failure), and to acknowledge the alert.

Alert ID

TEF4800 uses standard identifiers according to IEC62923-2, table A.1.

Alert instance

Since there is only one alert of each type (only one instance of each alert), no instance field is used. The instance field will be a null (empty) field.

Alert short text

TEF4800 uses short text adapted from IEC62923-2, table A.1.

1.4 Talker identifier

Talker device	Identifier	Comment
Navigation light controller	NL---	According to IEC 61162-1, ch. 8.2, table 4

1.5 Supported alert sentences

Sentences ACN, AGL, ALC, ALF, ARC and HBT are used for alert handling. Table below shows what sentences the Tranberg NLC supports.

Mnemonic	Name	Trnsmt	Rcv	Comment
ACN	Alert command		X	For receiving change in alert state
AGL	Alert group list			Not supported
ALC	Cyclic alert list	X		Transmitted regularly at intervals of approx. 29 secs
ALF	Alert message	X		Information on new alerts and existing alerts
ARC	Alert command refused	X		See note below
HBT	Heartbeat			Not supported

X: Function supported

NOTE: Category A alerts are not allowed to be remotely acknowledged. An alert acknowledge message will be responded with an **ARC** (refuse acknowledge) message.

Functions not supported in TEF4800:

- Alert Responsibility Transfer (due to all alerts are of category A)
- Long alert description text (ALF sentence)
- Alert Aggregation
- Alert Escalation
- Alert Grouping
- Alerts of priority Alarm or Emergency Alarm

1.6 Alert states

The alert states used in TEF4800 are according to IEC 62923-1 figure G.3 (Warning) and figure G.4 (Caution).

1.7 Actions overview

Outgoing messages:

1. Send **ALC** regularly (approx. each 29 sec)
2. Any change of alert state (E.g. when alerts become silenced, rectified, etc) for all alerts, send a new **ALF** with new info (new state and revision counter).
3. If a request for responsibility transfer (O) is received, send out a refusal **ARC** in response.

Incoming messages:

If **ACN** is received, check if:

1. Acknowledge (**A**). There are only cat. A alerts here, so send an **ARC** (refuse acknowledge) as response (Alerts can only be acknowledged on the panel).
2. Request / repeat information (**Q**). send **ALF** sentence for the requested alert ID. As long as the alert ID is correct, an **ALF** will be sent out for the requested alert, also if the state is Normal. If the alert ID is not matching, the request is ignored.
3. Responsibility transfer (**O**). The NLC only have alerts of cat. A, so send an **ARC** (refuse responsibility transfer) as response.
4. Silence (**S**). Temporarily silence the panel buzzer. Change alert state and send new **ALF** sentence. If alert state is already 'S', ignore. Note that the silence command applies to all active alerts simultaneously.

The alert state may change as a result of

1. change in internal conditions (from the source itself, e.g. active, rectified),
2. as a result of an incoming **ACN** sentence (e.g. silence)
3. as a result of user operation at the panel (e.g. acknowledge).

The silence function will temporarily silence all present unacknowledged alerts (Warnings). After 30 sec delay, the alerts state will revert to unacknowledged if they have not been acknowledged (or changed) during the silence period.

Warnings that are unacknowledged for more than approx. 5 minutes, will be escalated by increasing the revision counter and a re-issue of sound in the panel.

1.8 Audible signal functionality

General functionality:

1. TEF4800 have alerts of priorities Caution and Warning. Only Warning generates audible signal*.
2. On TEF4800, only Navigation Light alert can be of priority Warning.
3. The audible signal for Warning is two beeps in short succession, with no repeat*.
4. When an audible signal is active on TEF4800, it is also visually indicated by a flashing indicator in the silence key.
5. If a Warning is unacknowledged for approx. 5 minutes, the alert is escalated and the audible signal is repeated*.
6. After an audible signal has been active, there is a pause of approx. 15 sec before a new audible signal can be made. If any new Warnings or escalations occur during this period, the audible signal for these are delayed until the 15 sec pause has passed. The audible signal occur only once, even if two or more Warnings have occurred during this pause*.
7. The silence function silences all audible signals for 29 sec. Any escalation during this time are suppressed until the silence period is over. If any new Warnings occur during the silence period, they will make an audible signal*.
8. The silence function is indicated by the silence key indicator is turned off.

