

# bramco ELECTRONICS

## BK400 Pullkey Safety Switches

Independently Certified IP66 Rating

Incredibly Robust Construction

Advanced Slack Wire Protection

Remote Isolation

Industry First Operating Temperature Compensation

Designed for and Compliant with Key Industry Standards

Completely Flexible Design to Suit all Applications

Six Cable Entries

Optional Signal Flag



**Your Partner for  
Conveyor Control.**

Founded in 1945, Bramco design and manufacture innovative electronic control, protection, monitoring and safety products including mine energy distribution and protection, mine switchgear, mining conveyor control, mining communications and purpose designed electronic safety equipment.

# BK400 Pullkey Safety Switches

The BK400 Pullkey is a lanyard switch designed to provide pull wire protection on conveyors, it is available in two models. These are the BK400S - single shafted key, which operates in a balanced pullwire configuration and the BK400D dual shafted key, where the two pullwires operate mechanically independent of one another. The Keys may be spaced at up to 200 meter centres, depending on customer preferences. The Keys may be located on one side of the conveyor and configured to provide pull wire protection to both sides of the conveyor. By design, the key and its recommended installation comply with the requirements of (amongst others) AS1755, AS4024 and AS62061.

## Features:

- Tested and Certified to IP66.
- Incredibly Robust Enclosure available in either:
  - Diecast Aluminium
  - Diecast Zinc
  - Diecast Stainless Steel
  - Diecast Brass
- Industry first - temperature compensation function to avoid "nuisance" trips (-35° to +65°).
- Remote Isolation (Optional).
- Pullkey spacings of up to 200m.
- Slack Wire Protection - Field Selectable on BK400D.
- Optimal Corrosion Resistance.
- Rugged Multi Contact Switch (Optional Contact Materials).
- Up to 6 Cable Entries.
- No Junction Box Required.
- Signal Flag for Tripped Indication (Optional).
- Visual LED Indication of Isolate (Optional).
- Lock Out Safety Facilities.
- Double Make Double Break Switches.
- Stainless Steel and Brass Internals.



## Spacious:

The BK400 enclosure can accept up to 6 cable entries. The generous size of the unit allows Bramco to incorporate monitoring and control electronics in the enclosure. With 40 terminals, no extra junction box is required for the marshalling of cables.

## Easily Engaged:

The BK400 is incredibly easy to use with reset indication via the clear bubble dome on the top side of the key to assist in centralising the shaft.

## Remote Isolation:

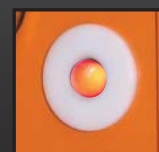
Bramco Electronics for many years now have had the Isolate function operating on surface and underground Conveyor Control Systems. Our longest system currently operating is 21Kilometers in length. This system operates from one Bramco control unit continuously over this distance.

## Practical:

Visual LED indication of Isolate and/or tripped function via the high-intensity LEDs located on both sides of the enclosure is also available (Optional).

## Advanced:

Used in conjunction with Bramco's Temperature Compensation system. Temperature compensation applies where variations in temperature cause the length of the pull/trip wire to vary. Our system compensates for the extensions of the wire and the distribution back into the system when movement occurs. We accommodate these changes and maintain a constant tension on the pull/trip wire.



### Installation Options:

BK400 Pullkeys may be mounted at 50m, 100m or 200m intervals depending on your requirements and specifications. They may be mounted on one – or on both sides of a conveyor. There are a number of format options for single and double sided configurations.

### Retrofit:

An optional mounting plate is also available for retrofitting the BK400 pullkeys to existing installations.

### Totally Configurable:

Configurable to meet your requirements – in addition to the features detailed, you can select, Cable entry via plugs or glands, various colour options, intelligent control and monitoring electronics, varying operating spring rates.



## BK400D Pullkey

The BK400D is a **dual shaft** Pullkey where the lanyard wires are coupled to one or the other pull shaft. Each shaft operates independent to the other and resets automatically following pull activation of the key via the pullwire.

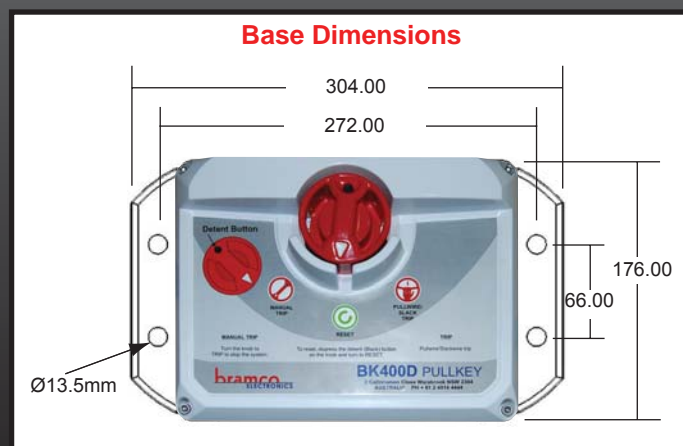
The two shafts are located at the top on each side of the key. Each shaft has a rubber boot protruding from the enclosure to which the pullwires are attached to.

