



AMI5000 Series EtherCAT Remote Pendant - User Manual

D-000065 Rev 14



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AMI5000 Series EtherCAT Remote Pendant - User Manual

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Document Reference: D-000065 Rev 14

Effective: 30 November 2022

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1 Notices

1.1 General Safety



Warning: The Remote Pendant contains three permanent magnets in the back of the case to hold the pendant into the mounting cradle. People with pacemakers or similar medical implant devices should not hold the pendant closer than 50mm (2 inches) from the medical device.

This manual and the warnings attached to the Remote Pendant only highlight hazards that can be predicted by ANCA Motion. Be aware they do not cover all possible hazards.

ANCA Motion shall not be responsible for any accidents caused by the misuse or abuse of the device by the operator.

Safe operation of these devices is your own responsibility. By taking note of the safety precautions and warnings in this manual you can help to ensure your own safety and the safety of those around you.

The following points must always be applied:

- Equipment operators must read this User Manual carefully and make sure of the correct procedure before operating the Remote Pendant.
- If two or more persons are working together, establish signals so that they can communicate to confirm safety before proceeding to another step.
- Always make sure there are no obstacles or people near the devices during installation and operation. Be aware of your environment and what is around you.
- Take precautions to ensure that your clothing, hair, or personal effects (such as jewellery) cannot become entangled in the equipment.
- Do not remove the cover to access the inside of the Remote Pendant unless authorized
- Do not turn on any of the equipment without all safety features in place and known to be functioning correctly.
- Never touch any exposed wiring, connections, or fittings while the equipment is in operation.
- Do not apply any excessive mechanical force to the pendant which may cause malfunction or failure.
- Keep the vicinity of the Remote Pendant clean and tidy.
- Never attempt cleaning or inspection during machine operation.
- Only suitably qualified personnel should install, operate, repair and/or replace this equipment.
- Be aware of the closest First Aid station.
- Ensure all external wiring is clearly labelled. This will assist you and your colleagues in identifying possible electrical safety hazards.
- Clean or inspect the equipment only after isolating all power sources.
- Install cables according to local legislation and regulations as applicable.

1.2 Terms and Abbreviations

B10d	The number of operating cycles after which 10% of a population of a component will have failed dangerously
Cat 5e	Category 5e twisted-pair cable for computer networks up to one gigabit (1,000 Mbit per second)
CE	Conformity European
EMC	Electromagnetic Compatibility
ESI	EtherCAT Slave Information
EtherCAT	Ethernet for Control Automation Technology
FCC	Federal Communications Commission
HMI	Human Machine Interface
HTR	Hold-to-Run
IEC	International Electrotechnical Commission
IPB	Input Physical Boolean
IPI	Input Physical Integer
LED	Light Emitting Diode
MPG	Manual Pulse Generator
MTTFd	Mean Time To Dangerous Failure
N/A	Not Applicable
N/C	Pin is not connected
OPB	Output Physical Boolean
Pot	Potentiometer
Temp	Temperature

Table 1 Terms and Abbreviations

1.3 Trademarks

EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

2 Introduction

2.1 Purpose

This manual provides the required information for installing, commissioning, and operating the AMI5000 Remote Pendant. It has been written specifically to meet the needs of qualified Engineers and Machine Operators.

2.2 Features

The Remote Pendant has the following features:

- Compact and ergonomic design
- 16 tactile switches with LED indicators.
- Manual Pulse Generator (MPG).
- Feedrate Control Dial
- Dual channel Emergency Stop Switch
- EtherCAT® connectivity.
- Firmware Upgradeable.
- Dual channel Hold-to-Run switch. (Pendant Standard only)
- Warning Buzzer (Pendant Standard only)

2.3 Remote Pendant Product Label Explanation

The Remote Pendant has an identification label on the rear of the case. The label configuration is shown in Figure 2-1.

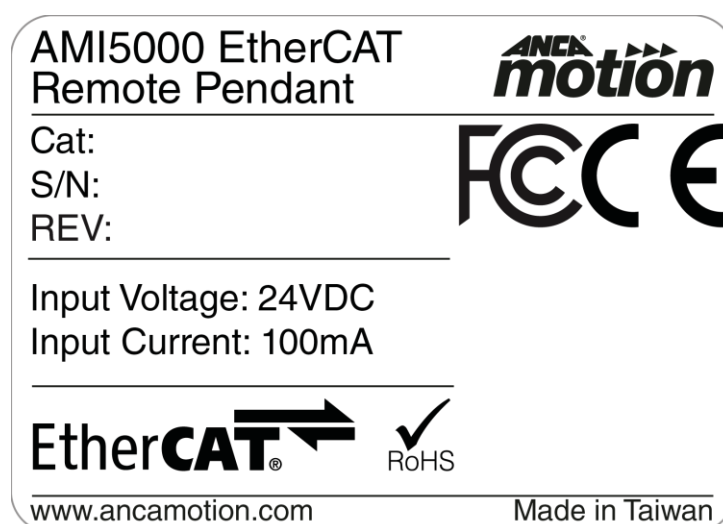


Figure 2-1 Remote Pendant Label

For any warranty work to be undertaken these labels must be readable and undamaged.

2.4 Product Order Code

The Remote Pendant Product Code is shown in *Figure 2-2*.

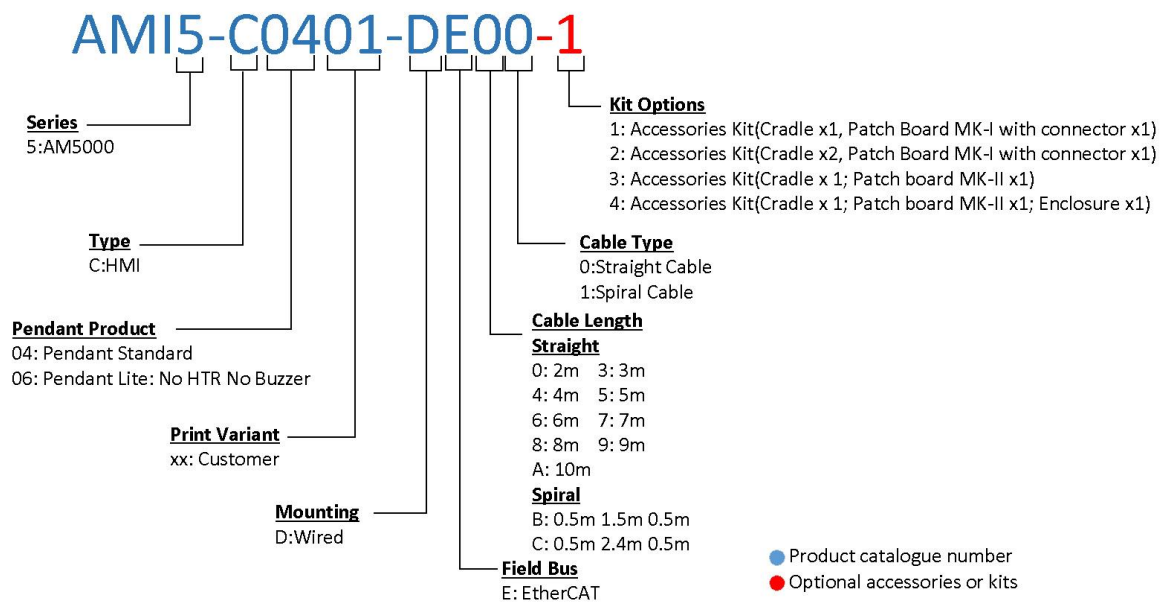


Figure 2-2 Remote Pendant Product Code

The order code suffix indicates optional accessory kits that can be ordered with the Remote Pendant. Leave this field blank if kits are not required.

3 Remote Pendant

3.1 Overview

The Remote Pendant has many useful features as shown in [Figure 3-1](#). The figure shows the Pendant Standard features. The Pendant Lite does not include the Hold-to-Run switch.

The front panel can be custom printed to meet the specific requirements of the user. For example, the following options are available.

- a) Switches can be labelled with text or graphic symbols,
- b) Custom colour choice for the switches and background,
- c) Customer logo printed across the top for personalization

Contact Sales for a Custom Artwork Order Form: [16.2 Product, Sales and Service Enquiries](#)



Figure 3-1 Overview Image of Remote Pendant

*Pendant Standard Only

3.2 Pendant (Standard and Lite) Versions

The Remote Pendant is a Human Machine Interface (HMI) which uses EtherCAT® to communicate to the control system allowing fast and flexible access for real-time control. It is available in Standard or Lite configurations. The Standard version contains all the Pendant features and functions. The Lite version does not include the Hold-to-Run switch and Warning Buzzer.

Figure 3-2 shows the Hold-to-Run Switch on the “Standard” Pendant model and omitted on the “Lite” Pendant.



