

Pullkey

Type ESS3

- ✓ Lanyard operated pull switch
- ✓ Latching function
- ✓ Optional slack rope detection
- ✓ IP66
- ✓ Gland entry or plug and socket
- ✓ Visual status indication
- ✓ IEC 61508 SIL 2 or SIL 3 system capable
- ✓ Up to six individual changeover switches
- ✓ Wide operating temperature range



The pullkey type ESS3 is a lanyard or cable operated pull switch designed for emergency stop protection of overland or underground conveyors, belts or other distributed plant.

The pullkey type ESS3 can be operated by pulling on either of its flexible pull actuators or by rotating its front panel mounted control or lockout knob.

The lockout knob position provides visual indication of the switch state while reflectors mounted in the lockout knob provide long distance indication of the switch state.

Pullkeys are mounted at set intervals (50m - 150m) along a conveyor with their pull actuators joined by a cable lanyard. 'Pigtails' support longer cable lanyards and tensioned wire ropes between the pullkeys.

The ESS3 can be fitted with up to six individual SPDT switches, the switch contacts can be tailored to suit various voltages and currents.

For functional safety applications three of the switches are normally actuated while the other three switches are not actuated, this 'diversity' provides significant defense against common cause failures.

The pullkey has a wide operating temperature range of -50°C to +60°C and ingress protection rating of IP66.

The pullkey type ESS3 can be provided with cable gland entry or with plug and sockets pre-wired to suit your installation and system. The pullkey can also be provided with attached junction boxes loaded with pre-wired terminal blocks to suit your installation and system.

Austdac recommends that an active cable lanyard system, such as SILBUS be used in conjunction with the ESS3 to avoid nuisance false trips caused by belt structure movement and wire rope expansion, contraction and accumulation of ice associated with tensioned wire rope installations.

The use of a fieldbus system such as SILBUS further reduces the likelihood of simple earth faults rendering the emergency stop system unsafe.

Certification

The pullkey type ESS3 is UL listed. IECEx and ATEX certification is not required as the ESS3 is treated as Ex i simple apparatus under these schemes.

The ESS3 is UL listed under UL NKCR.E335081.

The ESS3 is CSA listed under NKCR7.E335081.

The ESS3 MSHA approval number is 18-ISA060002-0.

Specifications

General	
Name	Pullkey
Type	ESS3
Operating temperature Note: equipment placed inside may reduce overall system operating temperature range	-50°C to +60°C -58°F to +140°F
Storage temperature	-50°C to +80°C -58°F to +176°C
Operating relative humidity range	10% to 90% non-condensing
Size H x W x D (Not including actuators)	270 x 98 x 115 mm 10.6 x 3.8 x 4.5 inches
Ingress protection	IP66 NEMA 4X
Electrical connections	Terminal blocks or connectors
Maximum conductor size	2.5mm ² .09inches ²
Housing material	Polycarbonate UL94V0
Housing colour	Safety yellow
Lockout knob material	Polycarbonate UL94V0
Lockout knob colour	Safety red
Lockout knob angular displacement	60°
Switch status indication	Passive reflective
Actuator type	Flexible pull
Actuator length	150mm 5.9 inches
Actuation pull distance (non-tensioned)	40mm 1.57 inches
Actuation pull distance (tensioned)	20mm 0.78 inches
Actuation release distance (tensioned)	20mm 0.78 inches
Actuator tension force	≥ 5N
Actuator pull force	≤ 10N
Actuator coupling	25mm plastic eyelet 0.98 inches plastic eyelet
Fixing fasteners	2 x M8 or M10 bolts
Fixing centres	230mm 9.05 inches
Fixing slots	20 x 11 mm 0.78 x 0.43 inches
Conduit / cable entries	One up facing and up to 4 down facing
Conduit size	20mm conduit or PG13 0.78 inches conduit or PG15
Mass	1.55kg 3.41 pounds
Internal volume	1.195 Litres 0.315 gallon

Switch Contacts	
Input type	SPDT or changeover
Number of switches	6 maximum
Functionally separate operating cams	6
Contact material	Gold on nickel
Operations	106 mechanical
Maximum switching voltage UL1054	125Vac
Maximum switching current UL1054	5Aac
Electrical rated life at full load UL1054	6000 operations
Rated switching voltage	24Vdc
Rated switching current	1Adc
Rated switching current inductive load L/R = 3ms	0.5Adc

Models

The pullkey type ESS3 is available in various models depending on the actuation method and the type of switch module fitted.

Refer to table 1 below for a list of models and features.

