# HMI Imtech Bridge Guard

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# References

IMO Res.A.694(17), MSC.128(75), MSC.191(79), IEC 60945 (2002) inc. corr.1 (2008), IEC 61162 Series, IEC 62288 Ed.2.0 (2008), IEC 62616 (2010) , IEC 61696-1 IEC FDIS Ed.2 TC80-690 FDIS VDR, IEC 61924-2 NEN-EN-IEC Ed.1 2012-12

# Introduction

The HMI is the main control of the BNWAS system. All the basic values, alarms and controls are available on the HMI. The HMI of the Imtech BNWAS runs on a dedicated panel-pc. This stand-alone system can easily be integrated on other systems as well.

# Abbreviations list

| | |
|---|---|
| HMI | Human Machine Interface |
| BNWAS | Bridge Navigational Watch Alarm System |
| Td | Time dormant |

# 1. The HMI overview

The HMI consists of a main screen that holds all the functionality for the BNWAS and a setup-screen that can be used to set up the necessary settings. In the following figures we will explain the functionality and functions on the HMI.


**Figure 1-1: Main BNWAS HMI**

# 2. The HMI explained

The functions of the HMI are described in the following figures. These are mostly self-explanatory. Where not really clear, an additional explanation will be given.

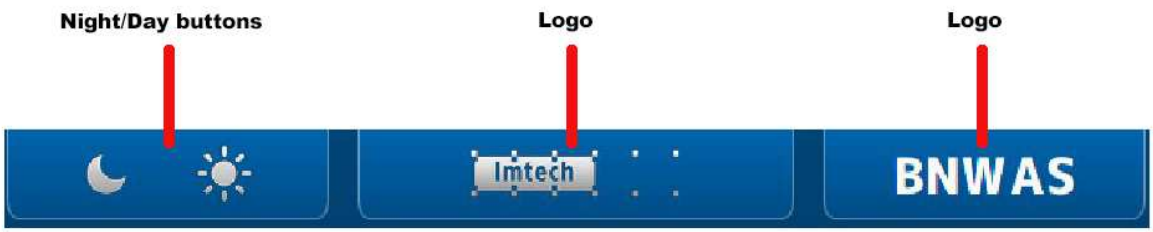


Figure 2-1: HMI top bar

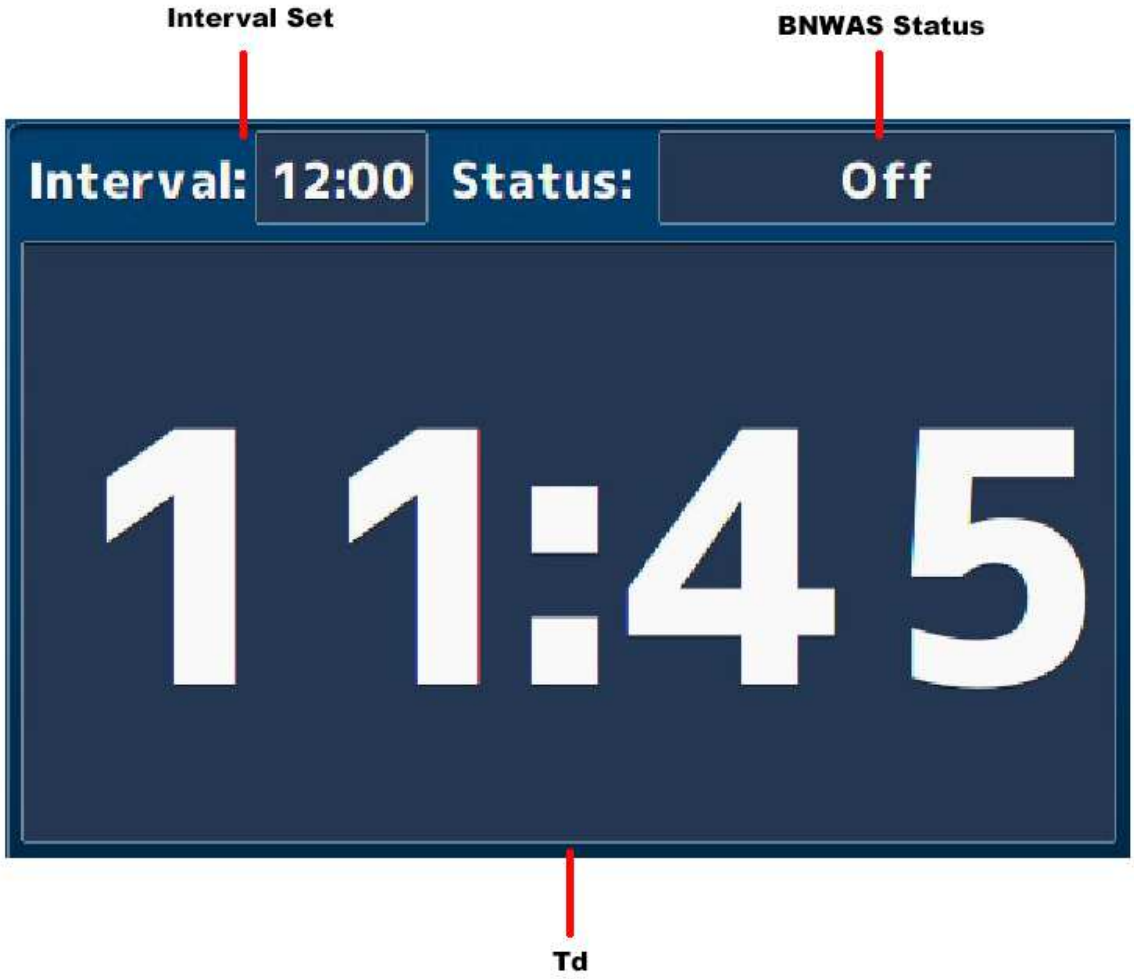



Figure 2-2: HMI main screen


Figure 2-3: HMI bottom bar

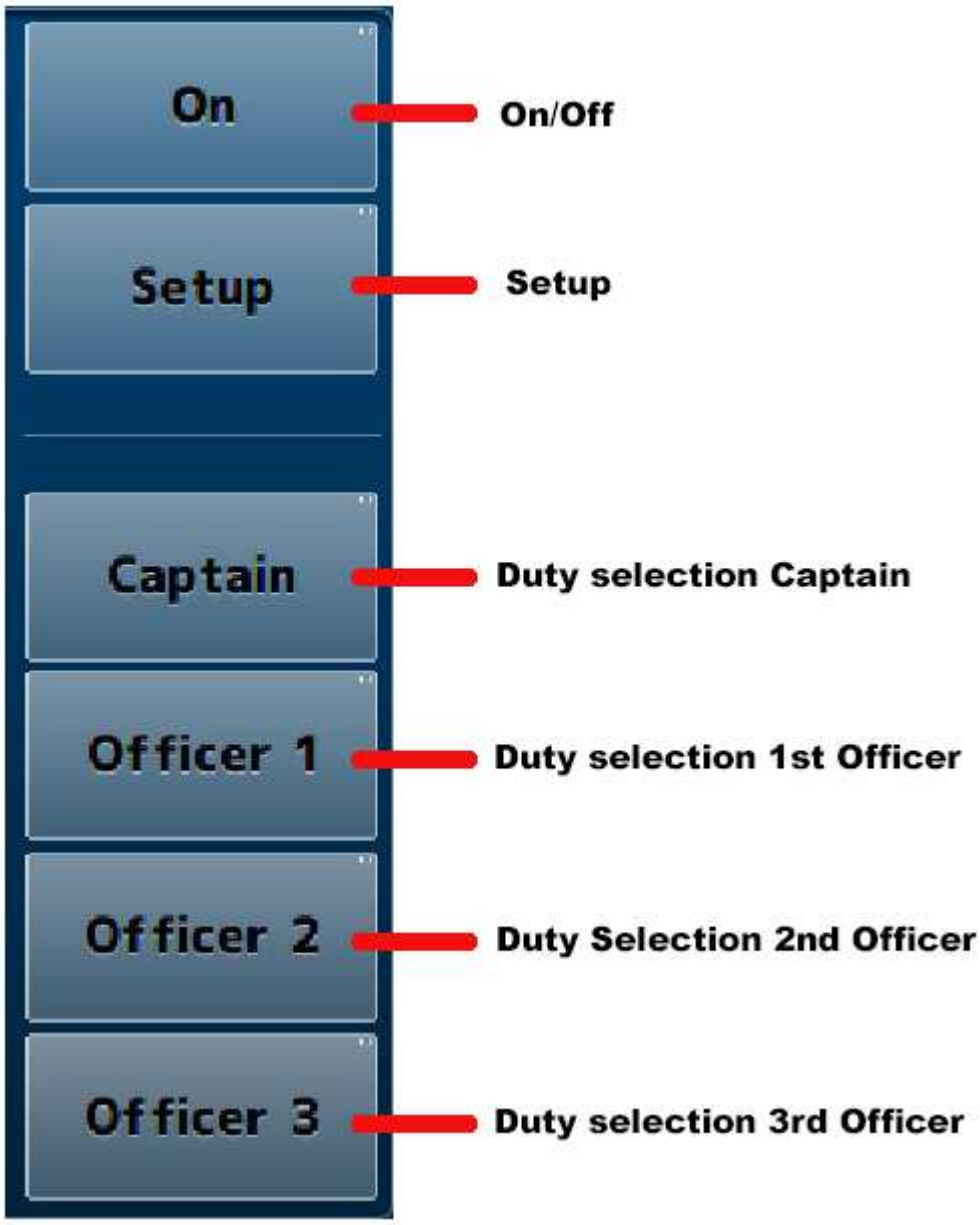



**Figure 2-4: HMI Panel**

# 3. The setup page

By clicking on the setup-button a new screen will appear. This is the setup screen. It looks quite the same as the main window as it has only a few settings in the main panel (see Figure 3-2).