Figure 3-2 Remote Pendant Standard (left) and Remote Pendant Lite (right)

3.3 Remote Pendant Dimension Drawings

3.3.1 Pendant Standard

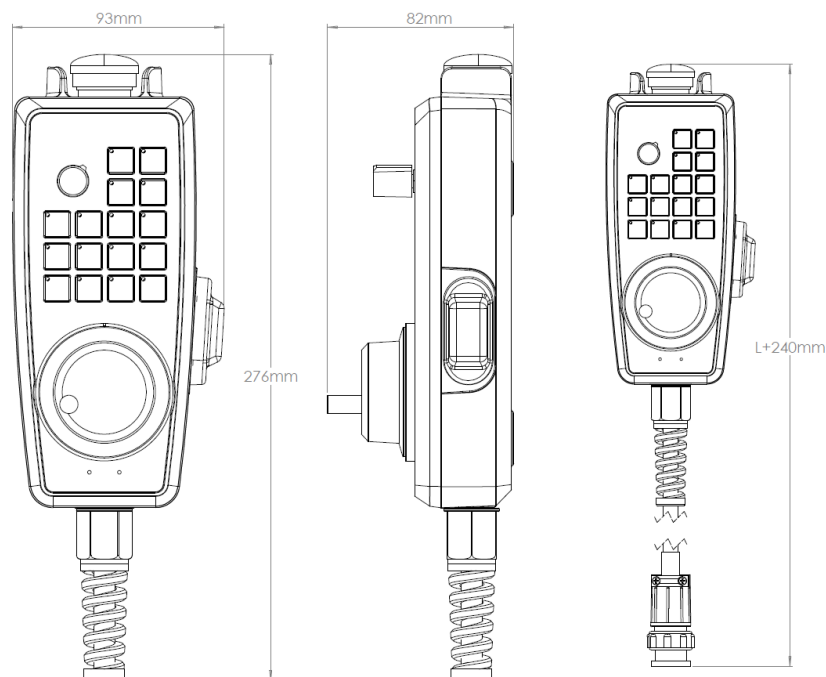


Figure 3-3 Remote Pendant Standard Dimensions (mm)

3.3.2 Pendant Lite

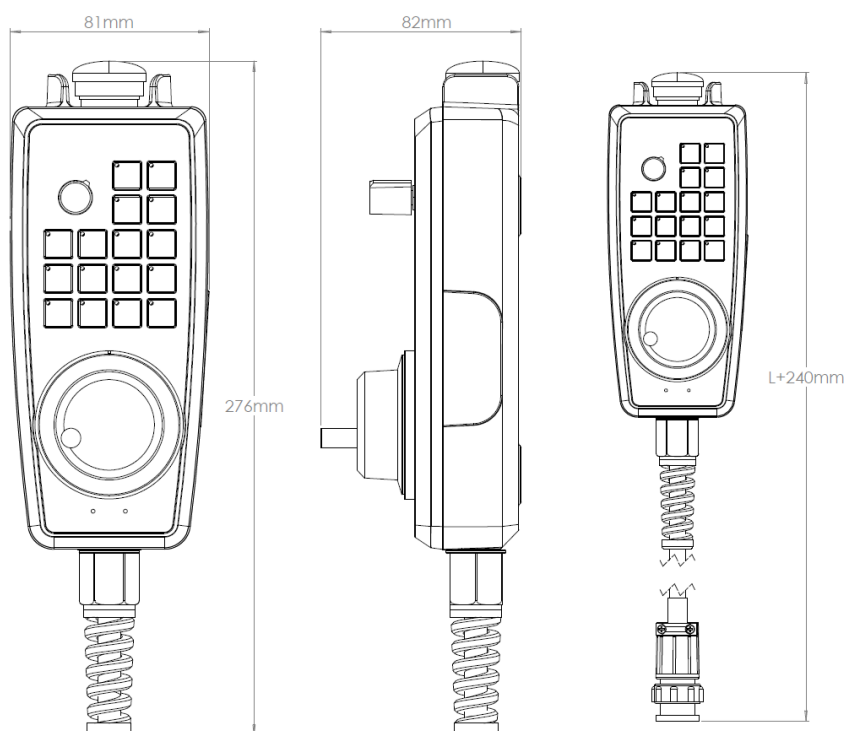


Figure 3-4 Remote Pendant Lite Dimensions (mm)

3.3.3 Pendant Standard (with cradle)

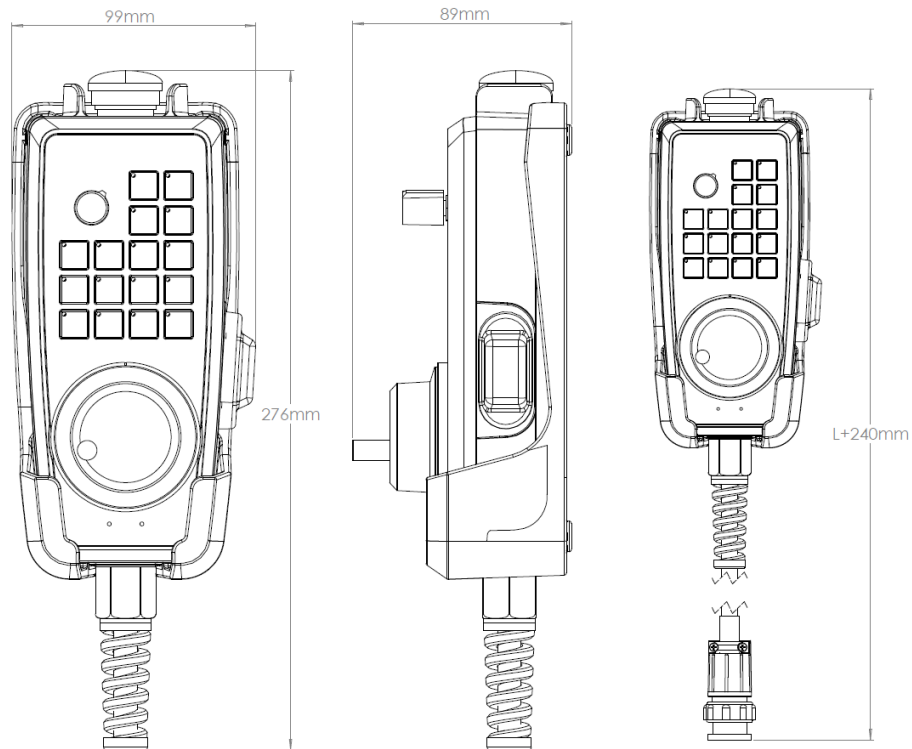


Figure 3-5 Remote Pendant Standard with Cradle Dimensions (mm)

3.3.4 Pendant Lite (with cradle)

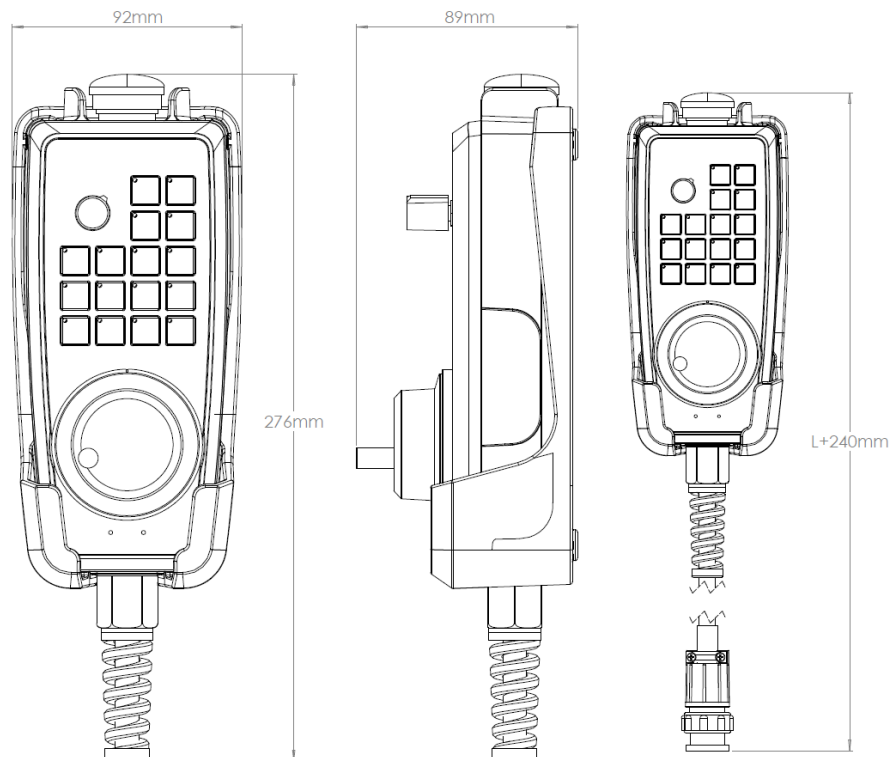


Figure 3-6 Remote Pendant Lite with Cradle Dimensions (mm)

4 Remote Pendant Patch Board

4.1 Overview

The Pendant interfaces with the Host System through the Pendant Patch Board. The Pendant connects to an 18-pin circular connector, X1. The Patch Board provides connectivity to customer 24Vdc power and safety actuators via X2. EtherCAT communications is via X3.

The Patch Board is available with two system wiring options (Mk1 or Mk2). The Mk1 and Mk2 are available in direct mount and the Mk2 can be supplied in an enclosure with DIN rail mounts.

The difference between Mk1 and Mk2 is the system wiring for the Safe Actuators (Emergency Stop and Hold-to-Run). The system level wiring for these options is shown in Section [7.4 Wiring Diagram](#).

4.2 Patch Board Mk1

The Patch Board Mk1 is shown in [Figure 4-1](#). It is an open PCBA for panel mounting inside a sealed electrical enclosure. The Mk1 is designed for use with a safety PLC using test pulses for diagnostic coverage of the safe actuators. The electrical interface is shown in Section [7 Electrical Installation](#).

