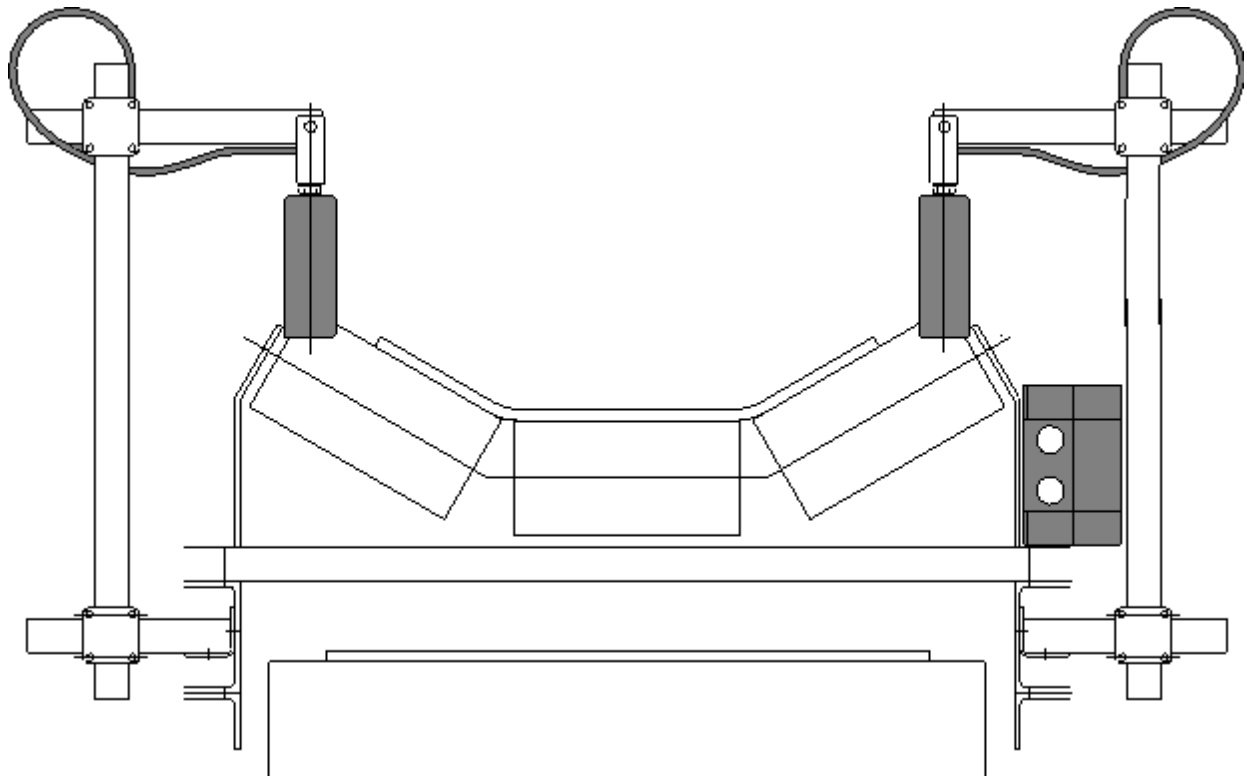




# BRAIME ELEVATOR COMPONENTS LTD



**BELT SWITCH BELT ALIGNMENT MONITOR  
SYSTEM TYPE**

**CBS2A**

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**OPERATING  
INSTRUCTIONS**

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## **SPECIAL CONDITIONS FOR SAFE USE**

*The instructions shown below **MUST** be followed when installing the system , where applicable:*

- 1) The enclosure SHALL be protected from UV exposure.**
- 2) The end user MUST ensure that cable length does not exceed 100m (screened cable). There are no special installation requirements.**
- 3) The enclosure SHALL be fitted with suitable ATEX apparatus certified cable glands and/or stopping plugs. Component stopping plugs SHALL be Hawke type 375 or 378.**
- 4) The enclosure SHALL NOT be used under dust layers exceeding 50mm.**

## GENERAL

High degrees of frictional heat can be created by conveyor/elevator belts rubbing against machine structures. This frictional heat can be sufficient to cause fires and explosions. The purpose of the belt alignment monitor is therefore to ensure that any belt misalignment is detected BEFORE there is any contact between the belt and any fixed object or structure.

