Kockum Sonics

TLG2000
Signal Controller

Ref. no. 245.80.309
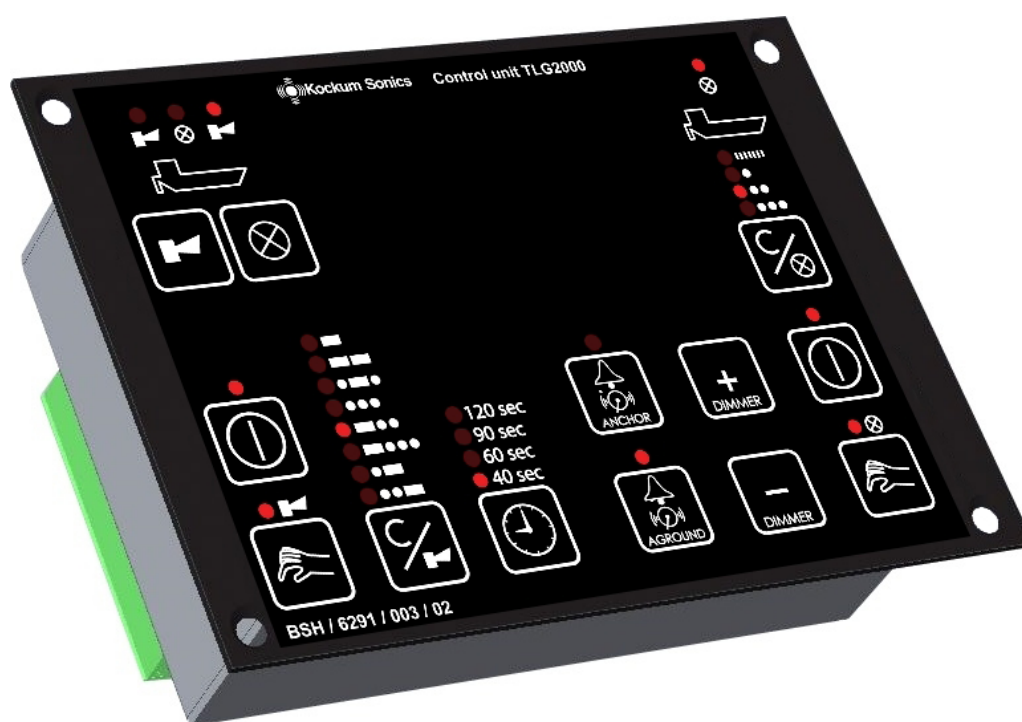
Instruction Manual

Table Of Contents

General

TLG 2000 is a multipurpose sound and MORSE LIGHT signal controller with a number of important features:

- Possibility to configure for different vessel needs.
- Several sound and MORSE LIGHT signal characters according to the Rules in the International Regulations for Preventing Collisions at Sea can be automatically emitted.
- General Emergency Alarm or Abandon Ship given as a combined sound and MORSE LIGHT signal.
- Automatic BELL & GONG signalling for Anchor and Aground.
- All signalling can be made automatic or by hand manoeuvre.
- Dimmer function for frontpanel indications and symbol backlight.

Technical data

Width x Height x Depth: 196 x 140 x 60 mm

Weight: approx. 1.2 kg

Power source for the controller:

24 V DC + 30%, - 10% (only single supply)

Power consumption: 80 mA, 2 W (max)

Note! For AC supply, see page 16 for alternative.

Operating ambient temperature range: 0...+70°C

Power source for valves, contactors and light:

115 - 230 V AC or 24 V DC (max 2 A on each output)

Front panel protection class: IP 56

Front panel colour: signal black RAL 9004

Hole cut-out in console:
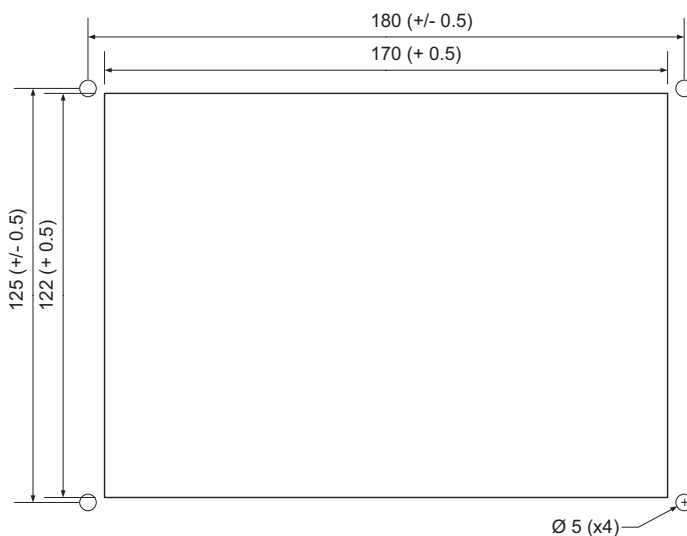
TYFON® signalling

Eight different signal characters can be given with variable interval. The signals are given as sound signals only or as combined sound and MORSE LIGHT signals. The eight standard characters are the following according to Rule 35:

■■	"T"	Making way through the water
■■ ■■	"M"	Not making way through the water
■■ ● ●	"D"	Vessel not under command
■■ ● ● ●	"B"	Vessel being towed
● ■■ ●	"R"	Vessel at anchor
● ● ●	"S"	Great Lakes and St Lawrence Seaways, fog signal
● ● ■■	"U"	Vessel aground
● ■■	"A"	Keep clear (inland)

■■ = 5 sec   ● = 1 sec

2 sec pause between each character ("S" = 1 sec)

MORSE LIGHT signalling

Optical flash signals for Attention and Manoeuvring according to Rule 34:

|||||||		Attention
●	"E"	Altering my course to starboard
● ●	"I"	Altering my course to port
● ● ●	"S"	Operating astern propulsion

● = 1 sec   1 sec pause between each character except "Attention" = 0.3 sec / 0.3 sec

NOTE! Attention is not a repeated signal but the manoeuvring flashes are emitted until a stop command is given on the TLG 2000 control panel.