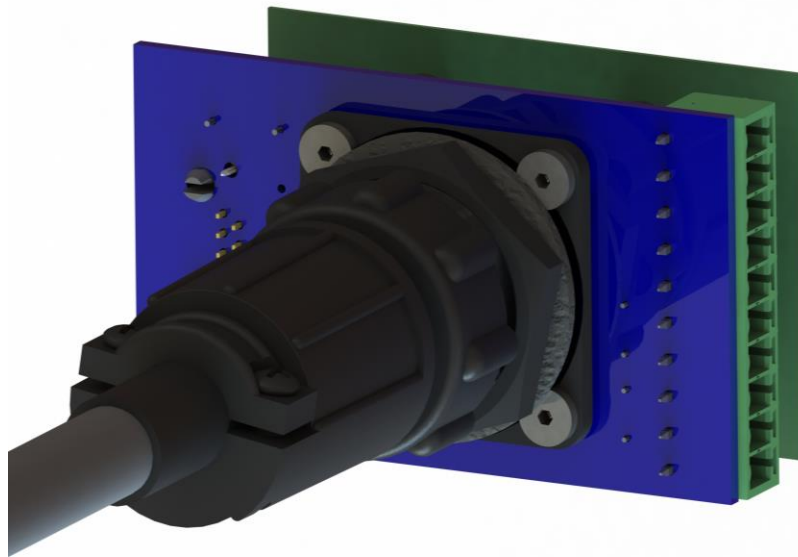


Figure 4-1 Patch Board Mk1 with Wiring Plug

4.2.1 Patch Board Mk1 Dimensions

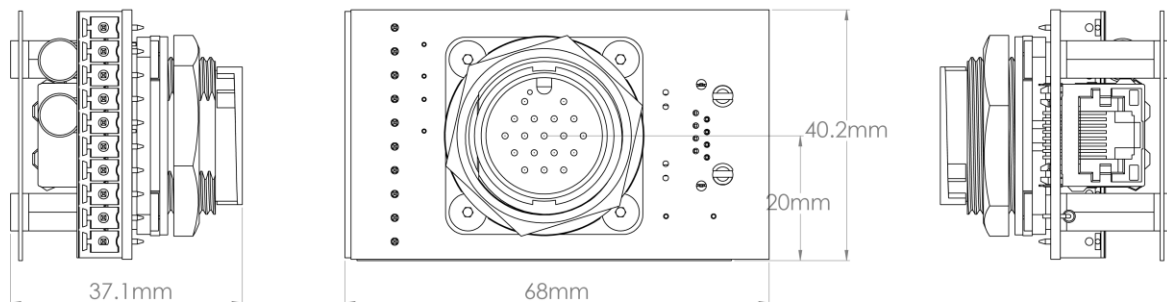


Figure 4-2 Patch Board Mk1 Dimensions (mm)

4.3 Patch Board Mk2

The Patch Board Mk2 is shown in [Figure 4-3](#). It is designed for use with a safety PLC which requires individual connections to all terminals of the safe actuators. The electrical interface is shown in [Section 7 Electrical Installation](#). The Patch Board Mk2 can be ordered in two versions.

- a) An open PCBA for panel mounting inside a sealed electrical enclosure, or
- b) A DIN-rail mount enclosure



Figure 4-3 Pendant Patch Board Mk2 and Mk2 Enclosure

4.3.1 Patch Board Mk2 Dimensions

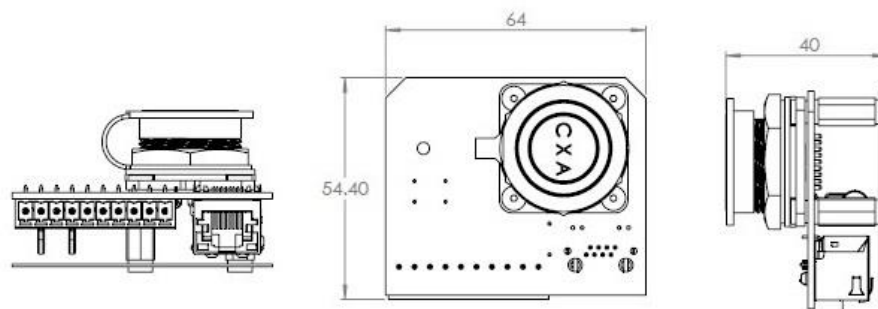


Figure 4-4 Patch Board Mk2 Dimensions (mm)

4.3.2 Patch Board Mk2 Enclosure Dimensions

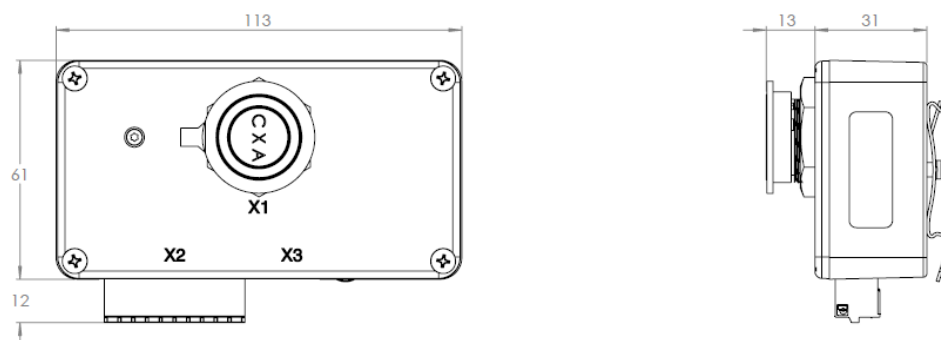


Figure 4-5 Patch Board Mk2 Enclosure Dimensions (mm)

5 Remote Pendant Cradle

5.1 Overview

The Pendant is **intended** to be mounted in the Pendant cradle when not in use to minimise the risk of accidental damage caused by dropping or kicking the Pendant cable to dislodge it when it is left outside of the cradle.

The cradle provides a feature to securely hold the base of the Pendant so that it cannot slide out but still allow for easy removal when required. Simply lift the Pendant slightly so it is clear of the bottom retaining feature.

The cradle has been designed for simple mounting to any flat surface by the three screws provided with the kit.



Figure 5-1 Remote Pendant Cradle



Figure 5-2 Pendant Standard (left) and Pendant Lite (right) Located in the Cradle

5.2 Pendant Cradle Mechanical Drawing

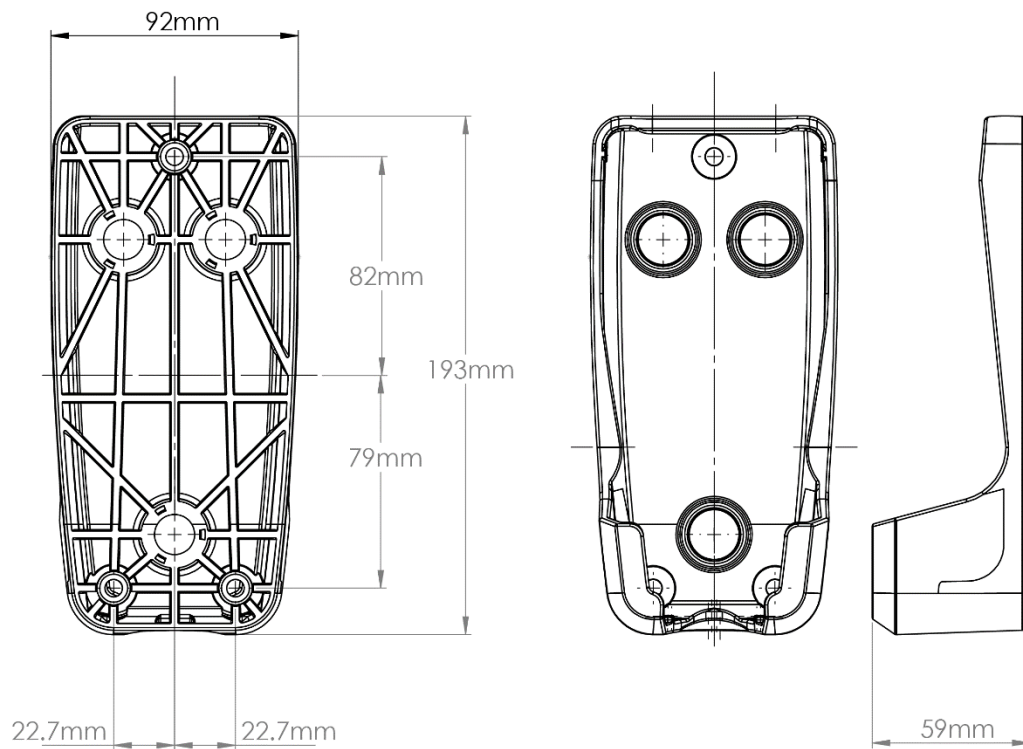


Figure 5-3 Remote Pendant Cradle Dimensions (mm)

5.2.1 Pendant Cradle Mounting Hole Pattern

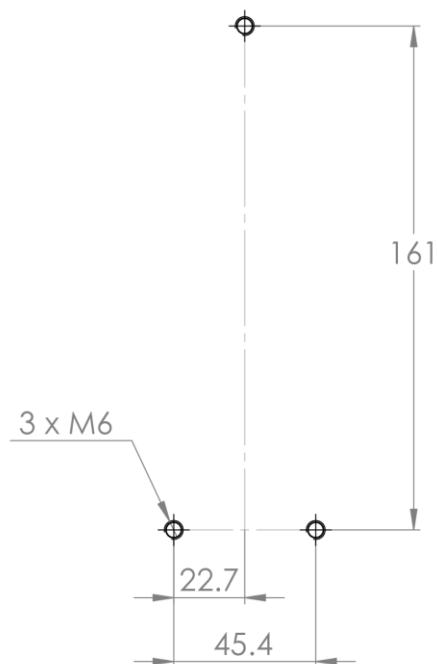


Figure 5-4 Remote Pendant Cradle Mounting Hole Pattern (mm)

6 Mechanical Installation

6.1 Mounting the Remote Pendant

- The Remote Pendant must be installed vertically as shown in [Figure 6-1](#) or tilted backwards as shown in [Figure 6-2](#). It must not be mounted tilted forward.
- Ensure 50mm of free air around the Remote Pendant.
- The Remote Pendant must not be installed in the vicinity of other heat generating equipment which may cause the temperature applied to the Pendant to exceed the product rating.

6.2 Mounting the Pendant Cradle

STEP 1

Drill three M6 holes to suit the mounting hole pattern for the cradle as shown in [Figure 5-4](#).

STEP 2

Place the cradle so that the holes line up with the three drilled holes.

STEP 3

Secure the cradle to the equipment by fitting M6 screws into the mounting holes to complete the mounting. Tighten the three mounting screws to 4Nm.

STEP 4

Place the Pendant into the cradle. It will be held securely by three magnets.

