



HOTBOX SN2 CAI MANUAL

Important: This document should be read carefully before commencing installation

Rev 1 June 2013



Dear 4B Customer:

Congratulations on your purchase. 4B appreciates your business and is pleased you have chosen our products to meet your needs.

Please read in its entirety and understand the literature accompanying the product before you place the product into service. Please read the safety precautions carefully before operating the product. With each product you purchase from 4B, there are some basic but important safety considerations you must follow to be sure your purchase is permitted to perform its design function and operate properly and safely, giving you many years of reliable service. Please read and understand the Customer Safety Responsibilities listed below. Failure to follow this safety directive and the Operation Manuals and other material furnished or referenced, may result in serious injury or death.

SAFETY NOTICE TO OUR CUSTOMERS

- A. In order to maximize efficiency and safety, selecting the right equipment for each operation is vital. The proper installation of the equipment, and regular maintenance and inspection is equally important in continuing the proper operation and safety of the product. The proper installation and maintenance of all our products is the responsibility of the user unless you have asked 4B to perform these tasks.
- B. All installation and wiring must be in accordance with Local and National Electrical Codes and other standards applicable to your industry. (Please see the article "Hazard Monitoring Equipment Selection, Installation and Maintenance" at www.go4b.com.) The installation of the wiring should be undertaken by an experienced and qualified professional electrician. Failure to correctly wire any product and/or machinery can result in the product or machine failing to operate as intended, and can defeat its design function.
- C. Periodic inspection by a qualified person will help assure your 4B product is performing properly. 4B recommends a documented inspection at least annually and more frequently under high use conditions.
- D. Please see the last page of this manual for all warranty information regarding this product.

CUSTOMER SAFETY RESPONSIBILITIES

1. READ ALL LITERATURE PROVIDED WITH YOUR PRODUCT

Please read all user, instruction and safety manuals to ensure that you understand your product operation and are able to safely and effectively use this product.

2. YOU BEST UNDERSTAND YOUR NEEDS

Every customer and operation is unique, and only you best know the specific needs and capabilities of your operation. Please call the 24-hour hotline at 309-698-5611 for assistance with any questions about the performance of products purchased from 4B. 4B is happy to discuss product performance with you at any time.

3. SELECT A QUALIFIED AND COMPETENT INSTALLER

Correct installation of the product is important for safety and performance. If you have not asked 4B to perform the installation of the unit on your behalf, it is critical for the safety of your operation and those who may perform work on your operation that you select a qualified and competent electrical installer to undertake the installation. The product must be installed properly to perform its designed functions. The installer should be qualified, trained, and competent to perform the installation in accordance with Local and National Electrical Codes, all relevant OSHA Regulations, as well as any of your own standards

and preventive maintenance requirements, and other product installation information supplied with the product. You should be prepared to provide the installer with all necessary installation information to assist in the installation.

4. ESTABLISH AND FOLLOW A REGULAR MAINTENANCE AND INSPECTION SCHEDULE FOR YOUR 4B PRODUCTS

You should develop a proper maintenance and inspection program to confirm that your system is in good working order at all times. You will be in the best position to determine the appropriate frequency for inspection. Many different factors known to the user will assist you in deciding the frequency of inspection. These factors may include but are not limited to weather conditions; construction work at the facility; hours of operation; animal or insect infestation; and the real-world experience of knowing how your employees perform their jobs. The personnel or person you select to install, operate, maintain, inspect or perform any work whatsoever, should be trained and qualified to perform these important functions. Complete and accurate records of the maintenance and inspection process should be created and retained by you at all times.

5. RETAIN AND REFER TO THE OPERATION MANUAL FOR 4B'S SUGGESTED MAINTENANCE AND INSPECTION RECOMMENDATIONS

As all operations are different, please understand that your specific operation may require additional adjustments in the maintenance and inspection process essential to permit the monitoring device to perform its intended function. Retain the Operation Manual and other important maintenance and service documents provided by 4B and have them readily available for people servicing your 4B equipment. Should you have any questions, please call the 4B location who supplied the product or the 24-hour hotline number in the USA -309-698-5611.

