# WALKER P7007
# BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM

## GENERAL

The P7007 Bridge Navigational Watch Alarm System (BNWAS) is Type Approved by Bureau Veritas for compliance with IMO Resolution MSC.128(75) and has been tested in accordance with IEC 62616, IEC 60945 and IEC 61162. Displayed readings meet the requirements of IEC 62288: 2008, for the presentation of navigational-related information on shipborne navigational displays. Operational controls likewise reflect the appropriate requirements specified within this standard.

The main P7007 monitoring control unit is housed in a IEC 61554 (192 x 144) compliant case and is suitable for panel mounting at a position on the bridge where the Officer on Watch (OOW), or duty watch personnel, are afforded a proper look out, and can perform the necessary reset actions required to ensure safe and proper bridge monitoring, at all times. As an alternative to using the integral alarm reset button, a PIR sensor is contained within the P7007 and can be activated to provide an automatic "reset" whenever movement of bridge personnel is detected.

The unit triggers an integral visual and audible alarm if the OOW becomes unable to respond to the necessary requirements of the P7007 BNWAS and is thus deemed incapable of performing the OOW's duties. Additional audio devices shall be fitted at other locations in order to further warn ship's personnel of any failure of bridge personnel to take the necessary actions in response to the demands of the P7007's programmed timing sequences; or, in the event of an emergency call, the requirement of immediate assistance.

The unit has a single 256*64 pixel OLED Graphic display, 7 touch switches; for setting-up, manual reset and illumination control purposes. An integral keyswitch allows secure means of set-up and control of required operational modes. 2 x IEC 61162-1 (NMEA 0183) inputs and 1 x IEC 61162-1 (NMEA 0183) output are also provided.

Relay contacts are available for each of the alarm stages and can be wired in accordance with vessel requirements to provide N.O. voltage free dry contact switching or N.O. 12vDC switching for remote alarm sounders.

2 off, RJ45 connectors are available for provision of power and data to P7008 Repeater Reset units or to P7009 Remote Reset push-button units.

2 sets of opto isolated dry contact; or 5vDC, inputs are available to accept remote acknowledgement and reset of alarm conditions from other appropriate ship's equipment.

A third input is available to accept an unacknowledged alarm condition from other appropriate ship's equipment, configured either as a dry contact, or 5vDC, input.

In the event of a sudden crisis situation developing which requires immediate officer assistance, or shipwide notification, a fourth input (dry contact or 5vDC) is available to accept and facilitate an "Emergency Call" operation. This facility may be activated at any time regardless of the BNWAS timing cycle. A P7010 "Emergency Call" unit is supplied to provide this facility.

Power fail alarm indications and integral back-up battery power are provided in the event of any interruption of the ship's AC power supply. Power supply requirement, for the P7007 BNWAS, is from 90v to 240v AC, 50 / 60 Hz. An "earth" stud is available for connection to Ship's ground.
The display has "illumination" up [Δ] and down [∇] touch switches, which allow dimming, although not to extinction.

A mains AC On/Off power switch and also a battery back-up isolation switch (for storage purposes only) are provided at the rear of the unit. The fitted back-up batteries are 4 off Energizer AA, NH15-2450. They are rechargeable Nickel-Metal Hydride (NiMH) with a nominal voltage of 1.25V and a rated capacity of 2450mAh. (Once installed and configured, the unit should always be connected to the mains AC and continually powered.)

Refer to OPERATION section for full information.

The basic BNWAS comprises a P7007 main unit, a P7010 Emergency Call unit, a P7011 audible sounder (for back-up OOW cabin or Master's location) and a P7012 audible sounder (for fitting in crew accommodation).

Expanded BNWAS can further include P7008 Repeater Reset units or P7009 Remote Reset units. Both provide remote reset facility however the former also includes a single 256*64 pixel OLED graphic display for repeating the display shown on the main P7007 unit; local "illumination" up [Δ] and down [∇] adjustment touch switches and integral PIR, are also included. Additional P7011 and P7012 audible sounders can be included. The P7007 can facilitate use of 6 off, P7011 sounders; 2 off driven from "stage 1" output terminals and 4 off driven from "stage 2" output terminals, together with 3 off, P7012 sounders, driven from "stage 3" output terminals. System expansion in excess of these numbers would necessitate addition of a suitable repeater relay, in conjunction with an appropriate power supply. If using "dry contact" output then limitation applies; fitted relay has maximum load current of 500mA and maximum load voltage of 60vAC.

**INSTALLATION**

The P7007 BNWAS can be readily fitted into a panel with a cut-out conforming to that shown on drawing 3458-A3-31, and secured in position using the four clamps provided, two at either side of the indicator casing. This necessitates access to the rear of the panel concerned in order to fit and tighten the securing clamps provided. Removal of the unit for servicing etc. would also require such rear panel access. (When commissioning the unit ensure that the battery backup switch located adjacent to the RJ45 connections at the lower rear is switched on.)

The chosen fitted position of the P7007 must afford the OOW or duty watch personnel, proper "look-out" facility whilst ensuring that the unit is appropriately positioned so that the necessary reset actions can be performed whilst maintaining the necessary proper bridge monitoring duties. The unit must therefore be within arms reach of the look-out position; a distance within 0.7m is recommended.
For PIR operation, automatic reset will be limited to the available coverage of the integral motion sensor. This will be determined by the position and angle of the fitted P7007 BNWAS unit.

See drawing 3458-A3-30 for Outline / Installation drawing of the P7007 Main Unit of the Bridge Navigational Watch Alarm System.

The P7008 Repeater Reset unit can also be fitted into a panel with a cut-out conforming to that shown on drawing 3460-A3-21 and secured in position using the two clamps provided, one at the top and one at the bottom of the unit. This again necessitates access to the rear of the panel concerned in order to fit and tighten the securing clamps provided. Removal of the unit for servicing etc. would also require such rear panel access. The fitted position must again meet the criteria given for the P7007 main unit.

See drawing 3460-A3-20 for Outline / Installation drawing of the BNWAS P7008 Repeater Reset unit.

The P7009 Remote Reset is suitable for desk or bulkhead mounting. It has a blue illuminated “Reset” push button and a red LED for indication of a “power fail” condition. The fitted position must again meet the criteria given for the P7007 main unit.
See drawing 3462-A3-10 for the outline / installation drawing of the BNWAS P7009 Repeater Reset unit. The unit is IP66 rated and is thus suitable for fitting on exposed bridge wings.

The P7010 Emergency Call unit is suitable for desk or bulkhead mounting. It is clearly identifiable and has a “red” non-illuminated push button. Location would normally be close to the P7007 BNWAS.

See drawing 3463-A3-10 for the outline / installation drawing of the BNWAS P7010 Emergency Call unit. The unit is IP66 rated and, if necessary, could be fitted on exposed bridge wings.

The P7011 “Stage 2” audible sounder is suitable for panel mounting and is shown on drawing 3464-A3-1.

The P7012 “Stage 3” audible sounder is suitable for bulkhead mounting and is shown on drawing 3464-A3-2.

**CABLING**

A Mains AC power lead is provided.

Other cable connections into the P7007 BNWAS are normally made via terminal blocks fitted to the sockets soldered directly onto the rear CPU board and which project through the rear panel of the instrument.

When using these screw terminal block connections for required outputs or inputs, a two core cable ($0.5mm^2$ CSA) is required for connection to individual external devices, in accordance with the referenced Connection Diagram. Alternatively, a multiple pair cable may be used between the P7007 and a suitable junction box in order to connect to peripheral reset / alarm devices that may be fitted.

Two core (twisted pair) cable/s ($0.5mm^2$ CSA) with overall screen is/are required for serial data connection.

Three RJ45 connectors are also available at the rear of the unit. Of these, only connectors tagged RP1 and RP2 are active on the P7007; DCI is not enabled. RP1 and RP2 connect to either P7008 Repeater Resets or to P7009 Remote Reset push button units.

Refer to drawing 3458-A3-26: Connection Diagram for the Basic P7007 BNWAS.
Refer to drawing 3458-A3-27: Connection Diagram for the Expanded P7007 BNWAS: with P7008 Repeater Reset units.
Refer to drawing 3458-A3-28: Connection Diagram for the Expanded P7007 BNWAS: with P7008 and P7009 Remote Reset units.

**OPERATION**


**Keyswitch**
This provides a protected means of switching the P7007 between OFF, ON and AUTO. The SETUP position is available to the Master / keyholder to configure the unit to the exact specification required to suit the vessel concerned and its OOW duties.

**Touch Keys**
There are seven touch keys on the P7007.
Four “secret til lit” keys surround the OLED Display window and are available for use when illuminated “blue”. This occurs when mains AC power is applied to the P7007 and the keyswitch is turned to “SETUP” position. These allow setup and configuration of the BNWAS to be carried out.

Tactile means of location is provided by the placement of the two illumination touch keys near the edge surround provided by the lower R.H and L.H. corners of the bezel. These UP and DOWN arrow keys allow the display readout and internal LED backlighting to be readily adjusted to suit ambient light conditions available on the bridge at any time. The positioning of these illumination keys are consistent with equivalent illumination touch keys on the complementary range of P12xx series Walker displays.

The Alarm Reset touch key is located in the centre of the P7007 unit, just above the keyswitch, and is the primary means of resetting the BNWAS.

The keys operate by a charge transfer sensing method. A firm touch with a bare finger in the sensing area of the key is sufficient to actuate a key press.

**SETUP Keys**

These keys become visible and ready for use when the keyswitch is turned to the SETUP position. PAGE 1 is immediately shown in the bottom R.H. corner of the OLED display when SETUP is used for the very first time. If the P7007 unit has previously been setup, the last page actively displayed before the unit was switched over from setup, will again become available when SETUP is next accessed.

The UP and DOWN arrow keys (▲ = INC / ▼= DEC) allow the operator to scroll up or down the values / settings displayed on the page shown in the window. When the required timing value or setting is shown in the display window, pressing the ► (NEXT) key will accept this setting and move on to the next page. Pressing the ◄ (PREV) key will revert to the previous page.

**SETUP Pages**

PAGE 1 = DORMANT TIME setting
Dormant period from 3 MINUTES minimum to 12 MINUTES maximum in 1 minute increments may be set.

PAGE 2 = STAGE 3 DELAY setting
Delay of 90 SECONDS minimum to 180 SECONDS maximum in 30 second increments may be set.

PAGE 3 = STAGE 3 ALARM setting
“ACTIVE” or “NOT ACTIVE” may be set.

PAGE 4 = PIR DETECTOR setting
“ACTIVE” or “NOT ACTIVE” may be set.

PAGE 5 = BRIDGE ALARM STAGE 1 / AUDIO STYLE setting
SINGLE LOW or DUAL LOW or SINGLE HIGH or DUAL HIGH or RISE AND FALL may be set. (Sound is output according to audio style displayed, to facilitate choice)

PAGE 6 = AUDIO VOLUME STAGE 1 / AUDIO VOLUME setting
75dB or 78dB or 81dB or 84dB may be set.
(Sound is output according to level displayed, to facilitate choice)

PAGE 7 = REMOTE ALARM STAGE 2 / AUDIO STYLE setting
SINGLE LOW or DUAL LOW or SINGLE HIGH or DUAL HIGH or RISE AND FALL may be set. (Sound is output according to audio style displayed, to facilitate choice)

PAGE 8 = ALARM VOLUME STAGE 2 / AUDIO VOLUME setting
75dB or 78dB or 81dB or 84dB may be set.
(Sound is output according to level displayed, to facilitate choice)

PAGE 9 = REMOTE ALARM STAGE 3 / AUDIO STYLE setting
SINGLE LOW or DUAL LOW or SINGLE HIGH or DUAL HIGH or RISE AND FALL may be set. (Sound is output according to audio style displayed, to facilitate choice)

PAGE 10 = ALARM VOLUME STAGE 3 / AUDIO VOLUME setting
75dB or 78dB or 81dB or 84dB may be set.
(Sound is output according to level displayed, to facilitate choice)

PAGE 11 = AUTO SPEED THRESHOLD setting
AUTO MODE OFF or AUTO SPEED START from 1 KTS through to 9 KTS, in 1 Knot increments, may be set.

Once configuration is completed, turn the keyswitch to one of the three other positions available.

**"OFF"** position**.**
In this position the P7007 BNWAS shuts down all timing and PIR circuits. The battery charging circuit and the power fail circuit remain operational. "OFF" status indication is displayed on the OLED display and all backlighting remains on and can still be adjusted by use of the illumination keys.

**"ON"** position.
As soon as the P7007 BNWAS is turned to "ON", the unit will immediately begin countdown. Completion of the specified "dormant" period (3 – 12 minutes) will automatically generate the Bridge visual alarm (15 seconds) followed thereafter by the 1st Stage Bridge audible alarm (15 seconds).
Cancellation of the alarm, performed by a firm press within the red flashing "ALARM RESET" area on the P7007 BNWAS will initiate commencement of a new timing period. Operation of any remote reset unit fitted in appropriate positions within the Wheelhouse / Bridge and connected to the P7007 will also have the same result.
Failure to "reset" the BNWAS during the 30 second visual / audible 1st Stage alarm period will initiate the 2nd Stage remote alarm. This would normally be located in the "back-up" officer's cabin or Master's cabin and this alarm would trigger immediately after the 1st Stage audible alarm period of 15 seconds has elapsed.
If the P7007 BNWAS is still not reset, 90 seconds after the 2nd Stage audible alarm was initiated, a 3rd Stage remote audible alarm, at the location of further crew members, will be activated.
For Information:
Installation setup facilities are provided to:

a) inhibit the 3rd Stage alarm (see SETUP Page 3), as on non passenger carrying vessels, the 2nd and 3rd Stage remote audible alarms may sound simultaneously at the locations concerned.
b) increase the delay between the 2nd and 3rd Stage alarms to 3 minutes (from 90 seconds) to allow sufficient time, on larger vessels, for "back-up" officer / Master to reach the bridge (see SETUP Page 2).