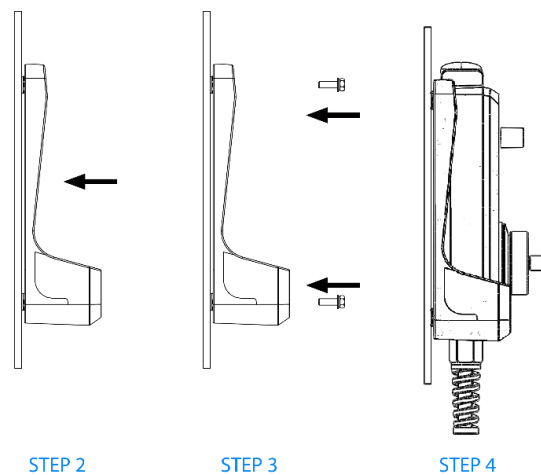


Figure 6-1 Mechanical Mounting of Remote Pendant Cradle

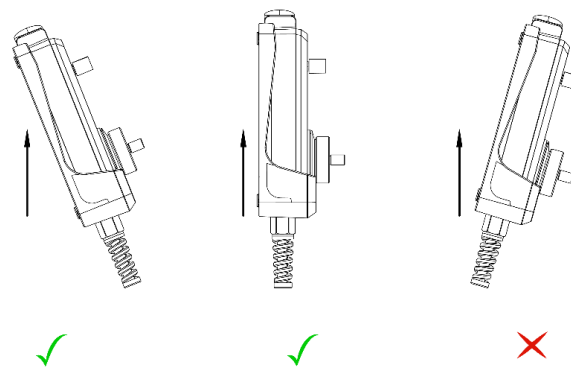


Figure 6-2 Allowable Mounting Angle is vertical or tilted backwards only

6.3 Mounting the Patch Board

6.3.1 Patch Board Mk1 and Mk2 Cut-out Pattern

The Mk1 and Mk2 Patch Boards (panel-mount types) must be mounted through a flat panel with a hole pattern as shown in [Figure 6-3](#).

NOTE, this is not applicable to Mk2 Enclosure, DIN-rail mounted model.

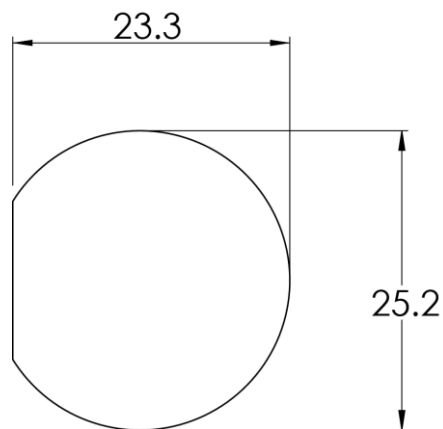


Figure 6-3 Remote Pendant Patch Board Mounting Hole Dimensions (mm)

6.3.2 Patch Board Mk2 Enclosure

Patch Board Mk2 Enclosure is intended for mounting on TS35 DIN rail using the clips on the rear of the enclosure.

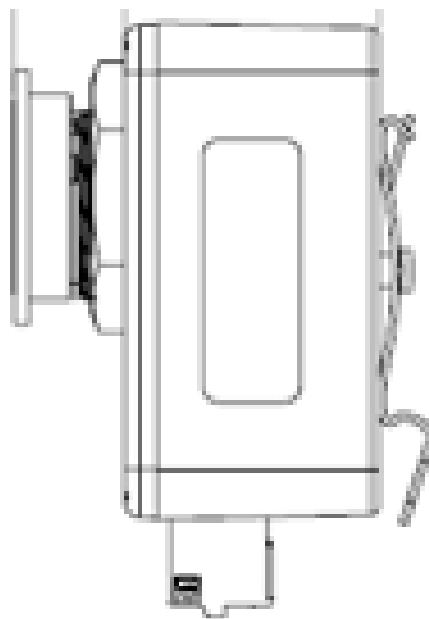


Figure 6-4 Remote Pendant Patch Board Mk2 DIN rail mount

6.4 Mounting the Spiral Cable Clamp

The purpose of the clamp is to protect the Patch Board connector from high forces generated by the spiral cable. The user must install the clamp near the Patch Board to ensure the clamp takes the full load of the cable force. The clamp must be aligned to the expected directional pull-force so that the cable is pulled along the axis of the clamp gland. This will minimise sharp bending at the clamp gland. Refer to [Figure 6-5 Clamp alignment with pull force](#).



Figure 6-5 Clamp alignment with pull force

User-supplied M5 hex socket head cap screws are recommended for mounting the Pendant Cable Clamp.

7 Electrical Installation

7.1 Introduction

This chapter contains information that is useful in planning the electrical installation for the Remote Pendant:

- Connector Overview
- Connection and wiring diagrams
- Communications wiring

The Remote Pendant should be installed by a person with the necessary skills and qualifications relating to the installation and commissioning of control equipment.

7.2 Connector Overview

7.2.1 Remote Pendant Patch Board Mk1

The Patch Board Mk1 connector designators are shown in [Figure 7-1](#).

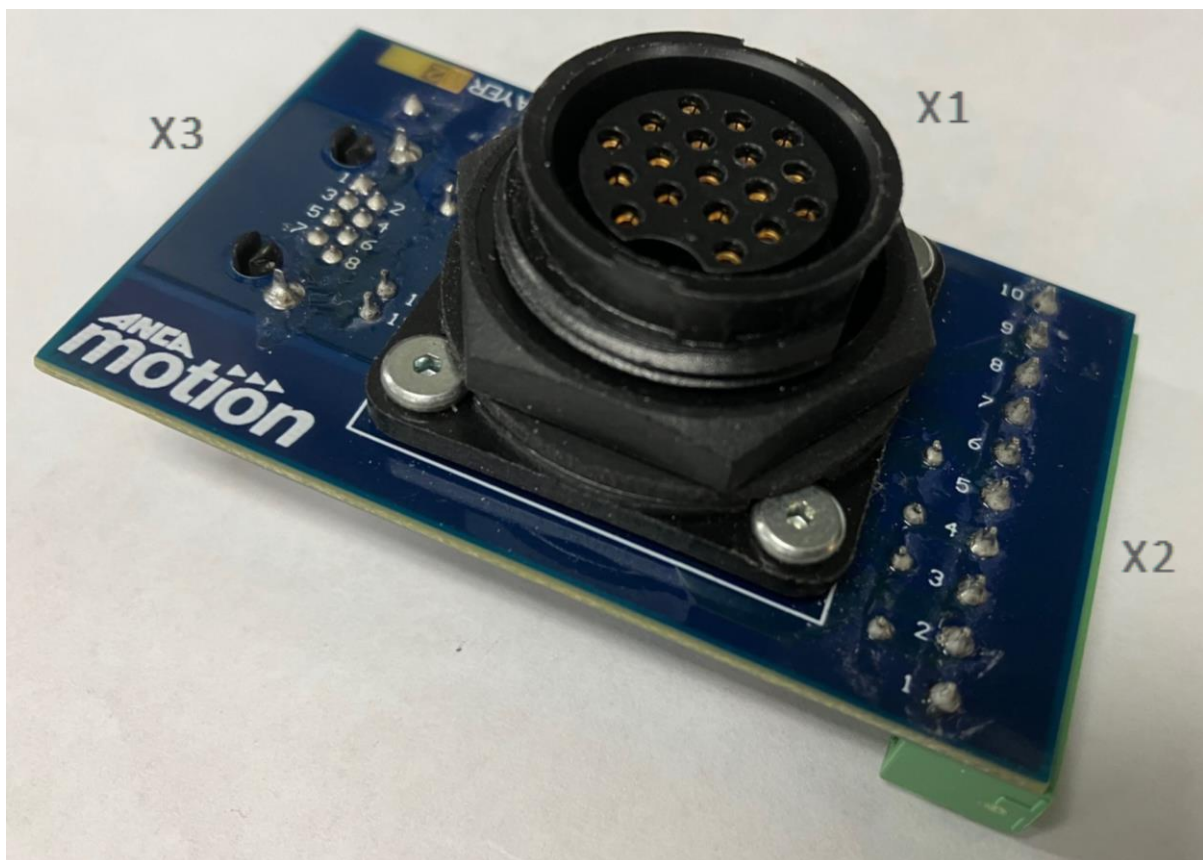


Figure 7-1 Pendant Patch Board Mk1 Connectors

7.2.2 Remote Pendant Patch Board Mk2

The Patch Board Mk2 connector designators are shown in [Figure 7-2](#).