BELL and GONG signalling

Repeating signal characters for ship at anchor
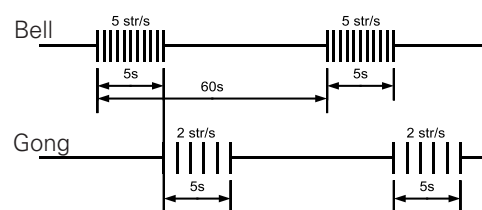
Repeating signal characters for ship aground
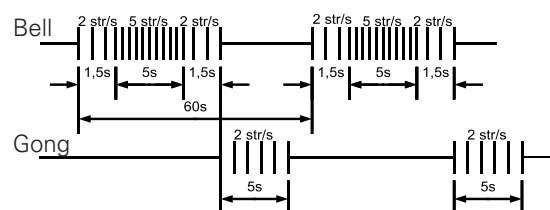
Overview of the panel functions.
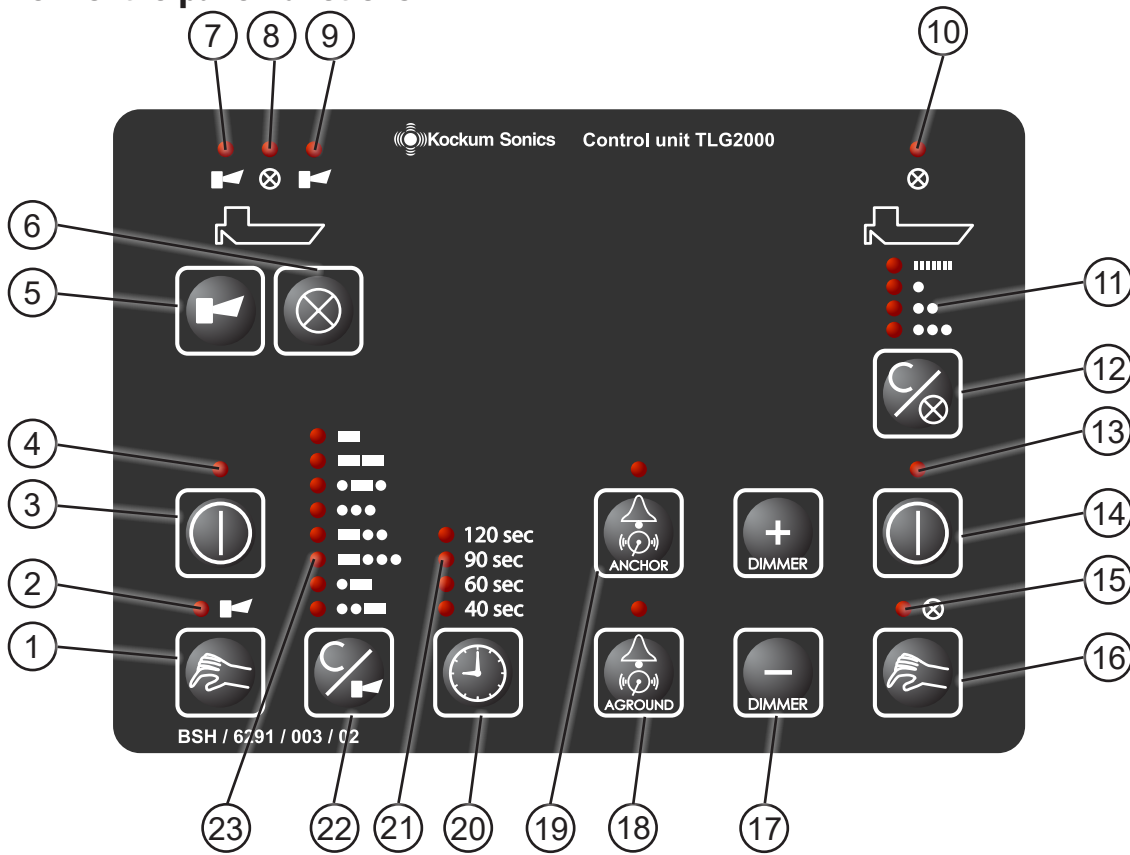
1	📖	Push button for manual TYFON activation. Activates the selected TYFON.	13	○	MORSE LIGHT auto indicator. This LED will lit when automatic MORSE LIGHT activation is chosen.
2	○◄█	TYFON active indicator. This LED will lit when the selected TYFON is activated.	14	⊙	Push button for automatic MORSE LIGHT activation.
3	⊙	Push button for automatic TYFON activation.	15	○⊗	MORSE LIGHT active indicator. This LED will lit when the MORSE LIGHT is activated.
4	○	TYFON auto indicator. This LED will lit when automatic TYFON activation is chosen.	16	📖	Push button for manual MORSE LIGHT activation.
5	◄█	TYFON selector. Press to select single or a TYFON combination.	17	DIMMER+ DIMMER−	Dimmer. Adjusts the intensity of all LED's and back light on the panel (and connected ext. switch with LED).
6	⊗	MORSE LIGHT selector. Turns on/off synchronously lantern/ TYFON activation.	18	⚠ AGROUND	Push button for "Aground". Activates connected BELL and GONG.
7	○ ◄█	Aft TYFON indicator.	19	⚓ ANCHOR	Push button for "Anchor". Activates connected BELL and GONG.
8	○ ⊗	MORSE LIGHT indicator.	20	🕐	Time interval push button for TYFON.
9	○ ◄█	Fore TYFON indicator.	21	○120 sec	LED indicators for chosen TYFON time interval.
10	○ ⊗	MORSE LIGHT indicator.	22	C/◄█	Push button for TYFON Character.
11	○▥	Indicators for chosen MORSE LIGHT character.	23	○●■●	LED indicators for chosen TYFON character.
12	C/⊗	Push button to select different MORE LIGHT characters.			

TYFON control section

This section controls and generates eight predefined sound characters.

Selectable functions within TYFON section:

- Manual TYFON activation (hand manoeuvre)
- Start / Stop automatic TYFON activation
- Selection of which TYFON to be used
- Connect / Disconnect Lantern to TYFON signalling
- Selection of four different auto repeat times
- Eight selectable TYFON characters

Indicators:

- Output to TYFON
- Automatic mode Start / Stop
- Selected sound character
- Selected TYFON
- Lantern connected or disconnected
- Selected auto repeat intervals

Manual TYFON activation

This function is used for generating sound signalling by hand.

If the automatic signalling is in progress, pressing the Manual TYFON activation push button will inhibit automatic signalling and sound signalling will be according to hand manoeuvre.

Automatic TYFON activation

Pressing this push button will toggle between start and stop of automatic signalling.

When started the controller starts the selected character to the selected TYFON.

If a lantern is connected to the sound section the character also goes out on the lantern output.

Signalling is repeated in a cyclic mode with the selected auto repeat interval.

Function and character selection is disabled when automatic mode is started and to be able to select a new function/character the automatic mode has to be stopped.

To stop automatic mode press automatic TYFON activation push button again.

If the controller is in the progress of emitting a sound character the whole character will be emitted before stop.

Status of automatic mode is indicated with the LED indicator above the push button.

Selection of TYFON

With this push button selection of the desired TYFON can be done.

It will toggle between the three different modes available.

- AFT TYFON
- FORE TYFON
- AFT & FORE TYFON

Indication of actual mode can be seen on the TYFON indicators above the left ship symbol.

Note!

If distance between whistles > 100 m only the AFT TYFON will be activated in position AFT & FORE TYFON according to IMO regulations.

See also page 6 for different types of configurable applications.

Synchronize MORSE LIGHT to TYFON

Pressing this push button will toggle between syncronize or not syncronize the MORSE LIGHT output to TYFON output. When activated the emitted TYFON signal will also activate the MORSE LIGHT output. All other MORSE LIGHT functions are disabled when connected to TYFON section.

Indication of mode can be seen on the LED indicators above the ship symbols.
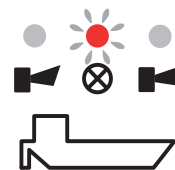
LED indicator above the left ship symbol

- MORSE LIGHT syncronized with TYFON.
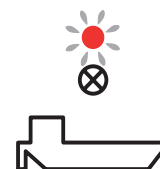
LED indicator above the right ship symbol

- MORSE LIGHT **not** syncronized with TYFON.

Selections of auto repeat time.

With this push button selection of auto repeat interval can be done.

It will toggle between the four repeat intervals available.

- 120 seconds between characters
- 90 seconds between characters
- 60 seconds between characters
- 40 seconds between characters (use only for air driven whistle)

Note!

- *According to IMO regulations the repeat time for sound character ●■● and ●●● is always 60 seconds and not selectable.*

- *The repeat time means the start of the selected character to the next start of the same character.*

Selections of TYFON character.

Pressing one of the eight push buttons will select this character and it will be displayed on the LED bar indicator for sound character.

1. ■■   Making way through the water
2. ■■ ■■   Not making way through the water
3. ■■ ● ●   Vessel not under command
4. ■■ ● ● ●   Vessel being towed
5. ● ■■ ●   Vessel at anchor
6. ● ● ●   Great Lakes and St Lawrence Seaways, fog signal
7. ● ● ■■   Vessel aground'
8. ● ■■   Keep clear (inland)

The controller also has a relay with a change-over contact function that is activated when a TYFON signal goes out from the controller.
(See wiring diagram).

TYFON active output.

A dry switch-over relay contact (terminal 4-6) is activated when the TYFON is activated.

This could be used as a mute function for external Sound Signal Surveillance System like our S90 or S900 system.

Example.

How do I change the auto repeat time?

1. Be sure to turn off the automatic TYFON activation by pressing the ⏻ button.

   Wait until the automatic TYFON activation has finished.
2. Press the ⏲ button until the desired repeat time is chosen.
3. Press the ⏻ for automatic TYFON activation.

How do I select aft or fore TYFON?

1. Be sure to turn off the automatic TYFON activation by pressing the ⏻ button.
   Wait until the automatic TYFON activation has finished.
2. Press the ⏩ button until the desired TYFON is chosen.
3. Press the ⏻ for automatic TYFON activation.

How do I synchronize TYFON and MORSE LIGHT activation?

1. Be sure to turn off the automatic TYFON activation by pressing the ⏻ button.
   Wait until the automatic TYFON activation has finished.
2. Press the ⊗ button. The MORSE LIGHT symbol will lit on the TYFON section.
   To turn it off, just press the ⊗ button again.
3. Press the ⏻ for automatic TYFON activation.

I can't change the parameters for TYFON section.

1. Be sure to turn off the automatic MORSE LIGHT activation by pressing the ⏻ button.
   Wait until the automatic MORSE LIGHT activation has finished.

Two or more Whistles? *Extract from IMO Regulations:*
1. If the whistles are fitted at a distance apart of more than 100 metres, it shall be so arranged that they are not sounded simultaneously.
2. Combined whistle system are to be arranged when one single whistle is likely to have a zone of greatly reduced signal level, due to the presence of obstructions.
3. If the whistle are to be used as a combined system - fitted at a distance apart of **not** more than 100 metres - they shall be arranged to be sounded simultaneously. The frequency of any of the whistles shall differ from those of the others by at least 10 Hz.

MORSE LIGHT control section.

This section controls and generates four predefined MORSE LIGHT characters.

Selectable functions within MORSE LIGHT section:

• Hand manoeuvre
• Start/Stop automatic signalling
• Four selectable MORSE LIGHT characters

Indicators:
• Output to MORSE LIGHT
• Automatic mode start/stop
• Selected MORSE LIGHT character
• MORSE LIGHT not syncronized with TYFON output

Note !