Whatever "dormant" period is set, when countdown reaches 1 minute, the blue figure "1" shown on the OLED display will flash to provide assistance to OOW that normal red visual "RESET ALARM" (flashing) and subsequent 1st Stage audible alarm are imminent. Whenever an alarm condition is reached, the OLED display will include specific text covering the existing alarm situation and will flash positive and negative until "reset".

**"AUTO"** position.
As soon as the P7007 BNWAS is turned to "AUTO", the unit will begin monitoring input NMEA 0183 (IEC 61162-1: 2008) data looking for evidence of HTC or HTD messages being transmitted from ship's track control system. Either of these messages, if received, would automatically start the BNWAS countdown routine.

VHW and VBW input messages are also monitored. Appropriate fields within these messages that contain speed information are interrogated and any speed above the set threshold value will automatically start the BNWAS countdown routine. Knots, or km/hr, speed data is acceptable.
Once activated, the BNWAS countdown / operational routine is identical to that specified for the "ON" switch position.

**ALARM RESET** Key
The ALARM RESET key, when pressed, resets the current active timing stage and de-activates any internal, visual (flashing) and audible alarms. The OLED display will revert back to show its initial dormant countdown period as originally set. Any active external visual, or audible, alarms connected to the P7007 BNWAS would also be deactivated.

**ILLUMINATION** keys
**UP** Key [Δ]
The [Δ] key increases the OLED display brightness, together with the Blue Key backlight and White Key backlight illumination. There are 7 levels of brightness from dim to full brightness.
Each key press increases the brightness by 1 level.

**DOWN** Key [∇]
The [∇] key decreases the OLED display brightness, together with the Blue Key backlight and White Key backlight illumination. There are 7 levels of brightness from full brightness to dim.
Each key press decreases the brightness by 1 level.

During OLED display inactivity, the illumination will decrement by 1/2 levels every 60 seconds until illumination level 3 is reached.

**NMEA 0183 (IEC 61162-1: 2008) SERIAL DATA**

**INPUT:**
Any of the following NMEA messages seen at either of the 2 input channels, when the P7007 is switched to "AUTO" operation, are checked for validity, accepted and used by the BNWAS.
HTC / HTD / VBW / VHW / EVE

HTC and/or HTD messages, input from the vessels "Heading" or "Track Control" system, will immediately activate the BNWAS countdown routine.

Any received VHW or VBW messages are interrogated for determination of ships speed through the water / speed over ground from connected Ship's speed log.
When the set "threshold" speed value is exceeded, the BNWAS will begin its countdown routine.

EVE message $--EVE,,BNWAS,Operator activity*hh<CR><LF> will be accepted by the BNWAS to provide remote acceptance of reset via physical operator activity performed at other bridge mounted equipment capable of performing this task; for instance Radar or ECDIS.

**OUTPUT:**
Whenever the keyswitch setting of the BNWAS is changed and whenever an alarm is generated or subsequently reset, the BNWAS will output an appropriate ALR message for connection to vessel's Central Alarm Panel or Voyage Data Recorder.

ALR messages provided by the P7007 BNWAS are as follows.

| SWITCH POSITIONS |
|---|

| | |
|---|---|
| SETUP | $LGALR,,000,V,V,C1=SET;C2={dormant setting};C3=0 |
| OFF | $LGALR,,000,V,V,C1=OFF;C2={dormant setting};C3=0 |
| ON | $LGALR,,000,V,V,C1=MAN;C2={dormant setting};C3=0 |
| AUTO | $LGALR,,000,V,V,C1=AUT;C2={dormant setting};C3=0 |

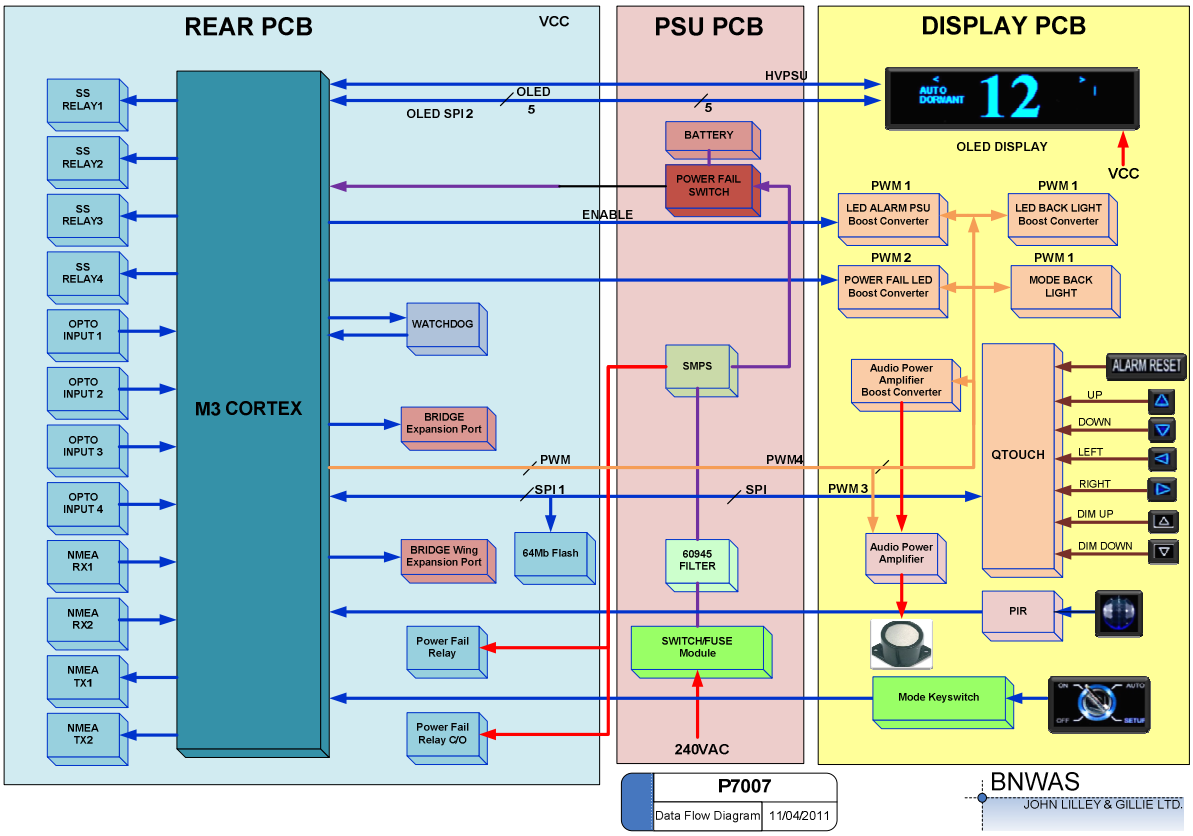
| ALARM OUTPUT |
|---|

| | |
|---|---|
| BRIDGE VISUAL ALARM | $LGALR,,001,A,V,C1={MAN or AUT};C2={dormant setting};C3=1 |
| BRIDGE AUDIBLE ALARM | $LGALR,,002,A,V,C1={MAN or AUT};C2={dormant setting};C3=1 |
| STAGE 2 AUDIBLE ALARM | $LGALR,,003,A,V,C1={MAN or AUT};C2={dormant setting};C3=2 |
| STAGE 3 AUDIBLE ALARM | $LGALR,,004,A,V,C1={MAN or AUT};C2={dormant setting};C3=3 |
| UNACKNOWLEDGED ALARM STAGE 2 | $LGALR,,005,A,V,C1={current switch position};C2={dormant setting}; C3=2 |
| UNACKNOWLEDGED ALARM STAGE 3 | $LGALR,,006,A,V,C1={current switch position};C2={dormant setting}; C3=3 |
| EMERGENCY CALL ALARM STAGE 2 | $LGALR,,007,A,V,C1={current switch position};C2={dormant setting}; C3=2 |
| EMERGENCY CALL ALARM STAGE 3 | $LGALR,,008,A,V,C1={current switch position};C2={dormant setting}; C3=3 |

| ALARM RESET OUTPUT |
|---|

| | |
|---|---|
| BRIDGE VISUAL ALARM | $LGALR,,001,V,A,C1={MAN or AUT};C2={dormant setting};C3=0 |
| BRIDGE AUDIBLE ALARM | $LGALR,,002,V,A,C1={MAN or AUT};C2={dormant setting};C3=0 |
| STAGE 2 AUDIBLE ALARM | $LGALR,,003,V,A,C1={MAN or AUT};C2={dormant setting};C3=0 |
| STAGE 3 AUDIBLE ALARM | $LGALR,,004,V,A,C1={MAN or AUT};C2={dormant setting};C3=0 |
| UNACKNOWLEDGED ALARM STAGE 2 | $LGALR,,005,V,A,C1={current switch position};C2={dormant setting}; C3=0 |
| UNACKNOWLEDGED ALARM STAGE 3 | $LGALR,,006,V,A,C1={current switch position};C2={dormant setting}; C3=0 |
| EMERGENCY CALL ALARM STAGE 2 | $LGALR,,007,V,A,C1={current switch position};C2={dormant setting}; C3=2 |
| EMERGENCY CALL ALARM STAGE 3 | $LGALR,,008,V,A,C1={current switch position};C2={dormant setting}; C3=3 |

## P7007 BNWAS DATA FLOW DIAGRAM




Two MAX3442EESA (8 pin SO) fault protected transceivers are fitted on the rear CPU board within the P7007 BNWAS.

IEC 61162-1 / NMEA 0183 Inputs to the P7007 are opto-isolated using HCPL-070 devices before being forwarded to the CORETEXM3 for processing. The resultant single-ended, logic level outputs are input to the appropriate MAX3442EESA transceiver.

The driver accepts the single-ended, logic level input from the CORETEXM3 microprocessor and transfers it to a differential, RS-485/RS-442 level output (A and B).

The receiver within the MAX3442EESA device accepts a differential, RS-485/RS-422 level input (A and B), and transfers it to a single-ended, logic-level output.

To reduce system complexity and eliminate need for additional circuit protection, the driver outputs/receiver inputs, of the MAX3442EESA, withstands voltage faults up to +/-60v with respect to ground without damage. Protection is guaranteed regardless whether the device is active, shut down or without power.

The NMEA 0183 Output Drive current is nominally 1.4mA with signal condition 0 (active / spacing); “A” line positive with respect to line “B”, and 0.8mA with signal condition 1 (idle / marking); “A” line negative with respect to “B” line. Mechanisms are included to prevent excessive output current

and power dissipation caused by faults or bus contention. The first, a foldback current limit on the driver output stage, provides immediate protection against short circuits over the whole common-mode voltage range. The second, a thermal shutdown circuit, forces the driver outputs into a high impedance state if the die temperature exceeds +160ºC. Normal operation resumes when the die temperature cools to 140ºC, resulting in a pulsed output during continuous short-circuit conditions.
A maximum of 5 NMEA 0183 / IEC 61162-1 listeners may be safely connected to the single NMEA 0183 output port.

As a listener, the receive circuit will operate with a minimum differential input voltage of 2.0V and will not take more than 2.0mA from the line at that voltage.

**LEDS**

A number of LEDs are provided on the CPU board which are visible when looking at the rear of the P7007 BNWAS and are for status indication.

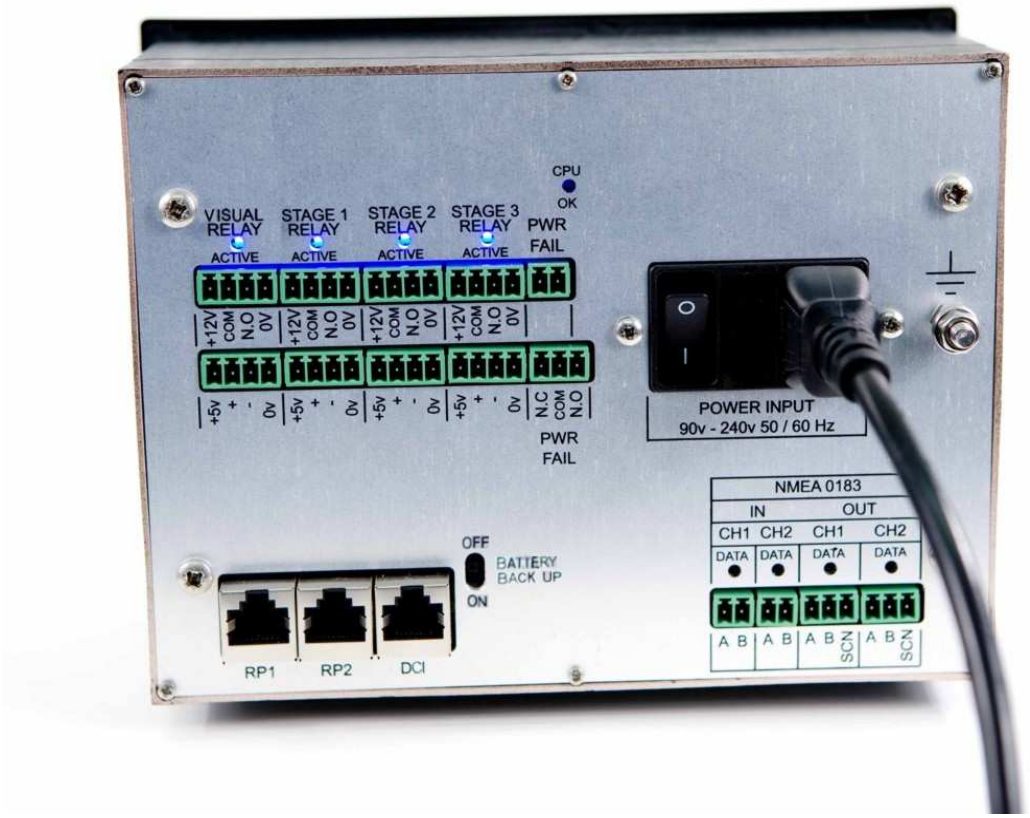
During normal operation, the uppermost centrally located Blue CPU OK LED will flash at a rate > 1 Hz.

