

Safety Switch

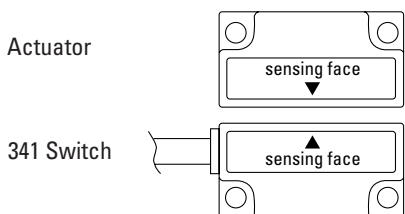
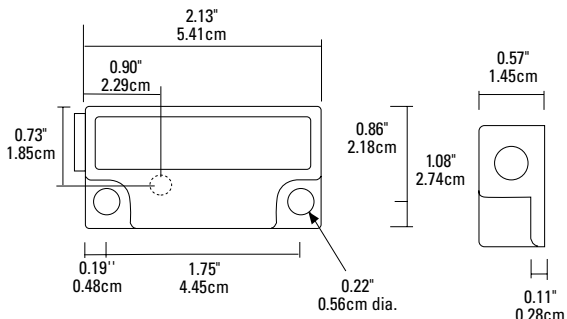
341-BT GuardSwitch

Applications

- Requiring Highly Defeat Resistant Switches
- Meets ANSI, Semi S2 & European Safety Standard for the Highest Machine Risk Category 4 when used with the INT Safety Relay
- Washdown Environments
- Packaging Machinery
- Pharmaceutical Equipment
- Semiconductor Equipment
- Food Processing Machinery

General Specifications

Enclosure	Kynar® Polyvinylidene Flouride with sonic welded lid
Temperature Range	14°F to 150°F (-10°C to 65°C)
Environmental	Hermetically Sealed Contact Switch Encapsulated in Polyurethane
NEMA Rating	1, 2, 4, 4X, 5, 12, 12K, 13
Protection Class	IP 67
Response Time (individual circuits)	1 msec The two circuits do not switch simultaneously and depend on the speed of the guard closure. A delay less than 50 msec is typical.
Life Cycles	100,000 Under Full Load; Up to 200,000,000 Under Dry Circuit
Lead Types/O.D.	18/4 SJTOW (K) / 0.34" (0.86cm) 22/4 PVC Jacketed (J) / 0.19" (0.48cm) 22/6 PVC Jacketed (J) / 0.21" (0.53cm)
UL/CSA/TUV	All Models



U9880128199005
When used with INT
Safety Monitor Relay



Electrical Specifications (Applies to all models)

Circuit No.	Circuit Type	Contact Configuration	Load Rating	MAX Switching Voltage	MAX Switching Current
1	Switch	N.O.	10W/VA	48VAC/VDC	0.2A
2	Tamper	N.C.	10W/VA	48VAC/VDC	0.2A
2	w/optional LED	N.C.	0.1-1.4W	48VDC(3V drop)	30mA
3	Monitor	N.O.	10W/VA	48VAC/VDC	0.2A

Order Information

Part Number	Contact ¹ Configuration	Sense Range ² Minimum	Sense Range ² Maximum	Break ² Range	Lead Length
341-BT-06(K)	DPST: 1 N.O., 1 N.C.	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	6' (1.8m)
341-BT-12(J)OR(K)	DPST: 1 N.O., 1 N.C.	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)
341-BLT-12(K)	DPST: 1 N.O., 1 N.C. w/ LED	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)
341-B3T-12(J)	TPST: 2 N.O., 1 N.C.	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)
341-B3LT-12(J)	TPST: 2 N.O., 1 N.C. w/LED	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)

Warning— Each electrical rating is an individual maximum and cannot be exceeded!

¹ Configuration with actuator away from the switch

² Proximity of ferrous materials usually reduces sense range — typically by 50%. The shape and type of material cause a wide diversity of effects. Testing is required to determine actual sense range for specific applications.



**GE Interlogix
Industrial**

www.GE-Interlogix.com/Industrial

Description

The 341-BT Series 300 DPST safety interlock switch is designed for use with safety monitored relays or monitored circuits. To achieve the optimum Series 300 defeat resistant feature of the 341-BT, both the switch circuit (Circuit 1) and the tamper circuit (Circuit 2) must be connected. An optional third circuit can be provided to indicate at the panel which guard is open

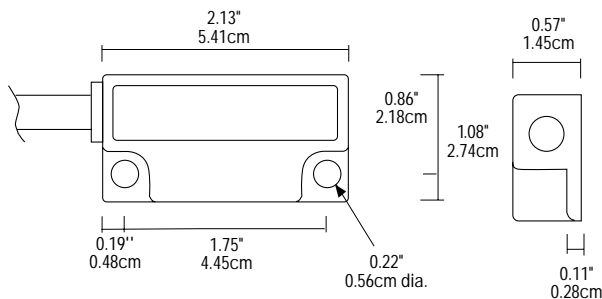
Notes:

