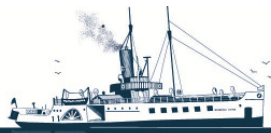




# Electronic Emergency Telegraph TG-1 and TG-1A





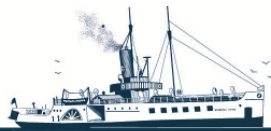
### FOREWORD

This manual is intended as documentation during installation, commissioning and servicing and for users of the Electronic Emergency Telegraph. This manual is applicable for the: TG-1, TG-1A, TG-1V and the TG-1AV.

Please read these instructions carefully before installing and commissioning the Electronic Emergency Telegraph.

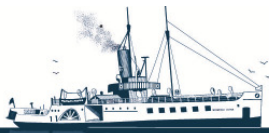
Read the important safety instructions in chapter 1 before installing this device.

Please store this manual in a safe place for future reference.



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## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 1. IMPORTANT SAFETY INSTRUCTIONS

#### 1.1. Qualified personnel

In this documentation and on warning labels the reference to “qualified personnel” is meant to be personnel that is familiar with the product, i.e. familiar with installation, transport, mounting, commissioning, operation and or maintenance of the product.

This person must have the following qualifications:

- Trained or authorized to switch on and off the systems involved, inclusive all safety procedures involved, such as grounding and tagging.
- Trained or authorized to install and service the product.
- Trained or authorized to transport the product.  
Local regulations may extend this to:
- Trained in rendering first-aid.

#### 1.2. Markings

In this documentation and on warning labels the following markings are used:

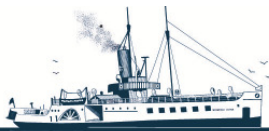
Note! Important suggestion or advise for the user

**Caution** “Caution” indicates that material damage can result if proper precaution is not taken.

**Warning** “Warning” indicates that personal injury or material damage can result if proper precaution is not taken.

**Danger** “Danger” indicates that death, severe personal injury or substantial property damage can result if proper precautions are not taken.

**Danger** This symbol, with or without the text “Danger”, indicates risk of electrical shock, which can cause death or severe personal injury if proper precautions are not taken.



## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 1.3 Instructions and Warnings

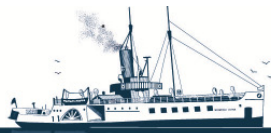
This manual contains important instructions that should be followed during installation and maintenance of the product. It also gives all necessary information about the correct use of the electronic emergency telegraph.

Full understanding and compliance of the safety instructions and warnings contained in this manual are essential to avoid any dangerous situation during installation and operation. Eekels Technology B.V. refuses any responsibility in case of non-observance, unauthorized alterations or improper use of the supplied electronic emergency telegraph.

- Before attempting to install and start up the thrusterdrive, carefully read this manual. Keep this manual with the thrusterdrive for future reference.
- Use the project drawings for the actual configuration and place of connections.
- All servicing must be done by qualified personnel. Do not attempt to service the alarm system unless you have had proper training.
- **CAUTION: RISK OF ELECTRIC SHOCK** By opening the cabinet doors you run the risk of exposure to dangerous voltages! All maintenance and service work should be performed by qualified service personnel.
- For detailed information on transport and installation refer to chapter 5 TRANSPORT, MOUNTING AND INSTALLATION.
- For information on commissioning refer to chapter 6 COMMISSIONING.
- For information on maintenance refer to chapter 9.

However, while every care has been taken to ensure the completeness and accuracy of this manual, Eekels Technology B.V. accepts no responsibility or liability for any loss or damage resulting from the use of the information contained in this document.

Due to technical improvements, some of the information in this manual may be changed without notice.



### 2. INTRODUCTION

The electronic emergency telegraph is a communication device used to communicate steering gear commands between the wheelhouse and engine/control room in emergency situations. A command sent from the wheelhouse can be acknowledged by the engineer on duty at the engine/control room. The units are equipped with a dimmer, an alarm relay (with fail safe setting) and alarm buzzer. VDR output is optional. Several connections diagrams for multiple emergency telegraphs are available.



## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 3. SYSTEM DESCRIPTION

The electronic emergency telegraph communicates through a two wire system. The operation of the two-wire system is based on bi-directional serial data transfer between the two units. The position of the rotary switch is transferred to the other unit (see figure 3-1).