Be informed that the three following functions are not available if MORSE LIGHT is syncronized with TYFON section.

Manual MORSE LIGHT activation

This function is to be used for generating MORSE LIGHT signalling manually.

If automatic MORSE LIGHT signalling is in progress, pressing the manual MORSE LIGHT activation will inhibit automatic MORSE LIGHT signalling and the signalling will be according to hand manoeuvre.

Automatic MORSE LIGHT activation

Pressing this push button will toggle between enabled and disabled automatic MORSE LIGHT signalling.

When started, the controller activates the MORSE LIGHT with the selected character.

Signalling is repeated in a cyclic mode except for character which is just done once.

Function and character selection is disabled when automatic mode is started. To be able to select a new function/character, automatic mode has to be disabled.

To stop automatic mode press the push button again. If the controller is in the progress of emitting a MORSE LIGHT character the whole character will be emitted before stop.

Status of automatic mode is indicated with the indicator above the push button.

Selection of MORSE LIGHT character

With this push button selection of MORSE LIGHT character can be done.

It will toggle between the four characters available.

1. ▮▮▮▮▮▮▮   Attention
2. ●   Altering my course to starboard
3. ●●   Altering my course to port
4. ●●●   Operating astern propulsion

Selected character is displayed on the LED bar indicator for MORSE LIGHT character.

Example.

How do I change the MORSE LIGHT character?

1. Be sure to turn off the automatic MORSE LIGHT activation by pressing the ⓘ button.
   Wait until the automatic MORSE LIGHT activation has finished.
2. Press the button until the desired character is displayed.
3. Press the ⓘ for automatic MORSE LIGHT activation.

I can't change the character for the MORSE LIGHT?

1. Be sure to turn off the syncronize function for TYFON and MORSE LIGHT by pressing the ⊗ button.

2. Be sure to turn off the automatic MORSE LIGHT activation by pressing the ⓘ button.
   Wait until the automatic MORSE LIGHT activation has finished.

General Alarm (GEA) control

This function has the highest priority of the controller and all other functions will be disabled when "General Alarm" is activated.

With this controller it is possible to generate two alarm characters:

- General Alarm ●●●●●●●▬
- Abandon Ship ●▬▬●▬

To be able to use these functions, external push buttons for start and stop have to be connected to the unit. An interrupt input for PA is available on the controller.

Functional description.

Pressing one of the two external push buttons immediately starts the signalling of selected alarm.

Signalling is cyclic and will continue until stopped.

Signalling will activate all outputs for sound and MORSE LIGHT.

To stop signalling press the same push button again and signalling is stopped immediately.

The other functions within the controller are enabled again.

To be able to give a spoken message on the public message system the PA interrupt input (dry contact, closed when activated) can be used to temporarily stop GEA signalling as long as the input is activated.

The signal interrupt is done during the silent period of a character or in the pause between characters.

If the interrupt is done in the silent period the controller will continue signalling from that point within the character when the PA interrupt is released.

A dry normally open relay contact (terminal 23 and 24) will change to closed contact when the GEA function is activated.

BELL and GONG control

This section controls and generates BELL and GONG signalling characters; Anchor and Aground.

Selectable functions within section:

- Start/Stop BELL and GONG - Anchor
- Start/Stop BELL and GONG - Aground

Indicators:

- Start/Stop

Automatic BELL and GONG activation.

Pressing one of the two push buttons toggles between start/stop of the selected function.

Signalling Anchor or Aground is cyclic and continues until stopped.

Signalling is stopped by pressing the same push button again and the indicator led is turned off. If signalling is in progress the whole character is emitted before stop.

Dimmer function.

Pressing one of the [+] [-] buttons will increase or decrease the intensity of the panels illumination, backlight and any connected external switch with LED to the dimmer output terminal.

Note!

The external switch can be equipped with internal LED (see page 16). Max 10 LED's can be connected.

The LED can either be connected to 24V DC (terminal 42) or to the dimmer output (terminal 46).

Lamps (115/230V AC) shall not be connected to the dimmer output.

Configuration for different applications.

In most cases the TLG2000 does not need to be configured and factory settings can be used.
However, on some installations it is necessary to change the TLG2000 functionality. When powering up
TLG2000 it is possible to enter a configurations mode. Four functions can be adjusted to suit the actual needs.

A. Enable / disable the Fore TYFON indicator on the panel.
   If two whistles (fore and aft) are connected and the distance between them is more than 100 m it is not allowed to
   sound them simultaneously. See the manual for correct electrical connections.
B. Enable / disable the BELL and GONG function or change the mode of operation.
   BELL and GONG function is enabled by default and is configured to operate an electro-mechanical B&G type KB30 and
   KG50. If B&G is not connected to the TLG2000, this function can be disabled and when pushing the button for B&G,
   respective LED will rapidly flash for 2 seconds to indicate that this function is not installed.
C. Change the activation mode of the GEA & Abandon ship function.
   There are three methods of activating the GEA or Abandon ship signal by an external dry contact (closed when active)
   connected to the TLG2000.
   8 -   When active, the pre-programmed signal sequence is started. When not active, the sequence is stopped.
   9 -   Temporary (pulsed) action will start the pre-programmed signal sequence. One more pulse will stop the sequence.
   10 - If an external signal pattern generator is connected, this mode should be used.
D. Change respons time for external activation of morse light.

|	
1	Press B and C buttons simultaneously when powering up the unit. All LED's will flash for 3 seconds. The actual configuration will be shown on the G group of LED's (marked 1 to 12).
2	Press E button (+ moves LED's up, - moves down) to actual position of the G groups of LED's.
3	Check function value for chosen position on LED A LED off = function disabled LED on = function enabled
4	Move the position of the lit LED to the corresponding function in the group with use of buttons E.
5	Turn the function ON by pressing the button B. Check that the LED A is turned on.
5	When all settings are done, press the F buttons simultaneously to save the new settings. Before pressing the F button you can press the D button to see the new configuration.
6	All LED's will flash for 3 seconds and the unit will automatically be restarted.

BSH / 6291 / 003 / 02
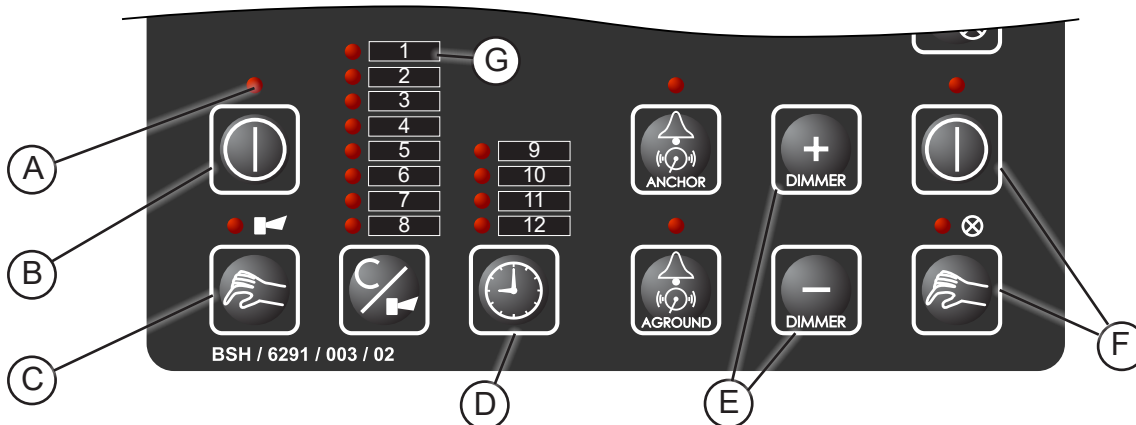
When indicator (G) lits	Function
1	Fore TYFON indicator disabled when combined function is chosen.
2 (default)	Fore TYFON indicator enabled when combined function is chosen.
3	B&G disabled.
4 (default)	Electro mechanical B&G type KB30 and KG50.
5	Electronic B&G type BG300. "Aground" button has no function.
6	Electronic B&G type BG300. "Anchor" button has no function.
7	Electronic B&G type BG300 with both characters enabled.
8	Use internal GEA & Abandon ship signal generator. Maintained action.
9 (default)	Use internal GEA & Abandon ship signal generator. Momentary action.
10	Use external GEA & Abandon ship signal generator. When input activated it will activate all connected whistles and MORSE LIGHTS.
11 (default)	100ms response time for external activation of morse light
12	250ms response time for external activation of morse light
Note! The function groups 1-2, 3-7, 8-10 and 11-12 could only have one LED each enabled.	

Electrical installation.

To meet the EMC (Electro Magnetic Compatibility) requirements the electrical installation must be done correctly.

All four terminal blocks could be extracted.
Max cable diameter on terminal block 2.5mm².

Be sure to fix the cables such way that no forces are put on the terminal blocks.