1. Environmental: Pollution Degree II
2. Correct use of this control device is an essential part of proper machine cycle control.
3. Failure to follow ALL instructions could lead to serious bodily injury or death.
4. Maintenance to be done by qualified personnel only
5. The connecting cables between the INT devices and the switches must be located in an IP 23 type enclosure (minimum).
6. The mounting for the switch and the actuator magnet must be accomplished per this specification.
7. Non-removable hardware must be used for installation.
8. The housing of the 300-BT Series GuardSwitches must be connected to the PE (Primary Earth) ground circuit via a lock washer on the mounting screw. The PE ground symbol must be placed adjacent to the screw.

To verify switch operation with an ohmmeter:

Set range at 20 mega ohms (switches with triac output, set ohm range at 20 kilo ohms). For a normally open switch, the meter will read a high impedance with the actuator away. It will read very high to infinity range (triac switches will read high kilo ohm to infinity range) with the actuator within sense range. You will see the opposite reading for a normally closed switch.

Dimensions



**GuardSwitch™ Series 300
Safety Interlock Switch**

- | | | |
|---------------|---|---|
| 341-BT | <input type="checkbox"/> 341-BT-06(J)(K) | <input type="checkbox"/> 341-BLT-12(J)(K) |
| | <input type="checkbox"/> 341-BT-12(J)(K) | <input type="checkbox"/> 341-B3LT-06J |
| 343-BT | <input type="checkbox"/> 341-B3T-06J | <input type="checkbox"/> 341-B3LT-12J |
| | <input type="checkbox"/> 341-B3T-12J | <input type="checkbox"/> 341-B_____ |
| | <input type="checkbox"/> 341-BLT-06(J)(K) | <input type="checkbox"/> 343-B_____ |



Installation

Use non-removable screws, bolts, or nuts to mount the switch and actuator. Do not over-torque mounting hardware.

1. Position the switch and actuator so the labels are reading in the same direction (See Figure 1.)
2. Mount the switch on the stationary frame of the machine and mount the actuator on the moveable guard, door or gate. Keep the switch and actuator within the listed sense range. (See Ordering Information.)

See Figure 2 for recommended mounting configurations.

3. Mounting on a ferrous material will effect the sense range a minimum of 50%. However, a 1/4" non-ferrous spacer positioned under the actuator and/or switch should restore most of the lost sense range.
4. For best protection against operator defeat, mount with non-removable screws, bolts or nuts (see Accessories).
5. **Caution!** When not used with a GE INT safety relay, particular care must be taken to determine the actual load of the switch circuit. High voltage transients from coils, motors, contactors, and solenoids must be considered. Transient protection, such as back-to-back zener diodes (TransZorb®) or an RC network, is recommended for such loads to ensure that maximum ratings of the switch are not exceeded. Not recommended to be used with tungsten filament loads because of high current inrush surges. Line capacitance and load capacitance must be considered. Excessive line capacitance can be caused by cable lengths over 50' when using a maximum 48 VAC. A resistor can be added in series

continued

CE Compliance Information

These switches are TUV certified for CE applications only when used with the INT Safety Monitor Relays. See Risk Category 3 and Category 4 wiring diagrams above.



Declaration of Conformity available upon request.

European Directives

Machinery Directive (89/392/EEC)
EMC Directive (89/336/EEC)
Low Voltage Directive (73/23/EEC)

Specific European Standards

EN60204-1 Safety of electrical equipment of industrial machines
EN292 Part 1, 2 Safety of Machinery, basic terminology, technical principles
EN954-1 Risk Assessment Category 3 or 4 depending on wiring method, see diagrams
EN55081-2 Electromagnetic Emissions
EN50082-2 Electromagnetic Immunity
EN1088 Interlocking Devices
EN947-5-3 Control Circuit Devices
EN50178 Safety of Electrical Equipment
IEC 664-1 Insulation requirements
IEC 68, part 2-1, 2-2, 2-3, 2-8, 2-14, 2-27, 2-30