The actual position of the rotary switch is indicated by a LED, which light's up continuously. The received data is compared with the position of the rotary switch. In case of non-equivalence, the LED of the new position flashes. At the same time the relay and/or buzzer starts pulsating. By turning the rotary switch to the flashing LED the new position is accepted and the LED will light up continuously. The illumination of the LED indication can be dimmed.

There are two different versions of the TG-1. The TG-1 (reverse coupling) and the TG-1A (controllable pitch propeller). These two versions have different front plate text (see also figure 3-1).

- TG-1 reverse coupling
- 1 = BRIDGE CONTROL
  - 2 = DEAD SLOW
  - 3 = SLOW
  - 4 = HALF
  - 5 = FULL
  - 6 = .....
  - 7 = FULL
  - 8 = HALF
  - 9 = SLOW
  - 10 = DEAD SLOW
  - 11 = FINISHED WITH ENGINE
  - 12 = STOP

- TG-1A controllable pitch propeller
- 1 = START ENGINE
  - 2 = DEAD SLOW
  - 3 = SLOW
  - 4 = HALF
  - 5 = FULL
  - 6 = .....
  - 7 = FULL
  - 8 = HALF
  - 9 = SLOW
  - 10 = DEAD SLOW
  - 11 = STOP ENGINE
  - 12 = ZERO PITCH

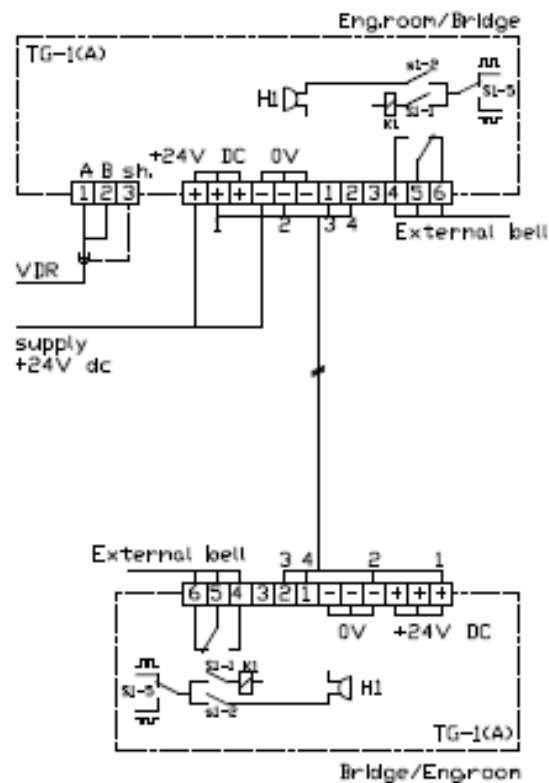
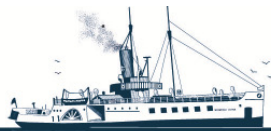


Figure 3-1



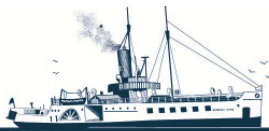
## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 4. TECHNICAL SPECIFICATIONS

	<b>TG-1 / TG-1A</b>
<b>power supply</b>	24 Vdc tolerance -25% up to 30% (protected against polarity inversion)
<b>power consumption</b>	max. 3 W
<b>protection</b>	internal 0,5 A
<b>IP class</b>	front IP42 / back IP20
<b>temperature range</b>	-15 °C up to +55 °C
<b>relative humidity</b>	maximum 90%
<b>manufacturer</b>	Eekels Elektrotechnik B.V.
<b>weight</b>	0,75 kg approximately
<b>connecting terminals</b>	flexible max. 2,5 mm <sup>2</sup>
<b>flash frequency</b>	0,8 Hz approximately
<b>buzzer frequency</b>	3000 Hz approximately
<b>buzzer sound level</b>	74 dB ( 1m ) approximately
<b>output contact</b>	potential free changeover contact (SPDT) 230 Vac - 1500 W
<b>text plate (max. 12 positions)</b>	standard English (11 positions) see illustration other text on request
<b>size (h x w x d)</b>	144 x 144 x 75 mm
<b>mounting</b>	panel cut out 138 x 138 mm
<b>VDR (option)</b>	NMEA 0183 output
<b>housing (option)</b>	mounting cabinet (dim. 250 x 250 x 155 mm)





## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 5. TRANSPORT, MOUNTING AND INSTALLATION

#### 5.1. Transport

The emergency telegraph is a separate article supplied in a box. Keep the emergency telegraph in the box, until actual mounting in the panel cut-out. On transport handle as “fragile”.