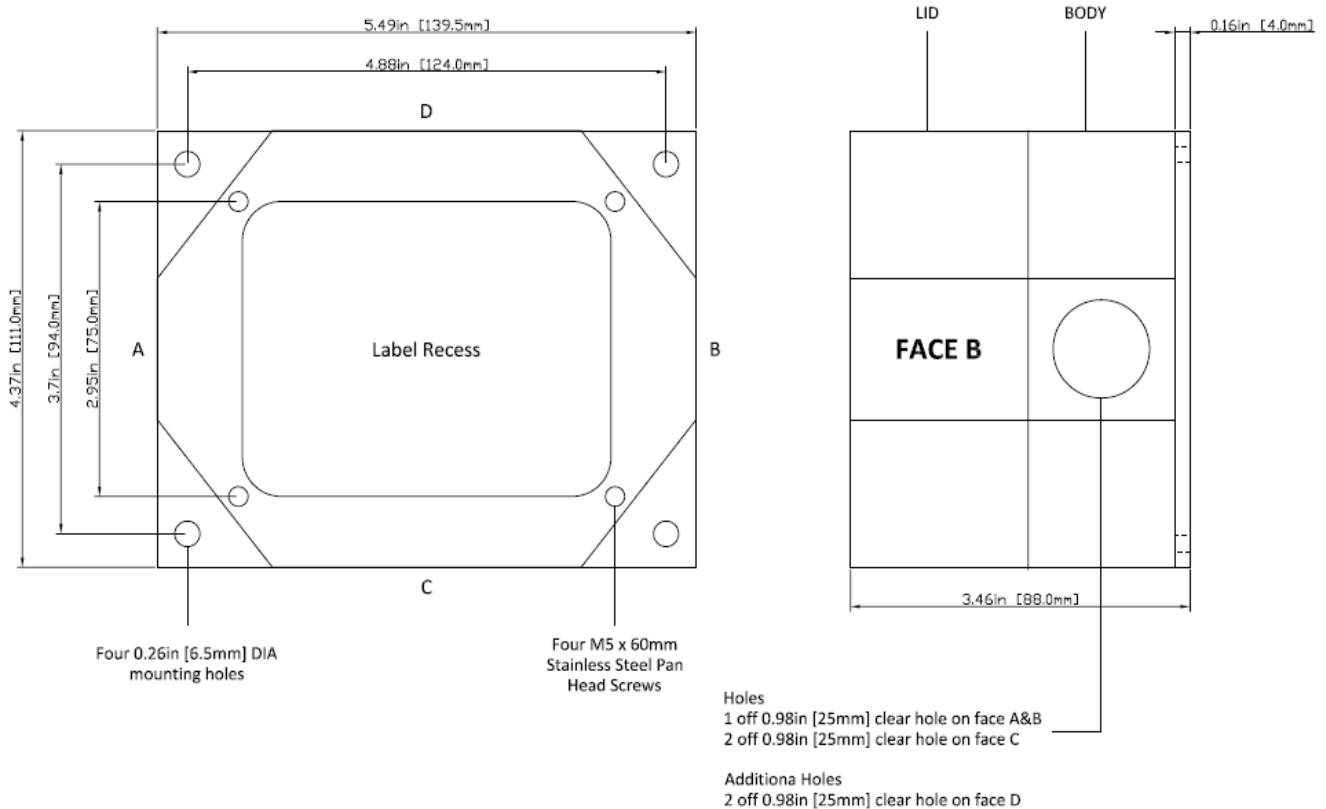
6. SERVICE REQUEST AND ONLINE PRODUCT REGISTRATION

If you have questions or comments about the operation of your unit or require the unit to be serviced please contact the 4B location who supplied the product or send your request via fax (309-698-5615), email (4b-usa@go4b.com), or call us via our 24-hour hotline number in the USA - 309-698-5611. Please have available product part numbers, serial numbers, and approximate date of installation. In order to assist you, after the product has been placed into service, complete the Online Product Registration section which is accessed via our website www.go4b.com



4B Elevator components limited. HOTBOX with SN2 Speed Node.

