



BAP2 Motion Alignment Sensor

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



BAP2 MOTION ALIGNMENT SENSOR

DESCRIPTION

The BAP2 sensor detects moving ferrous material and is designed for use with bucket elevators and conveyors to detect the buckets, for measurement of speed and alignment. It can also detect ferrous bolts, which are used to attach non-ferrous buckets. The sensor is used in conjunction with a PLC or with a Watchdog or A400 Elite control unit. Two output signals are provided: one signal is a pulse output, representing each bucket detected: the second signal is a continuous output when moving buckets are detected.

SPECIFICATION

Model No	BAP21V34AI	BAP22V34CAI
Voltage	12-24vdc $\pm 10\%$	12-24vdc $\pm 10\%$
Supply current	40-90ma	40-90ma
Outputs, current sinking max	100ma (NPN with pull up)	100ma (NPN with pull up)
Detection range (1" bolt head)	25mm-50mm	25mm-50mm
Detection rate	20-2000/min	20-2000/min
Protection	IP66	IP66
Hazardous area classification	See protection below	See protection below
Dimensions	90mm DIA x 35mm	90mm DIA x 35mm
Fixing centres, M6	52.2mm x 52.2mm	52.2mm x 52.2mm
Cable	6 core 2m long	6 core 2m long
Conduit entry	-	1/2" NPT
Weight (shipping weight)	405g (530g)	428g (553g)

CABLE CONNECTIONS

RED	+ve supply 12-24v dc $\pm 10\%$
BLACK	-ve supply Ov
GREEN	Earth (Ground) Connected to case
YELLOW/ORANGE	Control 0 - +ve supply
BLUE	Pulsed output, normally low, high when detecting
WHITE	Continuous output, normally high, low when detecting

Earthing and Bonding in Zone 20 Hazardous areas

Connect an additional bonding conductor of at least 4mm² to the mounting screw to the left of the cable entry, where the paint has been removed, using a ring lug, and washers.

COMPLIANCE:

IEC/EN61241-0 & -1 IECEx – Electrical Protection by Enclosure

Ex tD A20 T120 IP66

IECEX BAS 07.0088X

94/9/EC

ATEX – Electrical Protection by Enclosure

Ex II 1D Ex tD A20 T120 IP66

Baseefa07ATEX0263X

C22.2

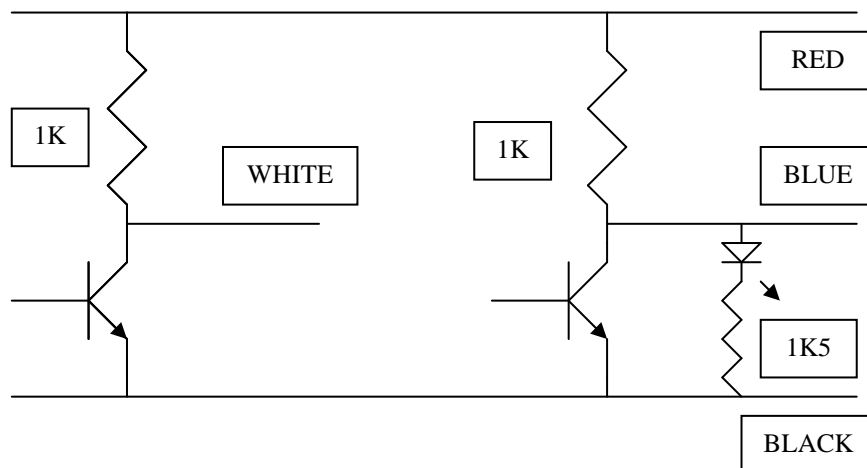
Canadian Standards Association (BAP22 only)

Class II Division 1 Groups E,F & G

Special Conditions for safe use:

1. The unit supply shall not exceed 24 VDC
2. Dust layers shall not exceed 50mm
3. The integral cable shall be terminated in a suitable ATEX approved terminal box or in a safe area
4. If the integral supply cable is not fitted in conduit then it shall be clamped every 300mm
5. An external earth connection is required on the BAP sensor. This can be achieved by either:
 - i. Direct mounting on an earthed metal structure
 - ii. A crimp ring lug connection, suitable for at least 4mm² cable, to a bolt passing through a hole in the BAP flange where the paint has been removed. The ring lug shall be prevented from rotating during tightening.