#### 5.2. Mounting

The housing of the emergency telegraph is a standard panel instrument housing and can be mounted in a panel cut-out with the supplied mounting accessories. For size and overall dimensions refer to technical specifications 4 and dimensional drawing 10.4.

#### 5.3. Installation

The emergency telegraph is a device that is supplied at low voltage. The device is installed and used in an environment where the safety rules of chapter 1 may be applicable. The emergency telegraph connector(s) may be connected and disconnected when live.

#### 5.4. Settings

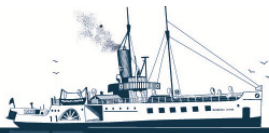
The alarm relay and alarm buzzer can be enabled/disabled by dip-switches. The alarm relay has a fail safe mode. Refer to appendix 8 and 10.1.

#### 5.5. Connection

The emergency telegraphs are connected with a cable link. See appendix 10.2 for connection diagrams.

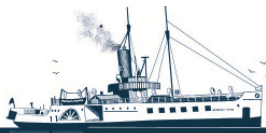
#### 5.6. Protection

The emergency telegraph has a internal 0.5A resettable fuse – PTC = auto reset.



### 6. COMMISSIONING

- During commissioning the safety regulations laid down in 1.3 shall be observed.
- The emergency telegraph is mounted on a spot where electrical or mechanical dangers may be present. The telegraph itself is supplied from a low voltage source.
- Make the required dip switch settings. Refer to appendix 10.1.
- Make the required connections according to the schematic as shown in appendix 10.2.
- Check, if mounted in a cabinet door or movable panel, if cables and connectors can be freely moved.
- Apply power to the emergency telegraphs. The emergency telegraph is ready for use.



## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 7. OPERATION & MONITORING

#### 7.0 Emergency telegraph

The emergency telegraph has two control knobs. One large knob for controlling the telegraph position (rotary switch) and one smaller knob for the dimming function which controls the brightness of the indication and background LED's.

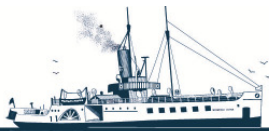
The actual position of the rotary switch is indicated by several LED's. The switch position is sent to the other telegraph. The received data is compared with the position of the rotary switch. In case of non-equivalence, the LED of the new position flashes. Also, the alarm relay and buzzer are activated (pulsating) when enabled. By turning the rotary switch to the flashing LED the new position is accepted and the LED indication is continuous.

See appendix 10.1 for dip switch settings for enabling/disabling the alarm relay and alarm buzzer.

#### 7.2. VDR output

If the emergency telegraph is equipped with the VDR option, the local rotary switch position and the remote rotary switch position is sent through a NMEA183 interface. The VDR option sends the switch position off the local and remote switch. The local and remote switch have a different identification code.

See appendix 10.2 for connection diagrams and appendix 10.3 for VDR message overview.



### 8. ADJUSTMENTS

The emergency telegraph has eight dip switches on the back. There are three switches that can be changed, the other five are reserved for future use and have a default position. The dip-switch setting description is also on the back of the emergency telegraph.

**Note!** : Do not alter the five reserved default switch positions!

#### 8.1. Alarm relay

Dip switch S1-1 is used for enabling/disabling the alarm relay. When the switch is in the on-position the alarm relay is enabled. If the switch is in the off position the alarm relay is disabled. See appendix 10.1.

#### 8.2. Alarm buzzer

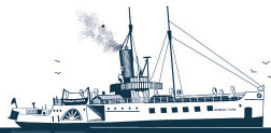
Dip switch S1-2 is used for enabling/disabling the alarm buzzer. When the switch is in the 'on'-position the alarm buzzer is enabled. If the switch is in the 'off' position the alarm buzzer is disabled. See appendix 10.1.

#### 8.3. Fail safe alarm relay

Dip switch S1-5 is used for enabling/disabling the fail safe relay function. Default setting is disabled (fail safe function off). In this case the relay is switched 'on' when an alarm situation occurs. If the fail safe relay option is enabled, the relay is switched 'off' when an alarm situation occurs. See appendix 10.1.