**Figure 3-1: Setup screen**

The functions, with their respective explanation, are shown in the following figure.

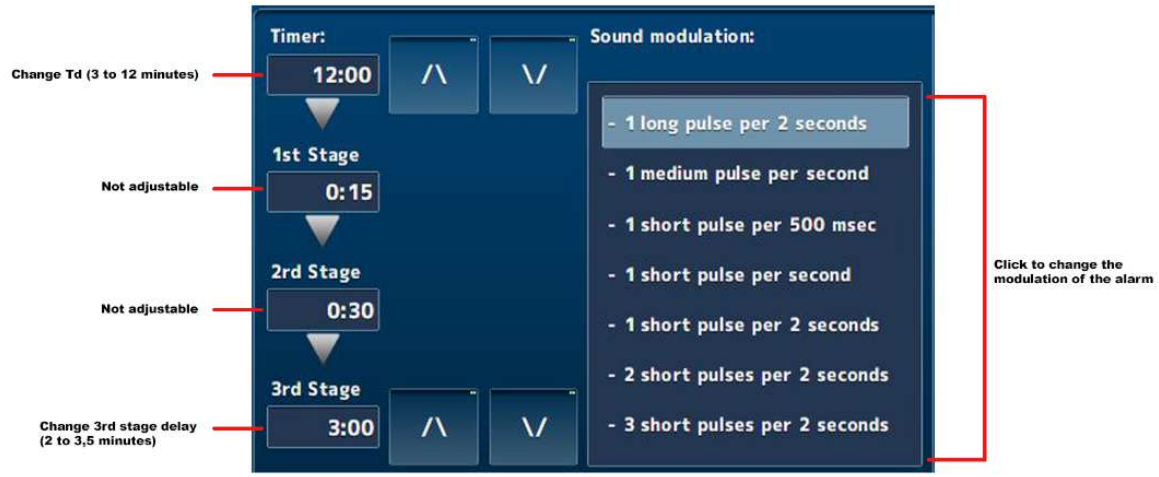



**Figure 3-2: Setup main screen**

# 4. Hardware

The HMI of the BNWAS runs on a Beijer Exter T70-bl panel pc. This is a type-approved panel pc for marine utilization.

The pc has a touch screen, a 25-pins serial port (RS 422/ RS 485), a 9-pins serial port RS 232C and an Ethernet port. These ports are capable to initiate the following protocols:

NMEA-serial
NMEA/450
TCP/IP

These protocols can be used to establish contact with peripherals like VDR, CAM etc. for extended functionality.

## 4.1 Specifications

– Installation plate thickness: 1.5 - 9.0 mm (0.06 - 0.35 inch)
– Space requirements when installing the operator panel:

