

AT-FM-10K Two-Hand Control Module



AT-FM-10K Two-Hand Control Module
DUO-TOUCH® SG, for use with two actuating devices

Original Instructions



- Diverse-redundant microcontrollers
- Monitors two Banner STB Self-Checking Optical Touch Buttons, or two mechanical push buttons
- Two redundant, forced-guided (mechanically linked) output contacts rated at 6 A
- Feedback input monitors external machine control elements
- 5 indicator LEDs for Power, Fault, Input 1, Input 2 and Output
- 24V ac/dc operation
- DIN-rail-mountable 22.5 mm-wide housing with removable terminal blocks
- 500 ms (max.) simultaneity requirement for touch-/push button operation



Important . . . Read This Before Proceeding!

It is the responsibility of the machine designer, controls engineer, machine builder and/or maintenance electrician to apply and maintain this product in full compliance with all applicable regulations and standards. The product can provide the required safeguarding function only if it is properly installed, properly operated, and properly maintained. This manual attempts to provide complete installation, operational, and maintenance instruction. *Reading the manual completely is highly recommended.* Please direct any questions regarding the application or use of the product to a Banner Engineering Applications Engineer at the locations listed in this document.



WARNING: User Responsibility

The user is responsible for ensuring that all local, state, and national laws, rules, codes, and regulations relating to the use of this device in any particular application are satisfied. Make sure that all legal requirements have been met and that all installation, operation, and maintenance instructions contained in the device documentation are followed.

U.S. Application Standards

ANSI B11.0 Safety of Machinery; General Requirements and Risk Assessment

ANSI B11.19 Performance Criteria for Safeguarding

ANSI NFPA 79 Electrical Standard for Industrial Machinery

International/European Standards

ISO TR12100-1 & -2 (EN 292-1 & -2) Safety of Machinery – Basic Concepts, General Principles for Design

IEC 60204-1 Electrical Equipment of Machines Part 1: General Requirements

ISO 13849-1 (EN 954-1) Safety-Related Parts of Control Systems

ISO 13855 (EN 999) The Positioning of Protective Equipment in Respect to Approach Speeds of Parts of the Human Body

ISO 13851 (EN 574) Two-Hand Control Devices – Functional Aspects – Principles for Design (*also request a type "C" standard for your specific machinery.*)

Sources of Standards and Regulations

OSHA Documents: www.osha.gov (Tel: 202-512-1800)

American National Standards Institute (ANSI): www.ansi.org (Tel: 212-642-4900)

Robotics Industries Association (RIA): www.robotics.org (Tel: 734-994-6088)

National Fire Protection Association (NFPA): www.nfpa.org (Tel: 800-344-3555)

NSSN National Resource for Global Standards : www.nssn.org (Tel: 212-642-4980)

IHS Standards Store: www.global.ihs.com (Tel: 303-397-7956, 800-854-7179)

Document Center: www.document-center.com/home.cfm (Tel: 650-591-7600)

EC Declaration of Conformity

Banner Engineering Corp. herewith declares that **AT-FM-10K** Two-Hand Control Module for industrial control is in conformity with the provisions of the Machinery Directive (Directive 98/37/EEC), and all essential Health and Safety Requirements have been met.

Download the complete EC Declaration of Conformity as a PDF file at www.bannerengineering.com/THCmodule

Overview

A DUO-TOUCH SG Two-Hand Control Safety Module (the “Module”) may be used with:

- Two Banner STB Self-Checking Optical Touch Buttons, each with one normally open and one normally closed relay output contact, or
- Two Banner STB Self-Checking Optical Touch Buttons, each with two current-sourcing PNP outputs, or
- Two electro-mechanical push buttons, each with one normally open and one normally closed contact (Form C contact)

If the machine operator removes one or both hands from the actuating device(s), the 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.



WARNING: Point-of-Operation Guarding

When properly installed, a two-hand control device provides protection only for the hands of the machine operator. **It may be necessary to install additional safeguarding**, such as safety light screens, additional two-hand controls, and/or hard guards, **to protect all individuals from hazardous machinery.**

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

The Duo-Touch SG® Two-Hand Control Kit system complies with:

- Two-hand control and Control Reliability requirements per OSHA 29CFR1910.217, ANSI NFPA 79, ANSI B11.19, and ANSI/RIA R15.06,
- Type IIIC requirements of ISO 13851 (EN 574) Safety of Machinery – Two-Hand Control Devices, and
- Safety-related applications up to Category 4 PL e, per EN ISO 13849-1 and SIL3 per IEC 61508 and IEC 62061.

The Safety Module’s output signal consists of two sets of redundant, forced-guided (mechanically linked) contacts (see wiring diagrams). Circuitry within the Safety Module monitors these 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.