The Belt Alignment system consists of two or four tilt mechanisms feeding into an electronic control unit. Each tilt mechanism consists of a vertically pivoted arm and incorporates two switches, one giving an alarm output at 15° tilt and the second a shutdown output at 30°. The tilt mechanisms are fitted in pairs, one either side of the belt such that if the belt moves from its central position, it will contact either roller causing the arm to move and giving outputs at 15° and 30°. The control unit takes the signals from the tilt mechanisms and provides relay outputs for Alarm and Stop (shutdown) at 15° and 30° respectively, when one or more tilt mechanisms detect belt misalignment. Independent adjustable time delays are included.

The entire system is ATEX approved for use in dust hazard areas.

## MECHANICAL INSTALLATION

Install each pair of tilt mechanisms in required positions generally as shown in fig 1. **ENSURE THAT THE CABLE IS ON THE OPPOSITE SIDE TO THE BELT AS SHOWN.** If two pairs are being used, they should be mounted at each end of the belt as near to the main drive and tail end rollers as possible. A single pair should be mounted approximately half way along the belt.

Ensure that the belt will contact the centre of the tilt mechanism roller.

Ensure that all structures are mounted securely and bolted tightly.

Mount the control unit in the required position and drill required cable entry holes. Remove pcb if necessary, to avoid damage .

NOTE ATEX regulations permit only 2 x 25mm holes per face. These may be drilled anywhere on the face provided that the distance between hole centres is not less than 54mm and that the holes are at least 12mm from the inside edges of the box. For more details refer to fig 4.

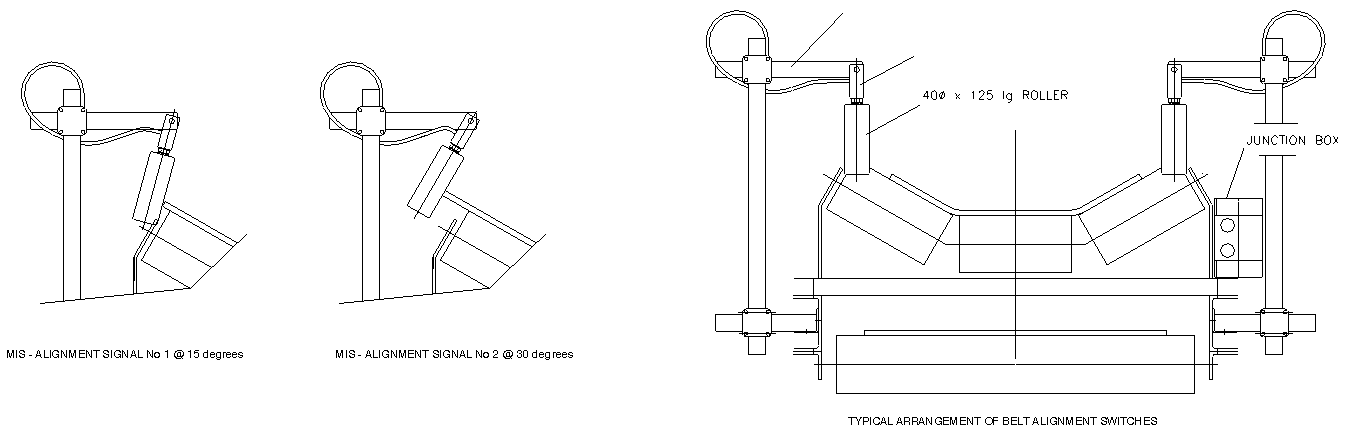
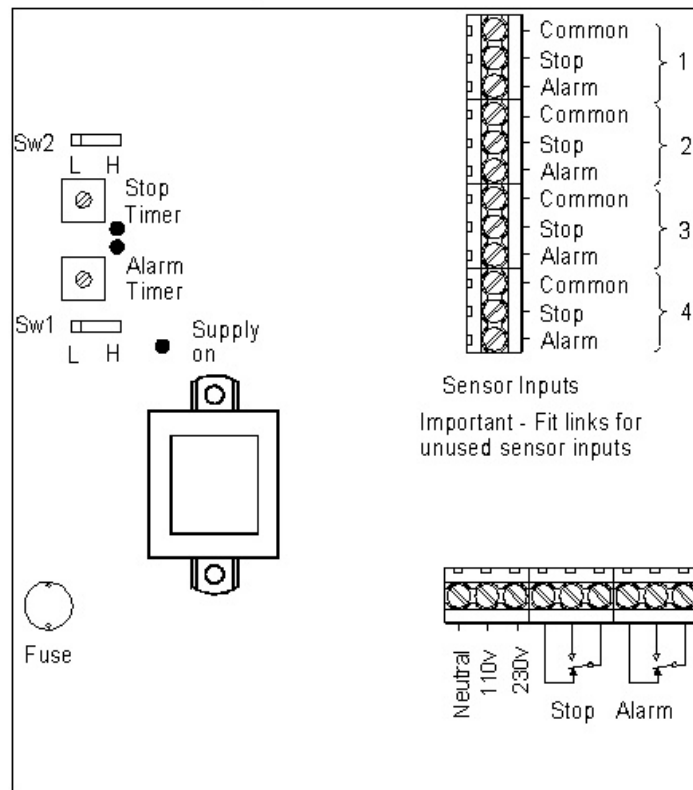