Each NMEA 0183 (IEC 61162-1) DATA input and output channels at the bottom RH side of the unit have a blue Data LED above each connector. Serial Data communication activity will be indicated by these flashing at 1 Hz.

The Blue “Relay Stage” LEDs will be constantly lit whenever the associated alarm stage becomes active.

The LED positions on the back panel are shown in the picture below.

**VIEW OF P7007 BACK PANEL**




**CONNECTIONS**

The RJ45 connections at the bottom L.H. corner of the back panel are as follows.

**RP1 / RP2 RJ45 Connectors (also applies to P7008 Repeater Reset)**

| Pin No. | | P7009 TERMINALS (Reading Left to Right) |
|---|---|---|
| 1 | ORANGE / WHITE | 1 |
| 2 | ORANGE | 2 |
| 3 | GREEN / WHITE | 3 |
| 4 | BLUE | 4 |
| 5 | BLUE / WHITE | 5 |
| 6 | GREEN | 6 |
| 7 | BROWN / WHITE | 7 |
| 8 | BROWN | 8 |

These P7007 RJ45 sockets are used for connection to P7008 Repeater Reset units or to P7009 Remote Reset units. Appropriate RJ45 plug cable assemblies are to be sourced or made up by shipyard. Note that CAT5e cable, having 4 shielded twisted pairs of 24awg, must be used on these assemblies. If making up own cable assemblies ensure colours used match above information. Refer to appropriate connection diagram for information on acceptable lengths of CAT5e cable that is suitable for the

installation concerned. Note that P7009 Remote Reset units require the CAT5e cable cores to be wired directly into appropriate terminal connections as per the information given above.

**DCI RJ45 is not used on the P7007 BNWAS.**

**SCREW TERMINAL Connections**

Screw terminal connections, on free plugs; Phoenix Contact, MCV series, 3.81mm pitch, are available at the rear of the instrument for N.O. dry contact / 12vDC Alarm Stage Outputs, N.O. dry contact / 5vDC Inputs and NMEA 0183 (IEC 61162-1) CH1, CH2 Inputs and CH1 Output, N.O dry contact power fail output and C.O. dry contact power fail output. CH2 NMEA Output is not used.

**OUTPUTS:**

**VISUAL ALARM / STAGE 1 ALARM / STAGE 2 ALARM / STAGE 3 ALARM:** are available on the top row of terminals at the upper L.H. corner of the rear panel. They are tagged as follows;
**+12V** / **COM** / **N.O.** / **0v**

For dry contact operation, to visual / audible warning devices, it is recommended that COM and N.O. terminals be used.

For 12v DC contact operation through to connected visual / audible warning devices it is recommended that a Link is fitted between +12v and COM and the warning device is connected to terminals N.O and 0v.

**INPUTS:**

These are for remote switching from associated bridge mounted equipment; such as Radars and ECDIS that are capable of providing the necessary dry contact, or 5vDC switching, upon such equipment being used by bridge / watch duty personnel. Four sets of input terminals are available and are tagged as follows;
**+5v** / **+** / **-** / **0v**

If dry contact or 5vDC switching is available from appropriate bridge equipment, the first two sets of input terminals only are to be used for “reset” of the P7007 BNWAS. If the equipment provides 5vDC, then apply +5v to + and 0v to -. If dry contacts are used then connect to 5v and + then use a link between - and 0v terminals.

The third set of dry contact / 5vDC contacts are for use with “unacknowledged alarm” warning generated from appropriate ship’s equipment. Configuration is dependent on whether it is a 5vDC or dry contact input and should be configured suitably. For 5vDC, connect 5v and 0v to + and the – terminal respectively. With dry contact, connect to 5v and + then link – to 0v.

The fourth set of dry contact / 5vDC contacts are for "Emergency Call" use ONLY. A P7010 Emergency Call unit is provided as standard to facilitate this input. Connect the P7010 to 5v and + then and provide link across - and 0v terminals.

**POWER FAIL:**

Two sets of "Power Fail" (PWR FAIL) Terminals are available for connection.

The upper pair of power fail terminals / contacts are closed when power is available and connected into the P7007. The contacts open upon failure of ship's AC supply to the P7007 BNWAS.

The lower 3 way terminals are tagged:
N.C. / COM / N.O. and provide a set of changeover contacts activated upon failure of the ship's AC supply into the P7007 BNWAS.

When mains AC power is lost, the P7007 will be run off the internal backup battery. During this period when the unit is powered by batteries, the unit will continue to operate but the external visual alarms and sounders are disabled. The emergency call facility will continue to operate whether the BNWAS is powered by mains or battery backup.

## NMEA 0183 (IEC 61162-1: 2007)

**INPUTS:** (Sentence Formatters "HTC", "HTD", "VBW", "VHW" and "EVE" all accepted at either input channel)

**Channel 1**

| | |
|---|---|
| CH1 A | NMEA Channel 1 RX (A) |
| CH1 B | NMEA Channel 1 RX (B) |

**Channel 2**

| | |
|---|---|
| CH2 A | NMEA Channel 2 RX (A) |
| CH2 B | NMEA Channel 2 RX (B) |

## OUTPUTS:

Channel 1 ("ALR" messages transmitted)

| | |
|---|---|
| CH1 A | NMEA Channel 1 TX (A) |
| CH1 B | NMEA Channel 1 TX (B) |
| CH1 SCN | Screen TX1 |

**MAINTENANCE**

**SERVICING:**

There are no user serviceable parts requiring routine maintenance.

**FAULT FINDING:**

In the first instance, if the unit fails to start, check mains power is supplied and that the battery isolation switch is in the "ON" position. Verify that the CPU LED is flashing to confirm that the processor is running.

If "Power Fail" is indicated on the front of the P7007, check availability of mains AC power into the unit.

If the unit is allowed to enter an unpowered state, reconfiguration of the P7007 will be necessary as settings will return to the default values.

If "automatic" mode fails or is impaired, check that there isn't loss or interruption to serial data. Dependent upon the input status of IEC 61162-1 NMEA 0183 data, "Data" LED(s) will flash on valid data. Check the connection at the input terminals of the P7007 and all connected "Talkers" as appropriate. If the problem is found to be a loose input NMEA 0183 connection, re-connect the cable core/s concerned. Incoming serial data will be restored to the display and full functionality will be restored.

If associated talkers are transmitting correct serial data and if connections at the talker/s and at the P7007 unit are satisfactory, then continuity of the serial data transmission cable, from the talker itself, must be checked.

If the fault is found to be within the P7007 BNWAS itself, the unit must be returned for investigation / repair.

**REFERENCES**

Drawing 3458-A3-30: Outline / Installation drawing of P7007 BNWAS
Drawing 3458-A3-31: Panel Cut-Out Detail: P7007 BNWAS
Drawing 3458-A3-26: Connection Diagram: P7007 BNWAS (Basic System)
Drawing 3458-A3-27: Connection Diagram: P7007 BNWAS (Expanded System); with P7008 Repeater Reset Units.
Drawing 3458-A3-28: Connection Diagram: P7007 BNWAS (Expanded System); with P7008 and P7009 Units.

Drawing 3460-A3-20: Outline / Installation drawing of P7008 BNWAS Repeater Reset.
Drawing 3460-A3-21: Panel Cut-Out Detail: P7008 BNWAS Repeater Reset.

Drawing 3462-A3-10: Outline / Installation drawing of P7009 BNWAS Remote Reset

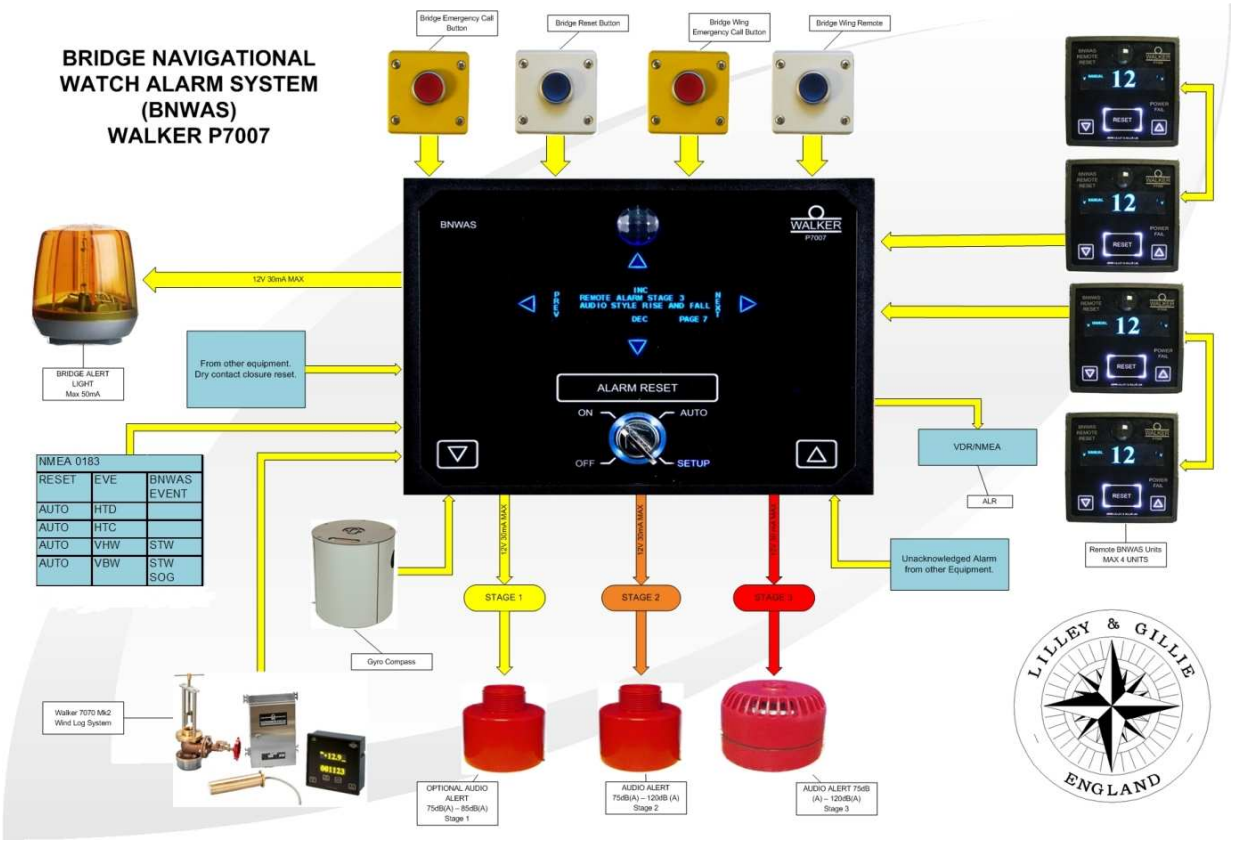
Drawing 3463-A3-10: Outline / Installation drawing of P7010 Emergency Call

Drawing 3464-A3-1: Outline / Installation drawing of P7011 Stage 2 Alarm sounder

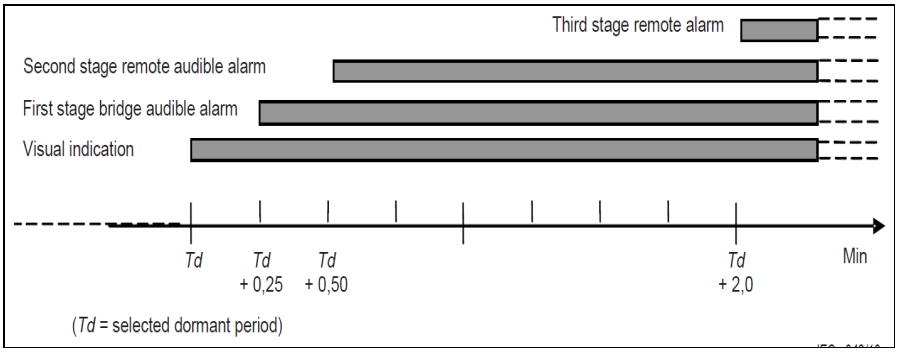
Drawing 3464-A3-2: Outline / Installation drawing of P7012 Stage 3 Alarm sounder

Full / Expanded System is shown below:




## ALARM SEQUENCE WITHOUT ACKNOWLEDGEMENTS



**SPECIFICATION**

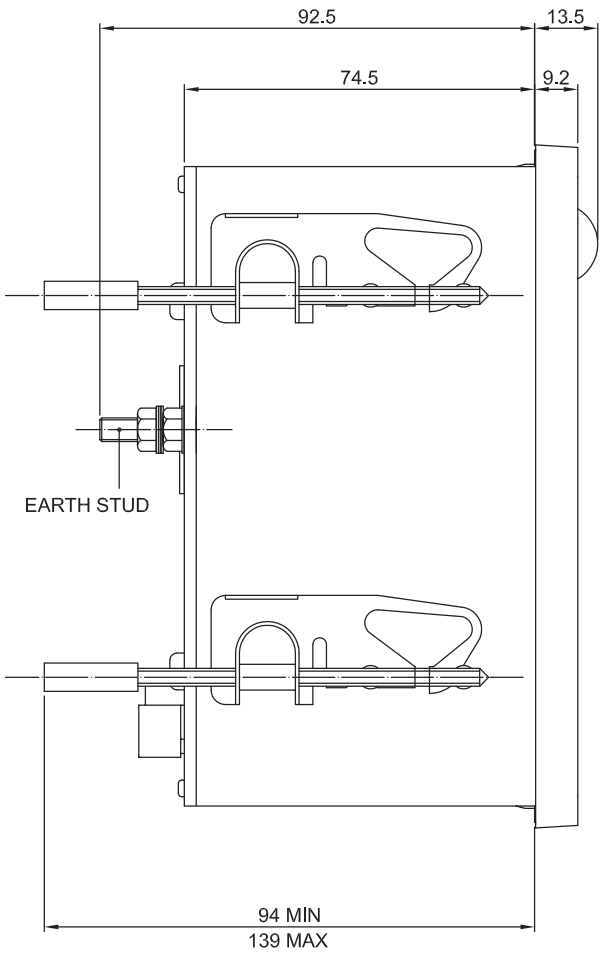
| | |
|---|---|
| DISPLAY / CONTROLS | Digital: 1 x 256*64 pixel OLED Graphic display.<br>Illumination dimmable by 2 x integral touch switches. Auto OLED screen saver function.<br>4 x "secret until lit" integral touch switches, accessed by keyswitch, for setup procedures.<br>Integral "Alarm Reset" touch switch for OOW operation.<br>PIR sensor: activation via menu in setup mode.<br>"Secret until lit" Power Fail legend. |
| PARAMETERS<br>Timed "dormant" countdown (3 to 12 minutes)<br>15 second visual alarm.<br>15 second 1st Stage audible alarm<br>2nd Stage audible alarm<br>3rd Stage audible alarm<br><br><br>"Power Fail" alarm<br>Emergency Call function. | <br>Settable by keyswitch / menu access.<br><br><br><br>Also via supplied Walker P7011 sounder.<br>Adjustable between 90 -180 seconds / Can be inhibited for non-passenger carrying vessels.<br>Also via supplied Walker P7012 sounder.<br>N.C. pair + triple C/O contacts.<br>Via supplied Walker P7010 unit. |
| NMEA INPUT / OUTPUT CONNECTIONS | Via integral terminal blocks |
| INPUT / OUTPUT FORMAT | IEC 61162-1 (NMEA 0183) |
| COMMUNICATION FORMAT | RS422 |
| INPUT CONTACTS | 4 sets: Dry Contact / 5vDC for remote operation. |
| OUTPUT CONTACTS | 4 sets: Dry contact / 12vDC for remote sounders. Max 40mA per channel. |
| STANDARDS | IEC 62616: 2010<br>IEC 61162-1: 2007<br>IEC 62288: 2008 |
| POWER REQUIREMENT | 110-240v 50 / 60 Hz |
| COMPASS SAFE DISTANCE | Standard: 0.3m Steering: 0.3m |
| ENVIRONMENTAL / EMC | Compliant with EN 60945: 2002 |
| MECHANICAL<br><br>Size / Weight<br><br><br>Mounting<br><br>Material: | FOR P7007 ONLY (for other units see individual drawings)<br>See drawing 3458-A3-30<br>IEC 61554 compliant: Din 192 x 144 Case<br>Weight: 1.25 kg (inc clamps)<br>Panel / Console mounting:<br>See cut-out drg 3458-A3-31<br>Case: Noryl SE1 GFN2 (ABS resin)<br>Outer Bezel: Polycarbonate; black<br>Front Window: Allyl Carbonate: Printed<br>Case Back: Aluminium Alloy: Printed |

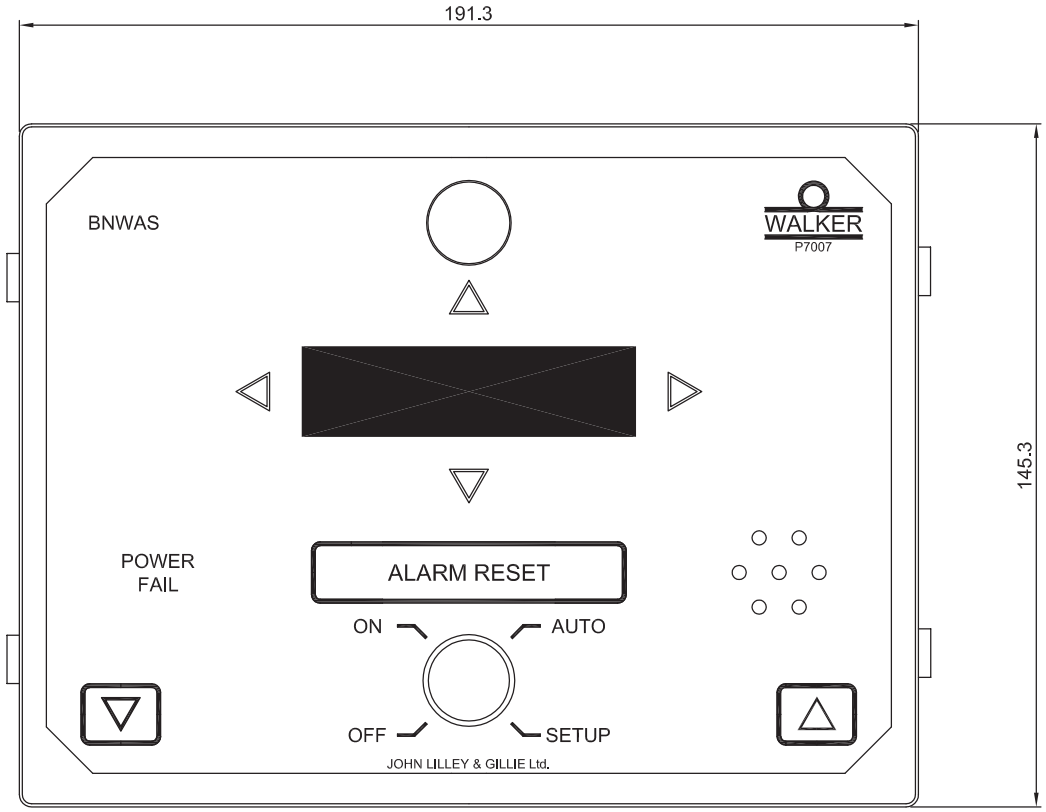
Note:
This document shall not form part of any contract.
In accordance with our policy of continuous development, changes may be made from time to time without prior notice.

# !ATTENTION!


The BNWAS main control unit, P7007, is supplied with an internal backup battery. When installing for the first time, confirm when the unit was manufactured (refer to product label). If 6 months has passed since manufacture, mains AC power should be applied to the P7007 for 24 hours prior to commissioning and for 12 months or more, allow 48 hours to replenish the backup battery.

| DRAWING No. | SHEET 1 OF 2 | PROJECTION |
|---|---|---|
| 3458-A3-30 | | |




NOTE: 4 OFF SECURING CLAMPS (2 PER SIDE)
PROVIDED FOR PANEL MOUNTING.
MAXIMUM PANEL THICKNESS = 45mm.

WEIGHT: 1.25 kg

| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
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| 1 | 04-04-11 | - | | | |
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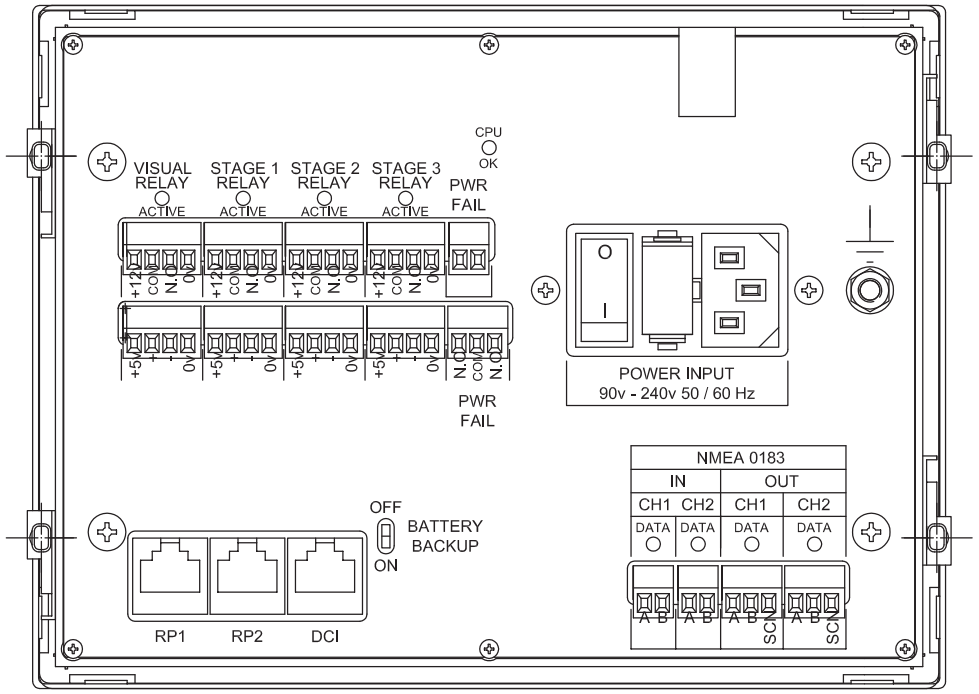
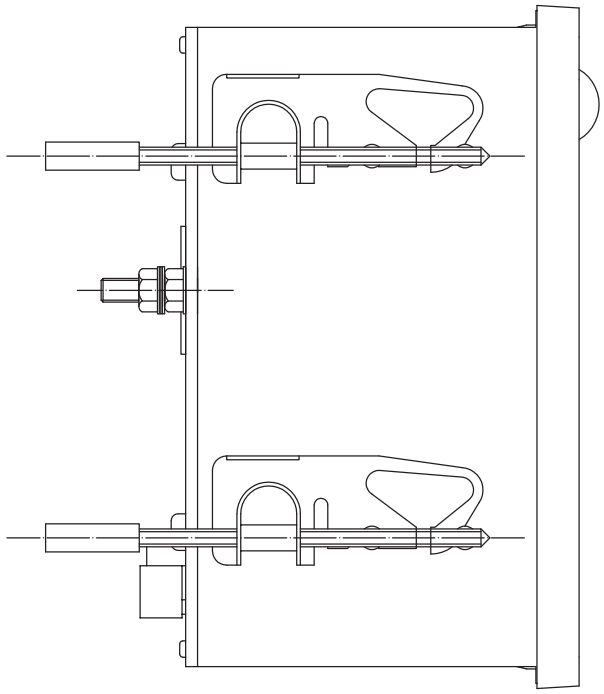
| USED ON | DRAWN | DATE | TITLE |
|---|---|---|---|
| P7007 | RJA | 04-04-11 | OUTLINE: P7007 BNWAS |
| MATERIAL | CHECKED BY | | |
| TOLERANCE | FINISH | SCALE | DRAWING No. 3458-A3-30 |
| DIMENSIONS IN | CAD : \PATH\FILENAME R:\NEW INDEX | NTS | SHEET 1 OF 2 |

| DRAWING No. | SHEET 2 OF 2 | PROJECTION |
|---|---|---|
| 3458-A3-30 | | |



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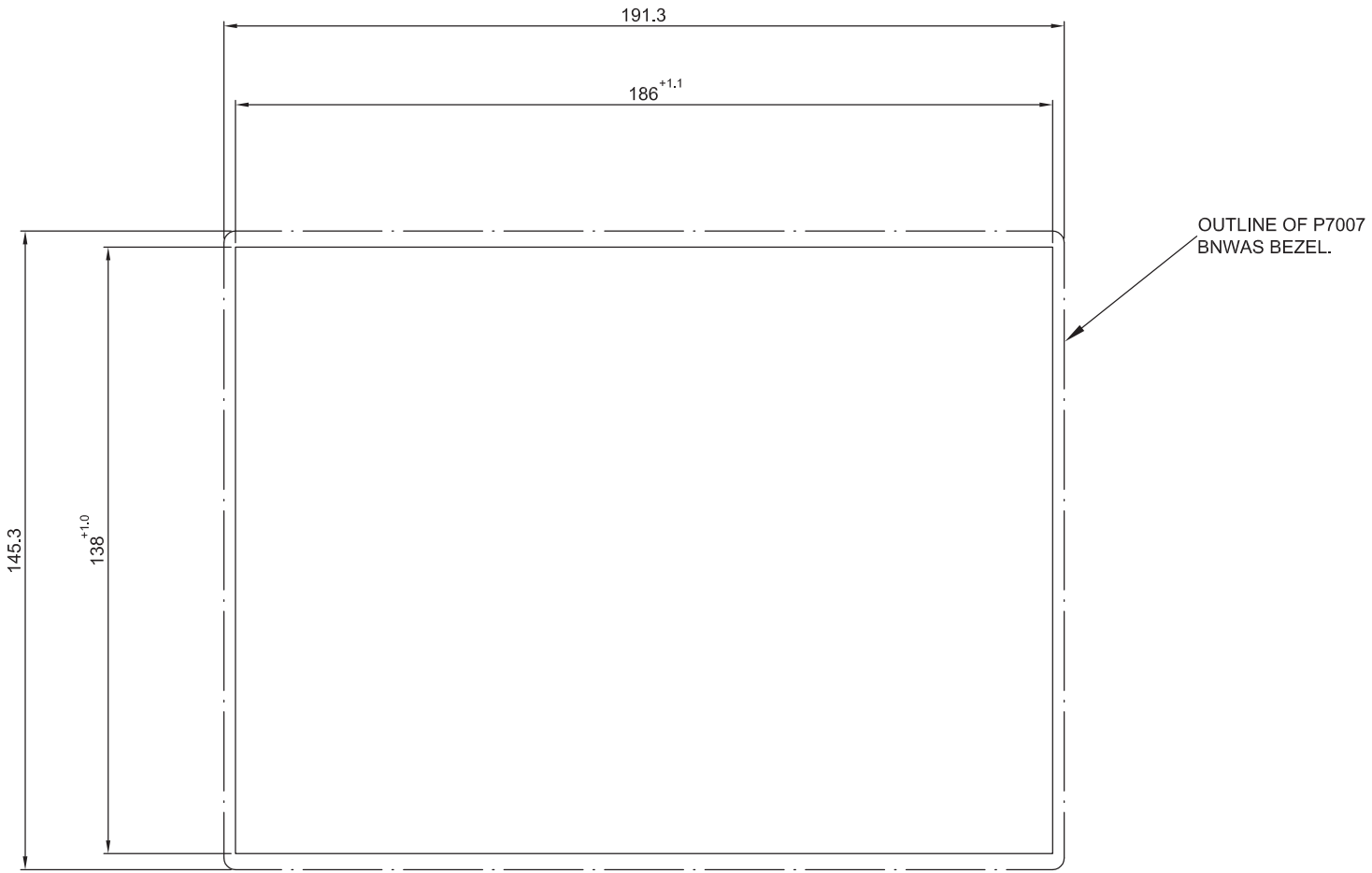
|---|---|---|
| P7007 | RJA | 04-04-11 |
| MATERIAL | CHECKED BY | |
| TOLERANCE | FINISH | SCALE |
| | | NTS |
| DIMENSIONS IN | CAD : \PATH\FILENAME<br>R:\NEW INDEX | |