When installed as category 2D equipment adequate cleaning must ensure dust layers are kept below 5mm. Installation is only allowed where the exposed face of the Encapsulant is unlikely to be subject to impact damage.



CONTROL

Sensitivity adjustment is achieved with the internal potentiometer and the voltage on the YELLOW/ORANGE wire.

To use the internal potentiometer, connect the YELLOW/ORANGE wire to the RED wire (+ve, 12-24v). Turn the potentiometer clockwise to increase sensitivity.

To use the external control voltage (A400 etc) connect the YELLOW/ORANGE wire to the control voltage from the A400 and turn the potentiometer on the BAP2 fully anti-clockwise. Reduce the control voltage to increase sensitivity.

In both arrangements, reduce the sensitivity if the pulsed output (LED) becomes unstable.

LED INDICATOR

The green LED shows the state of the pulsed output and flashes once for each bucket (bolt) detected. The LED should be off when no buckets (bolts) are detected, if not, reduce the sensitivity.

MOUNTING

When mounting on a steel elevator leg, cut a hole of 50-60mm dia and fix with four M6 screws. Alternatively, cut a larger square hole, fit a polycarbonate window and fix the sensor with four M6 screws in the centre of the window. When fixing to aluminium, plastic or non-magnetic stainless steel panels, it is not necessary to cut a hole as the sensor can 'see' through these materials.

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BAP2 CAPTEUR DE MOUVEMENT ET DE DEPORT DE SANGLE

DESCRIPTION

Le capteur BAP2 détecte le mouvement de matériaux ferreux . Il est conçu pour être utilisé sur les élévateurs à godets et les convoyeurs ; en détectant les godets, il permet de mesurer la vitesse ainsi que le déport . Il peut aussi détecter les boulons ferreux qui sont utilisés pour fixer les godets non ferreux . Le capteur peut être utilisé conjointement avec un automate programmable ou avec le WATCHDOG ELITE ou le A400 ELITE. Deux types de signaux sont fournis :

- un signal qui est une sortie en pulsation, pulsation représentant chaque godet détecté
- un second signal qui est continu quand le mouvement des godets est détectés .

SPECIFICATIONS

Model No	BAP21V34AI	BAP22V34CAI
Tension	12-24vdc $\pm 10\%$	12-24vdc $\pm 10\%$
Courant d'alimentation	40-90mA	40-90mA
Courant de sortie max	100mA Type NPN	100mA Type NPN
Rampe de détection sur tête de boulon de dia. 25 mm	25mm-50mm	25mm-50mm
Vitesse de détection	20-2000/min	20-2000/min
Protection	voir la protection ci-dessous	voir la protection ci-dessous
Classification.	voir la protection ci-dessous	voir la protection ci-dessous
Dimensions	90mm DIA x 35mm	90mm DIA x 35mm
Trous de fixation, M6	52.2mm x 52.2mm	52.2mm x 52.2mm
Cable	6 conducteurs de 2m	6 conducteurs de 2m
Conduit d'entrée	-	1/2" NPT
Poids (poids d'expédition)	405gr (530gr)	428gr (553gr)

CONNEXIONS DES CABLES

ROUGE	+ Ve alimentation 12-24 V $\pm 10\%$
NOIR	- Ve alimentation 0 V
VERT	terre (masse) connecté à la carcasse
JAUNE/ ORANGE	contrôle 0 - + Ve alimentation
BLEU	sortie en pulsations, normalement état bas, haut quand détection
BLANC	sortie continue, normalement état haut, bas quand détection

Conformité:

IEC/EN61241-0 & -1 IECEx – Protection électrique par Enclosure

Ex tD A20 T120 IP66

IECEX BAS 07.0088X

94/9/EC

ATEX – Protection électrique par Enclosure

Ex II 1D Ex tD A20 T120 IP66

Baseefa07ATEX0263X

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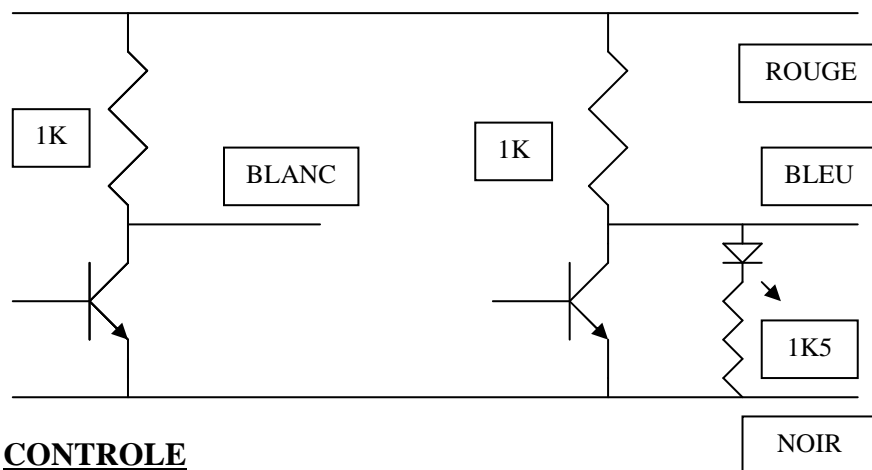
Association Canadienne De Normes (BAP22 seulement)

Class II Division 1 Groups E,F & G

Conditions spéciales pour l'usage sûr :

1. L'alimentation d'unité n'excédera pas 24 volts de la poussière de volts continu
2. n'excédera pas 50mm
3. que le câble intégral sera terminé dans une boîte terminale approuvée par ATEX appropriée ou dans un secteur sûr
4. si le câble intégral d'alimentation n'est pas adapté dans le conduit puis il sera maintenu chaque 300mm
5. un raccordement externe de la terre est exigé sur la sonde de BAP. Ceci peut être réalisé par l'un ou l'autre :
 - i. Support direct sur une structure mise à la terre
 - ii en métal. Un raccordement de crochet d'anneau de cuir embouti, approprié au moins au câble 4mm², à un boulon passant par un trou dans la bride de BAP où la peinture a été enlevée. Le crochet d'anneau sera empêché de la rotation pendant le serrage.

Une fois installé en tant que nettoyage adéquat du 2D matériel category doit assurer des couches de la poussière sont conservés en-dessous de 5mm. On permet seulement l'installation où il est peu susceptible être sujet le visage exposé de l'encapsulant aux dommages d'impact



CONTROLE

Le réglage de la sensibilité est obtenu avec un potentiomètre interne et par la tension appliquée sur le câble jaune/orange.

Pour utiliser le potentiomètre interne, connecter le câble jaune/orange au câble rouge (12-24 Vdc). Tourner le potentiomètre dans le sens horaire pour augmenter la sensibilité.

Pour utiliser la tension de contrôle externe (A400 etc) connecter le câble jaune/orange sur la sortie de contrôle tension du A400 et tourner complètement le potentiomètre sur le capteur BAP2 dans le sens anti-horaire. Réduire la tension de contrôle pour augmenter la sensibilité.

Dans les deux configurations, réduire la sensibilité si les pulsations de sorties (LED) deviennent instables.

LA LED INDICATRICE

La led verte montre l'état de sortie des pulsations et clignote chaque fois qu'un godet (un boulon) est détecté. La led doit être éteinte quand aucun godet (boulon) n'est détecté , si non, réduire la sensibilité.

LE MONTAGE

Quand il est monté sur le jambage d'un élévateur en acier, faire une découpe de 50 à 60 mm de diamètre et fixer le capteur avec les quatre vis M6.

En alternative, découper un large trou carré , fixer une fenêtre de polycarbonate et fixer le capteur au centre de cette fenêtre avec quatre vis M6 .

Quand on doit fixer le capteur sur de l'aluminium, du plastique ou de l'inox amagnétique, il n'est pas nécessaire de découper un trou, le capteur « voit » à travers ces matériaux .

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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.

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3. NO WARRANTY "BY SAMPLE OR EXAMPLE"

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