Cable screen

Cable clamp

Cable clamp

Cable

Cable
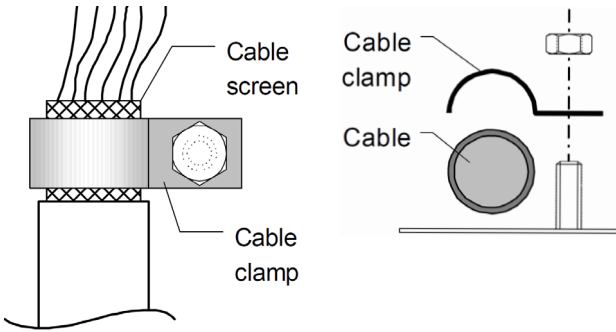
Note !

- *The enclosure must be electrically connected to the ship's ground.*

- *Screw terminal 1 must be connected to ship's ground*

- *This version of unit is fully compatible with older versions of TLG2000 including functions and mechanically mounting. If the power supply for the Signal Controller is AC, an AC-DC converter must be added.*
  See page 16 for details.

Correct use of external DC supply:

OK	TLG2000	22	+24V DC	24V DC supply
		21	0V DC	
NOT ALLOWED	TLG2000	22	+12V DC	+/- 12V DC supply
			0V DC	
		21	-12V DC	
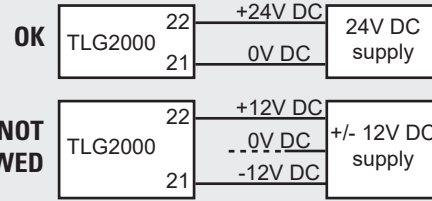
Mounting

The unit is to be panel mounted.
Console panel cut-out hole:

180 (+/- 0.5)
170 (+ 0.5)
125 (+/- 0.5)
122 (+ 0.5)
Ø 5 (x4)

196 mm
140 mm

M4

40mm
60mm

Console

Screw terminals Max 2.5mm²
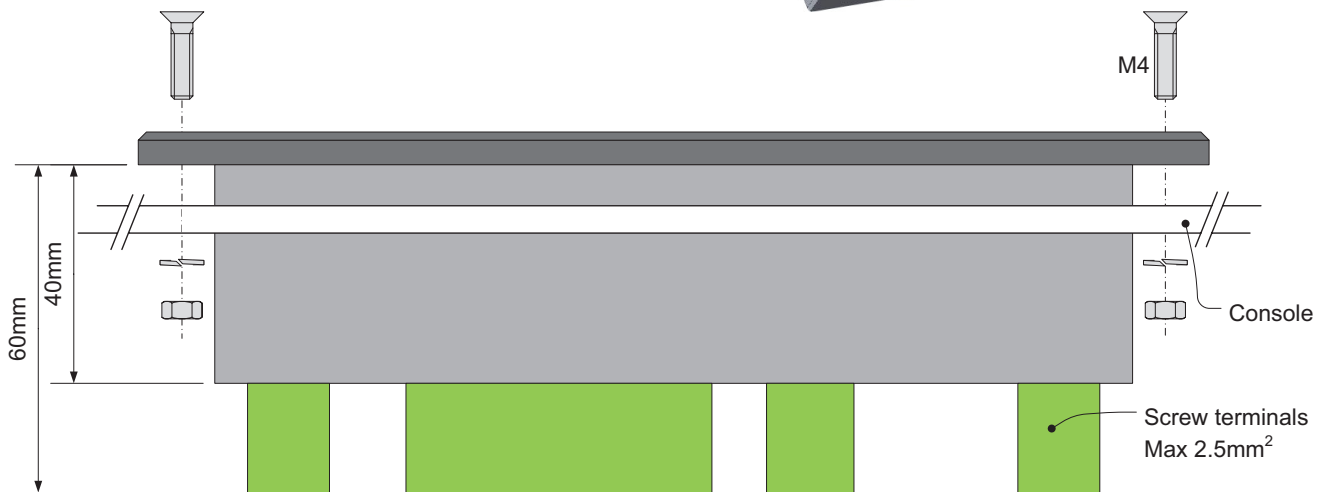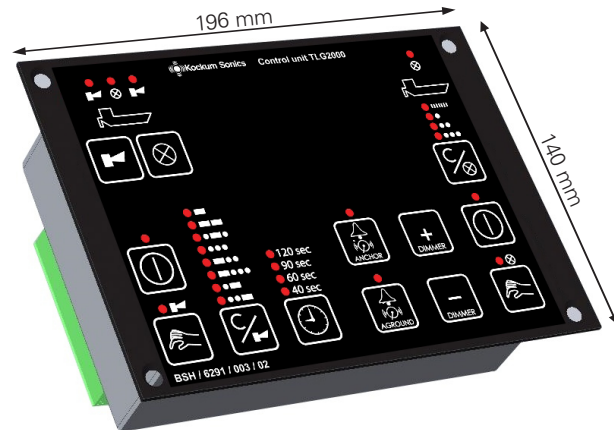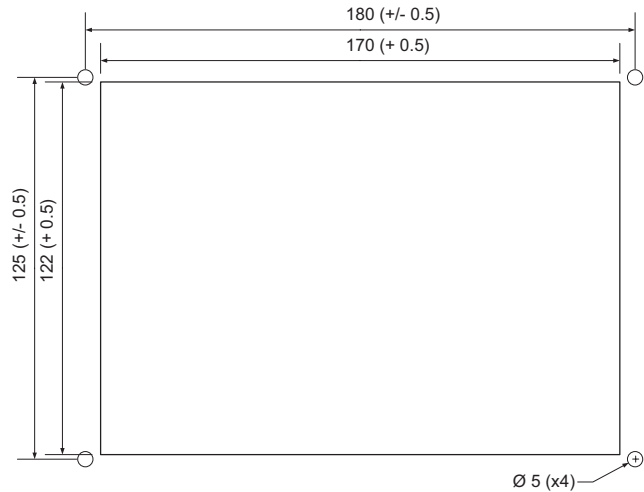
Note!

If special mechanical protection is needed or the possibility to mount the unit on the wall, an extra cover is available, ref. no. 21775055. This is mounted behind the console to protect the rear side of the TLG2000. See page 16 for details.

Fault finding scheme

Diagnos	Possible cause	Solution
The unit is not working	Fuse blown	Check fuse F4
MORSE LIGHT section does not work	Fuse blown	Check fuse F3
- " -	Relay RE4 faulty	Check relay RE4
TYFON section does not work	Fuse blown	Check fuse F1
- " -	Relay RE1, RE2 or RE3 faulty	Check relay RE1, RE2 or RE3
BELL or GONG does not work	Fuse blown	Check fuse F2
- " -	Relay RE5 or RE6 faulty	Check relay RE5 or RE6
External push button does not work	Fault on external push button	Check the external push button
- " -	Fault on cable to external push button	Check the cable to external push button
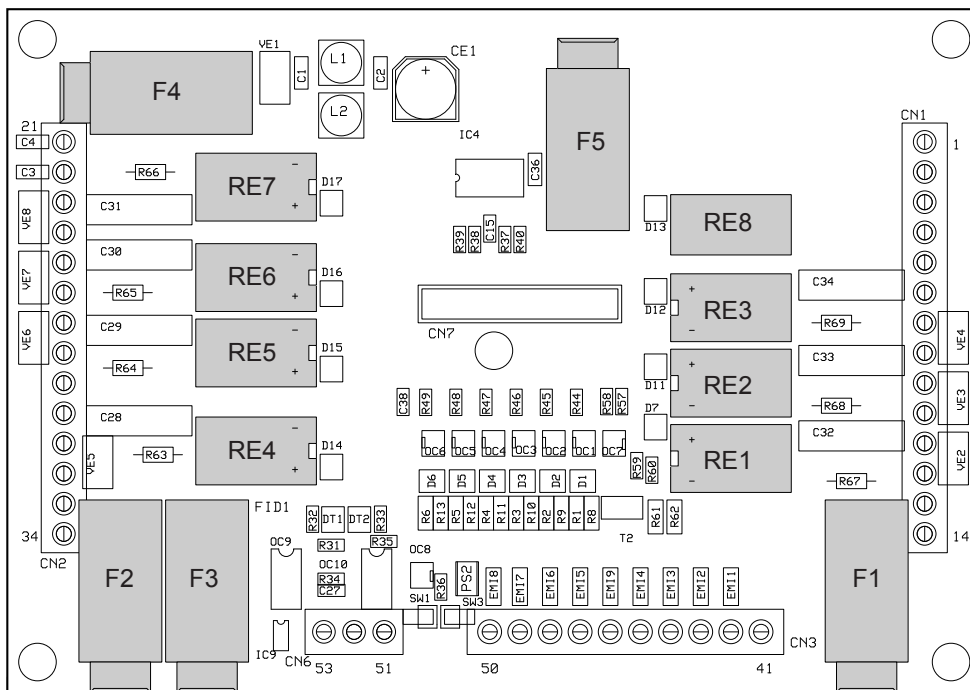
Component	Function	Data
F1	Mains for TYFON	2 A, slow blow, 5x20mm
F2	Mains for BELL and GONG	2 A, slow blow, 5x20mm
F3	Mains for MORSE LIGHT	2 A, slow blow, 5x20mm
F4	Mains for the unit's electronic	500 mA, fast blow, 5x20mm
F5	Mains for the unit's electronic	500 mA, fast blow, 5x20mm
RE1	Relay for Aft TYFON	2 pole, 1 way contact (NO)
RE2	Relay for Fore TYFON, <= 100m	2 pole, 1 way contact (NO)
RE3	Relay for Fore TYFON, > 100m	2 pole, 1 way contact (NO)
RE4	Relay for MORSE LIGHT	2 pole, 1 way contact (NO)
RE5	Relay for BELL	2 pole, 1 way contact (NO)
RE6	Relay for GONG	2 pole, 1 way contact (NO)
RE7	Relay for GEA active	2 pole, 1 way contact (NO)
RE8	Relay TYFON active	1 pole, change over contact