**Note!** : When using the fail safe relay function, the alarm buzzer has to be disabled!

**Note!** : The relay drawing on the back of the emergency telegraph shows the relay contacts with default setting: fail safe relay disabled!



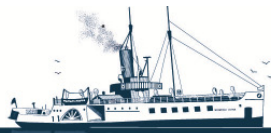
## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 9. FAULT FINDING / MAINTENANCE

All safety precautions laid down in chapter 1.3 must be applied when installing the emergency telegraph.

Failure	Possible cause	Remedy
1. Emergency telegraph fails to work.  No LED indication.	No power.	Check +24V DC wiring.
2. Emergency telegraphs fail to work .  There is LED indication on both units, but switch position of remote unit is not shown.	Communication failure.	Check communication wiring.
3. VDR fails to work.	Communication failure.	Exchange A with B on X2

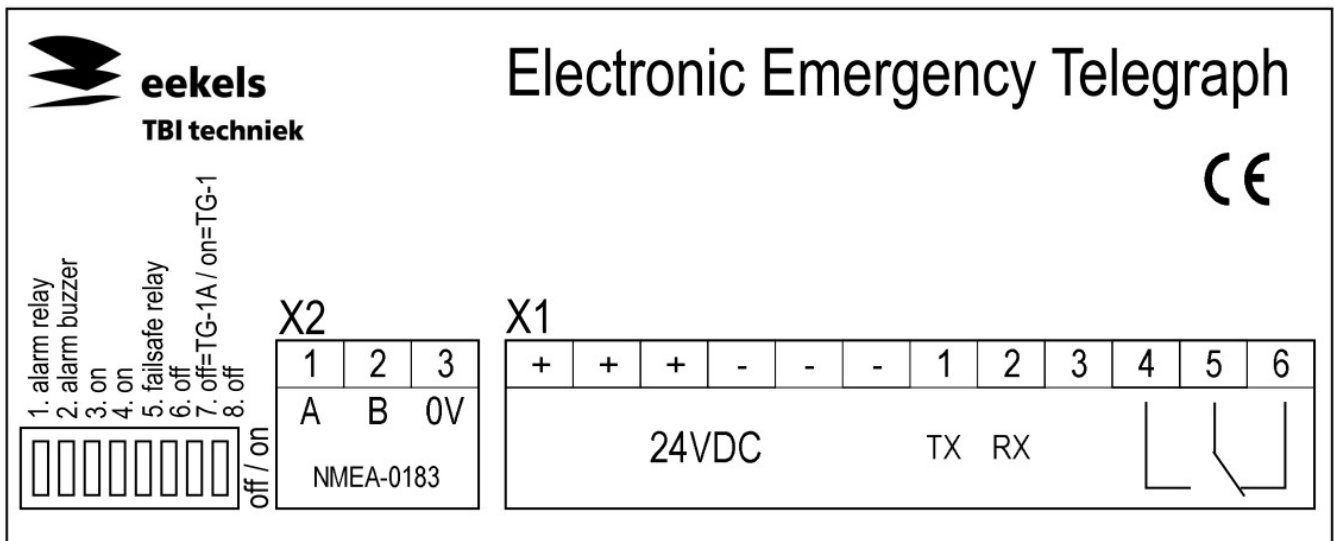


## Electronic Emergency Telegraph

TG-1 and TG-1A

### 10. Appendices

#### 10.1. DIP-switch & connector overview



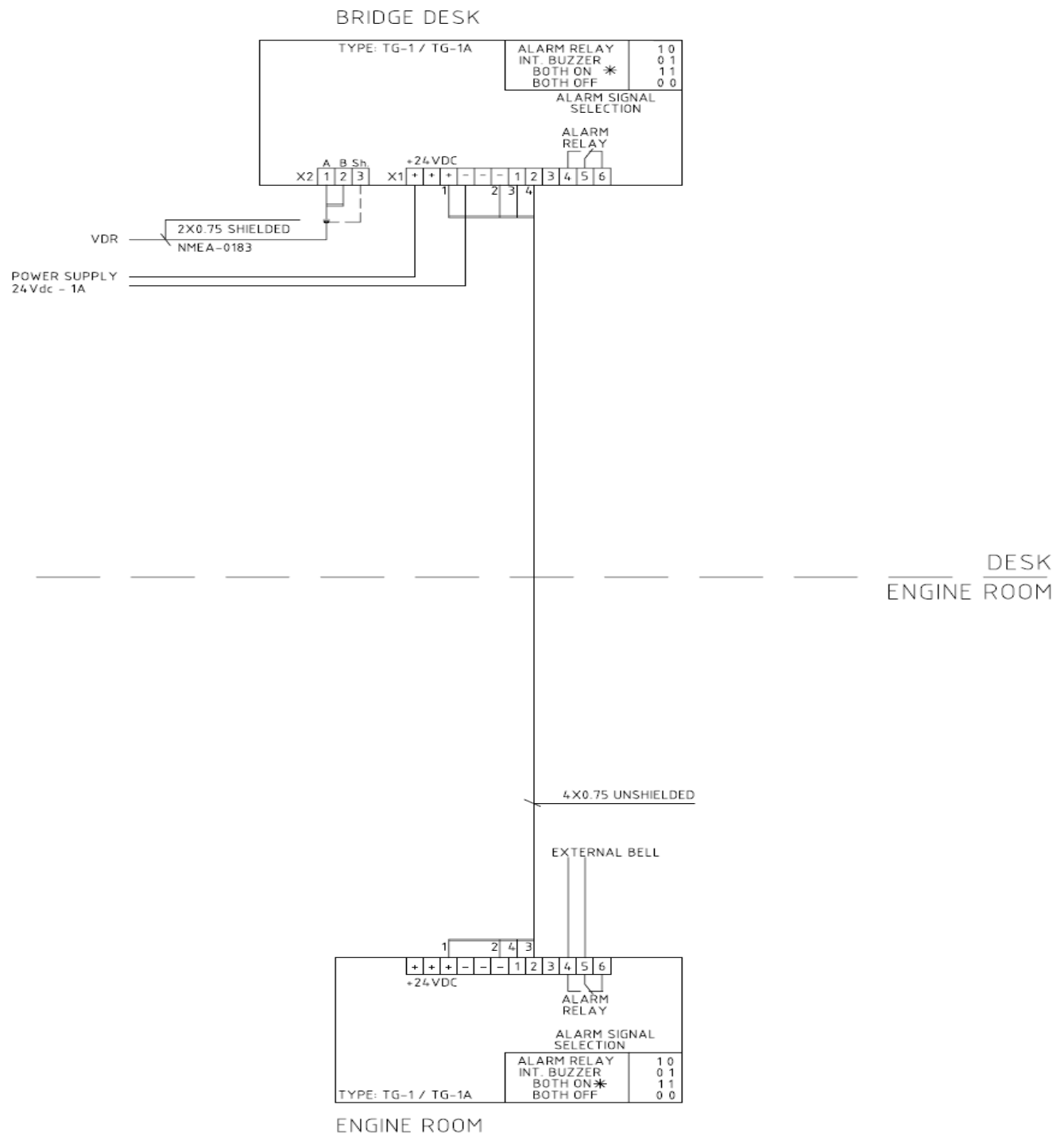


## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 10.2. Connection diagrams