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HOTBOX Dimensions

Zones of use of HOTBOX:

CAT II 2D for use in Zone 21. Areas as defined in BS EN 50281-1-2

CAT II 3D for use in Zone 22. Areas as defined in BS EN 50281-1-2

Class II Division 2 Groups F & G (USA Only)

Class II Division 1 Groups E, F & G (Canada Only)

Certification Markings:

CE 1180 $\text{\textcircled{Ex}}$ II 2D T125° -20°C to +50°C IP66 Basefa04ATEX0133X

IECEX BAS 05.0025X

DIP DIP A21 TA +125°C IP66 -20°C < ta < +50°C

Class II Division 2 Groups F & G (USA Only)

Class II Groups E, F & G (Canada Only)



Certification Power Rating

CSA : 12 Watts (MAX)

ATEX/IECEX : 11.5 Watts (MAX)

To Open the Lid:

1. If appropriate, disconnect power
2. Untighten the M5 lid securing screws
3. Carefully remove the lid ensuring that the gasket is not damaged and remains in place

To Close the Lid:

1. Check that the gasket is correctly fitted into the box groove and is undamaged. Ensure that you fit the correct lid.
2. Tighten the M5 screws into the box body.
3. Check that the lid and box are correctly mated.

In the United States, article 500 of the National Electrical Code (NFPA 70) defines the following divisions.

Division 1: Hazardous concentrations of flammable dusts in suspension - continuously, intermittently or periodically present under normal conditions. This class is equivalent to the European dust class for Zone 20 and Zone 21 (Category 1 & Category 2).

Division 2: Combustible dusts are not normally, nor likely, to be thrown into suspension. This class is equivalent to the European dust class for Zone 22 (Category 3)

Class II: Dust classification. This classification is equivalent to the European dust group 'D'.

Dust Groups:

- Group E Metals including aluminum, magnesium (Div 1 only)
- Group F Carbonaceous dusts including coal, carbon black, coke
- Group G Dusts not included in E and F including wood, plastics, flour, starch or grain dusts

Enclosure Installation for AI (EUROPE):

- a. The IP66 rating of the enclosure must be maintained when used in Zone 21 dust environment. You must use the correct cable, glands and sealing arrangement and in accordance with the installation codes detailed in BS EN 60079 and EN 50281
- b. Where other certified components are used as part of the assembly or installation procedure, the user must take in to account any limitations which might be listed on the relevant certificates.
- c. The enclosure is supplied with readymade cable entries (face A, B and C). Where the customer requires additional cable entries they may be drilled on face 'D', there must be no more than 2 off M25 clear hole on the face. To help with hole positioning there are two indentations which indicate the centre points for the two additional holes. In order to maintain the rated box strength, the user must not drill holes in the box other than where described in this document.
- d. All unused entry apertures must be sealed using component certified stopping plugs Hawke International type 375 or 387. The end user must install component or apparatus certified stopping plugs and cable glands in strict accordance with the manufacturer's instructions.
- e. The enclosure must not be modified in any way without reference to Don Electronics, as this will invalidate the certification, except where used in certain Zone 22 applications.
- f. All wiring must be carried out in accordance with relevant codes of practice and / or instructions (BS EN 60079-14, EN50281).
- g. The voltage and current and maximum power dissipation shown on the box label must not be exceeded.
- h. The wiring installation must extend to within 1 mm of the metal face of the terminal.
- i. All leads must be insulated for the appropriate voltage.
- j. Not more than 1 single or multiple strand cable is to be connected to any terminal unless multiple conductors have previously been joined in a suitable manner (e.g. boot lace ferrule) such that they present a single connection point to the terminal.
- k. A parallel shaft screwdriver of the correct size should always be used when tightening terminals.

Enclosure Installation for CSA (USA and Canada):

- l. The IP66 rating of the enclosure must be maintained when used in a Division 1 and Division 2 dust environment. You must use the correct cable, glands and sealing arrangement and in accordance with the national electrical codes.
- m. Where other certified components are used as part of the assembly or installation procedure, the user must take in to account any limitations which might be listed on the relevant certificates.
- n. The enclosure is supplied with readymade cable entries (face A, B and C). Where the customer requires additional cable entries they may be drilled on face 'D', there must be no more than 2 additional 1-1/8" clear holes added to the face. To help with hole positioning there are two indentations which indicate the centre points for the two additional holes. In order to maintain the rated box strength, the user must not drill holes in the box other than where marked.
- o. All unused entry holes must be sealed using certified stopping plugs. The end user must install the stopping plugs and cable glands in strict accordance with the manufacturer's instructions.
- p. The enclosure must not be modified in any way without reference to Don Electronics, as this will invalidate the certification.
- q. All wiring must be carried out in accordance with relevant codes of practice.
- r. The voltage and current and maximum power dissipation shown on the box label must not be exceeded.
- s. All leads must be insulated for the appropriate voltage.