Recommended spare parts

Qty.	Name	Ref. no.
1	Fuse kit	229.10.075
1	Relay kit	229.10.085

Description of I/O
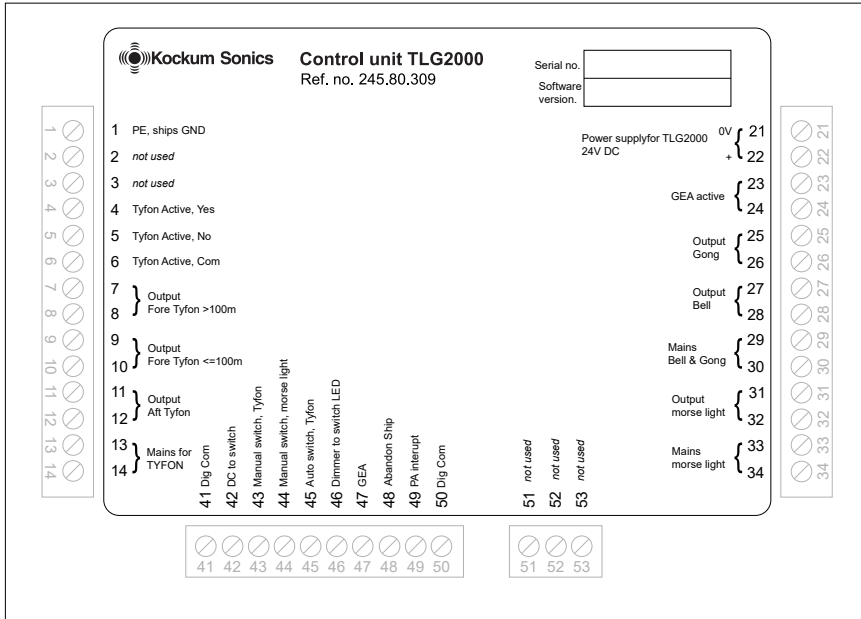
Rear side of the control unit

Term	Function	Note
1	Earth	Ships ground
2	*not used*	
3	*not used*	
4	TYFON Active, Yes	See fig 1. Unfused output.
5	TYFON Active, No	
6	TYFON Active, Com	
7	Output to Fore TYFON > 100m	See fig 2
8		
9	Output to Fore TYFON <= 100m	See fig 2
10		
11	Output to Aft TYFON	See fig 2
12		
13	Mains for TYFON	24V DC or 115...230V AC
14		
21	Mains for TLG2000	0V
22		+ 24 V
23	GEA active	See fig 3. Unfused output.
24		
25	Output to GONG	See fig 4
26		
27	Output to BELL	See fig 4
28		
29	Mains BELL and GONG	24V DC or 115...230V AC
30		
31	Output to MORSE LIGHT	See fig 5
32		
33	Mains for MORSE LIGHT	24V DC or 115...230V AC
34		

Term	Function	Note
41	Digital common	0V DC to LED in switch
42	DC to external switch	DC supply for external switches/LED's only. No other load permitted!
43	Input for manual activation of TYFON	See fig 6, 7 or 8.
44	Input for manual activation of MORSE LIGHT	See fig 8.
45	Input for automatic activation of TYFON	See fig 6, 7 or 8.
46	Dimmer output to switch LED	Max load 100 mA.
47	Input for "General Emergency Alarm" activation	See fig 6, 7 or 8.
48	Input for "Abandon Ship" activation	See fig 6, 7 or 8.
49	Input for PA interupt	See fig 9.
50	Digital common	0V DC to LED in switch
51	*not used*	
52	*not used*	
53	*not used*	

Outputs

Inputs
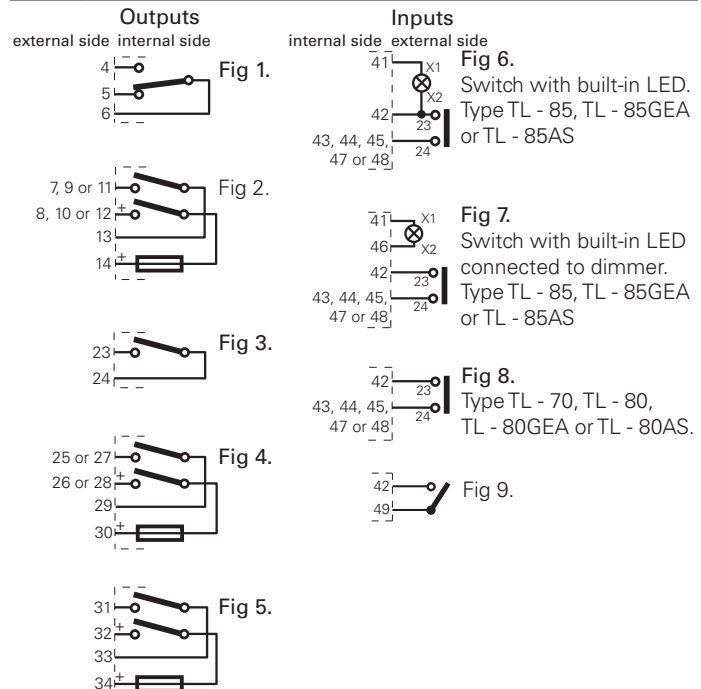
General external wiring diagram for Signal Controller TLG 2000
Shows all possible electrical connections.

For example of more specific applications, see page 12 to 15.

**Signal Controller
TLG2000**

Control Unit

24V DC power supply for
Signal Controller TLG2000
IMPORTANT! See page 8 for
correct supply connection.

GEA active**

Output to GONG

Output to BELL

Mains for BELL & GONG
115...230V AC
or 24V DC

Output to MORSE LIGHT

Mains for MORSE LIGHT
115...230V AC
or 24V DC

TYFON active*

Output to
Fore TYFON
distance between
whistles > 100m***
or
Output to
Fore TYFON
distance between
whistles <= 100m***

Output to
Aft TYFON

Mains for TYFON
115...230V AC
or 24V DC

External
TYFON
switch type
TL-80 or
TL-85

External
MORSE LIGHT
switch type
TL-70

External
start button
for automatic
TYFON type
TL-80 or
TL-85

Shielded cable

PA interrupt for GEA
(yard's supply)

Abandon ship
(In this example this
LED is connected to the
dimmer)

**General Emergency
Alarm (GEA)**
(In this example this
LED is connected to the
dimmer)

Notes.
*   This potential free relay output is used in conjunction with
        external Sound Signal Surveillance System type S90.
        The relay output will change state when the Control Unit is
        activating a TYFON. Max load 230V AC/800mA...30V DC/
        800mA

**   A potential free relay output that will change state when an
        GEA (General Emergency) alarm is activated on the Control Unit.
        Max load 230V AC/1.6A...30V DC/1.6A

***   See page 2 and 3 for explanation

TL-80 versions shows TL-85 types.
See page 16 for different types of push buttons.

All cables to be shielded and shield connected to ships ground.

For details of switch and LED terminal markings, see page 10.

Typical external wiring diagram for Signal Controller with connected units for (230V AC)

For two TYFON whistles and MORSE LIGHT.

> 100 m distance between whistles

Signal Controller
TLG2000

Control Unit

AC/DC converter
ref no. 20142028
see page 16 for details

⊘	L ⊘
⊘ -V	N ⊘
⊘ +V	P ⊘

230V AC
for TLG2000
electronics

Output to
Fore ELECTRO-TYFON
distance between whistles > 100m

Powersupply
to TYFON

Output to Aft SUPERTYFON

Output to MORSE LIGHT

Mains for
MORSE LIGHT and TYFON.
230V AC

F5 500mA
F4 500mA
RE7
RE8
RE6 Spark suppr
RE5 Spark suppr
RE3 Spark suppr
RE2 Spark suppr
RE1 Spark suppr
F2 2A
RE4 Spark suppr
F1 2A
F3 2A

Terminals: 1 2 3 4 5 6 7 8 9 10 11 12 13 14
21 22 23 24 25 26 27 28 29 30 31 32 33 34
41 42 43 44 45 46 47 48 49 50

External
TYFON
switch type
TL-80 or
TL-85

External
MORSE LIGHT
switch type
TL-70

External
start button
for automatic
TYFON type
TL-80 or
TL-85

43
42

44
42

45
42

All cables to be shielded and shield connected to ships ground.