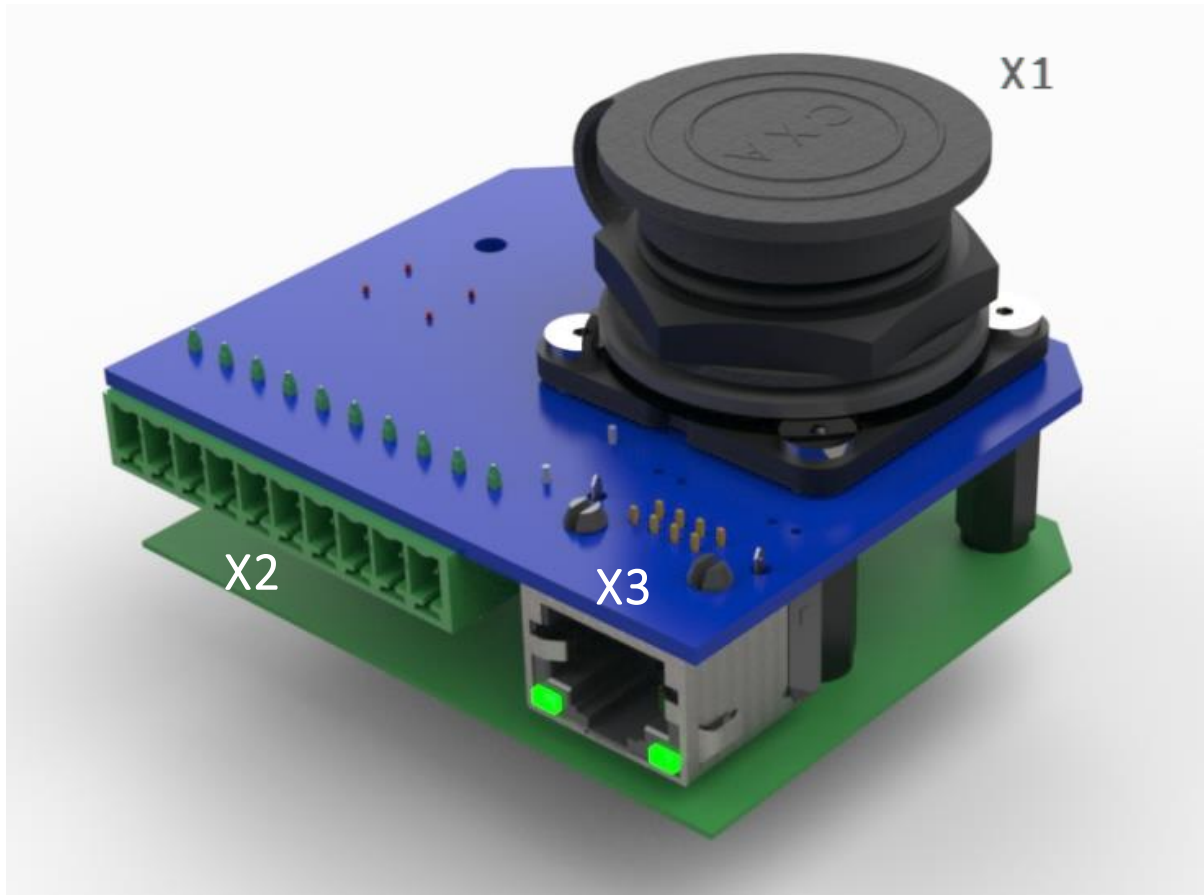


Figure 7-2 Pendant Patch Board Mk2 Connectors

The Mk2 Patch Board is also available in an optional DIN rail mounted enclosure. Note the engraving on the top shows the connector pin numbers for X2, pin 1 on left, to pin 10 on the right.



Figure 7-3 Pendant Patch Board Mk2 Enclosure Connectors

7.3 Connector Descriptions

The connectors for the Mk1 and Mk2 Patch Boards are shown below.

7.3.1 X1 - Pendant Circular Connector

Connector	Designator	Function	Mating Connector
18 Pin Circular Connector	X1	Connects the Pendant to the Patch Board	Supplied with Pendant

Table 2 Circular Connector X1

7.3.2 X2 - Power Supply and Safety Interface Connector

Connector	Designator	Function	Mating Connector
10-way plug-in terminal block	X2	Provides power and safety wiring to the Pendant	ICN-3077-1610 Supplied with Patch Board

Table 3 Terminal Block X2

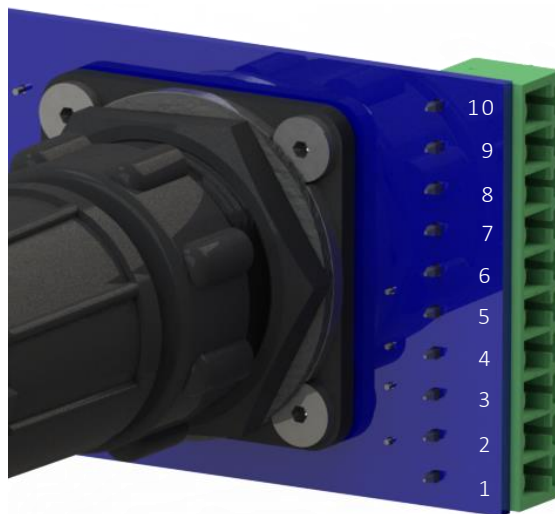


Figure 7-4 Connector X2 Pin Assignment on Patch Board Mk1

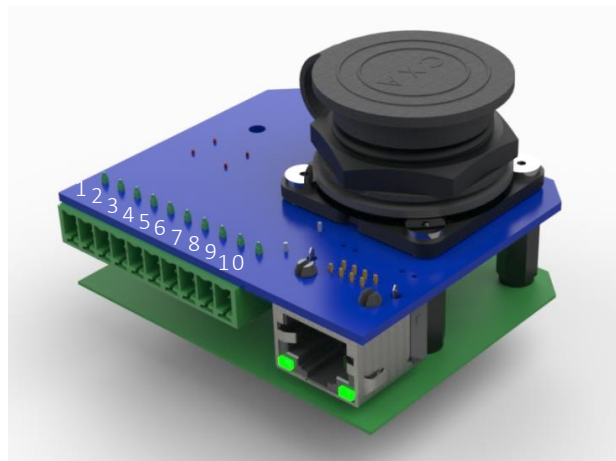


Figure 7-5 Connector X2 Pin Assignment on Patch Board Mk2

7.3.3 X3 – EtherCAT Connector

Connector	Designator	Function	Mating Connector
RJ45	X3	EtherCAT Cable	8P8C modular connectors

Table 4 EtherCAT Connector X3

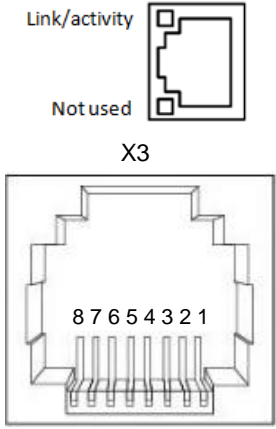
Connector	Pin Number	Label
	1	TX+
	2	TX-
	3	RX+
	4	N/C
	5	N/C
	6	RX-
	7	N/C
	8	N/C

Table 5 EtherCAT Connector Pin Assignment and EtherCAT LED Indicators

The EtherCAT connector provides a green LED for EtherCAT Link/Activity to show the device has been linked or is active (receiving or transmitting data).

7.3.4 EtherCAT Cable

Standard EtherCAT cables are used to connect the Remote Pendant to other EtherCAT devices. The following types of cables must be used with 8P8C modular connectors. They are commonly referred to as “RJ45 shielded patch leads”. Category 5e is the minimum requirement; Cat5 cables are not suitable.

Cable	Name	Cable Shield	Pair Shielding
Cat 5e or above	F/UTP	Foil	None
	SF/UTP	Screen and Foil	None

Table 6 EtherCAT Cable

- TP = Twisted pair
- U = Unscreened pairs
- F = Foil
- S = Screened (Braid type)

Either straight or crossover cables may be used. Recommended cables are listed in the accessories section of this manual.

7.4 Wiring Diagram

The Pendant cable is pre-wired with an 18-pin plug to connect to the Patch Board, X1. The user must connect a 24VDC power supply and safety wiring to X2. The EtherCAT cable connects to X3.

Figure 7-6 shows a typical wiring diagram for the Remote Pendant with a Mk1 Patch Board configured for safety PLC Test Pulses (TP1, TP2).

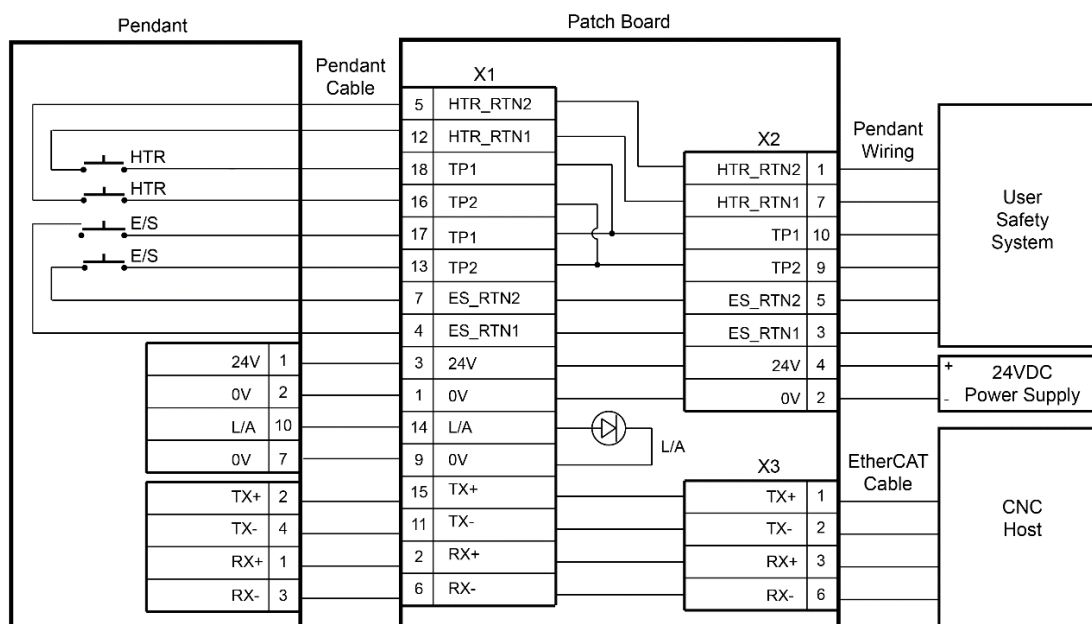


Figure 7-6 Wiring of the Remote Pendant Patch Board Mk1

Figure 7-7 shows the typical wiring diagram for the remote pendant system with a Mk2 Patch Board with the Emergency Stop and Hold-to-Run switches wired to a safety PLC

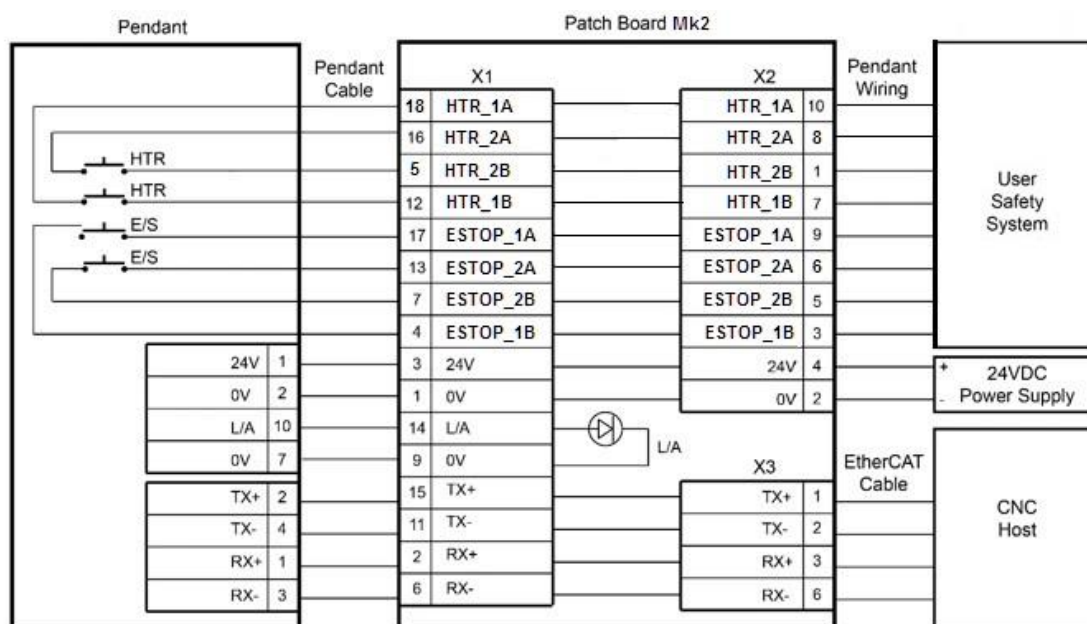


Figure 7-7 Wiring of the Remote Pendant Patch Board Mk2

8 Communication

8.1 EtherCAT®1

The Remote Pendant supports communication using the EtherCAT protocol. This protocol provides deterministic communication over a standard 100Mbit/s (100Base-TX) Fast Ethernet (IEEE802.3) connection.

