

Description

The INT-03-024 or INT-03-120 Safety Monitor Relay is intended for use as a part of a safety circuit in guard interlock applications. It is a safety relay which uses positive-guided relays, configured for self-checking, to inhibit machine start-up in the event of an internal component failure.

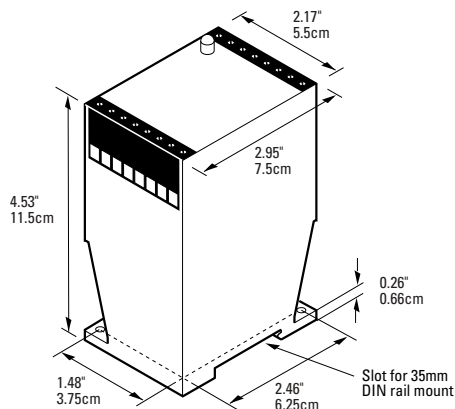
Both normally-open and normally-closed inputs are required. Multiple N.O. contacts can be wired in series while multiple N.C. contacts can be wired in parallel. Upon failure of either the N.O. or N.C. contact, the relay will turn off and prevent restart.

The INT-03 relay can also monitor contacts on external relays for controlling expansion block relays (Sentrol INT-05 and INT-06).

TUV Notes:

1. Relay conforms to Pollution Degree II, meets EN1760-1:1998, and must be installed in an IP54-type enclosure.
2. The wire insulation of connected devices must be rated for 250VAC. The relay meets basic insulation requirements only.
3. Input devices must meet requirements of EN60947-5-1.
4. The relay must be connected to a primary disconnect device that meets the requirements of EN60947-3.
5. System total response time must not exceed 200ms.
6. Controller meets IP20 and must be connected to safety category 4 mat or sensing device.
7. Test system before operation and after machine maintenance. Controller does not require maintenance.
8. The complete system should be tested weekly. If a fault occurs, contact Sentrol Industrial.

Dimensions



Integrity Series

INT Monitor Relay

INT-03 INT-03-024 INT-03-120 INT-03 _____



Installation

Guardswitch™ Inputs: Wire the GuardSwitches™ in series and in parallel as shown in the wiring diagram. When first applying power to the GuardSwitch™ Monitor Relay, with no jumper or button from Terminal 1 to Terminal 2, relay will not energize.

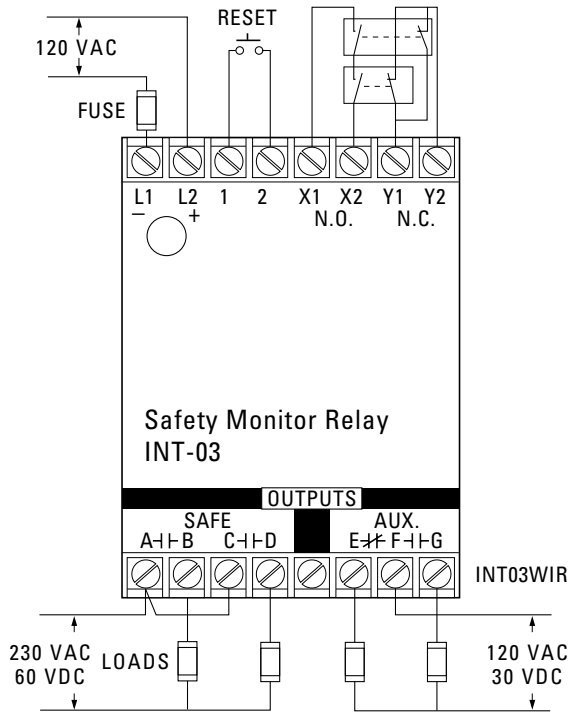
With a jumper installed from Terminal 1 to Terminal 2, relay energizes when all guards are in place (autostart).

With a RESET button installed from Terminal 1 to Terminal 2, relay energizes after all guards are in place and RESET button is pressed. The monitor contacts must also be closed.

Authorized Outputs: The designer must perform a risk analysis and be aware of the applicable safety standards of their machine. The designer has a choice of how to use the output contacts. The output contacts can be used in combination with an Emergency Stop Relay circuit with a “reset” function. (“The restoring of an interlocked safeguard shall not initiate machine motion or operation where this can result in a hazardous condition. IEC 204-1.) The reset circuit should not be wired to disconnect power to the GuardSwitch Monitor Relay, or it will be difficult to distinguish between a GuardSwitch failure and a normal reset function.