Additional functionality for a system with two panels:

9. Only the panel where the warning can be acknowledged generates an audible signal*.
10. The 15 sec audible pause is timed individually for each panel.
11. When an audible signal is generated, the silence keys is always active on both panels, regardless of where the warning is indicated (and possible to acknowledge). It is always possible to silence the audible signal from both panels.
12. The escalation timer will count/time from the first occurrence of a warning, regardless of which panel it is shown on.
13. If both panels have separate, independent unacknowledged warnings active, the escalation timer will time from the warning first occurred (regardless of which panel it is shown on), and give a new audible signal (at escalation) on both panels simultaneously.

The points marked with an asterisk (*) are requirements according to IEC62923-1.

Note that the digital outputs and input for alert / silence and the serial interface messages applies to the complete system. There are no means of indicating which panel the alerts are displayed on, and can be acknowledged from.

Appendix II - Certificates and approvals

1 EU Declaration of Conformity

EU Declaration of Conformity
EU-Konformitätserklärung
Déclaration de Conformité UE



R. Stahl Tranberg AS • Strandsvingen 6 • 4032 Stavanger • Norway

declares in its sole responsibility, *erklärt in alleiniger Verantwortung, déclare sous sa seule responsabilité,*

that the product: **Navigation Light Controller**
dass das Produkt: Navigationslichtregler
que le produit: *Contrôleur de lumière de navigation*

Type(s), *Typ(en), type(s)*: **TEF4800 series**

Brand: **TRANBERG**

is in conformity with the requirements of the following directives and standards.
mit den Anforderungen der folgenden Richtlinien und Normen übereinstimmt.
est conforme aux exigences des directives et des normes suivantes.

Directive(s) / <i>Richtlinie(n) / Directive(s)</i>	Standard(s) / <i>Norm(en) / Norme(s)</i>
2014/35/EU: Low Voltage Directive <i>2014/35/EU: Niederspannungsrichtlinie</i> <i>2014/35/UE: Directive Basse Tension</i>	EN 60947-1:2007 + A1:2011 + A2:2014
2014/30/EU: EMC Directive <i>2014/30/EU: EMV-Richtlinie</i> <i>2014/30/UE: Directive CEM</i>	EN 60945:2002
2011/65/EU: RoHS Directive <i>2011/65/EU: RoHS-Richtlinie</i> <i>2011/65/UE: Directive RoHS</i>	EN IEC 63000:2018

The technical documentation for this equipment is retained at the following address **R. Stahl Tranberg AS, Strandsvingen 6, 4032 Stavanger, Norway.**
Die technische Dokumentation für dieses Gerät wird unter folgender Adresse aufbewahrt
La documentation technique de cet équipement est conservée à l'adresse suivante

Signed for and on behalf of:

R. STAHL Tranberg AS

Stavanger, 2024-01-02

Place and date
Ort und Datum
Lieu et date


Kjell Are Berg-Hagen
Technical Director


Tor Arne Appfjell
Quality Manager *O.B.O.*

2 DNV Type approval certificate



Certificate No:
TAA00003BZ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Navigation Light Controllers

with type designation(s)
TEF 4800 Commander Navigation Lights Control System

Issued to

R. STAHL TRANBERG AS
Stavanger, Norway

is found to comply with

DNV rules for classification – Ships
IMO Res.MSC.253(83) Performance standards for navigation lights, navigation light controllers and associated equipment

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-12-03**

This Certificate is valid until **2028-12-02**.

DNV local unit: **West Norway CMC**

Approval Engineer: **Frederik Tore Elter**



for DNV

Digitally Signed By: **Kristensen, Steinar**
Location: **DNV Høvik, Norway**
Signing Date: **04.12.2023**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA.251

Revision: 2022-12

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3 ABS Certificate of Product Design Assessment



CERTIFICATE NUMBER	23-2490533-PDA
EFFECTIVE DATE	23-Jan-2024
EXPIRY DATE	22-Jan-2029
ABS TECHNICAL OFFICE	Houston ESD - Electrical

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

R. STAHL TRANBERG AS

located at

STRANDSVINGEN 6, , STAVANGER, Norway, N-4032

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: Navigation and Signal Light Control Panel
Model: TEF 2850/2870/2880/4740/4800/4900
Endorsements:
Tier: 3 - Type Approved, unit certification not required

This Product Design Assessment (PDA) Certificate remains valid until 22/Jan/2029 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

Soheni Haque

Soheni Haque, Sr. Managing Principal Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

Certificate of Product Design Assessment Rev.3
of 1

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Sensitivity: Internal & Restricted