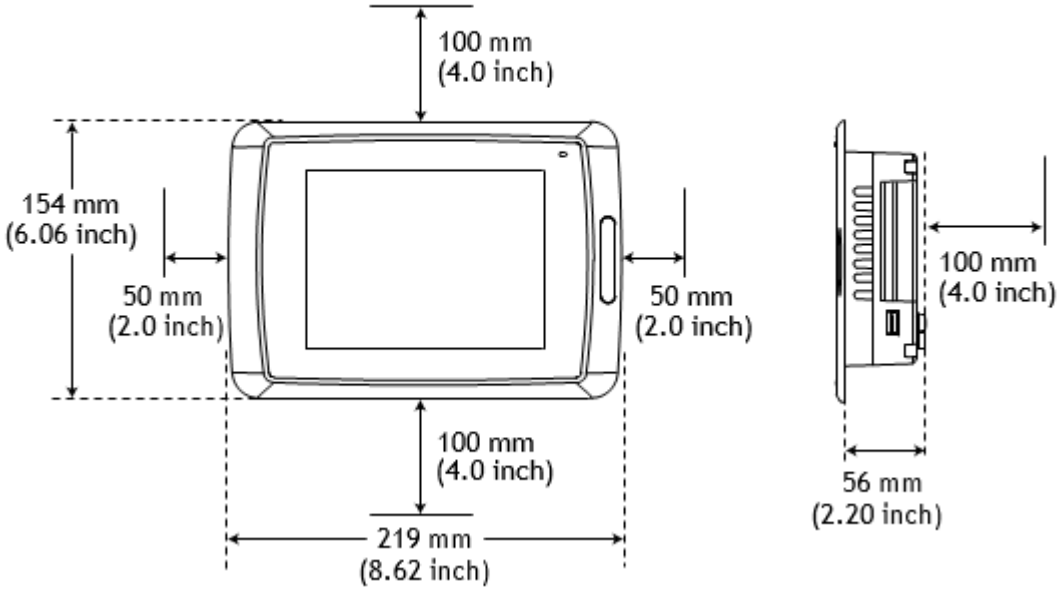
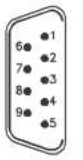



**Figure 4-1: Dimensions**

| Parameter | EXTER T70 |
|---|---|
| Front panel, W x H x D | 219 x 154 x 6 mm |
| Mounting depth | 56 mm (156 mm including clearance) |
| Front panel seal | IP 66 |
| Rear panel seal | IP 20 |
| Keyboard material/ Front panel | Touch screen: Polyester on glass, 1 million finger touch operations. Overlay: Autotex F157 or F207 *. |
| Reverse side material | Powder-coated aluminum |
| Weight | 1.2 kg |
| Serial port RS422/ RS485 | 25-pin D-sub contact, chassis-mounted female with standard locking screws 4-40 UNC. |
| Serial port RS232C | 9-pin D-sub contact, male with standard locking screws 4-40 UNC. |
| Ethernet | Shielded RJ 45 |
| USB | Host type A (USB 1.1), max output current 500mA<br>Device type B (USB 1.1) |
| CF-slot | Compact flash, type I and II |
| Flash memory for application | 12 MB (incl. fonts) |
| Real time clock | ±20 PPM + error because of ambient temperature and supply voltage. Total maximum error: 1 min/month at 25 °C<br>Temperature coefficient: 0.004 ppm/°C$^2$ |
| Real time clock battery | CR2450 (UL and cUL: Sanyo or Panasonic)<br>Minimum lifetime: 3 years |
| Power consumption at rated voltage | Normal: 0.4 A<br>Maximum: 0.9 A |
| Display | TFT-LCD. 640 x 480 pixels, 64K color.<br>CCFL backlight lifetime at the ambient temperature of +25 °C: >50,000 h. |
| Active area of display, W x H | 131.5 x 98.6 mm |
| Fuse | Internal DC fuse, 3.15 AT, 5 x 20 mm |
| Power supply | +24V DC (20 - 30V DC). Power supply connector.<br>CE: The power supply must conform with the requirements according to IEC 60950 and IEC 61558-2-4.<br>UL and cUL: The power supply must conform with the requirements for class II power supplies. |
| Ambient temperature | Vertical installation: 0 ° to +50 °C<br>Horizontal installation: 0 ° to +40 °C |
| Storage temperature | -20 ° to +70 °C |
| Relative humidity | 5 - 85 % non-condensed |
| CE approvals | Noise tested according to EN61000-6-4 emission and EN61000-6-2 immunity. |
| UL, cUL approvals (when procuct or packing is marked) | UL 1604 Class I, Div 2 / UL 508 / UL 50 4x indoor use only |
| DNV | Yes |
| NEMA | 4x indoor use only |

**Figure 4-2: Specifications**

RS-232




D–sub
9–pin Male

| Pin no | Signal | Signal Name | Signal direction |
|---|---|---|---|
| 1 | DCD | Data Carrier Detect | Input |
| 2 | RD | Receive Data | Input |
| 3 | TD | Transmit Data | Output |
| 4 | DTR | Data Terminal Ready | Output |
| 5 | SG | Signal Ground | – |
| 6 | DSR | Data Set Ready | Input |
| 7 | RTS | Request To Send | Output |
| 8 | CTS | Clear To Send | Input |
| 9 | RI | Ring Indicator | Input |