fig 1

## WIRING

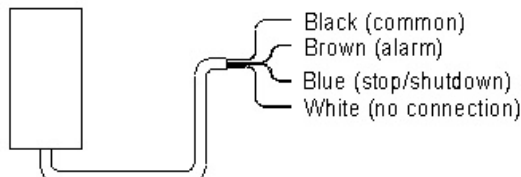
The system should be inter connected as shown in fig 2. If only one pair of sensors are to be used fit links to the unused positions as detailed. Standard unscreened cable can be used for all interconnections maximum distance limitation is 100 metres. All wiring must be in accordance with relevant electrical and ATEX regulations.

**fig 2**



**fig 3**

**SENSOR TYPE**  
CBS2VNA  
**CONNECTIONS**



## COMMISSIONING

**IMPORTANT - FOR SAFETY REASONS, THIS PROCEDURE MUST BE CARRIED OUT WITH THE CONVEYOR STATIONARY AND ISOLATED**

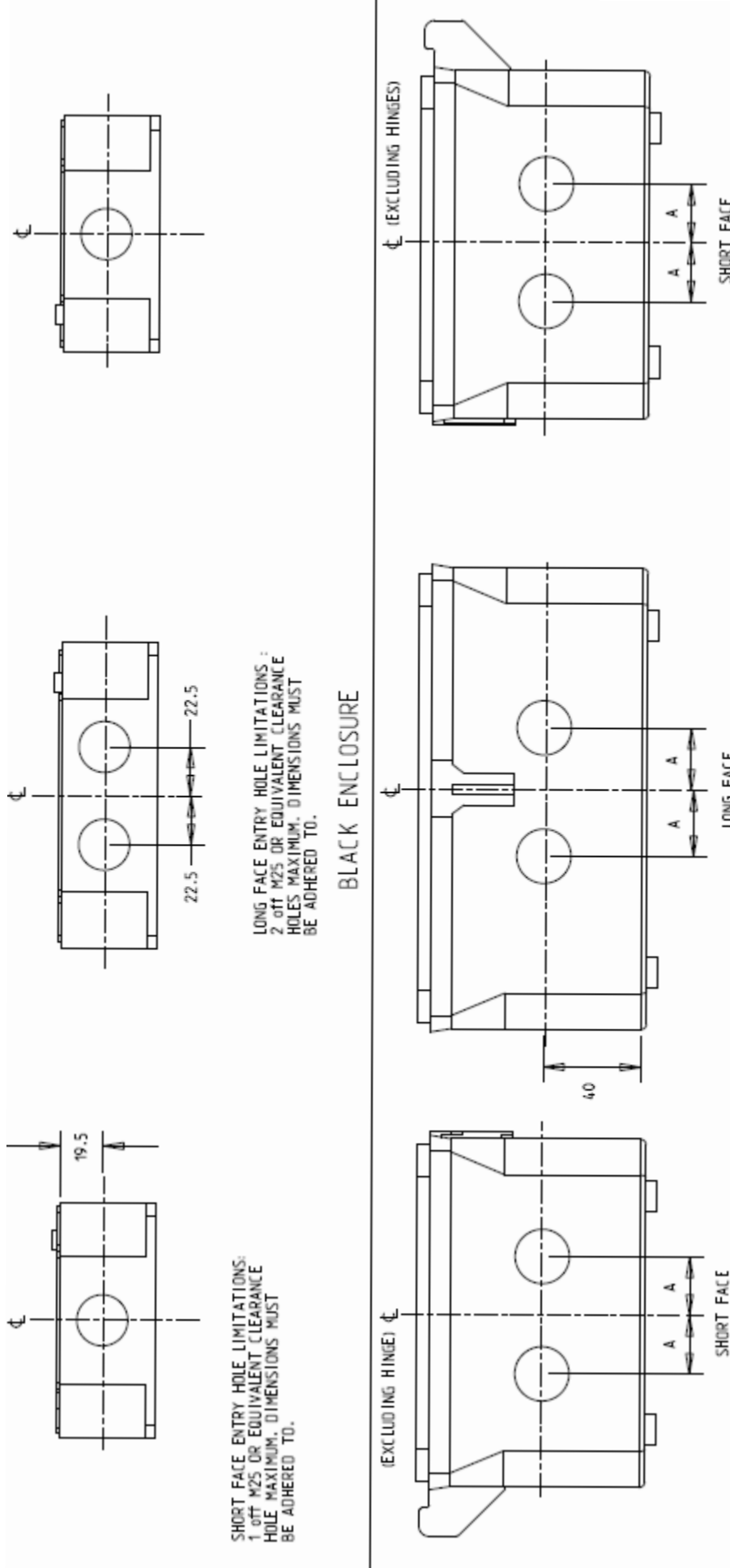
Check that all wiring is correct. Turn the shut down and alarm timers to fully anticlockwise position (zero time). Place switch 1 and 2 to the H position and then apply power.