SN2 NODE

The SN2 is a two input speed node. The node is able to monitor two independent pulse (speed) sources, for example from elevators or conveyors to monitor under speed conditions. For each speed input there is a corresponding interlock input. The SN2 will support pulses which are PNP or sourced.

Electrical connection

Care should be taken when making connections to the SN2 speed node. The electrical supply must be between 24VDC \pm 10%. If the maximum supply rating is exceeded, the internal protection fuse will fail and the SN2 will not work. The fuse is not designed to be replaced and therefore if a fuse fails the node is considered beyond repair.

Terminals **+VIN** and **0VIN** are the supply terminals to the SN2.

Terminals **+VOUT** and **0VOUT** are terminals designed to supply power to the external approved sensors (e.g. **P300** and **P800** Inductive Proximity Sensors).

Terminals **A** and **B** are used for the RS485 serial communications bus (HotBus). Care should be taken to ensure that the connections are observed. Incorrect connection can result in loss of communications between nodes. **WARNING:** under no circumstances must the power supply connection be allowed to come into contact with these terminals; to do so would result in the failure of the SN2 communications interface.

The two way terminals: **INTERLOCK 1** and **INTERLOCK 2** are used for connecting the 24VDC interlock signal. Both the Interlock terminals are reversed polarity protection so +24VDC signal can be connected regardless of the signal polarity to the respective interlock terminal. The voltage range for detecting the interlock signal is 24VDC \pm 10%.

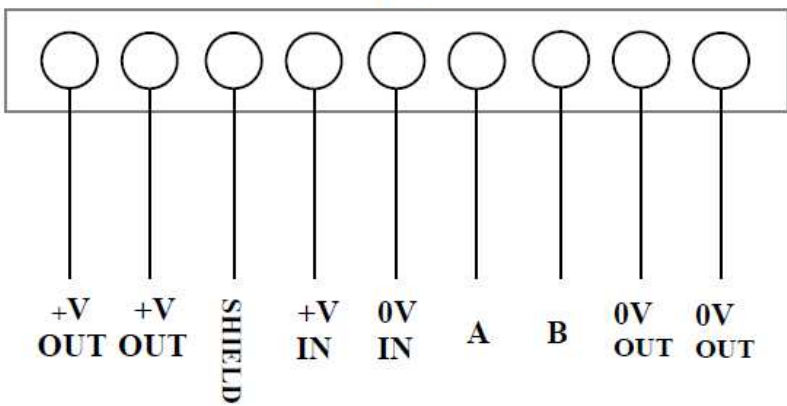
The three way terminals **SPEED 1** and **SPEED 2** are used to connect the speed sensors to the SN2. Two speed sensors can be connected to a single SN2. Terminals **+**, **IN** and **0** are associated with the speed sensor inputs. The **+** terminal provides positive DC voltage in order to power the speed sensor. The voltage present on the **+** terminal is the same as the supply voltage to the SN2. The output signal from the speed sensors is wired to the **IN** terminal, whereas the **0** terminal provides 0V DC connection for the speed sensor.

Please consult the datasheets of 5-wire P300 and P800 proximity sensors for correct wiring instructions.