#### 10.2.1. Two emergency telegraphs

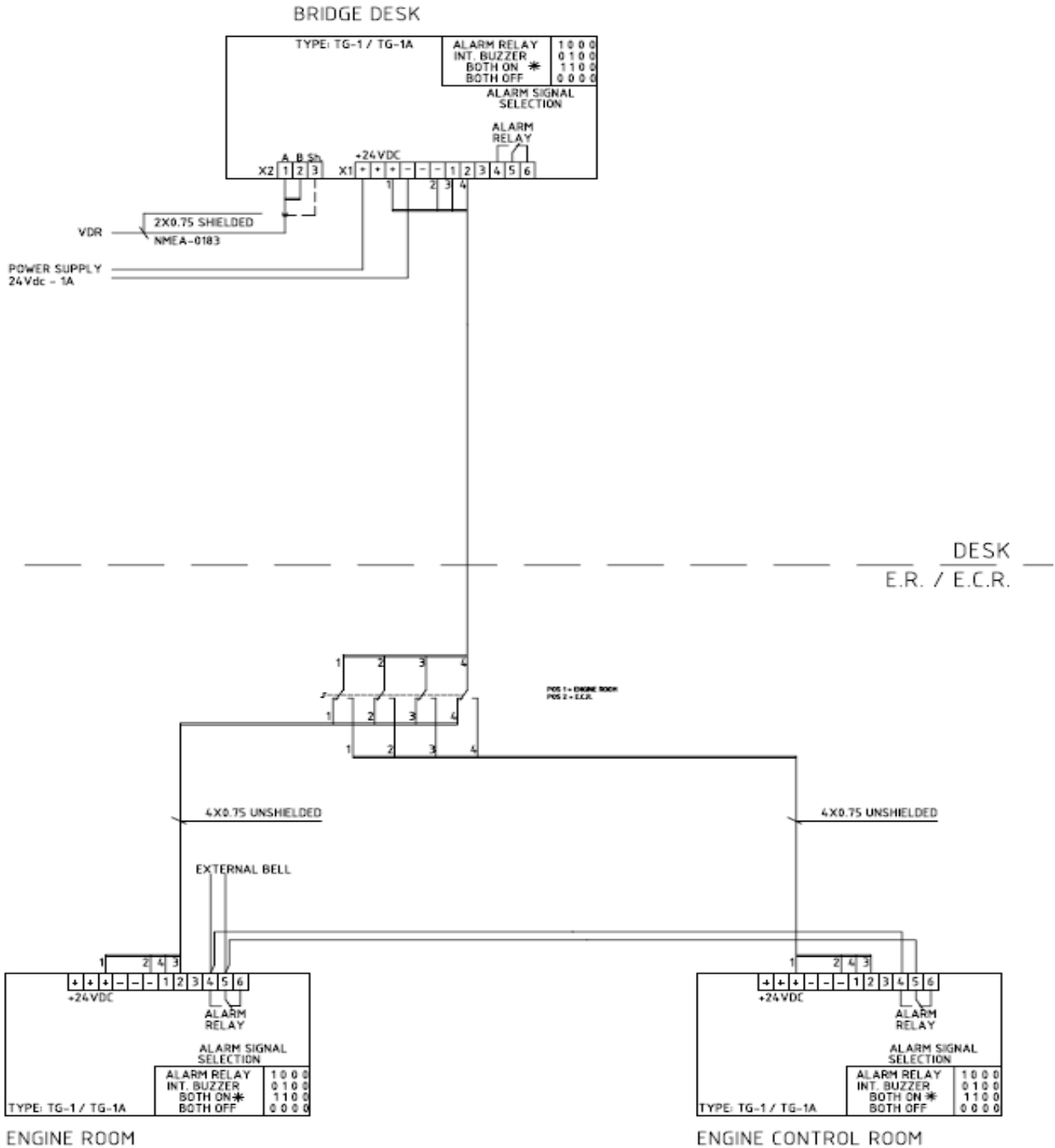




## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 10.2.2. Three emergency telegraphs