General Specifications

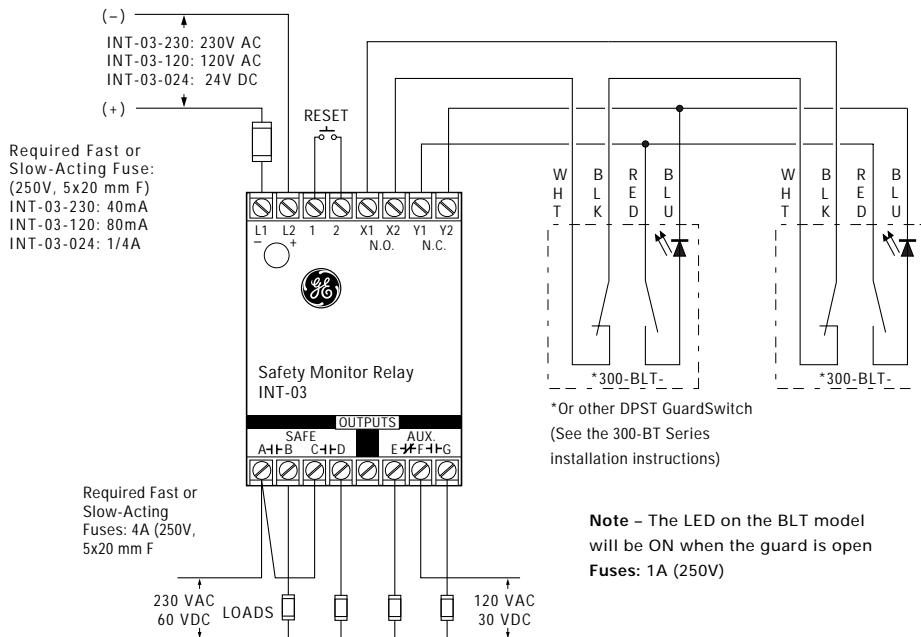
Enclosure	Kynar [®] , Polyvinylidene Fluoride
Temperature Range	14°F to 150°F (-10°C to 65°C)
Environmental	Hermetically Sealed Contact Switch Encapsulated in Polyurethane
NEMA Rating	1, 2, 4, 4X, 5, 12, 12K, 13
Protection Class	IP 67
Response Time	1 msec
Individual circuits	The two circuits do not switch simultaneously, and depend on the speed of the guard closure. Based on closure speed of 1' per second and a gap of 1/8", a delay less than 50 msec is typical.
Life Cycles	100,000 Under Full Load; Up to 200,000,000 Under Dry Circuit
Lead Types/O.D.	18/4 SJTOW (K)/0.34" (0.86cm) 22/4 PVC Jacketed (J)/0.19" (0.48cm) 22/6 PVC Jacketed (J)/0.21" (0.53cm)
UL/CSA/TUV	All Models



Wiring Diagram for Category 4

Inputs shown with safety gate/guard in closed position. Two Series 300-B GuardSwitches™ with one INT relay are required for each safety gate.

When first applying the INT Safety Monitor Relay, the inputs must be cycled to check for proper operation before the output contacts close. To cycle the inputs, the guard must be opened and then closed. This start-up test is sufficient; however, we recommend that the proper operation of the switches and relay be checked at least every 24 hours.



Electrical Specifications

CIRCUIT NUMBER	CIRCUIT TYPE	CONTACT CONFIGURATION	LOAD RATING	SWITCHING VOLTAGE AC/DC	SWITCHING CURRENT AC/DC
1	Switch: S1	N.O.	10W/VA	48VAC/VDC	0.2A
2	Tamper: S2, S3, S4	N.C.	10W/VA	48VAC/VDC	0.2A
2	w/optional LED: D1	N.C.	0.1–1.4W	48VDC(3V drop)	30mA
3	Monitor: S5	N.O.	10W/VA	48VAC/VDC	0.2A

Ordering Information

PART NUMBER ¹ 341 or 343	CONTACT ² CONFIGURATION	SENSE RANGE ³ MINIMUM	SENSE RANGE ³ MAXIMUM	BREAK RANGE	LEAD LENGTH NOMINAL
341-BT-06(J)(K)	DPST: 1 N.O., 1 N.C.	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	6' (1.8m)
341-BT-12(J)(K)	DPST: 1 N.O., 1 N.C.	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)
341-BLT-06(J)(K)	DPST: 1 N.O., 1 N.C. w/LED	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	6' (1.8m)
341-BLT-12(J)(K)	DPST: 1 N.O., 1 N.C. w/ LED	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)
341-B3T-06(J)	TPST: 2 N.O., 1 N.C.	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	6' (1.8m)
341-B3T-12(J)	TPST: 2 N.O., 1 N.C.	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)
341-B3LT-06(J)	TPST: 2 N.O., 1 N.C. w/LED	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	6' (1.8m)
341-B3LT-12(J)	TPST: 2 N.O., 1 N.C. w/LED	0.12"(0.3cm)	0.38"(1.0cm)	0.75"(1.9cm)	12' (3.6m)