TITLE
OUTLINE:
P7007 BNWAS

DRAWING No. SHEET 2 OF 2
3458-A3-30

| DRAWING No. | SHEET 1 OF 1 | PROJECTION |
|---|---|---|
| 3458-A3-31 | | |




| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
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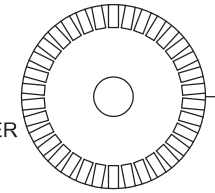
| USED ON | DRAWN | DATE | TITLE |
|---|---|---|---|
| P7007 | RJA | 27-04-11 | PANEL CUT-OUT: P7007 BNWAS |
| MATERIAL | CHECKED BY | | |
| TOLERANCE | FINISH | SCALE | DRAWING No. SHEET 1 OF 1 |
| DIMENSIONS IN | CAD : \PATH\FILENAME R:\NEW INDEX | NTS | 3458-A3-31 |

| DRAWING No. | SHEET 1 OF 2 | PROJECTION |
|---|---|---|
| 3458-A3-26 | | |

## CREW AREA

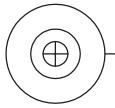
P7012
CREW CALL
ALARM SOUNDER



REFER TO DRAWING 3464-A3-2 FOR INSTALLATION INFORMATION FOR P7012 ALARM SOUNDER.

## OFFICER CABIN

P7011
OFFICER CALL
ALARM SOUNDER

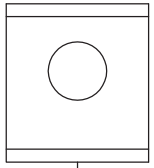


REFER TO DRAWING 3464-A3-1 FOR INSTALLATION INFORMATION FOR P7011 ALARM SOUNDER.

## BRIDGE

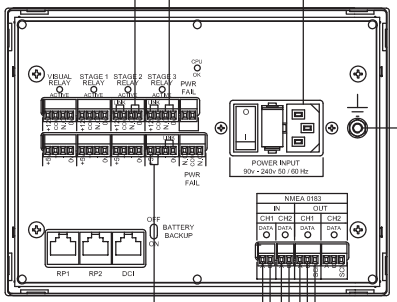
REFER TO DRAWING 3463-A3-10 FOR INSTALLATION INFORMATION FOR P7010 EMERGENCY CALL.

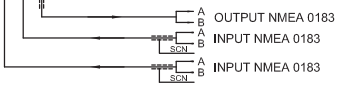
P7010 BNWAS
EMERGENCY CALL



SHIP'S AC SUPPLY
(90 - 240v 50 / 60 Hz)

P7007 BNWAS

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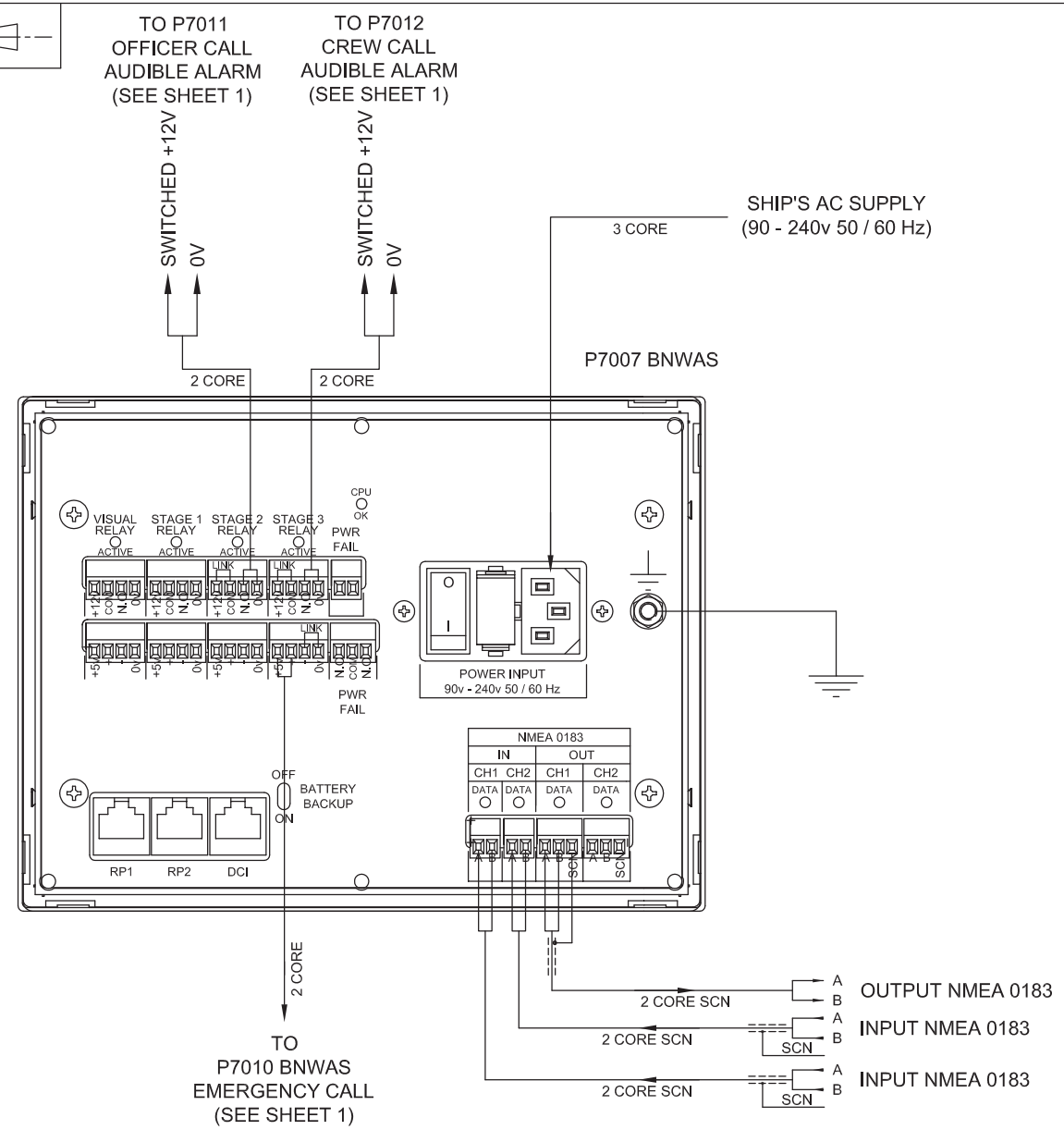
TITLE
CONNECTION DETAILS:
P7007 BNWAS (BASIC)

DRAWING No. 3458-A3-26 SHEET 1 OF 2

| DRAWING No. | SHEET 2 OF 2 | PROJECTION |
|---|---|---|
| 3458-A3-26 | | |




REFER TO P7007 BNWAS DATA SHEET FOR FULL INFORMATION REGARDING CONNECTIONS AND NMEA 0183 OUTPUT DATA (IEC 61162-1) AND ACCEPTABLE NMEA 0183 (IEC 61162-1) INPUT DATA.

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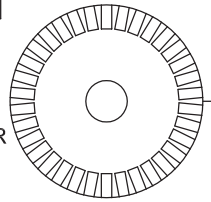
TITLE
CONNECTION DETAILS:
P7007 BNWAS (BASIC)

DRAWING No. 3458-A3-26 SHEET 2 OF 2

DRAWING No. 3458-A3-27 | SHEET 1 OF 2 | PROJECTION

## CREW AREA

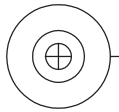
P7012
CREW CALL
ALARM SOUNDER



REFER TO DRAWING 3464-A3-2 FOR INSTALLATION INFORMATION FOR P7012 ALARM SOUNDER.
NOTE: ADDITIONAL P7012s MAY BE USED. THESE WOULD BE WIRED IN PARALLEL USING SHIPYARD SUPPLIED JUNCTION BOX.

## OFFICER CABIN

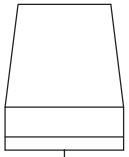
P7011
OFFICER CALL
ALARM SOUNDER



REFER TO DRAWING 3464-A3-1 FOR INSTALLATION INFORMATION FOR P7011 ALARM SOUNDER.
NOTE: ADDITIONAL P7011s MAY BE USED. THESE WOULD BE WIRED IN PARALLEL USING SHIPYARD SUPPLIED JUNCTION BOX.

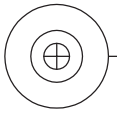
## BRIDGE

VISUAL
BRIDGE
ALARM
(FLASHING)

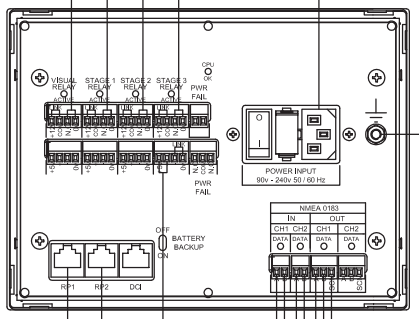


SHIP'S AC SUPPLY
(90 - 240v 50 / 60 Hz)

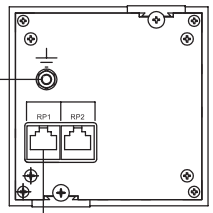
P7011
BRIDGE ALARM
SOUNDER



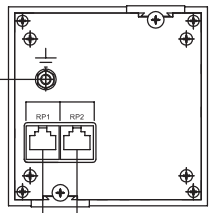
P7007 BNWAS



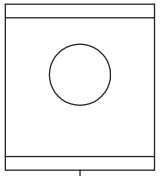

P7008 BNWAS
REPEATER RESET



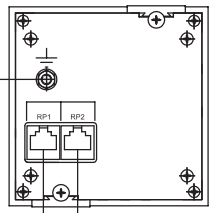
P7008 BNWAS
REPEATER RESET



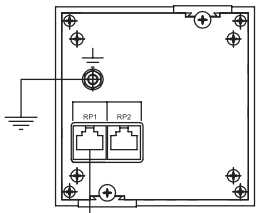
P7010 BNWAS
EMERGENCY CALL



P7008 BNWAS
REPEATER RESET



P7008 BNWAS
REPEATER RESET



NOTE: A MAXIMUM TOTAL OF 4 OFF P7008s MAY BE USED ON THE P7007 BNWAS.
IMPORTANT: ALL P7008 REPEATER RESET UNITS MUST BE FITTED IN APPROPRIATE BRIDGE POSITIONS TO ENSURE PROPER "LOOK-OUT" AT ALL TIMES.

A OUTPUT NMEA 0183
B
A INPUT NMEA 0183
B
SCN
A INPUT NMEA 0183
B
SCN

| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
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| | |
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| USED ON | DRAWN RJA |
| MATERIAL | CHECKED BY |
| TOLERANCE - | FINISH - |
| DIMENSIONS IN - | CAD : \PATH\FILENAME R:\NEW INDEX |