× DEFAULT SETTINGS

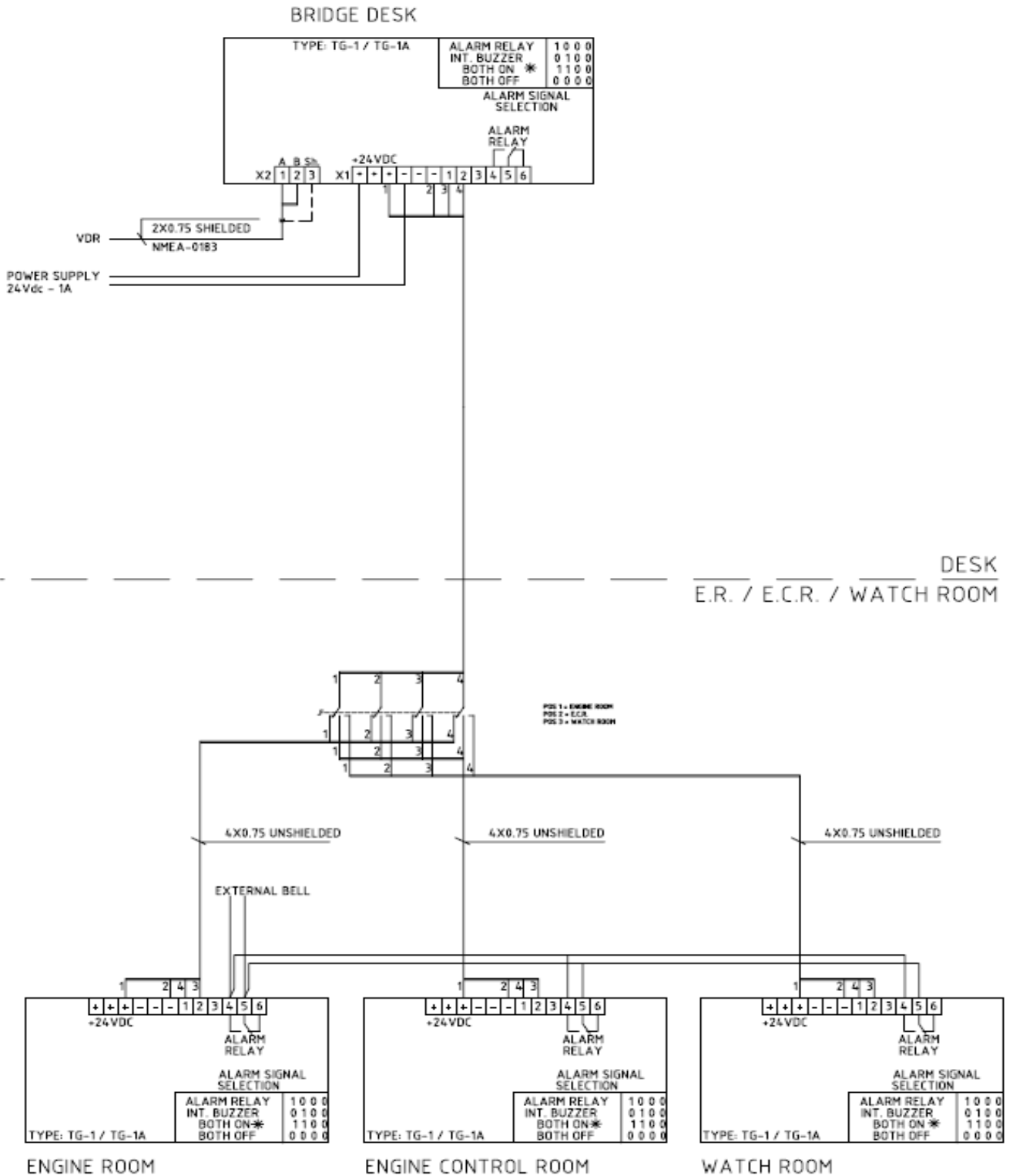




## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 10.2.3. Four emergency telegraphs





## Electronic Emergency Telegraph

## TG-1 and TG-1A

### 10.3. VDR output

The messages are sent to the VDR system according to the NMEA0183 protocol.

#### 10.3.1. VDR serial connection

Electrical connection RS-422. Communication configuration shown in table 1.

Bit rate 4800

Data bits 8

Parity None

Stop bits 1

Handshake None

table 1

#### 10.3.2. VDR messages

Command from Bridge

\$ERTXT, 01, 01, 01, 01 Start Engine\*hh<CR><LF>

Acknowledge from Engine Room

\$ERTXT, 01, 01, 10, Start Engine\*hh<CR><LF>

\$ER = Engine Room monitoring System

TXT, = text transmission

01, = total messages = 01

01, = message number = 01

01, = Text identifier (see note 1)

01 Start Engine = commando (see table 2, note 2)

\*hh = Checksum

note 1:

01 commando from Bridge

10 acknowledge from Engine Room

note 2:

The text 'Switch pos. change' is sent when the rotary switch is in an unknown position (malfunction switch, switch bounce).

The text 'No communication' is sent when the telegraph unit does not receive data.

TG-1A Controllable Pitch propeller	TG-1 Reverse coupling
Zero Pitch	Stop
Start Engine	Bridge Control
Dead Slow Ahead	Dead Slow Ahead
Slow Ahead	Slow Ahead
Half Ahead	Half Ahead
Full Ahead	Full Ahead
....	....
Full Astern	Full Astern
Half Astern	Half Astern
Slow Astern	Slow Astern
Dead Slow Astern	Dead Slow Astern
Stop Engine	Finished With Engine
Switch pos. change	Switch pos. change
No communication	No communication

table 2





## Electronic Emergency Telegraph

TG-1 and TG-1A

### 10.5. Housing option