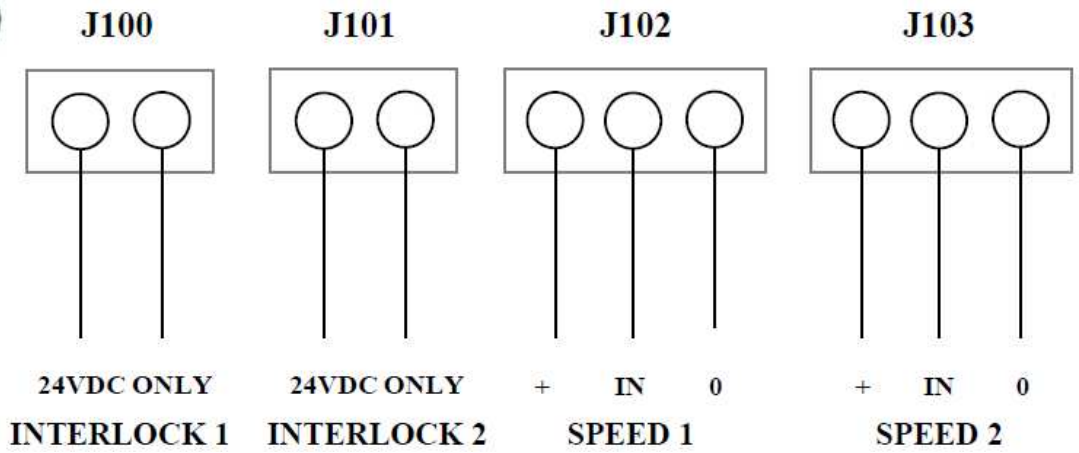


Communication & Power Connections

J104



SN2 Sensor Connections



The SN2 has been designed to be HOT swappable (**Zone 22 / Division 2 only**). The terminals are plug-in types to allow the user to remove a faulty board and replace it without disturbing the rest of the installation and whilst the equipment is still live. If you intend to make wiring changes or if the SN2 is installed in a **CAT 2D (Zone 21)** or **Division 1** environment, you **MUST** first disconnect power from the system to ensure that you eliminate the risk of electrical shorting on live conductors.

Special conditions for safe use:

If this enclosure is to be installed in an outside location then a suitable protective shield must be used to prevent exposure to Ultra Violet light.

For help and advice

www.go4b.com



WARRANTY INFORMATION

1. EXCLUSIVE WRITTEN LIMITED WARRANTY

ALL PRODUCTS SOLD ARE WARRANTED BY THE COMPANY (4B COMPONENTS LIMITED, (4B) BRAIME ELEVATOR COMPONENTS LIMITED, AND (4B) S.E.T.E.M. Sarl) HEREIN AFTER REFERRED TO AS 4B TO THE ORIGINAL PURCHASER AGAINST DEFECTS IN WORKMANSHIP OR MATERIALS UNDER NORMAL USE FOR ONE (1) YEAR AFTER DATE OF PURCHASE FROM 4B. ANY PRODUCT DETERMINED BY 4B AT ITS SOLE DISCRETION TO BE DEFECTIVE IN MATERIAL OR WORKMANSHIP AND RETURNED TO A 4B BRANCH OR AUTHORIZED SERVICE LOCATION, AS 4B DESIGNATES, SHIPPING COSTS PREPAID, WILL BE, AS THE EXCLUSIVE REMEDY, REPAIRED OR REPLACED AT 4B'S OPTION.

2. DISCLAIMER OF IMPLIED WARRANTY

NO WARRANTY OR AFFIRMATION OF FACT, EXPRESSED OR IMPLIED, OTHER THAN AS SET FORTH IN THE EXCLUSIVE WRITTEN LIMITED WARRANTY STATEMENT ABOVE IS MADE OR AUTHORIZED BY 4B. 4B SPECIFICALLY DISCLAIMS ANY LIABILITY FOR PRODUCT DEFECT CLAIMS THAT ARE DUE TO PRODUCT MISUSE, ABUSE OR MISAPPLICATIONS, AS AUTHORIZED BY LAW, 4B SPECIFICALLY DISCLAIMS ALL WARRANTIES THAT THE PRODUCT IS FIT OR MERCHANTABLE FOR A PARTICULAR PURPOSE.

3. NO WARRANTY "BY SAMPLE OR EXAMPLE"

ALTHOUGH 4B HAS USED REASONABLE EFFORTS TO ACCURATELY ILLUSTRATE AND DESCRIBE THE PRODUCTS IN ITS CATALOGS, LITERATURE, AND WEBSITES, SUCH ILLUSTRATIONS AND DESCRIPTIONS ARE FOR THE SOLE PURPOSE OF PRODUCT IDENTIFICATION AND DO NOT EXPRESS OR IMPLY A WARRANTY AFFIRMATION OF FACT, OF ANY KIND OR A WARRANTY OR AFFIRMATION OF FACT THAT THE PRODUCTS WILL CONFORM TO THEIR RESPECTIVE ILLUSTRATIONS OR DESCRIPTIONS. 4B EXPRESSLY DISCLAIMS ANY WARRANTY OR AFFIRMATION OF FACT, EXPRESSED OR IMPLIED, OTHER THAN AS SET FORTH IN THE EXCLUSIVE WRITTEN LIMITED WARRANTY STATEMENT ABOVE, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

4. LIMITATION OF DAMAGES

ANY LIABILITY FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, EXEMPLARY, OR PUNITIVE DAMAGES, OR FOR LOSS OF PROFIT WHETHER DIRECT OR INDIRECT, IS EXPRESSLY DISCLAIMED.

Document Revision	Date revised	Revisions made
R1	June 2013	Initial release