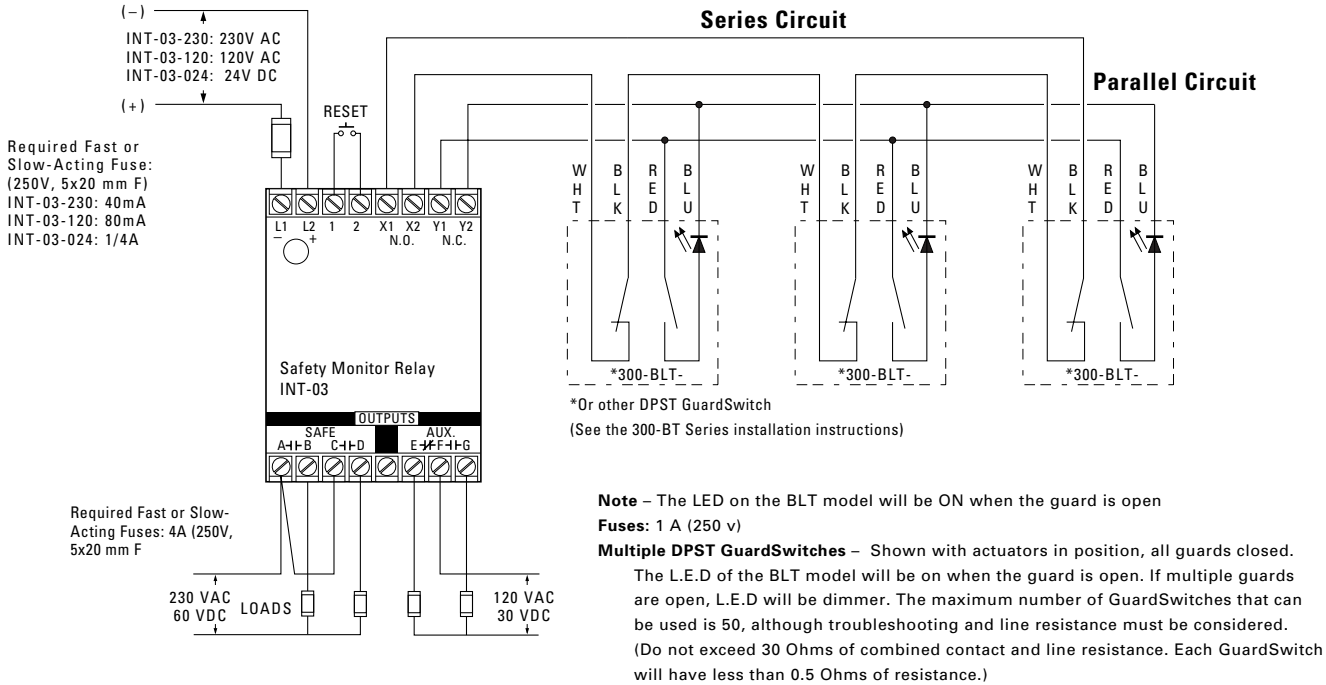
Input Power: The GuardSwitch Monitor Relay is available in either a 24 VDC or 120 VAC model. Make sure the correct model is used before applying power as shown in the wiring diagram.