The Remote Pendant functions as an EtherCAT slave device with an INPUT port (RJ45) located on the Patch Board. Note that there is no OUTPUT port (RJ45) and hence, it is intended to be the last EtherCAT slave in the network to minimise ethernet wiring and connections.

The Remote Pendant can operate in an EtherCAT system with a minimum Master update rate of 1ms.

8.2 Third Party EtherCAT Masters

The Remote Pendant has been tested with 3rd party EtherCAT Masters. However, special attention is required when a Master other than ANCA Motion's Master is used.

According to the EtherCAT standard ², an EtherCAT Master should not check the device Revision Number matches the configured Revision Number unless the ESI-file explicitly requests it. As the Remote Pendant ESI-file does not contain this request, the EtherCAT Master should not raise an error when there is a Revision Number mismatch between the configuration and the connected device.

8.3 ESI File

The Remote Pendant ESI file can be downloaded from the ANCA Motion website.

<https://motion.anca.com/Products/User-Interface/User-Interface/Remote-Pendant>

¹ EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH.

² Page 28 in ETG.2000 S (R) V1.0.12

9 Safety Devices

9.1 Safety Devices on the Pendant

The Remote Pendant **Standard** contains two safety actuators.

- The Emergency Stop switch is located at the top of the pendant, and
- The Hold-to-Run switch is located on the side of the pendant.

The Remote Pendant **Lite** contains only one safety actuator.

- The Emergency Stop switch is located at the top of the pendant.

The safety actuators are pre-wired from the Pendant to the Patch Board via the Pendant Cable. The user can connect to these devices at the connector marked X2 on the Patch Board. The Pendant does not monitor or have any connections to these safety switches. They are hard-wired to the Patch Board without any other connectivity.

9.2 Safety Standards and Risk Assessment

When using the Emergency Stop and Hold-to-Run Switch in a safety related part of a control system, use these actuators properly in accordance with the safety standards and regulations of the actual machine, system, and application, of the country or region where the Pendant is used. Also, perform a risk assessment prior to using these safety actuators on the Pendant.

Do not disable the safety functions of the Emergency Stop and Hold-to-Run switch by using tape, elastic band, or other method otherwise the loss of the safe function may cause serious accidents.

9.3 Safety Actuator Data

Machinery safety standard ISO 13849 requires the manufacturer of machinery to determine the safety level of the machine. The B10d values for the Emergency-Stop and Hold-to-Run actuators are provided in [Table 7](#).

If multiple safety components are wired in series, the Performance Level to EN ISO 13849-1 will be reduced due to the restricted error detection under certain circumstances. The entire concept of the control system, in which the safety component is integrated, must be validated to EN ISO 13849-2.

Device	B10d
Emergency Stop Actuator	100,000
Hold-to-Run Actuator	2,000,000

Table 7 B10D Specifications

9.4 Emergency Stop Application Information

The Emergency Stop switch is shown in [Figure 9-1](#). The manufacturer is OMRON, model A165E-S-03U. The switch conforms to IEC 60947-5-5.

Two switch contacts are provided so that if one contact fails, the other contact will still allow the safety PLC to disable machine operation.



Figure 9-1 Emergency Stop Switch

To ensure a high level of system safety, connect the two contacts of the Emergency Stop switch to a disagreement detection circuit (e.g. safety relay module) per ISO 13849-1 / EN954-1.

Perform a risk assessment for the shape and structure of the mounting area, where the enabling switch is installed, to prevent unintended operation of the enabling switch.

The model number detail is shown in [Figure 9-2](#). The model A165E-S-03U is a one-piece construction which is suitable for normal and low current applications. The ratings for the Emergency Stop switch are shown in [Table 8](#).

Model Number Legend (Completely Assembled).....

1
2
3
A165E-LS-24D-02

IP65 (Oil-resistant)

1. Operation Unit Shape and Functions

Code	Functions	Pushbutton
S	Non-lighted	Push-lock, turn-reset
LS	Lighted	
M	Non-lighted	
LM	Lighted	
		30 dia.
		40 dia.

2. Light Source

Code	Type	Operation voltage	Rated voltage
None	Non-lighted	---	---
24D	LED	24 VAC/ VDC±5%	24 VAC/ VDC

Note: Models with separate construction (SPST-NC and DPST-NC) are for normal loads only. One-piece models (TPST-NC) are for either normal loads or microloads.

3. Contacts

Code	Description
01	SPST-NC
02	DPST-NC
03U	TPST-NC *

* TPST-NC models have one-piece construction with the contact unit. Only non-lighted models are available.

Figure 9-2 Emergency Stop Switch – Model Details

Specifications

Certified Standard Ratings

UL508, CSA C22.2 No.14, CCC(GB14048.5)

Models with One-piece Construction

Rated voltage	Resistive load
125 VAC	1 A
250 VAC	0.5 A
30 VDC	1 A

TÜV(EN60947-5-1)

Models with One-piece Construction

Rated voltage	Resistive load
250 VAC	0.5 A
30 VDC	1 A

Certified Standards

Certification body	Standards	File No.
UL *	UL508, CSA C22.2 No.14	E41515
TÜV SÜD	EN60947-5-1 (certified direct opening), EN60947-5-5	Consult your OMRON representative for details.
CQC (CCC)	GB14048.5	2003010303070678

* Certification for CSA C22.2 No. 14 has been obtained. Separate construction models have been certified for the Switch Unit.

Switch Ratings

Models with One-piece Construction

Rated voltage	Resistive load
125 VAC	1 A
250 VAC	0.5 A
30 VDC	1 A

Note: Minimum applicable load: 5 VDC, 1 mA

Table 8 Emergency Stop Switch – Specifications and Ratings

9.5 Hold-to-Run Application Information

The Hold-to-Run switch is shown in [Figure 9-3](#). The manufacturer is IDEC, model HE6B-M211Y. This is a 3-position enabling switch designed for OFF-ON-OFF operation. The switch does not turn ON while returning from position 3 (OFF) to position 1 (OFF). IEC 60204-1 (2005), 10.9 and IEC 60947-5-8 (2006), 7.1.9, Note 2.

Two contacts are provided in this 3-position enabling switch so that if one contact fails, the other contact will still allow the safety PLC to disable machine operation.



Figure 9-3 Hold-to-Run Switch

The Hold-to-Run, 3-position enabling switch on the Remote Pendant is used to enable the machine operation in a hazardous area only when pressed to position 2 (i.e. pressed for 3 mm). Systems must be designed to enable machine operation when the enabling switch is in position 2 only.

To ensure a high level of system safety, connect the two contacts of the Hold-to-Run Switch to a disagreement detection circuit (e.g. safety relay module). (ISO 13849-1/EN954-1) because the two contacts are designed to operate independently, pressing the edge of a button turns on one contact earlier than the other contact causing a delay in operation. To avoid this, always press the centre of the button.

Perform a risk assessment in actual applications as strong force may be applied to a 3-position enabling switch when depressed to position 3.

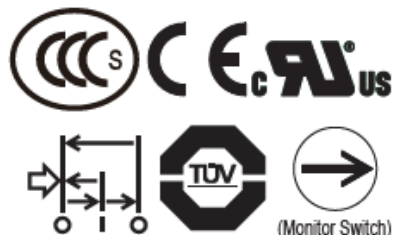
Perform a risk assessment for the shape and structure of the mounting area, where the enabling switch is installed, to prevent unintended operation of the enabling switch.



B-1241(3)

INSTRUCTION SHEET (ORIGINAL)

HE6B Three-Position Enabling Switch



Confirm that the delivered product is what you have ordered
Read this instruction sheet to make sure of correct operation.
Make sure that the instruction sheet is kept by the end user.

SAFETY NOTE

In this operation instruction sheet, safety precautions are categorized in order of importance to Warning and Caution :

WARNING

Warning notices are used to emphasize that improper operation may cause severe personal injury or death.

CAUTION

Caution notices are used where inattention might cause personal injury or damage to equipment.

1 Type

HE6B-M200*	
3-position switch	Rubber boot
2 : 2 contacts	[blank] : Without rubber boot
monitor switch	Y : Silicon rubber/Yellow
0 : blank	B : Silicon rubber/Black
11 : Release monitor switch 1 contact	[N1] : NBR/PVC Polyblend rubber/Gray
Push monitor switch 1 contact	
[20] : Release monitor switch 2 contacts	
[02] : Push monitor switch 2 contacts	

Type Nos. in [] are not supplied as standard. Contact IDEC if required.