Pullkey Type Ess3 Model Numbers ^{NOTE 1}

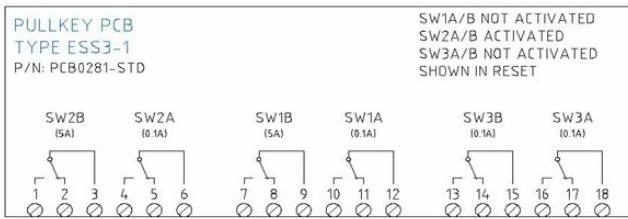
Model	Operation Method	Fitted Switches	Type Fitted	Rating
PKEY001	Slack Rope	SW1a, b	DC1	5A 125Vac
		SW2a, b		
		SW3a, b		
PKEY051	Tensioned	SW1a, b	DC1	5A 125Vac
		SW2a, b		
		SW3a, b		
PKEY002	Slack Rope	SW1a, b	DC3	0.1A 125Vac
		SW2a, b		
		SW3a, b		
PKEY052	Tensioned	SW1a, b	DC3	0.1A 125Vac
		SW2a, b		
		SW3a, b		
PKEY003	Slack Rope	SW1a, b	DC3	0.1A 125Vac
		SW2a, b	DC1	5A 125Vac
		NOT FITTED		
PKEY053	Tensioned	SW1a, b	DC3	0.1A 125Vac
		SW2a, b	DC1	5A 125Vac
		NOT FITTED		

NOTE 1 This table does not apply to monitored lanyard installations (see section 5 of User Manual 52-300-12). Always contact Austdac Pty Ltd for additional guidance and information for these types of installations.

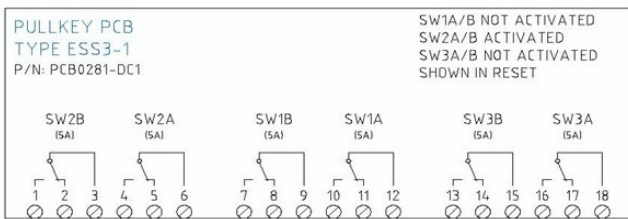
Models fitted with DC1 type switches with a rating of 5 amps at 125 volts AC. are designed to be used in systems that simply place pullkey switches in series along a conveyor and control a contactor that in turn controls the conveyor motor. These types of installations employ low voltage circuits that can cause electric shock and should only be maintained by persons with appropriate qualifications or licenses.

Models fitted with DC3 type switches with a rating of 0.1 amps at 125 volts AC. are designed to be used in signal line systems that use microprocessor based transmitters that send codes to a control system rather than switch a simple series circuit. These types of installations employ extra low voltage circuits typically less than 24 volts DC, making them safer and capable of meeting various 'touch potential' laws. These systems tend to be lanyard actuated.

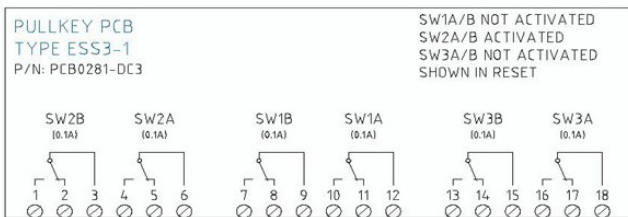
Terminations And Connection Diagram



PCB0281-DC1 CONNECTION DIAGRAM

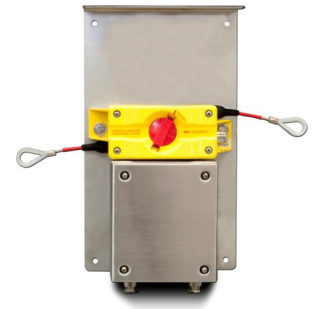


PCB0281-DC3 CONNECTION DIAGRAM



Mounting Plate

The pullkey mounting plate MTPL218A provides a convenient method of mounting the Austdac pullkey type ESS3 onto the host conveyor structure. The mounting plate provides significant impact protection for the pullkey and its associated equipment.



The mounting plate is manufactured from either stainless steel or galvanised steel and is pre-drilled to suit mounting on most belt structures.

Austdac mounting plates can be customized in size, thickness, material and hole pattern to suit customer needs

Mounting Plate Ordering Details

Description	Order Code
Stainless Steel Mounting Plate For Pullkey	MTPL218A
Stainless Steel Mounting Plate For Pullkey & Sounder	MTPL218B
Stainless Steel Mounting Plate With 10 Degree Slope For Pullkey	MTPL218C

Ordering Details

Description	Order Code
Pullkey Type Ess3 Lanyard (UI Nkcr.E335081)	PKEY001
Pullkey Type Ess3 3-Wire Silbus Lanyard	PKEY002
Pullkey Type Ess3 Lanyard C/W Pcb0281_Var01	PKEY003
For Non Standard Or Site Specific	CONTACT AUSTDAC



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