For details of external switch terminal markings, see page 10.

Typical external wiring diagram for Signal Controller (115V AC system)
For two TYFON whistles, MORSE LIGHT and BELL and GONG
=< 100 m distance between whistles

Signal Controller
TLG2000
Control Unit

F5
500mA
F4
500mA

RE7

RE8

RE6
Spark suppr

RE5
Spark suppr

Spark suppr RE3

Spark suppr RE2

Spark suppr RE1

F2
2A

RE4
Spark suppr

F1
2A

F3
2A

AC/DC converter
ref no. 20142028
see page 16 for details

L
-V
+V

N
P

115V AC
for TLG2000
electronics

Output to GONG

Powersupply to GONG

Output to BELL

Powersupply to BELL

Output to MORSE LIGHT

Mains for
MORSE LIGHT, BELL and
GONG and TYFON.
115V AC

Output to
Fore ELECTRO-TYFON
distance between whistles <= 100m

Powersupply
to TYFON

Output to Aft SUPERTYFON

External
TYFON
switch type
TL-80 or
TL-85

External
MORSE LIGHT
switch type
TL-70

External
start button
for automatic
TYFON type
TL-80 or
TL-85

43
42

44
42

45
42

All cables to be shielded and shield connected to ships ground.

For details of external switch terminal markings, see page 10.

Typical external wiring diagram for Signal Controller (24V DC system)

For one TYFON whistle, MORSE LIGHT, GEA function and electrical Bell&Gong BG 310
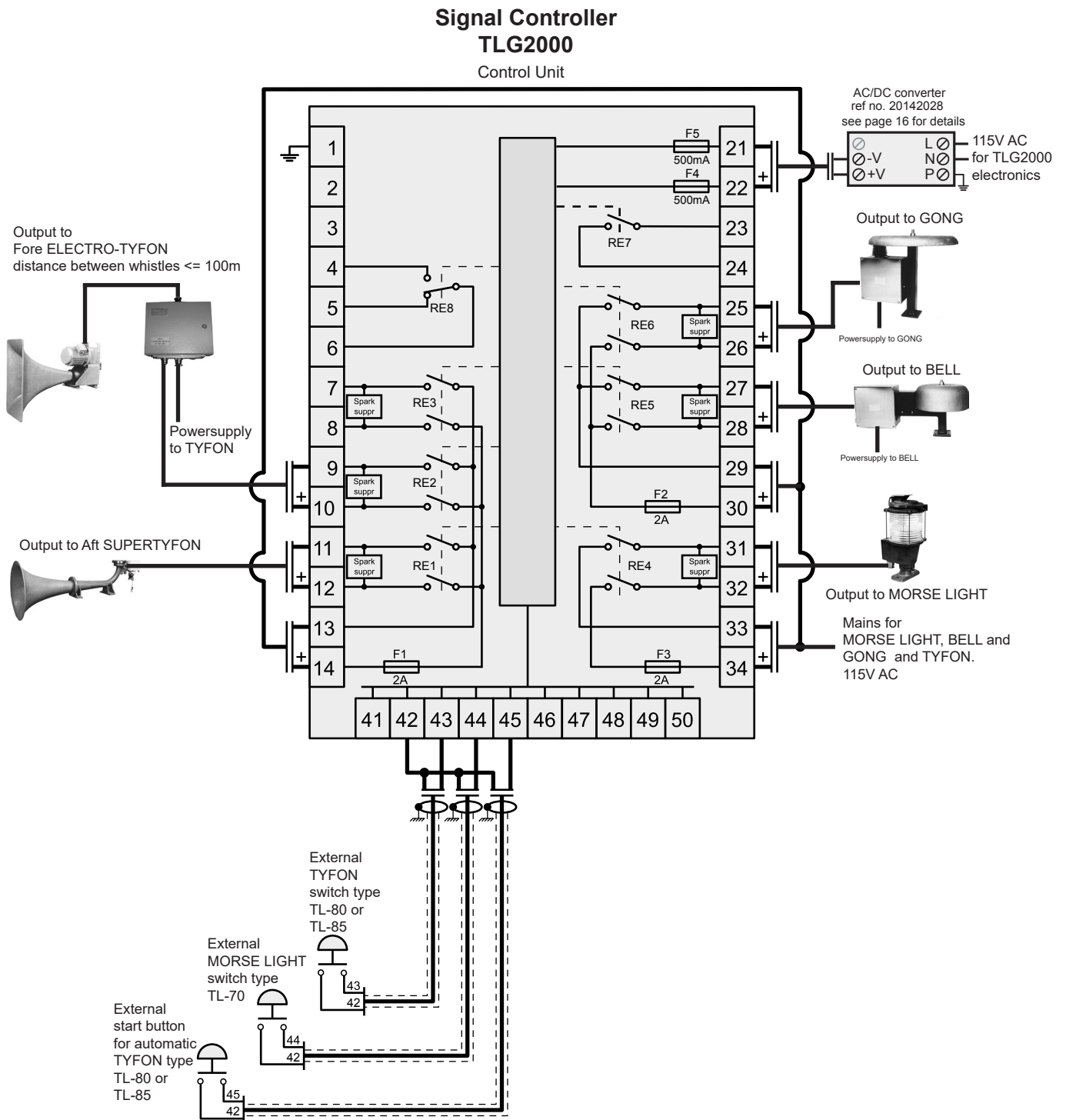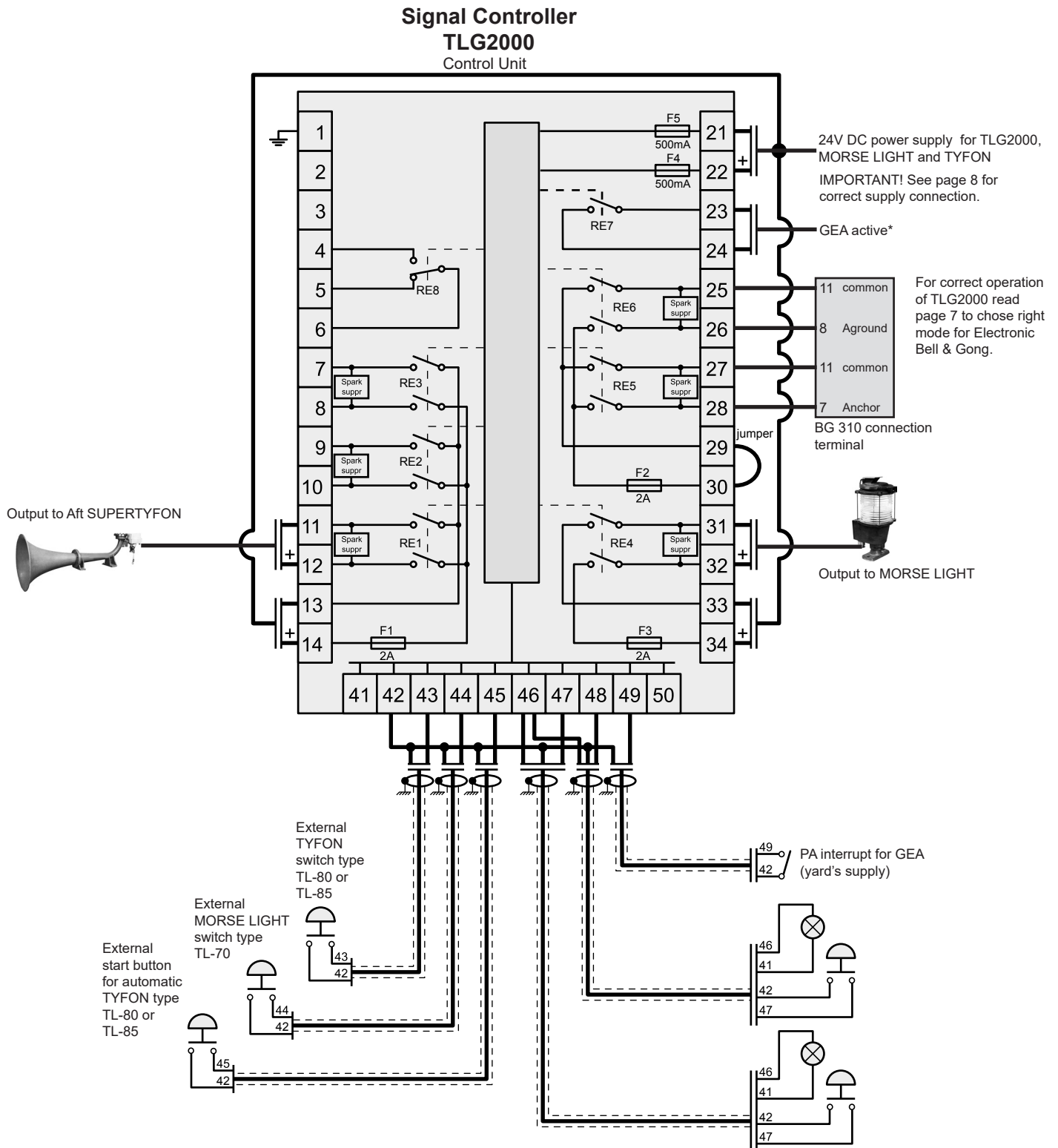
Signal Controller
TLG2000
Control Unit

24V DC power supply for TLG2000, MORSE LIGHT and TYFON

IMPORTANT! See page 8 for correct supply connection.