## BK400S Pullkey

The BK400S is a **single shaft** Pullkey where the lanyard wires are coupled to each end of the single pullshaft. The BK400S operates with tension on each pullwire to maintain the shaft in a balanced condition.

It has been specifically designed to provide temperature compensation and provide for distances of up to 200m spacings between pullkeys.

Adjustment of the pullkey models may vary in accordance with the standards to be complied with, customer safety requirements for an installation and the topography and climate conditions of the installation. Bramco Electronics will supply the necessary set up procedure for each installation to meet our customers requirements.

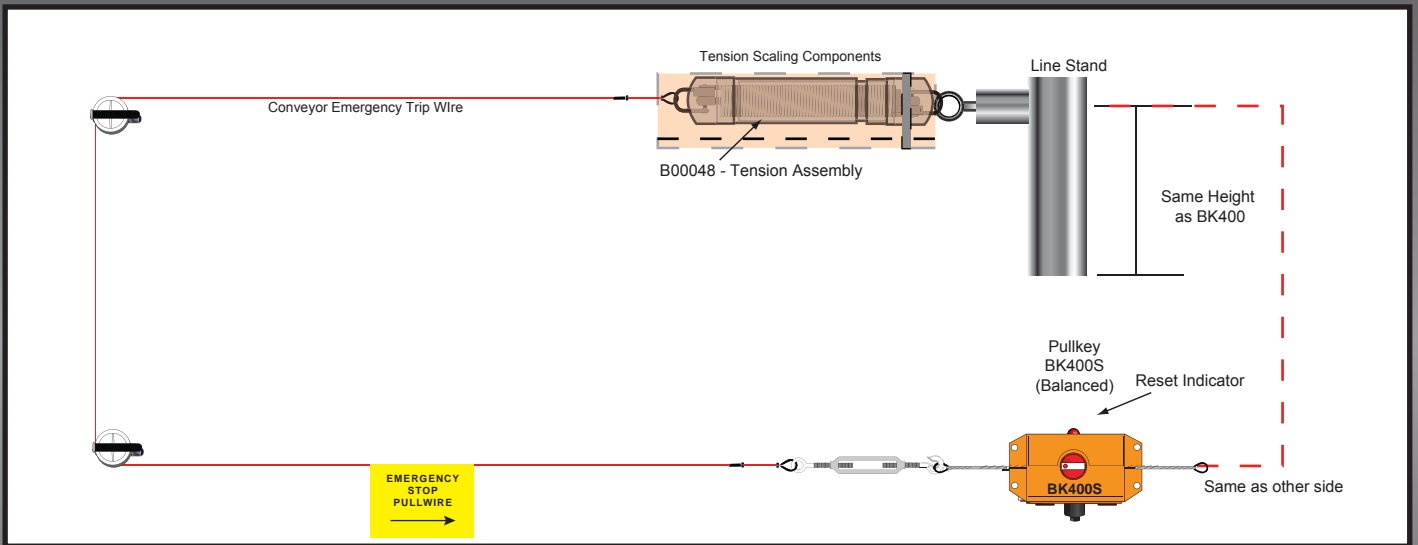


# Industry First! **Temperature Compensation** for Conveyor Lanyard Trip Systems

- Temperature compensation means you no longer need to seasonally tension your conveyor system, which relates to less downtime, and less maintenance costs.
- Eliminates nuisance tripping.
- Enhanced safety due to trip wire remaining taut.
- Typical operating range of  $-35^{\circ}$  to  $+65^{\circ}$ .