The power on, alarm and shutdown LED's should be illuminated.

The operation of each of the tilt switches can now be checked by carefully tilting each mechanism in turn and checking that each operates firstly the alarm output LED and then the shutdown LED.

Finally, timers can be set from 0-30 seconds by turning their respective controls clockwise. This can be checked by using the above procedure and timing the period from operating the tilt switch to LED extinguishing.

fig 4



SHORT FACE ENTRY HOLE LIMITATIONS:  
1.0T M25 OR EQUIVALENT CLEARANCE  
HOLE MAXIMUM. DIMENSIONS MUST  
BE ADHERED TO.

LONG FACE ENTRY HOLE LIMITATIONS:  
2.0T M25 OR EQUIVALENT CLEARANCE  
HOLES MAXIMUM. DIMENSIONS MUST  
BE ADHERED TO.

BLACK ENCLOSURE

ENCLOSURE MODEL :  
SMALL 27  
LARGE 45

"A"

GREY ENCLOSURES

ENTRY HOLE LIMITATIONS - ONLY 2.0T M25 (OR EQUIVALENT) CLEARANCE HOLES PER FACE, PROVIDING THAT THE CENTRE LINE BETWEEN THE TWO ADJACENT HOLES IS NO LESS THAN "C" mm AND THERE IS AT LEAST "A" mm OF MATERIAL FROM THE INSIDE EDGE OF THE BOX.

GENERAL TOLERANCE  $\pm 0.2\text{mm}$   
FOR ALL ENCLOSURES. COMPONENT CERTIFIED STOPPING PLUGS MUST BE HAWKE INTERNATIONAL TYPE 375 OR 387. THE END USER MUST INSTALL COMPONENT & APPARATUS CERTIFIED STOPPING PLUGS & CABLE GLANDS IN STRICT ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS

FOR CBS1A/CBS2A USE DIMENSIONS OF SMALL GREY ENCLOSURE

## GENERAL SPECIFICATION

**Supply:** 110/230V ac.

**Fusing:** Unit should be supplied via a fused isolator rated at 5A 230V ac maximum



**Relays:** Volt free changeover contacts rated 5A 250ac, 60V dc non inductive

**Time Delay:** 0-30 seconds individually adjustable for alarm and shutdown functions

### **Tilt Switch**

**Mechanism:** Fully sealed unit with no serviceable parts. Supplied with 2 metres cable. Cable may be extended to a maximum total of 100m from the control unit. (See special conditions).

### **ATEX**

**Certification:**  II 1D Ex tD A20 (Ex iaD) 20 T125°C. Tamb -20+ 50°C  
Baseefa05ATEX0122X IP66 6W  1180

### **Guarantee**

The equipment is covered by a 12 months guarantee from the date of shipment. Any faults arising due to faulty materials or workmanship, within the guarantee period, will be corrected free of charge providing the equipment is returned to us carriage paid.

### **Certificate of Conformity**

The equipment covered by these instructions has been manufactured and tested in accordance with our quality assurance procedures and conforms fully with our published specifications.

### **Health and Safety**

Provided that the equipment covered by these instructions is installed and operated as directed, it presents no hazard and conforms fully to health and safety regulations.



THIS PRODUCT CONFORMS TO THE REQUIREMENTS FOR CE MARKING

*When this product is incorporated into other machinery or apparatus, that apparatus must not then be put into service (in the E.C) until it has been declared in conformity with the appropriate E.C Directive/s.*



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