Figure 9-4 Hold-to-Run Switch – Model Details

2 Specifications and Ratings

Applicable Standards		IEC60947-5-1, EN60947-5-1 IEC60947-5-8, EN60947-5-8, GS-ET-22 (TUV approved) UL508,CSA C22.2 No.14,GB14048.5			
Standards for Use		ISO12100/EN ISO12100,IEC60204-1/ EN60204-1, ISO11161/EN ISO11161, ISO10218-1/EN ISO10218-1, ANSI/RIA/ISO10218-1, ANSI/RIA R15.06, ANSI B11.19, ISO13849-1/EN ISO13849-1			
Applicable Directives		Low Voltage Directive (2006/95/EC) Machinery Directive (2006/42/EC)			
Operating Condition	Operating Temperature	-25 to +60°C(no freezing) (rubber boot material: without rubber boot/ silicon rubber) -10 to +60°C(no freezing) (rubber boot material: NBR/PVC polyblend)			
	Operating Humidity	45 to 85%RH (no condensation) (IEC60068-2-30)			
	Storage Temperature	-40 to +80°C (no freezing)			
	Pollution Degree	2 (inside the panel/ terminal side) 3 (outside the panel/ operator side)			
	Altitude	2000m maximum			
Impulse Withstand Voltage (Uimp)		1.5kV(3-position Switch)/2.5kV(Monitor Switch)			
Rated Insulation Voltage		125V(3-position Switch)/250V(Monitor Switch)			
Thermal Current <Ith>		3A(3-position Switch/Monitor Switch)			
Contact Ratings (Reference Values) < Ue , Ie >		30V	125V	250V	
3-position Switch	AC	Resistive load(AC-12)	-	0.5A	-
		Inductive load(AC-15)	-	0.3A	-
		Resistive load(DC-12)	1A	-	-
		Inductive load(DC-13)	0.7A	-	-
	Release/Push Monitor Switch	Resistive load(AC-12)	-	2.5A	1.5A
		Inductive load(AC-15)	-	1.5A	0.75A
Resistive load(DC-12)		2.5A	1.1A	0.55A	
Inductive load(DC-13)		2.3A	0.55A	0.27A	
Operation Frequency		1200 operations/hour			
B _{10d}		2,000,000 (EN ISO 13849-1 Annex C Table C.1)			
Mechanical Durability		Position 1⇒2⇒1: 1,000,000 operations min Position 1⇒2⇒3⇒1: 100,000 operations min			
Electrical Durability		100,000 operations min. (Rated operating load) 1,000,000 operations min. (AC/DC 24V 100mA)			
Shock Resistance		Operating Extremes: 150m/s ² Damage Limits: 500m/s ²			
Vibration Resistance		Operating Extremes: 5 to 55 Hz, half amplitude 0.5 mm Damage Limits: 16.7 Hz, half amplitude 1.5 mm			
Degree of Protection		IP40	Without rubber boot (IEC60529)		
		IP65	With rubber boot (IEC60529)		
Direct Opening Force		40N minimum (Release/Push monitor switch)			
Direct Opening Travel		Release monitor switch : 0.9mm minimum Push monitor switch : 4.0mm minimum			
Conditional short-circuit Current		50A (125V) : 3-position switch 50A (250V) : monitor switch			
Short-Circuit Protective Device		125V AC,10A Fuse (IEC60127-4) : 3-position switch 250V AC,10A Fuse (IEC60127-4) : monitor switch			
Actuator Strength		250 N minimum (when pressing the entire surface of the botton)			
Weight		Approx. 14g (without rubber boot) Approx. 17g (with a rubber boot)			

Ratings approved by safety agencies

(1) TUV rating	3-position switch	AC-12 125V / 0.5A DC-12 30V / 1A DC-13 30V / 0.7A
	Monitor switch	AC-15 250V / 0.75A DC-13 125V / 0.22A DC-13 30V / 2.3A
		AC 125V / 0.5A Resistive DC 30V / 1A Resistive DC 30V / 0.7A Pilot Duty
(2) UL , c-UL rating	3-position switch	AC 250V / 0.75A Pilot Duty AC 250V / 0.5A General Use DC 30V / 2.3A Pilot Duty DC 30V / 1A General Use
	Monitor switch	AC 125V / 0.5A DC-12 30V / 1A DC-13 30V / 0.7A
		AC-15 250V / 0.75A DC-13 125V / 0.22A DC-13 30V / 2.3A
(3) CCC rating	3-position switch	AC-12 125V / 0.5A DC-12 30V / 1A DC-13 30V / 0.7A
	Monitor switch	AC-15 250V / 0.75A DC-13 125V / 0.22A DC-13 30V / 2.3A
		AC 125V / 0.5A Resistive DC 30V / 1A Resistive DC 30V / 0.7A Pilot Duty

* For use on a flat surface of a Type 1 Enclosure

* For use in Pollution Degree 2 Environment

* Maximum Surrounding Air Temperature Rating 60°C

Table 9 Hold-to-Run Switch – Specifications and Ratings

10 Installation Checklist

10.1 Introduction

This chapter contains a power-up checklist aimed at ensuring safe and successful initial power up of the pendant.

10.2 Checklist

- ☐ The installation location satisfies the requirements in Chapter [6 Mechanical Installation](#).
- ☐ The supply voltage is within the operating limits of operation of the Remote Pendant.
- ☐ The wiring is connected to the appropriate terminals and the conductors are secured.
- ☐ The appropriate power supply fuses have been installed.
- ☐ All wiring conforms to applicable regulations and standards
- ☐ No physical damage is present to any component within the system
- ☐ All equipment connected to the Remote Pendant is ready for start-up
- ☐ A risk assessment has been completed on the entire machine and is considered by the user to be safe enough for operation.

11 Configuring the Remote Pendant

11.1 Introduction

This chapter contains configuration data for the Remote Pendant. It also includes information on the Frame Packet Mapping.

11.2 Frame Packet Mapping

11.2.1 Inputs

The input frame mapping from the Remote Pendant to the EtherCAT master is described in [Table 10](#).

Input Types	Activated	Not Activated	Description	Unit	Size
Tactile Switches	Press -1 (logic)	Release -0 (logic)	SW1 – SW16	N/A	16 bits
Temperature	N/A	N/A	Internal temperature	C°	8 bits
Analog (Pot)	N/A	N/A	Feedrate control	N/A	8 bits
MPG	N/A	N/A	Quadrature encoder	N/A	32 bits

Table 10 Input frame mapping from slave to master

The input frame from the Remote Pendant to the EtherCAT master is detailed in [Table 11](#).

Frame Number	0	1	2	3	4	5	6	7
Size	16 bits		8 bits	8 bits	32 bits			
IP #	IPB 1 - 8	IPB 9 - 16	IPI1	IPI2	IPI3			
Function	Tactile Switches		Temp	Analogue (Pot)	MPG (lowest byte)	MPG (2nd low byte)	MPG (2nd high byte)	MPG (highest byte)
	SW1-SW8	SW9-SW16						

Table 11 Input frame from slave to master

11.2.1.1 Boolean Inputs

The boolean inputs from the Remote Pendant microcontroller to the EtherCAT master are described in [Table 12](#).

IP #	Tactile Switch #	Remote Pendant Button Label	Frame Packet Boolean Input
IPB1	SW1	USER	Boolean Base + 1
IPB2	SW2	ACK	Boolean Base + 2
IPB3	SW3	LIVE OFFSET	Boolean Base + 3
IPB4	SW4	HOME	Boolean Base + 4
IPB5	SW5	x1	Boolean Base + 5
IPB6	SW6	x10	Boolean Base + 6
IPB7	SW7	x100	Boolean Base + 7
IPB8	SW8	MPG FEED	Boolean Base + 8
IPB9	SW9	X	Boolean Base + 9
IPB10	SW10	Y	Boolean Base + 10
IPB11	SW11	Z	Boolean Base + 11
IPB12	SW12	+ (Plus)	Boolean Base + 12
IPB13	SW13	A	Boolean Base + 13
IPB14	SW14	C	Boolean Base + 14
IPB15	SW15	P	Boolean Base + 15
IPB16	SW16	- (minus)	Boolean Base + 16

Table 12 Boolean inputs from slave to master

Example:

If the base for a Remote Pendant is 700, COLLET Button Press = IPB701. Note the Button Label text provided in this manual is one example and other options are available.

11.2.1.2 Integer Inputs

The integer inputs from the Remote Pendant microcontroller to the EtherCAT master are described in [Table 13](#).

IP #	Function	Frame Packet Integer Input
IPI1	Temperature	Integer Base + 1
IPI2	Feedrate (Pot)	Integer Base + 2
IPI3	MPG	Integer Base + 3

Table 13 Integer inputs from slave to master

Example:

If the base for a Remote Pendant is 700, Feedrate Pot = IPI702

11.2.2 Outputs

The output frame mapping from the EtherCAT master to the Remote Pendant is described in [Table 14](#).

Output Types	Activated	Not Activated	Description
LEDs	LIGHT ON-1 (logic)	LIGHT OFF-0 (logic)	Activate/Deactivate LED
Buzzer	BUZZER ON-1 (logic)	BUZZER OFF-0 (logic)	Activate/Deactivate buzzer

Table 14 Output frame mapping from master to slave

The output frame from the EtherCAT master to the Remote Pendant is shown in [Table 15](#).

Frame Number	0	1	2
Size	8 bits	8 bits	8 bits
OP #	OPB 1 - 8	OPB 9 - 16	OPB17-OPB24
Function	LEDs	Buzzer, LEDs	

Table 15 Output frame from master to slave

11.2.2.1 Boolean Outputs

The boolean outputs from the EtherCAT master to the Remote Pendant are described in [Table 16](#).