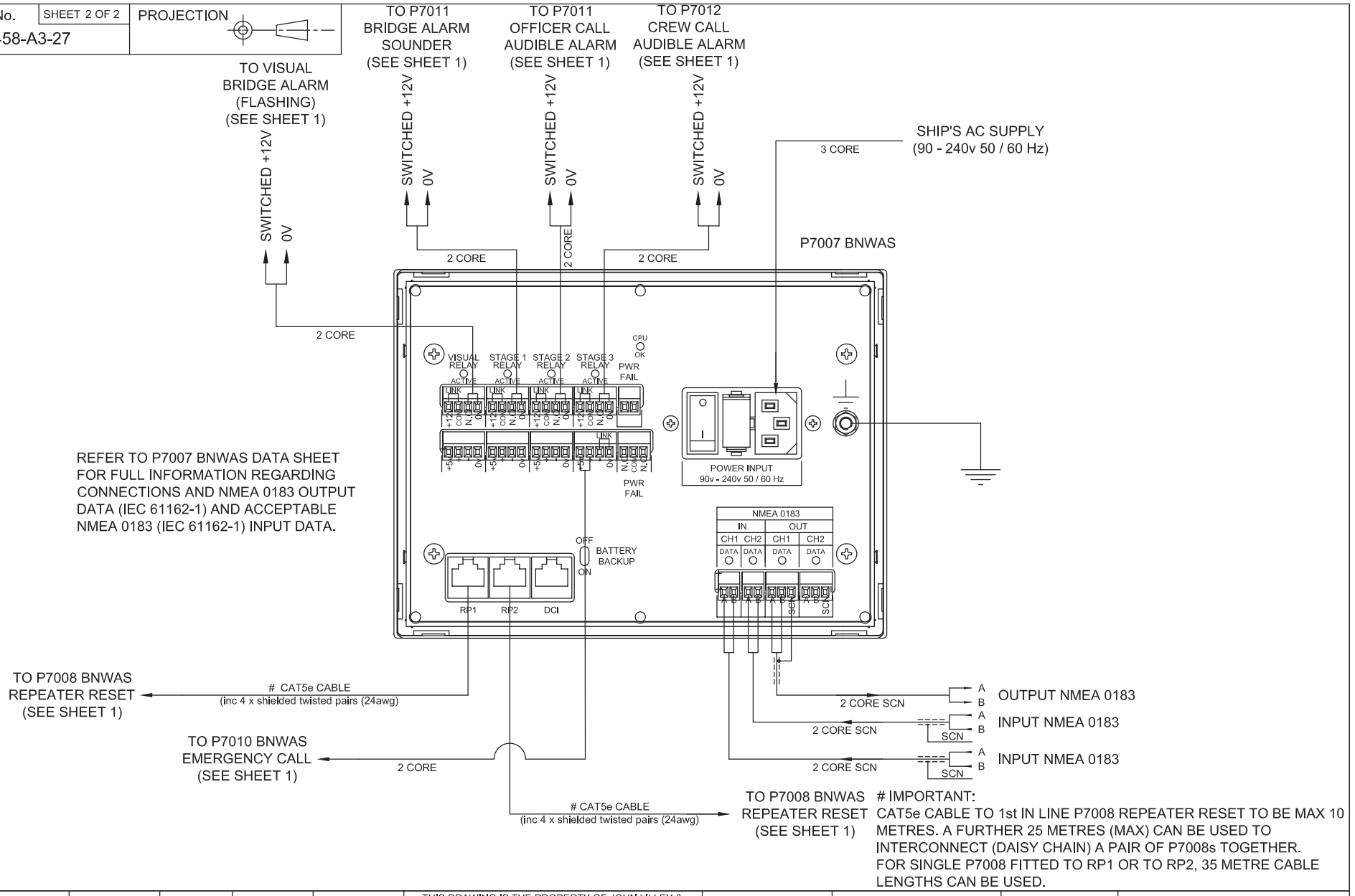
DATE 22/03/2011

SCALE NTS

TITLE CONNECTION DETAILS:
P7007 BNWAS: EXPANDED
P7008 REPEATER RESET VARIANT

DRAWING No. 3458-A3-27 | SHEET 1 OF 2

| DRAWING No. | SHEET 2 OF 2 | PROJECTION |
|---|---|---|
| 3458-A3-27 | | |




# IMPORTANT:
CAT5e CABLE TO 1st IN LINE P7008 REPEATER RESET TO BE MAX 10 METRES. A FURTHER 25 METRES (MAX) CAN BE USED TO INTERCONNECT (DAISY CHAIN) A PAIR OF P7008s TOGETHER. FOR SINGLE P7008 FITTED TO RP1 OR TO RP2, 35 METRE CABLE LENGTHS CAN BE USED.

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| USED ON | DRAWN | DATE |
|---|---|---|
| | RJA | 22/03/2011 |
| MATERIAL | CHECKED BY | |
| TOLERANCE: - | FINISH: - | SCALE: NTS |
| DIMENSIONS IN: - | CAD : \PATH\FILENAME R:\NEW INDEX | |

TITLE: CONNECTION DETAILS:
P7007 BNWAS:EXPANDED
P7008 REPEATER RESET VARIANT

DRAWING No. 3458-A3-27 SHEET 2 OF 2

| DRAWING No. | SHEET 1 OF 2 | PROJECTION |
|---|---|---|
| 3458-A3-28 | | |

## CREW AREA

P7012
CREW CALL
ALARM SOUNDER

REFER TO DRAWING 3464-A3-2 FOR INSTALLATION INFORMATION FOR P7012 ALARM SOUNDER.
NOTE: ADDITIONAL P7012s MAY BE USED. THESE WOULD BE WIRED IN PARALLEL USING SHIPYARD SUPPLIED JUNCTION BOX.

## OFFICER CABIN

P7011
OFFICER CALL
ALARM SOUNDER

REFER TO DRAWING 3464-A3-1 FOR INSTALLATION INFORMATION FOR P7011 ALARM SOUNDER.
NOTE: ADDITIONAL P7011s MAY BE USED. THESE WOULD BE WIRED IN PARALLEL USING SHIPYARD SUPPLIED JUNCTION BOX.

## BRIDGE

VISUAL
BRIDGE
ALARM
(FLASHING)

SHIP'S AC SUPPLY
(90 - 240v 50 / 60 Hz)

P7011
BRIDGE ALARM
SOUNDER

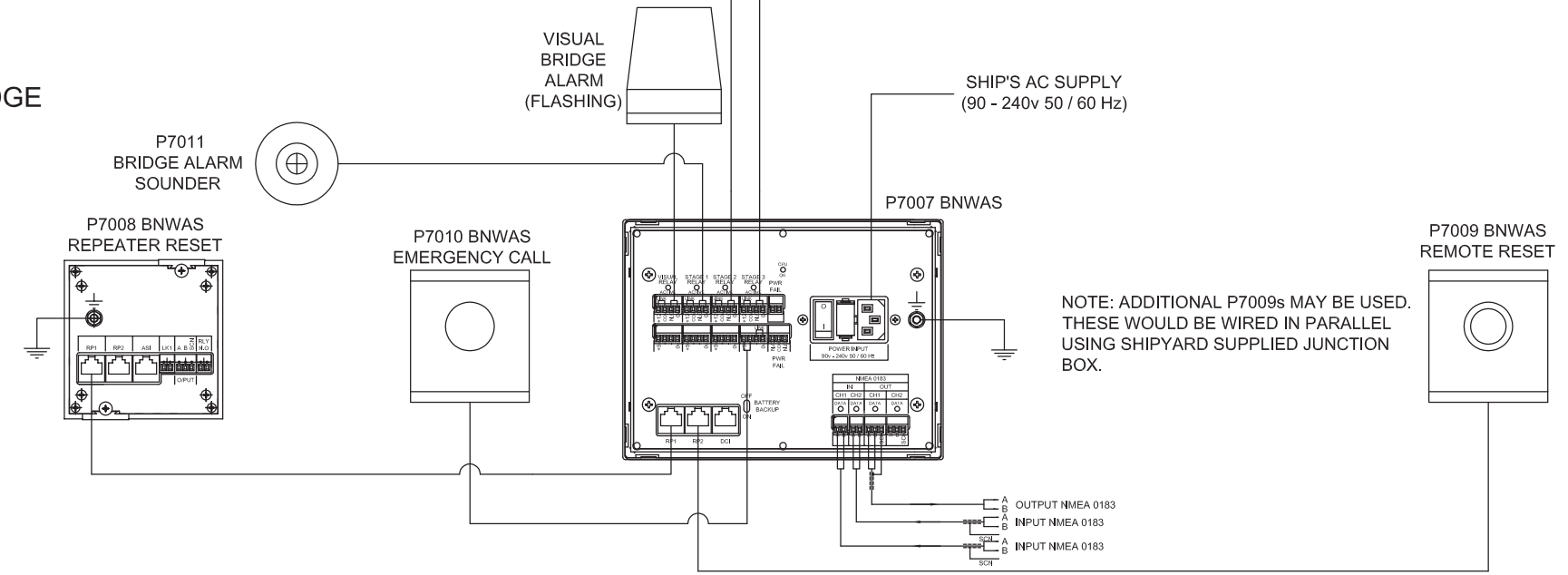
P7007 BNWAS

P7008 BNWAS
REPEATER RESET

P7010 BNWAS
EMERGENCY CALL

P7009 BNWAS
REMOTE RESET

NOTE: ADDITIONAL P7009s MAY BE USED. THESE WOULD BE WIRED IN PARALLEL USING SHIPYARD SUPPLIED JUNCTION BOX.

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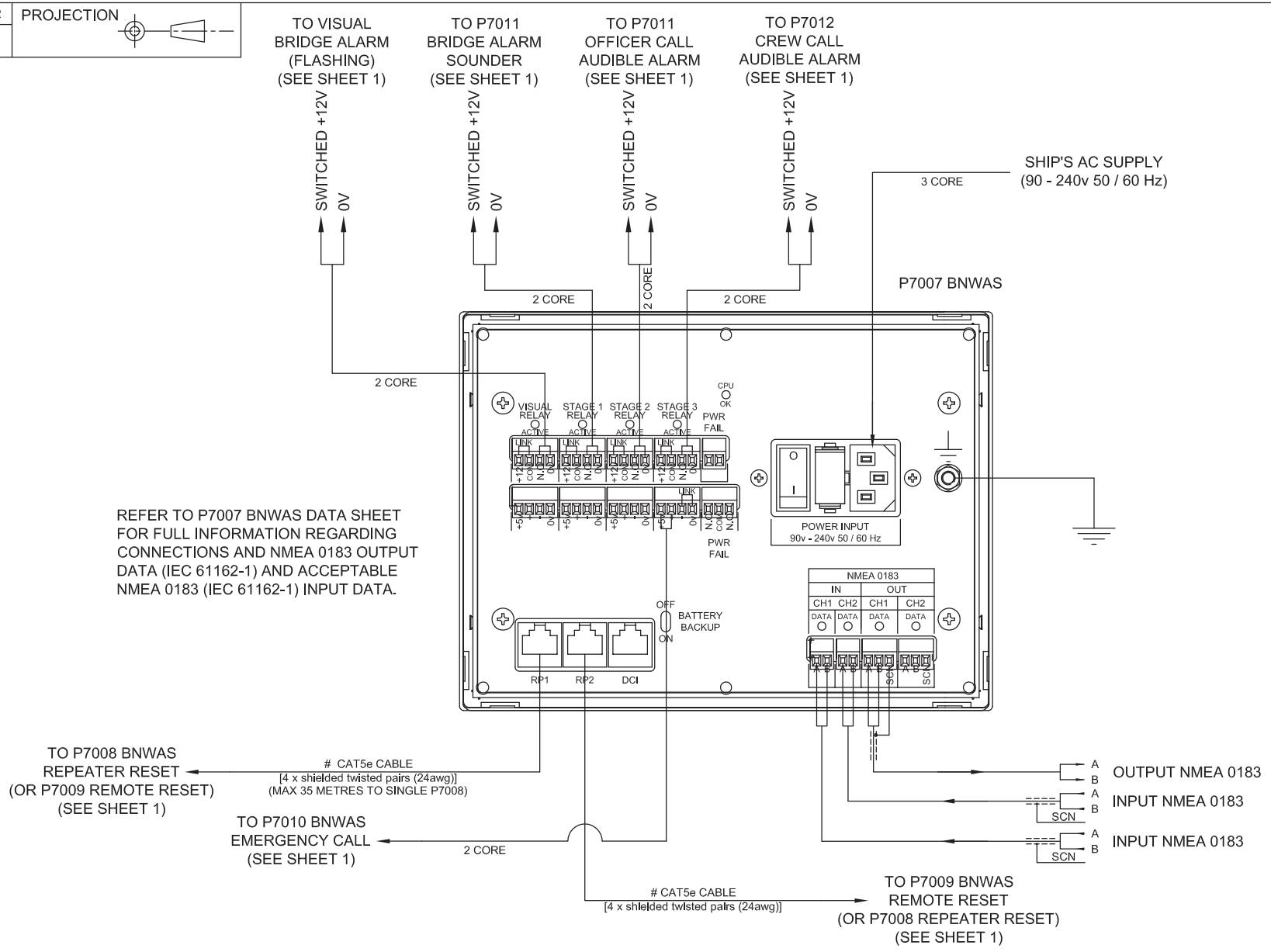
| USED ON | DRAWN | DATE |
|---|---|---|
| | RJA | 23/03/2011 |
| MATERIAL | CHECKED BY | |
| TOLERANCE<br>- | FINISH<br>- | SCALE<br>NTS |
| DIMENSIONS IN<br>- | CAD : \PATH\FILENAME<br>R:\NEW INDEX | |

TITLE CONNECTION DETAILS:
P7007 BNWAS: EXPANDED INCLUDING P7008 & P7009 UNITS

DRAWING No. 3458-A3-28 SHEET 1 OF 2

| DRAWING No. | SHEET 2 OF 2 | PROJECTION |
|---|---|---|
| 3458-A3-28 | | |




| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
|---|---|---|---|---|---|
| 1 | 23-03-11 | | | | |



