

DUO-TOUCH[®] – Two-Hand Control Modules

Models *AT-FM-2A*, *AT-AM-2A*, and *AT-BM-2A*, for Use with Two Actuating Devices



Features

- Two redundant, forced-guided (mechanically linked) output contacts rated at 4 A
- One auxiliary N.C. relay output rated at 0.5 A
- Feedback input for monitoring external machine control elements
- Four indicator LEDs for Power, Input 1, Input 2, and Fault
- 24V ac/dc, 115V ac, or 230V ac operation, depending on model
- DIN-rail-mountable 45-mm-wide housing
- 500 ms (max.) simultaneity requirement for touch-/push-button operation

Description

A DUO-TOUCH Two-Hand Control Safety Module may be used with:

- Two Banner OTB Optical Touch Buttons, each with one normally open relay output contact, or
- Two Banner OTB Optical Touch Buttons, one with current-sourcing PNP output, and one with current-sinking NPN output, or
- Two mechanical push buttons, each with one normally open contact

If the machine operator removes one or both hands from the actuating device(s), the DUO-TOUCH Module relays de-energize, causing the output contacts to open. The relays will not re-energize until both actuating devices are deactivated and then simultaneously reactivated (SSI input channels closed).

The DUO-TOUCH Two-Hand Control system has been designed to meet:

- Type IIIA/B requirements of ISO 13851 (EN 574) Safety of Machinery – Two-Hand Control Devices, and
- Category 1 and 3 requirements of ISO 13849-1 (EN 954-1) Safety of Machinery – Safety-Related Parts of Control Systems – Part 1: General Principles of Design

The Safety Module's output signal consists of two sets of redundant, forced-guided (mechanically linked) contacts (see figures on page 8). Circuitry within the Safety Module is Category 4 (per EN954-1) without consideration of the inputs. This circuitry monitors the internal contacts and prevents an output signal from occurring if a fault is detected. A feedback loop is offered for monitoring the status of the machine control elements.



**WARNING ...
Point-of-Operation
Guarding**

When properly installed, the DUO-TOUCH Two-Hand Control Safety Module provides protection only for the hands of the machine operator. It may be necessary to install additional safeguarding, such as safety light screens and/or hard guards, to protect personnel from hazardous machinery.

Failure to properly guard hazardous machinery can result in a dangerous condition which could lead to serious injury or death.

DUO-TOUCH® – Models AT-..M-2A Two-Hand Control Modules



Important ... read this page before proceeding!

In the United States, the functions that the Banner DUO-TOUCH Two-Hand Control Module is intended to perform are regulated by the Occupational Safety and Health Administration (OSHA). Whether or not any particular DUO-TOUCH Two-Hand Control Module installation meets all applicable OSHA requirements depends upon factors that are beyond the control of Banner Engineering Corp. These factors include the specific ways the safety module is applied, installed, wired, operated, and maintained.

Banner Engineering Corp. has attempted to provide complete application, installation, operation, and maintenance instructions. In addition, we suggest that any questions regarding the use or installation of this two-hand control safety system be directed to the factory applications department at the telephone numbers or address shown on the back cover of this manual.

The user of this Two-Hand Control Safety Module must ensure that all machine operators, maintenance personnel, electricians, and supervisors are thoroughly familiar with and understand all instructions regarding the installation, maintenance, and use of this system, and with the machinery upon which it is installed.

The user and any personnel involved with the installation and use of this Safety Module must be thoroughly familiar with all applicable OSHA regulations and ANSI standards. The regulations and standards, listed below, directly address the use of two-hand control systems. Banner Engineering Corp. makes no claim regarding a specific recommendation of any organization, the accuracy or effectiveness of any information provided, or the appropriateness of the provided information for a specific application.

The user has the responsibility to ensure that all local, state, and national laws, rules, codes, and regulations relating to the use of this Two-Hand Control Module are satisfied. Extreme care is urged that all legal requirements are met and that all installation and maintenance instructions contained in this manual are followed.

U. S. Standards Applicable to Use of Two-Hand Control Systems

ANSI B11	Standards for Machine Tools “Safety Requirements for the Construction, Care and Use”
Available from:	Safety Director AMT – The Association for Manufacturing Technology 7901 Westpark Drive McLean, VA 22102 Tel.: 703-893-2900 Fax: 703-893-1151
NFPA79	“Electrical Standard for Industrial Machinery”
Available from:	National Fire Protection Association 1 Batterymarch Park, P.O. Box 9101 Quincy, MA 02269-9101 Tel.: 800-344-3555
ANSI/RIA R15.06	“Safety Requirements for Industrial Robots and Robot Systems”
Available from:	Robotic Industries Association 900 Victors Way, P.O. Box 3724 Ann Arbor, MI 48106 Tel.: 734-994-6088

International Standards Applicable to Use of Two-Hand Control Systems

ISO/TR12100-1 & -2 (EN292-1 & -2)	“Safety of Machinery – Basic Concepts, General Principles for Design, Part 1: Basic Terminology, Methodology”, and “Part 2: Technical Principles and Specifications”
IEC/EN60204-1	“Electrical Equipment of Machines: Part 1: General Requirements” Also, request a type “C” standard for your specific machinery.
ISO13849-1 (EN954-1)	“Safety of Machinery – Safety Related Parts of Control Systems”
ISO13855 (EN999)	“Safety of Machinery – The Positioning of Protective Equipment”
ISO13851 (EN574)	“Safety of Machinery – Two-Hand Control Devices”
Available from:	Global Engineering Documents 15 Inverness Way East Englewood, CO 80112-5704 Tel.: 800-854-7179