Typical Wiring Diagram



Multiple Switch Wiring Diagram

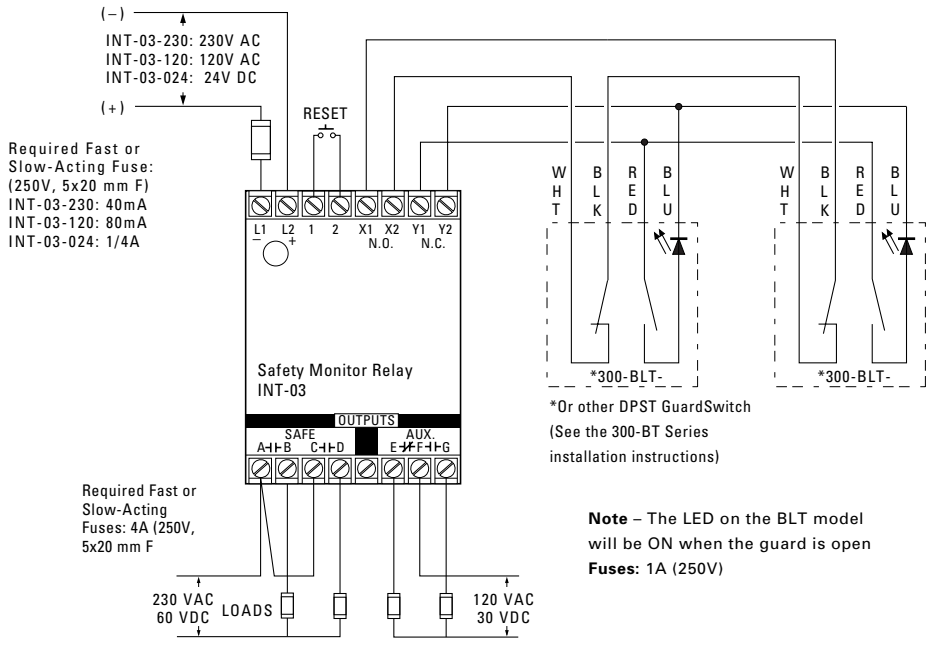
GuardSwitches™ are shown with the actuators in position—guard is closed. One 300-BT Series GuardSwitch™ is required for each safety gate. Up to 50 switches can be used with INT-03. When using the BLT switch models, the voltage drop (30 ohms) must be taken into consideration.



Note: Only outputs AB and CD are safety outputs. Auxiliary form C output E, F, G may fail in an unsafe condition and should only be used for signaling.

Category 4 Wiring Diagram

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



Note: Only outputs AB and CD are safety outputs. Auxiliary form C output E, F, G may fail in an unsafe condition and should only be used for signaling.

AUX Contacts

Power	Guards	E,G	F,G
Off	Open or Closed	Closed	Open
On	Closed	Closed	Open
On	Open	Open	Closed



Declaration of Conformity available upon request.

European Directives

Machinery Directive (98/37/EEC)
Low Voltage Directive (73/23/EEC), LVD

Specific European Standards

EN60204-1 Safety of electrical equipment of industrial machines: 1993
EN954-1 Risk Assessment Category 4 depending on wiring method, See diagrams: 1997
EN50081-2 Electromagnetic Emissions: 1995
EN50082-2 Electromagnetic Immunity: 1995
IEC 664-1 Insulation requirements: 1992
IEC 68, part 2-1, 2-2, 2-3, 2-6, 2-14, 2-27, 2-30.
EN1760-1:1998

General Specifications

UL/CSA/TUV	CSA submitted	
Weight:	INT-03-24:	9 oz.
	INT-03-120/230:	15 oz.

Field wiring size 12 gauge max.

Temperature range 32°F to 149°F (-0°C to 65°C)

Relative humidity 30 to 95% non-condensing

Power Supply (+, - or L1, L2)

INT-03-024 24 VDC +/- 15% 100m
Required Fuse: 1/4A (250V, 5x20mm, F/T)

INT-03-120 120 VAC +10% -20%, 5VA, 50/60 Hz
Required Fuse: 80mA (250V, 5x20mm, F/T)

Control Inputs (X1, X2 & Y1, Y2 terminals)

Open-circuit voltage 24VDC

Closed-circuit current 24mA

Max. contact resistance 30 Ohms

Simultaneity 500 ms typical

Safe Outputs (A,B/C,D terminals)

Voltage 230 VAC/60VDC

Current 4A (resistive) each output

Resonance time < 100 ms

Fuse 4A, 250V, 5 x 20 mm

AUX. Signaling Outputs (E,F,G terminals)

Voltage 120 VAC/30VDC

Current 1A (resistive)

Note: Transient protection is required across the load when switching an inductive load.



File E 122942

Ordering/Electrical Specifications

PART NUMBER	POWER INPUT (L1,L2)	INPUT FUSE REQUIRED
INT-03-024	24VDC +/-20%	Fast acting 1/4A (250V, 5 x 20mm, F/T)
INT-03-120	120VAC +10%, -20%, 50/60 Hz, 5VA	Fast acting 80mA (250V, 5 x 20mm, F/T)