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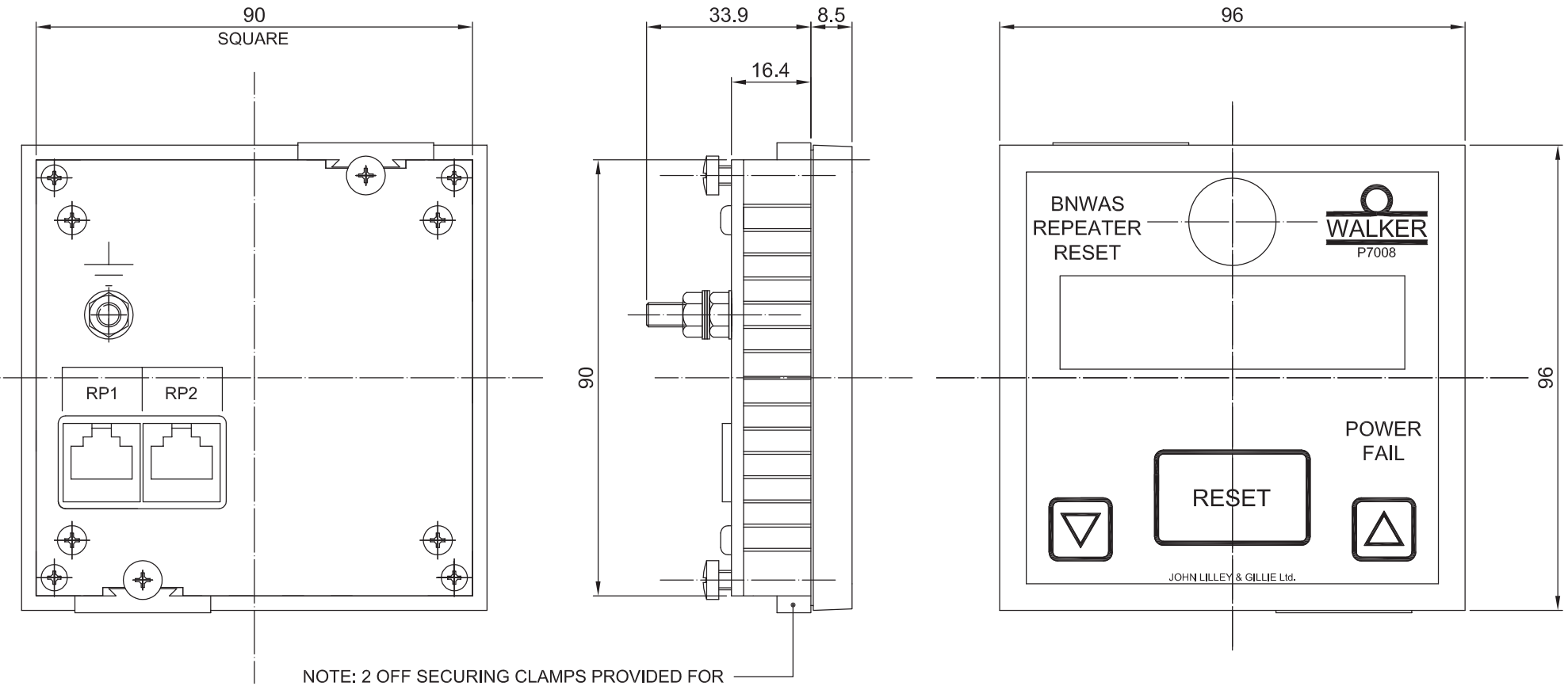
| USED ON | DRAWN | DATE |
|---|---|---|
| | RJA | 23/03/2011 |
| MATERIAL | CHECKED BY | |
| TOLERANCE: - | FINISH: - | SCALE: NTS |
| DIMENSIONS IN: - | CAD : \PATH\FILENAME R:\NEW INDEX | |

TITLE CONNECTION DETAILS:
P7007 BNWAS: EXPANDED INCLUDING P7008 & P7009 UNITS

DRAWING No. 3458-A3-28 SHEET 2 OF 2

| DRAWING No. | SHEET 1 OF 1 | PROJECTION |
|---|---|---|
| 3460-A3-20 | | |




NOTE: 2 OFF SECURING CLAMPS PROVIDED FOR PANEL MOUNTING.
MAXIMUM PANEL THICKNESS = 4mm.
SEE DRAWING 3460-A3-21 FOR PANEL CUT-OUT DETAIL.
FITTING INTO THICKER PANELS CAN BE FACILITATED BY LOCALISED THINNING AROUND CLAMPING AREAS.

WEIGHT: 0.3 Kg

| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
|---|---|---|---|---|---|
| 1 | 05/04/11 | - | | | |
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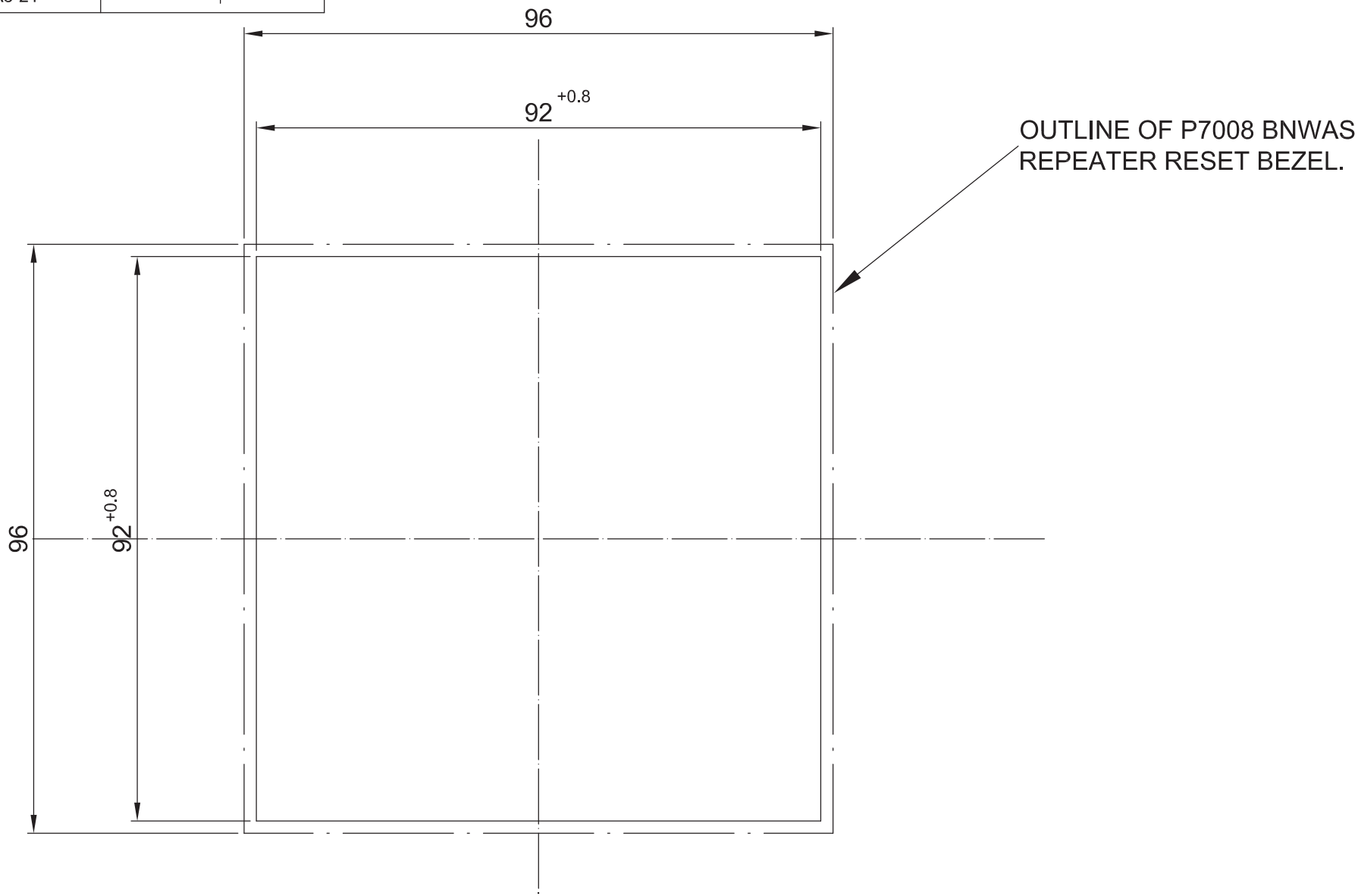
| | | | |
|---|---|---|---|
| USED ON: P7008 | DRAWN: RJA | DATE: 05/04/2011 | TITLE: OUTLINE: P7008 BNWAS REPEATER RESET |
| MATERIAL: - | CHECKED BY | | |
| TOLERANCE: - | FINISH: - | SCALE: NTS | DRAWING No. 3460-A3-20 SHEET 1 OF 1 |
| DIMENSIONS IN: - | CAD : \PATH\FILENAME R:\NEW INDEX | | |

| DRAWING No. | SHEET 1 OF 1 | PROJECTION |
|---|---|---|
| 3460-A3-21 | | |




| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
|---|---|---|---|---|---|
| 1 | 21/04/11 | - | | | |
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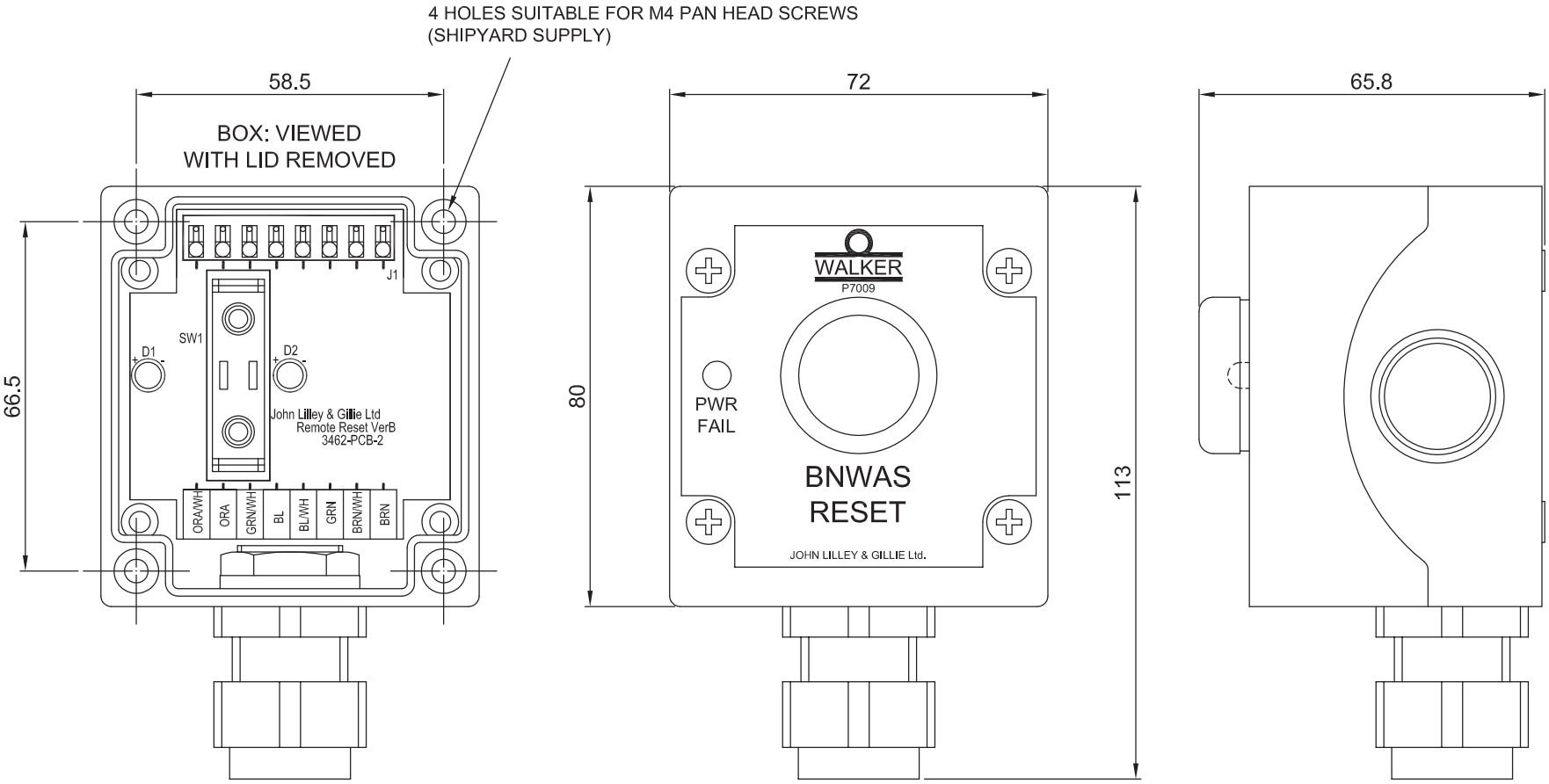
| USED ON | DRAWN | DATE | TITLE |
|---|---|---|---|
| P7008 | RJA | 21/04/2011 | PANEL CUT-OUT DETAIL P7008 (DIN 96x96) |
| MATERIAL | CHECKED BY | | |
| TOLERANCE - | FINISH - | SCALE NTS | DRAWING No. 3460-A3-21 SHEET 1 OF 1 |
| DIMENSIONS IN - | CAD : \PATH\FILENAME R:\NEW INDEX | | |

| DRAWING No. | SHEET 1 OF 1 | PROJECTION |
|---|---|---|
| 3462-A3-10 | | |




GLAND ACCEPTS CABLE OD: 4mm MIN / 9mm MAX.
P7009 IP RATING: IP66. (PROVIDED CABLE IS
CORRECTLY COMPRESSED IN GLAND AND LID
OF ENCLOSURE IS CORRECTLY SECURED)

WEIGHT = 0.2Kg

| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
|---|---|---|---|---|---|
| 1 | 07/04/11 | Incorrect VerA PCB | | | |
| 2 | 17/04/11 | Correct VerB PCB | | | |
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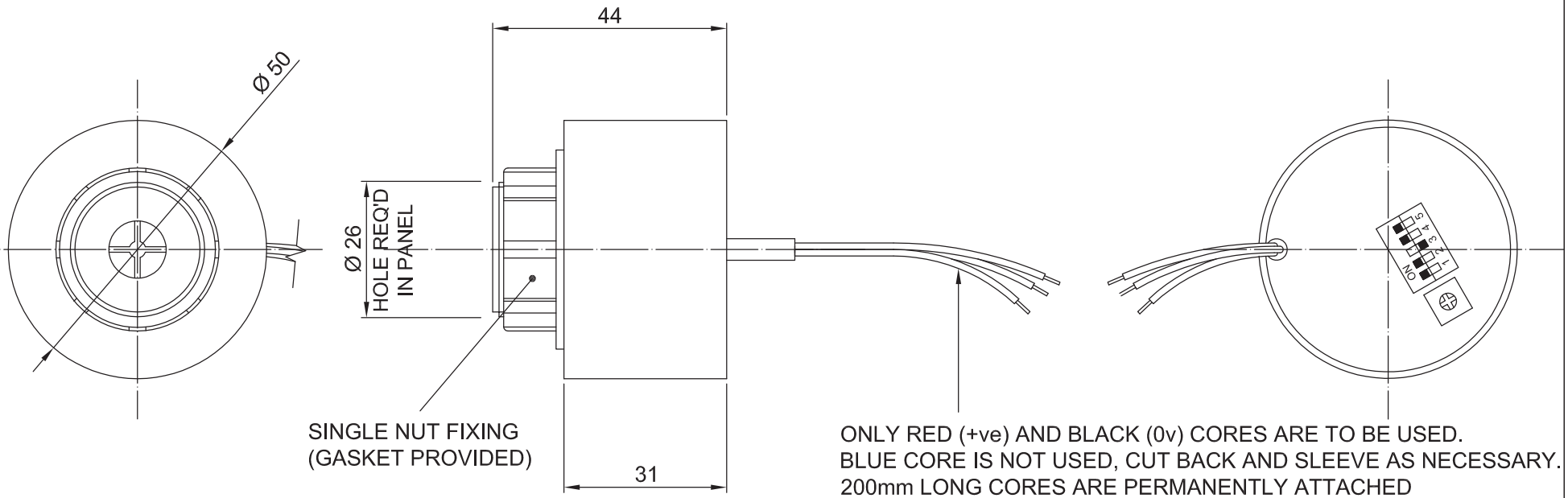
| | |
|---|---|
| USED ON: P7007 BNWAS | DRAWN: RJA |
| MATERIAL: - | CHECKED BY: |
| TOLERANCE: - | FINISH: - |
| DIMENSIONS IN: N/A | CAD : \PATH\FILENAME: R:\NEW INDEX |

| | |
|---|---|
| DATE | 07/04/2011 |
| SCALE | NTS |

TITLE
OUTLINE:
P7009 REMOTE RESET

DRAWING No. 3462-A3-10 SHEET 1 OF 1

| DRAWING No. | SHEET 1 OF 1 | PROJECTION |
|---|---|---|
| 3464-A3-1 | | |




MAXIMUM PANEL THICKNESS (RECOMMENDED) = 4mm.

