

ANSI ECMA 15-2018
(a revision of ANSI ECMA 15-2010)



Cable-less Controls for Electric Overhead Traveling Cranes



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**Cable-less Controls for
Electric Overhead Traveling Cranes**

Electrification and Controls Manufacturers Association (ECMA)
An Industry Group of the Material Handling Institute (MHI)

Approved November 30, 2018
American National Standards Institute, Inc.

FOREWORD. This standard, which was developed under the American National Standards Institute (ANSI) Canvas method and approved by ANSI on November 30, 2018, represents suggested design practices and operational requirements for electric overhead traveling cranes. It was developed by MHI, along with ECMA, one of its Industry Groups, and is intended to provide useful information and guidance for owners, users, designers, purchasers or specifiers of electric overhead traveling cranes. It is advisory only and should only be regarded as a simple tool that its intended audience may or may not choose to follow, adopt, modify, or reject. A standard may be part of, but does not constitute, a comprehensive safety program that cannot guard against pitfalls in operating, selecting and purchasing such a system, and should not be relied upon as such. Such a program should be developed by a qualified professional.

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EXPRESSION OF PROVISIONS. This standard utilizes the expression of terminology provisions as defined in the *ISO/IEC Directives, Part 2: Principles and rules for the structure and drafting of ISO and IEC documents*. The word "shall" is prescriptive, and describes mandatory requirements to comply with this standard. The word "should" is meant to be a recommendation or good practice and can be construed as advisory. The word "may" is permissive and the word "can" indicates something is possible or capable. The word "must" pertains to requirement to a regulation or a law of nature.

The **Electrification and Controls Manufacturers Association** (ECMA) is comprised of companies that design and manufacture electrical control systems for cranes and material handling equipment. This standard is the result of ECMA's recognition of the need to standardize performance and design criteria for the proper utilization of electrification components for electric overhead traveling cranes and was formulated under MHI procedures approved by ANSI.

This standard represents design, operating and testing practices and performance criteria that may be used in determining product utilization.

On the date of approval of this standard, ECMA consisted of the following member companies:

- Cervis Inc.
- Conductix-Wampfler
- Control Chief Corporation
- HBC-radiomatic Inc.
- IKUSI, USA Inc.
- Laird Controls North America
- Magnetek, Inc.
- Microtronics LLC
- Nedic Industrial Solutions
- Power Electronics International, Inc.
- Powerohm Resistors, Inc.
- Schneider Electric
- TELE RADIO, LLC
- Trans Tech – Power Transfer Systems
- Vahle, Inc.

Questions or suggestions for improvement regarding of this standard are welcome. Suggestions should be sent to: ECMA Committee, MHI, 8720 Red Oak Blvd., Suite 201, Charlotte, NC 28217; standards@mhi.org.

Cable-less Controls for Electric Overhead Traveling Cranes

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Cable-less Controls for Electric Overhead Traveling Cranes

1 Purpose and scope

This standard provides the minimum requirements and guidelines for cable-less controls of electric overhead traveling cranes. A cable-less control device as referenced in this standard uses radio frequency signals to control the movements and actions of said cranes for applications such as material handling.

This standard is referenced in CMAA Specification #70, *Specifications for Top Running & Gantry Type Multiple Girder Electric Overhead Traveling Cranes*, and CMAA Specification #74, *Specifications for Top Running & Under Running Single Girder Electric Traveling Cranes Utilizing Under Running Trolley Hoist*. These specifications contain information and references specific to electric overhead traveling (EOT) cranes.

This document assumes that the reader understands the general language and terms used for electric overhead traveling cranes.

In the United States, use of radio devices must comply with federal regulations outlined in CFR Title 47, Chapter 1, Subchapter A, Part 90, *Private Land Mobile Radio Services* and CFR Title 47, Chapter 1, Subchapter A, Part 15, *Radio Frequency Devices*.

2 Normative references

Parts of this standard refer to certain portions of other applicable specifications or standards. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 13557:2008, *Cranes – Controls and Control Stations*

EN ISO 13849-1:2015 *Safety of Machinery – Safety-Related Parts of Control Systems – Part 1: General Principles for Design*

EN 1037:1995+A1:2008, *Safety of Machinery. Prevention of Unexpected Start-Up*

IEC 60204-1:2016, *Safety of Machinery - Electrical Equipment of Machines - Part 1: General Requirements*

IEC 60204-32:2008, *Safety of Machinery - Electrical Equipment of Machines - Part 32: Requirements for Hoisting Machines*

ANSI/IEC 60529, *Degrees of Protection Provided by Enclosures (IP Code)*

3 Definitions

For the purposes of this document, the following terms and definitions apply.

3.1

machine control unit

MCU

the interface between the machine (EOT crane) under control and the remote-control system

NOTE – Formerly known as the Receiver but changed because these units now often include both a receiver and a transmitter (transceiver).

3.2

operator control unit

OCU

the interface between the operator and the remote-control system