**Figure 4-3: RS 232 pin-out**

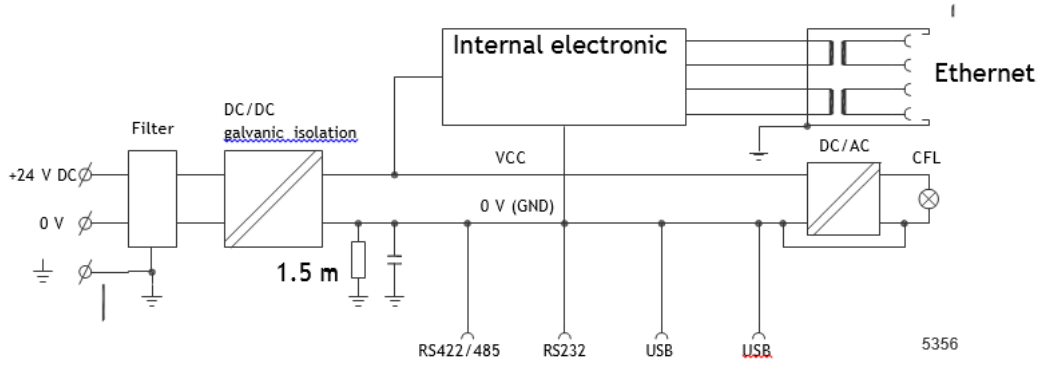



**Figure 4-4: Power**

# 5. Annex 1, different screens

Here we show the different states of the BNWAS HMI.

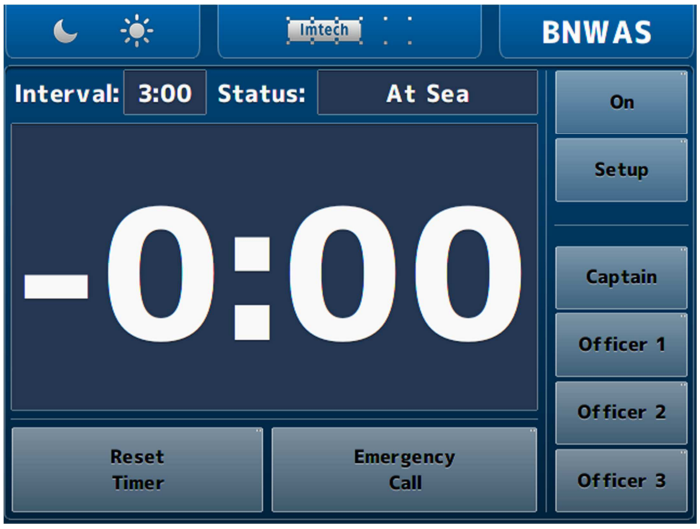



**Figure 5-1: At Sea status**

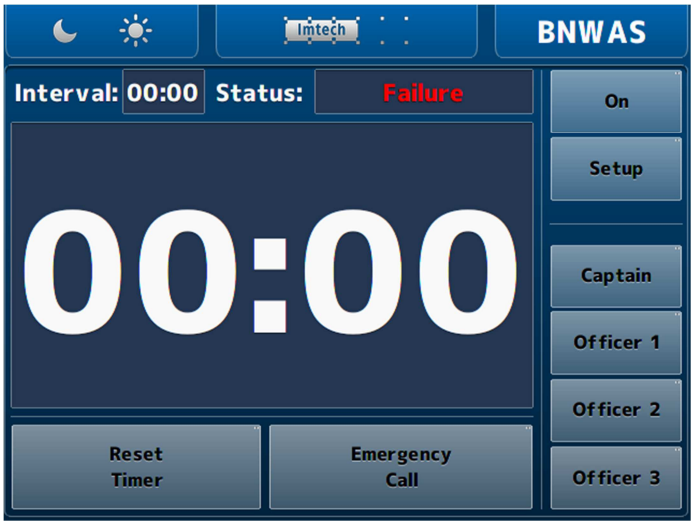



**Figure 5-2: Failure status**


**Figure 5-3: Alarm Stage 1 status**


**Figure 5-4: Alarm Stage 2 status**


**Figure 5-5: Alarm Stage 3 status**