IP RATING = IP65

SET POTENTIOMETER TO MAXIMUM VOLUME WITH DIP SWITCHES SET TO 11011 (AS SHOWN). "SEAL" POTENTIOMER AND SWITCHES TO PREVENT UNAUTHORISED ADJUSTMENT.

ONLY RED (+ve) AND BLACK (0v) CORES ARE TO BE USED. BLUE CORE IS NOT USED, CUT BACK AND SLEEVE AS NECESSARY. 200mm LONG CORES ARE PERMANENTLY ATTACHED TO SOUNDER. A SUITABLE JUNCTION BOX AND LENGTH OF 2 CORE CABLE (BOTH SHIPYARD SUPPLY) ARE NECESSARY TO PROVIDE ONWARD CONNECTION TO THE P7007 BNWAS UNIT MOUNTED ON THE BRIDGE. REFER TO DATA SHEET FOR FULL INFORMATION.

WEIGHT= 0.095Kg

| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
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| 1 | 05/04/11 | | | | |
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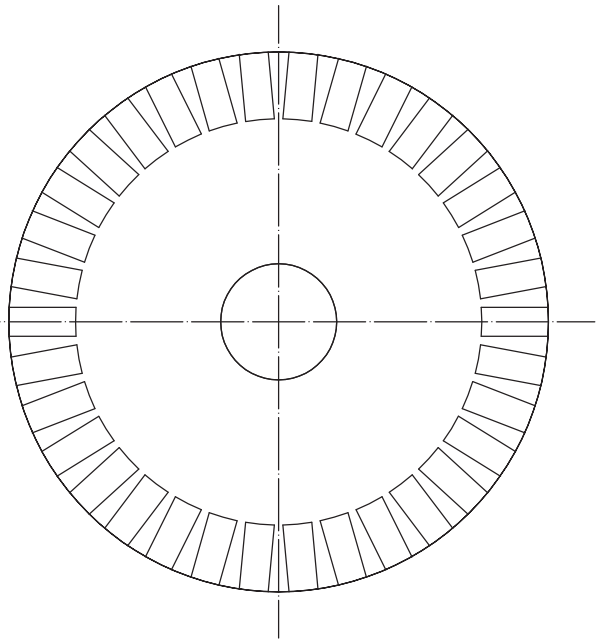
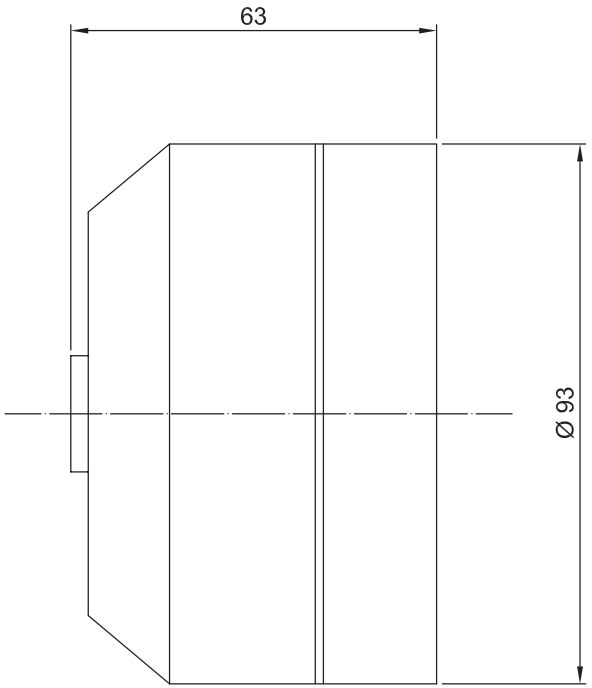
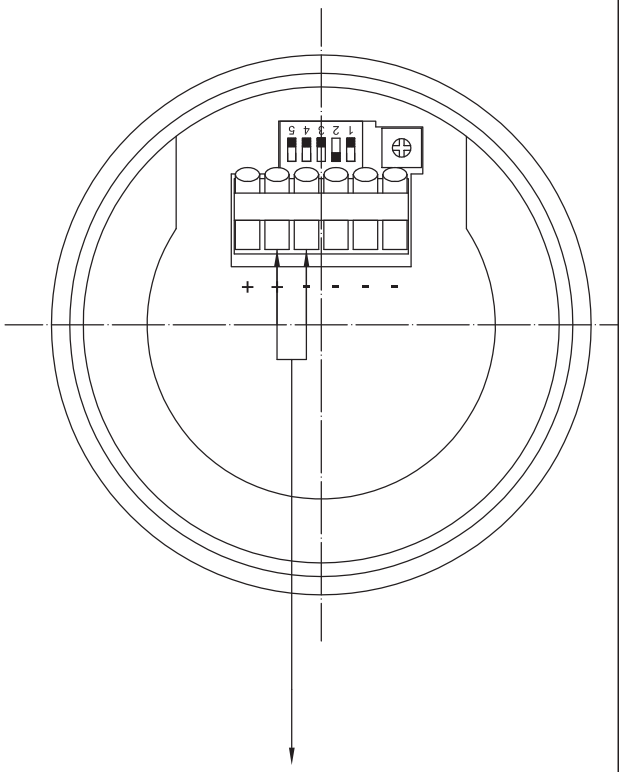
| | | | |
|---|---|---|---|
| USED ON P7007 BNWAS | DRAWN RJA | DATE 05/04/2011 | TITLE OUTLINE: P7011 "STAGE 2" SOUNDER |
| MATERIAL SEE ABOVE | CHECKED BY | | |
| TOLERANCE +/- 0.2 | FINISH | SCALE NTS | DRAWING No. 3464-A3-1 SHEET 1 OF 1 |
| DIMENSIONS IN mm | CAD : \PATH\FILENAME R:\NEW INDEX | | |

| DRAWING No. | SHEET 1 OF 2 | PROJECTION |
|---|---|---|
| 3464-A3-2 | | |






BULKHEAD / CEILING MOUNTING

IP RATING = IP54

SET POTENTIOMETER TO MAXIMUM VOLUME WITH DIP SWITCHES SET TO 01000 (AS SHOWN). "SEAL" POTENTIOMETER AND SWITCHES TO PREVENT UNAUTHORISED ADJUSTMENT.

2 CORE CABLE (16/0.2; 0.5mm CSA MIN) TO BE PROVIDED BY SHIPYARD.

TO P7007
(REFER TO DATA SHEET
FOR FULL INFORMATION)

WEIGHT= 0.24Kg

| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
|---|---|---|---|---|---|
| 1 | 05/04/11 | | | | |
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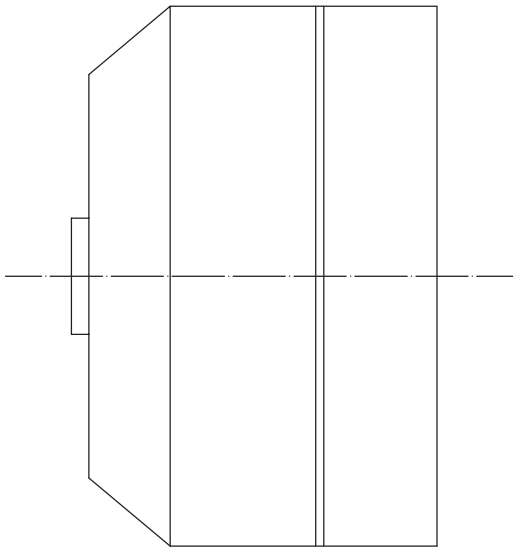
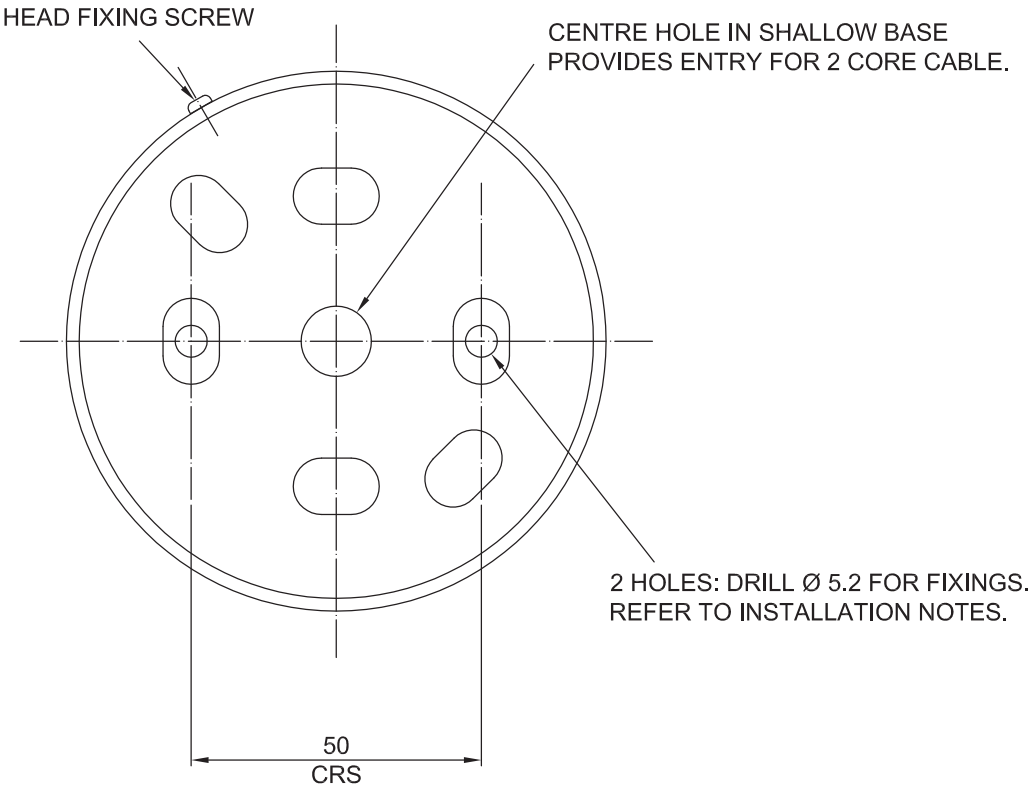
| USED ON | DRAWN | DATE | TITLE |
|---|---|---|---|
| P7007 | RJA | 05/04/2011 | OUTLINE: P7012 "STAGE 3" SOUNDER |
| MATERIAL: ABS | CHECKED BY | | |
| TOLERANCE | FINISH | SCALE: NTS | DRAWING No. 3464-A3-2 (SHEET 1 OF 2) |
| DIMENSIONS IN mm | CAD : \PATH\FILENAME R:\NEW INDEX | | |

| DRAWING No. | SHEET 2 OF 2 | PROJECTION |
|---|---|---|
| 3464-A3-2 | | |






INSTALLATION NOTES:

SEPARATE PARTS AND DRILL Ø 5.2 THROUGH RESPECTIVE BOSSES IN BASE TO PROVIDE FIXING POINTS FOR SOUNDER AS SHOWN. OFFER BASE UP TO MOUNTING SURFACE AND MARK AND THEN DRILL HOLES FOR CABLE ENTRY AND FIXING SCREWS (CUSTOMER SUPPLY) AS REQUIRED (No.8 OR M5 SCREWS RECOMMENDED: DEPENDENT UPON INSTALLATION CONCERNED). FIX BASE IN POSITION. CONNECT CABLE TO SOUNDER AS SHOWN ON SHEET 1. RE-ATTACH SOUNDER TO BASE USING ONE OF THE FOUR POSITIONS AVAILABLE AND TWIST INTO POSITION. FINALLY LOCK IN POSITION USING PAN HEAD FIXING SCREW PROVIDED.

| ISSUE | DATE | CHANGE No. | ISSUE | DATE | CHANGE No. |
|---|---|---|---|---|---|
| 1 | 05/04/11 | | | | |
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| USED ON | DRAWN | DATE |
|---|---|---|
| P7007 BNWAS | RJA | 05/04/2011 |
| MATERIAL: ABS | CHECKED BY | |
| TOLERANCE | FINISH | SCALE: NTS |
| DIMENSIONS IN: mm | CAD : \PATH\FILENAME R:\NEW INDEX | |

TITLE
OUTLINE:
P7012 "STAGE 3" SOUNDER

DRAWING No. 3464-A3-2 SHEET 2 OF 2