Accessories

PART NUMBER	TAMPER PROOF SCREWS & SCREWDRIVER
1953	#6 x 3/4"L Tampruf Roundhead Screw
1954	#8 x 1-1/2"L Tampruf Roundhead Screw
1955	Tampruf® Screwdriver
1956	Tampruf® 1/4" Drive Bit for #6 and #8 Screws

Warning— Each electrical rating is an individual maximum and cannot be exceeded!

¹ The part numbers 341 and 343 are the same in all respects except the conduit connection exits 341 left and 343 right. Not all models available in 343.

² Configuration with actuator away from the switch

³ Proximity of ferrous materials usually reduces sense range — typically by 50%. The shape and type of material cause a wide diversity of effects. Testing is required to determine actual sense range for specific applications.



GE Interlogix
Industrial

www.GE-Interlogix.com/Industrial

12345 SW Leveton Drive
Tualatin, OR 97062
Phone: 800-247-9447
Fax: 503-691-7563



Safety Switch

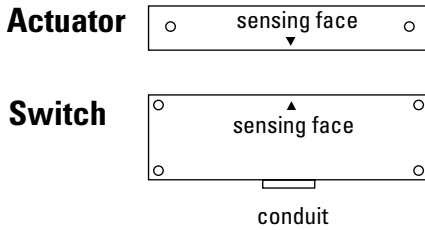
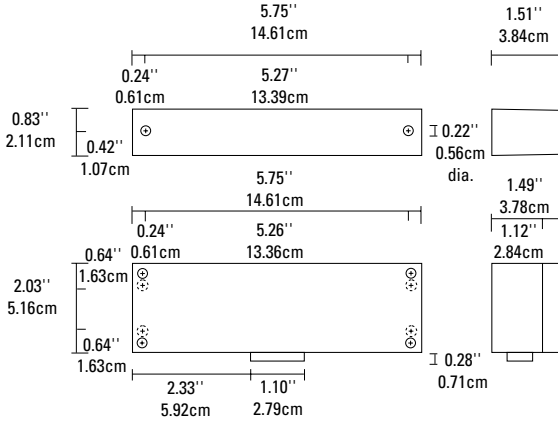
371-BT GuardSwitch Explosion Proof

Applications

- Requiring Explosion-Proof Enclosure for Hazardous Locations
- Meets ANSI, Semi S2 & European Safety Standard for the Highest Machine Risk Category 4 when used with the INT Safety Relay
- UL Enclosure Classified for Use in Hazardous Locations: Class I, Group B, C, D Class II, Group E, F, G Class III, Divisions 1 & 2

General Specifications

Enclosure	UL Explosion Proof Black Anodized, Die Cast Aluminum
Temperature Range	-40°F to 180°F (-40°C to 80°C)
Environmental	Hermetically Sealed Contact Switch Encapsulated in Polyurethane
NEMA Rating	1, 2, 5
Protection Class	IP 64
Response Time (individual circuits)	1 msec The two circuits do not switch simultaneously and depend on the speed of the guard closure. A delay less than 50 msec is typical.
Life Cycles	100,000 Under Full Load; Up to 200,000,000 Under Dry Circuit
Conduit Connection	1/2" Threaded NPT
UL/CSA/TUV	All Models



Electrical Specifications

Circuit No.	Circuit Type	Contact Configuration	Load Rating	MAX Switching Voltage	MAX Switching Current
1	Switch	N.O.	40W/VA	48VAC/VDC	1.0ADC, 0.7AC
2	Tamper	N.C.	10W/VA	48VAC/VDC	0.3A



Order Information

Part Number	Contact ¹ Configuration	Sense Range ² Minimum	Sense Range ² Maximum	Break Range	Terminal Type
371-BT	DPST: 1 N.O., 1 N.C.	0.3"(0.8cm)	0.6"(1.5cm)	1.2"(3.0cm)	#6 screws

Warning— Each electrical rating is an individual maximum and cannot be exceeded!

¹ Configuration with actuator away from the switch

² Proximity of ferrous materials usually reduces sense range — typically by 50%. The shape and type of material cause a wide diversity of effects. Testing is required to determine actual sense range for specific applications.