GEA active*

For correct operation of TLG2000 read page 7 to chose right mode for Electronic Bell & Gong.

11	common
8	Aground
11	common
7	Anchor

BG 310 connection terminal

Output to Aft SUPERTYFON

Output to MORSE LIGHT

External TYFON switch type TL-80 or TL-85

External MORSE LIGHT switch type TL-70

External start button for automatic TYFON type TL-80 or TL-85

PA interrupt for GEA (yard's supply)

Notes.
* A potential free relay output that will change state when an GEA (General Emergency) alarm is activated on the Control Unit. Max load 230V AC/1.6A...30V DC/1.6A
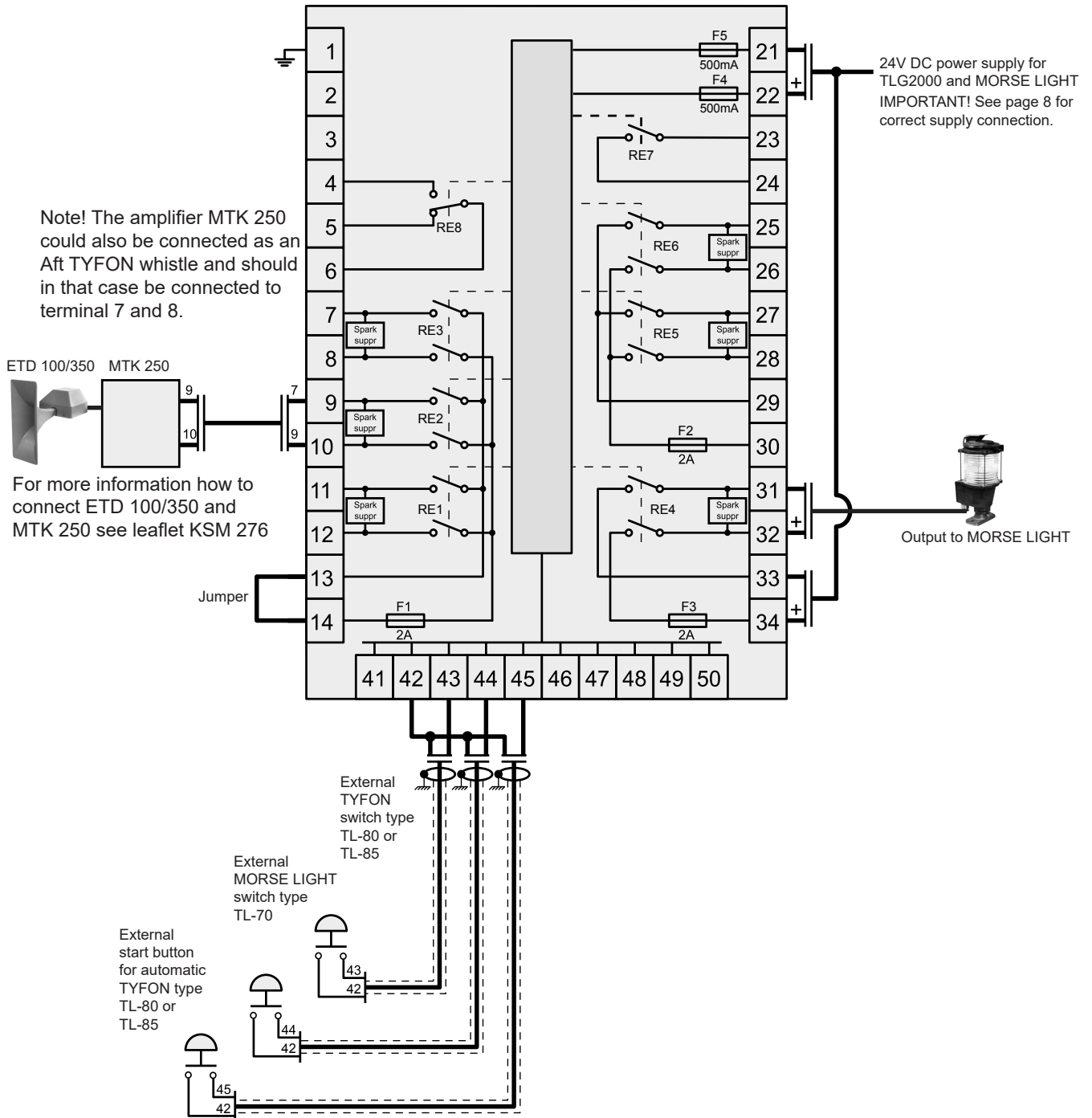
All cables to be shielded and shield connected to ships ground.

For details of switch and LED terminal markings, see page 10.

Typical external wiring diagram for Signal Controller (24V DC system)

For one ETD 100/350 electronic TYFON whistle with MTK 250 amplifier and a MORSE LIGHT

Signal Controller
TLG2000
Control Unit

Note! The amplifier MTK 250 could also be connected as an Aft TYFON whistle and should in that case be connected to terminal 7 and 8.

ETD 100/350   MTK 250

For more information how to connect ETD 100/350 and MTK 250 see leaflet KSM 276

Jumper

24V DC power supply for TLG2000 and MORSE LIGHT IMPORTANT! See page 8 for correct supply connection.

Output to MORSE LIGHT

External TYFON switch type TL-80 or TL-85

External MORSE LIGHT switch type TL-70

External start button for automatic TYFON type TL-80 or TL-85

All cables to be shielded and shield connected to ships ground.

For details of external switch terminal markings, see page 10.

Other related products from Kockum Sonics.

MORSE LIGHT Key

TL - 70 for panel or box mounting. Box mount-ed size (including box): height 124mm/130mm

Type	Ref. no.
TL - 70	24500282
Box (IP66)	24500007

Push-button Switch

TL - 80 or TL - 85 (with lamp/LED) for panel or box mounting. Box mounted size (including box): height 107mm (fig. shows TL - 80)

Type	Ref. no.
TL - 80	24500009
Box (IP66)	24500007
Lamp block	20570033
Lamp 230V	20560124
Lamp 115V	20560125
LED for 24V	20560127

"Abandon Ship" Switch

TL - 80AS or TL - 85AS (with lamp/LED) for panel or box mounting. Box mounted size (including box): height 107mm

Type	Ref. no.
TL - 80 AS	24500100
Box (IP66)	24500007
Lamp block	20570033
Lamp 230V	20560124
Lamp 115V	20560125
LED for 24V	20560127

"GEA" Switch

TL - 80GEA or TL - 85GEA (with lamp/LED) for panel or box mounting. Box mounted size (including box): height 107mm

Type	Ref. no.
TL - 80 GEA	24500101
Box (IP66)	24500007
Lamp block	20570033
Lamp 230V	20560124
Lamp 115V	20560125
LED for 24V	20560127

BELL and GONG

The BELL KB30 and GONG KG50 units with electromagnetic strikers. Clear and well-sounding tones are obtained by the choice of heavy bronze for the BELL and GONG pieces.
Other vital parts are of stainless steel.

AC-DC converter for supplying TLG2000

Universal AC input range from 85 ~ 264V AC 50/60 Hz.
Easily mounted on DIN rail type TS-35/7.5 or 15.
Dimensions:
22.5 x 90 x 100 mm (WxHxD)
Weight: 0.19 kg

Type	Ref. no.
MDR-20-24	20142028

Extra protective box for TLG2000

If extra protection is needed of the unit's rearside or the possibility to mount the unit on the wall.
Includes cable penetrations.
Dimensions:
196 x 140 x 104 mm (WxHxD)
Weight: 1.1 kg

Type	Ref. no.
Enclosure	21775055

More technical data about push buttons can be found in datasheet KSM 481.
More technical data about BELL and GONG can be found in datasheet KSM 354.