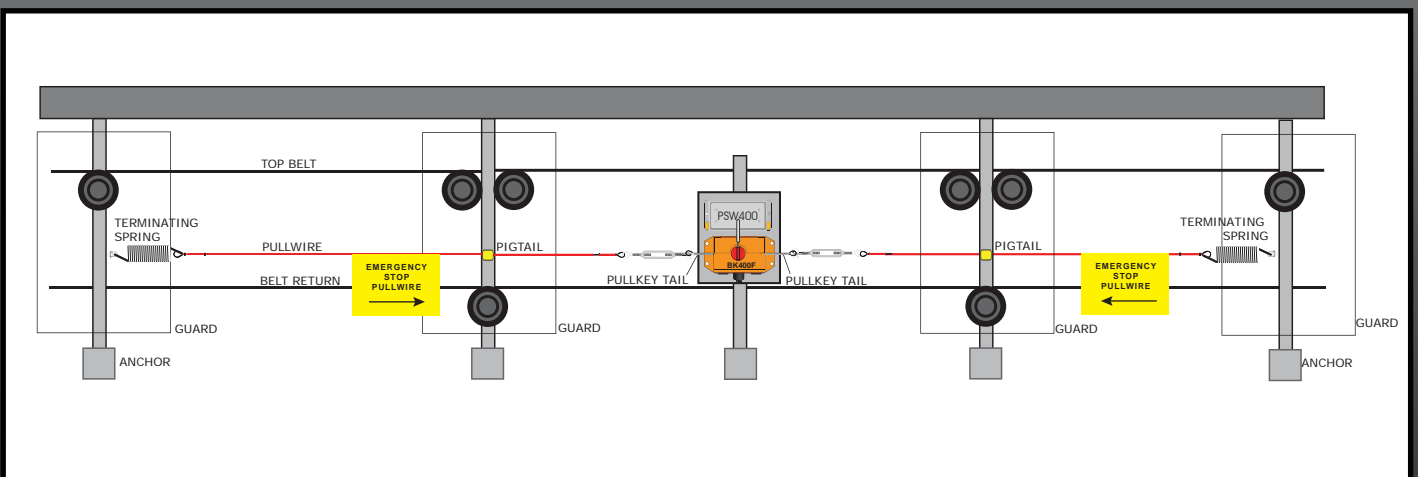
Fact: Pull wire expansion and contraction is of the magnitude of 2mm per 1 degree C in temperature.

## Installation Setup - BK400S



When adjusting or maintaining a Tension Assembly, slow light pressures should only be exerted. Excessive force will be resisted by the Tension Assembly in accordance with its design.

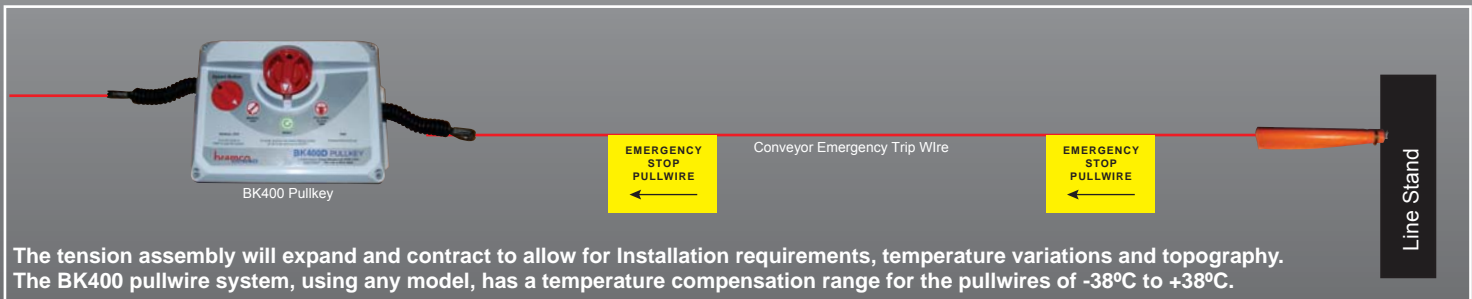
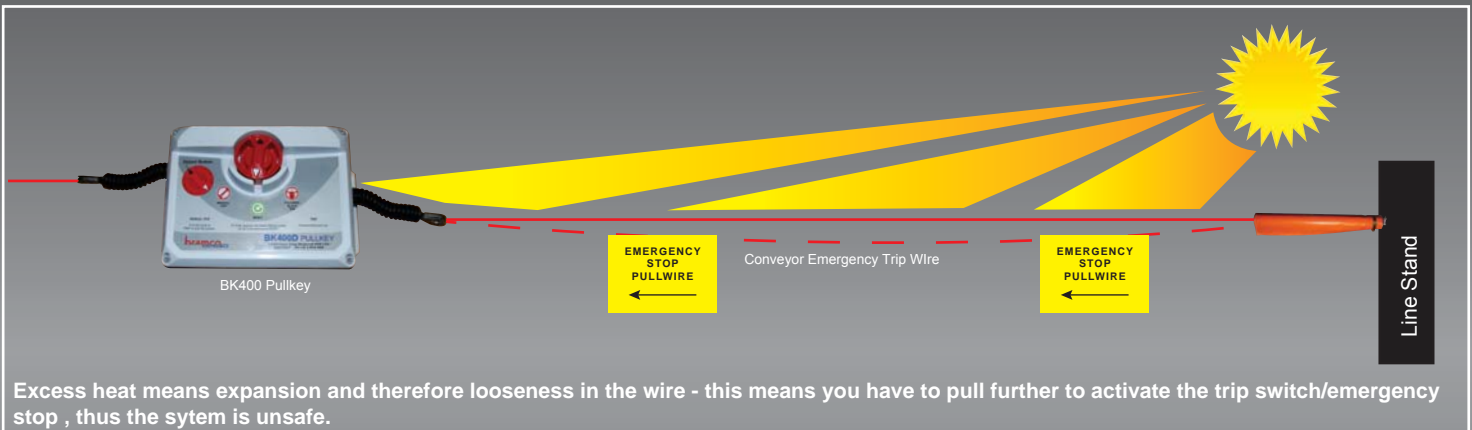
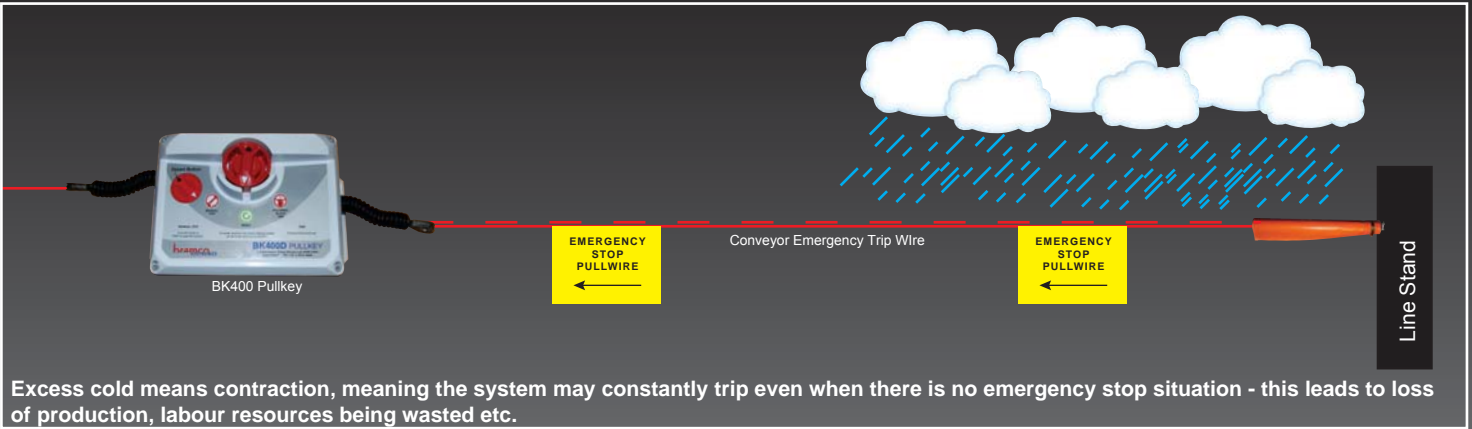
## Installation Setup - BK400D/F



## Tension Assembly with Hyperlon Protective Sleeve.



# Tension Assembly - Extension and Contraction of Lanyard Wire



## Ordering Options:

BK400S - Single Shaft Pullkey.

BK400D - Dual Shaft Pullkey.

BK400F - Dual Shaft Pullkey with Optional Signal Flag.

B00048 - BK400 Tension Assembly.

Retrofit Mounting Plates.

(Contact Bramco for ordering options and or Bramco Conveyor Systems.)

## Optional Accessories

Bramco supplies a wide range of suspension fittings for pullwire and cable.

| Description            | Part Number |
|------------------------|-------------|
| D-Shackle:             | H70056      |
| Lanyard Wire Strainer: | H70366      |
| Pulley:                | H70238      |
| AKL-2:                 | E70025      |
| AKL-6:                 | E70026      |
| Turnbuckle:            | H70059      |
| Cable Glands:          | H70157      |
| Pigtails:              | H70235      |
| Rope Clamp:            | H70237      |
| Thimble:               | H70057      |
| Terminating Spring:    | H70334      |
| Emergency Stop Label:  | L35098      |

Bramco Electronics has been an industry leader for many years in the Design, Manufacture and Supply of Conveyor Signal Line Control and Monitoring Systems. Our first products were designed and built in 1959. Our CCMS and SLCM Signal Line Control and Monitoring Systems; employing the BK400 Pullkey; were independently assessed and rated as System Integrity Level 5, and interlocking category (CAT) 4.

# *Your Partner for Conveyor Control.*

"With well over one hundred conveyor systems in operation, some stretching over 20kms and running from one Bramco control unit, Bramco is your partner in conveyor control."



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