Please also visit us at our web site: www.kockumsonics.com

Bundesrepublik Deutschland
Federal Republic of Germany

Bundesamt für Seeschifffahrt und Hydrographie
Federal Maritime and Hydrographic Agency

BUNDESAMT FÜR
SEESCHIFFFAHRT
UND
HYDROGRAPHIE

Baumusterprüfbescheinigung
type examination certificate no.

Nr. 6291/003/02

Die Navigationsausrüstung / *The Navigation equipment:*

Bestandteil von Schallsignalanlagen/Navigationslichtern
Part of sound-signal-equipment/position lamps

mit der Typbezeichnung   **TLG 2000**
with the type designation

des Herstellers   **Kockum Sonics AB, Box 1035, SE-21210 Malmö**
of the manufacturer

ist nach den folgenden Normen/Standards geprüft worden
has been type-tested in accordance with the following standards

Norm/Standard	Prüfnorm/Test standard
IMO-Resolution A.694 (17)	EN 60945 (1997)
Colreg 72 Anlage I + Anlage III	

und wird für den Antragsteller
and has been approved for the applicant

Kockum Sonics AB, Box 1035, SE - 21210 Malmö

unter den in den Abschnitten 3 und 4 angeführten Bedingungen und Auflagen für den nachstehenden Verwendungszweck zugelassen:
under the conditions and obligations mentioned in the sections 3 and 4 for the following application:

Mannöversignalanlage als Bestandteil von Schallsignalanlagen und Navigationslichtern

Die Zulassung berechtigt zur Anbringung der Baumusternummer (Nummer der Baumusterprüf-bescheinigung).
With the approval it is granted, that the equipment can be labelled with the type approval number (number of the type approval certificate).

Hamburg, **den 17.06.2002**

Dienstsiegel
Official seal

Im Auftrag
on behalf
Schulz-Reifer

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Vers. 28.05.2002   Diese Baumusterprüfbescheinigung besteht aus 4 Seiten.
This Type examination certificate consists of 4 pages.

Page 17 of 20

1   Bestandteile der Ausrüstung
1.1   die zum Betrieb erforderlich sind
Components of the equipment necessary for operation

Signal Controller   TLG 2000

1.2   zusätzliche Optionen/Anlagenkombinationen
addionally options/combinations of the equipment

2   Dokumentation
Documentation

2.1   Geprüfte Unterlagen für die sichere Funktion
Approved documents for the safe function

2.2   Weitere Unterlagen laut Anhang 1 der Allgemeinen Prüfungs- und Zulassungsvoraussetzungen des BSH nach Angaben des Herstellers
Further Documents as discribed in annex 1 of the General Tests and approval Conditions of the BSH, according to manufacturer's declaration

Instruction Manual TLG 2000   KSM 565 E / 02 - 13

Vers. 28.05.2002

Baumusterprüfbescheinigung Nr. **6291/003/02**   Seite 3 von 4
Type examination certificate no **6291/003/02**   *Page* 3 *of* 4

3.   Bedingungen
         Conditions

Die Zulassung für das Baumuster erlischt bei Fristablauf, Rücknahme oder Widerruf. Der Widerruf kann ausgesprochen werden, wenn die serienmäßig gefertigten nautischen Ausrüstungsgegenstände nicht mit dem zugelassenen Baumuster übereinstimmen.
Nach dem Erlöschen der Zulassung ist die Zulassungsurkunde dem Bundesamt für Seeschifffahrt und Hydrographie zur Eintragung eines Vermerks über das Erlöschen vorzulegen.
The approval expires after lapse of time, withdrawal or revocation. A revocation may be ordered if navigational equipment manufactured in serial production is not in compliance with the type-tested prototype.
After expiry of the approval, the type approval certificate must be presented to the Federal Maritime and Hydrographic Agency for entry of a notation of expiry.

4.   Auflagen
         Obligations

4.1   Der Hersteller oder sein bevollmächtigter Vertreter hat sicherzustellen, dass alle auf Grund dieser Zulassung gefertigten nautischen Ausrüstungsgegenstände mit den geprüften Unterlagen und mit dem Baumuster übereinstimmen.
The manufacturer or his authorized representative has to ensure that navigational equipment manufactured on the basis of this approval, is in compliance with the approved documentation and the type-approved prototype.

4.2   Jeder serienmäßig auf Grund dieser Zulassung gefertigte Bestandteil des nautischen Ausrüstungsgegenstandes muss an gut sichtbarer Stelle und in dauerhafter Form mit der Baumusternummer (Nummer der Baumusterprüfbescheinigung) und mit der Gerätebeschriftung entsprechend der europäischen Norm EN 60945 gekennzeichnet sein. Ausgenommen davon sind Bauteile, die in der unter Wasser liegenden Außenhaut des Schiffes eingebaut werden.
Every navigational equipment component which is produced in series on the basis of this type approval must be marked permanently and visibly with the type approval number (number of the type approval certificate) and with the equipment identification according to the european standard EN 60945. This does not apply to components installed in the vessel's outside plating below the waterline.

4.3   Der Hersteller oder sein bevollmächtigter Vertreter hat für jede Änderung des nautischen Ausrüstungsgegenstandes und der geprüften Unterlagen die Genehmigung durch das Bundesamt für Seeschifffahrt und Hydrographie zu beantragen.
The manufacturer or his authorized representative has to apply for approval at the Federal Maritime and Hydrographic Agency for every intended modification of the type-approved navigational equipment and approved documentation.

4.4   Der Hersteller oder sein bevollmächtigter Vertreter hat den vom Bundesamt für Seeschifffahrt und Hydrographie betrauten Personen zu gestatten, durch stichprobenartige Nachprüfungen festzustellen, ob serienmäßig hergestellte und mit der Baumusternummer versehene Ausrüstungsgegenstände dem geprüften Baumuster entsprechen. Das Bundesamt für Seeschifffahrt und Hydrographie kann zu diesem Zweck beim Hersteller oder seinem bevollmächtigten Vertreter Proben anfordern oder entnehmen.
The manufacturer or his authorized representative has to allow to persons authorized by the Federal Maritime and Hydrographic Agency to take random samples to prove whether equipment manufactured in serial production and labelled with the type approval no. is in compliance with the type-approved prototype. Therefore, the Federal Maritime and Hydrographic Agency may take or demand samples from the manufacturer or his authorized representative.

4.5   Jedem ausgelieferten Ausrüstungsgegenstand ist eine vollständige Kopie dieser Baumusterprüfbescheinigung beizufügen.
A complete copy of this certificate must be furnished with each equipment delivery.

Das Bundesamt für Seeschifffahrt und Hydrographie behält sich vor, weitere Auflagen zu erteilen.
The Federal Maritime and Hydrographic Agency reserves the right to impose additional obligations.

Vers. 28.05.2002

Baumusterprüfbescheinigung Nr. **6291/003/02**   Seite 4 von 4
Type examination certificate no **6291/003/02**   *Page* 4 *of* 4

5.   Hinweise :
           Remarks

Der deutsche Text ist verbindlich.
The german text is authentic.

Die Baumusternummer ist identisch mit der Nummer der Baumusterprüfbescheinigung.
The type approval number is identical with the number of the type approval certificate.

6.   Begründung
           Reason

Die Zulassung erfolgt aufgrund des Gesetzes zur Anpassung der technischen und steuerlichen Bedingungen in der Seeschifffahrt an den internationalen Standard (Schiffssicherheits-anpassungsgesetz) vom 09. September 1998 (BGBl. I S. 2860) zuletzt geändert durch die Dritte Schiffssicherheitsanpassungsverordnung vom 24. August 2001 (BGBl. I S. 2276).
This approval is granted based on the Act for the adjustment of the technical and fiscal conditions in shipping to the international standard (Schiffssicherheitsanpassungsgesetz) of 9 September 1998 (Federal Law Gazette, BGBl. I, p. 2860) modified last by the Third Ordinance for the adjustment of the technical and fiscal conditions in shipping to the international standard (Dritte Schiffssicherheitsanpassungsverordnung) of 24 August 2001 (Federal Law Gazette, BGBl. I, p. 2276).

Rechtsbehelfsbelehrung
Notice on legal remedies available

Gegen diesen Bescheid kann innerhalb eines Monats nach Bekanntgabe Widerspruch erhoben werden. Der Widerspruch ist beim Bundesamt für Seeschifffahrt und Hydrographie, Bernhard-Nocht-Str. 78, 20359 Hamburg, schriftlich oder zur Niederschrift einzulegen.
Objection to this document may be filed within one month after notification. The objection must be filed in writing to, or put on record at, Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Str. 78, 20359 Hamburg, Germany.

Notes.

Notes.

**Marine equipment including
TYFON®, SUPERTYFON®, ELECTRO-TYFON®, LOADMASTER®,
LEVELMASTER H8® and SHIPMASTER® is supplied by.....**

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