OP #	Front Panel Label	Frame Packet Boolean Output
OPB1	USER LED	Boolean Base + 1
OPB2	ACK LED	Boolean Base + 2
OPB3	LIVE OFFSET LED	Boolean Base + 3
OPB4	HOME LED	Boolean Base + 4
OPB5	x1 LED	Boolean Base + 5
OPB6	x10 LED	Boolean Base + 6
OPB7	x100 LED	Boolean Base + 7
OPB8	MPG FEED LED	Boolean Base + 8
OPB9	X LED	Boolean Base + 9
OPB10	Y LED	Boolean Base + 10
OPB11	Z LED	Boolean Base + 11
OPB12	+ (Plus) LED	Boolean Base + 12
OPB13	A LED	Boolean Base + 13
OPB14	C LED	Boolean Base + 14
OPB15	P LED	Boolean Base + 15
OPB16	- (minus) LED	Boolean Base + 16
OPB17	Buzzer	Boolean Base + 17
OPB18	All LEDs	Boolean Base + 18
OPB19	Reserved	Boolean Base + 19
OPB20	Reserved	Boolean Base + 20
OPB21	Reserved	Boolean Base + 21
OPB22	Reserved	Boolean Base + 22
OPB23	Reserved	Boolean Base + 23
OPB24	Reserved	Boolean Base + 24

Table 16 Boolean outputs from master to slave

12 Commissioning and Testing

12.1 Introduction

The software tools provided within ANCA Motion AMCORE enable commissioning and diagnostics of the EtherCAT Remote Pendant. An XML file is provided to the end user, or it can be download from the ANCA Motion web site: <https://motion.anca.com/Products/User-Interface/User-Interface/Remote-Pendant>

12.2 Testing / Power-On Checks

The following procedure must be adhered too during start-up to ensure safe operation and functionality:

1. Ensure all wiring is secure and there are no short circuits at the user-installed connectors.
2. Plug in all connectors.
3. All equipment connected to the Remote Pendant is ready for start-up
4. Start-up of the Remote Pendant will not result in any hazards in the current machine state of loading and accessibility
5. Ambient temperature is within the product limits.
6. A machine risk assessment has been performed and the machine has been assessed as safe to use.
7. Ensure the 24V input is within the specification limits for the product.

12.3 EtherCAT Fault Diagnostics

The state and blink rate of the LED indicators on the Remote Pendant and Patch Board can be used to trouble-shoot communication errors.

12.3.1 Remote Pendant Status Indicators

Two LED indicators on the front panel show the operating status and error status of the Remote Pendant. The status indicators are marked RUN (green) and Error (red), as shown in [Figure 12-1](#).



Figure 12-1 EtherCAT status indicators

The state of the RUN and ERROR indicators are described in [Table 17](#) and [Table 18](#) respectively. The indicator blink rates are described in [Table 19](#). In normal operation, the green RUN indicator is ON, and the red ERROR indicator is OFF.

12.3.1.1 EtherCAT RUN Indicator

State of LED	Description
On	The Remote Pendant is operational
Flickering	The Remote Pendant is booting or downloading firmware
Blinking	The Remote Pendant in the pre-op state
Single Flash	The Remote Pendant is in a safe-operational state
Off	The Remote Pendant is off or in an initialisation state

Table 17 EtherCAT RUN LED indicator states

12.3.1.2 EtherCAT ERROR Indicator

State of LED	Description
On	A critical communication or application error has occurred
Flickering	A booting error had been detected
Blinking	A general configuration error has occurred
Single Flash	A local error has occurred
Off	No error

Table 18 EtherCAT ERROR LED indicator states

12.3.1.3 EtherCAT RUN and ERROR Indicator Blink Rates

State of LED	Frequency
On	Constantly On
Flickering	10Hz, On for 50ms and off for 50ms
Blinking	2.5Hz, On for 200ms and off for 200ms
Single Flash	On for 200ms and off for 1000ms
Off	Constantly Off

Table 19 EtherCAT Indicator Blink Rates for RUN and ERROR

12.3.2 Patch Board LED Indicators

The EtherCAT connector on the Pendant Patch Board provides a green Link/Activity (L/A) indicator, as required by the EtherCAT standard. The Link/Activity indicator shows the Pendant is linked to an EtherCAT master device and is transmitting or receiving data, as described in [Table 20](#).

During normal operation the state of the EtherCAT Link/Activity indicator is flickering.

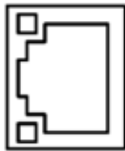
<div>Link/activity</div>  <div>Not used</div>	State of LED	Activity	Link
	On	No	Yes
	Flickering	Yes	Yes
	Single Flash	No	No
	Off	No	No

Table 20 EtherCAT Link/Activity LED Indicator Blink Rates



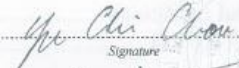

13 Standards Conformity

13.1 EtherCAT[®] Conformance Marking

An EtherCAT³ conformance mark appears on the Remote Pendant product label to certify the product meets the conformance and interoperability requirements of the EtherCAT Technology Group (ETG) Conformance Guide ETG.7010.

13.2 CE Marking

A CE mark appears on the Remote Pendant product label to certify the product meets the relevant Electromagnetic Compliance (EMC) directives of the European Union.

 財團法人精密機械研究發展中心 Precision Machinery Research & Development Center No.27, 37th Road, Taichung Industrial Park, Taichung, Taiwan, R.O.C.		TEL: 886-4-2359-9009 FAX: 886-4-2359-8847 www.pmc.org.tw	
 EMC TEST REPORT			
Applicant	: ANCA Motion Pty. Ltd. 1 Bessemer Road, Bayswater North VIC3153 Australia		
Manufacturer	: ANCA Motion Taiwan Co., Ltd. 1F, No.57, 37 Rd., Taichung Industrial Park Taichung 407 Taiwan		
Product Name	: AMI5000 Remote Pendant		
Model	: AMI5-C0400-DE00		
Series Model	: N/A		
Accessory	: MW/SP-150-24 (output: DC24V, 6.3A) Input: AC100-240V, 50Hz/60Hz		
Power Source	: DC 24V, 0.8A		
Test Date	: 2015/05/13 and 2015/05/14		
Standards	: EN 61000-6-2:2005 EN 61000-6-4:2007 (EN 55011:2009/A1:2010)		
Test Result	: PASS		
Test Laboratory	: PMC Electromagnetic Compatibility Testing Laboratory No.27, 37 th Road, Taichung Industrial Park, Taichung, Taiwan, R.O.C. TEL: +886-4-2359-9009 FAX: +886-4-2359-8847		
Tested by	Yu Chi Chou	 Signature	June 16, 2015 Date
Approved by	Tim Hise	 Signature	June 16, 2015 Date
Note : The test results only responds to the tested sample, and is invalid as separately used. The test results are invalid without examination stamp and signature of this laboratory. The test results are not reproduced except in full without the written approved of PMC Lab.			
N3E11-104R0788-044		Page 1 of 48	

³ EtherCAT[®] is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany

13.3 FCC Marking

An FCC mark appears on the Remote Pendant product label to certify the product meets the relevant Electromagnetic Compliance (EMC) standards of the Federal Communications Commission.

PMC 財團法人精密機械研究發展中心
Precision Machinery Research & Development Center
No.27, 37th Road, Taichung Industrial Park, Taichung, Taiwan, R.O.C.

TEL: 886-4-2359-9009
FAX: 886-4-2359-8847
www.pmc.org.tw

FC EMC TEST REPORT

Applicant : ANCA Motion Pty. Ltd.
1 Bessemer Road, Bayswater North, Melbourne, Victoria 3153 Australia

Manufacturer : ANCA Motion Taiwan Co., Ltd.
1F, No.57, 37 Rd., Taichung Industrial Park Taichung 407 Taiwan

Product Name : AMI5000 Remote Pendant

Model Name : AMI5-C0401-DEA0

Series Model : See the Section 1.4

Accessory : MW/SP-150-24 (output: DC24V, 6.3A)
Input: AC100-240V, 50Hz/60Hz

Power Source : DC 24V, 0.8A

Test Standards : FCC CFR Title 47 Part 15 Subpart B: 2005 Class A

Test Date : 2017/02/03

Test Result : **PASS**

Test Laboratory : PMC Electromagnetic Compatibility Testing Laboratory
No.27, 37th Road, Taichung Industrial Park, Taichung, Taiwan, R.O.C.
TEL: +886-4-2359-9009 FAX: +886-4-2359-8847

Tested by Yu Chi Chou


Signature
Date

Mar. 02, 2017
Date

Approved by Tim Hise


Signature
Date

Mar. 02, 2017
Date

Note :

The test results only responds to the tested sample, and is invalid as separately used.
The test results are invalid without examination stamp and signature of this laboratory.
The test results are not reproduced except in full without the written approved of PMC Lab.

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CE/F18 ReV.01

14 Specifications

14.1 Control Functions

Attribute	Qualification
14.1.1 User Interface	
Switches with LED indicators	16
Feedrate Potentiometer	Yes
MPG	Yes
Emergency stop	Yes
Hold-to-Run	Yes (Pendant Only)
14.1.2 Feedrate Potentiometer	
Mechanical Travel	300° +/-5°
Resistance	470 ohm +/-20%
Variation Law	Linear
14.1.3 MPG	
Supply Voltage	5 VDC +/-10%
Max Supply Current	70 mA
Output Voltage	$V_H > 4V / V_L < 0.5 V$
Maximum Output Current	20 mA
Maximum Frequency Response	5 kHz
Pulse Per Rotation (PPR)	100
14.1.4 Emergency Stop	
Position	Mounted on top surface of Remote Pendant
Number normally closed contacts	2
Mechanism	Latching positive action
Actuating force	Approximately 15 N
Reset Mechanism	Rotary
Rated Voltage	30 VDC
Rated Current	1 A
Applicable Standards	EN 60947-5-1
	UL 508
	CSA C22.2 No.14
	GB14048.5

Attribute	Qualification
14.1.5 Hold-to-Run (Standard Pendant only)	
Position	Mounted on right hand side of Remote Pendant
Number normally closed contacts	2
Rated Voltage	30 VDC
Rated Current	1 A
Applicable Standards	EN 60947-5-1
	EN 60947-5-8
	GS-ET-22 (HE6B TDS)
	UL 508
	CSA C22.2 No.14
14.1.6 Tactile Switches	
Activate Force	160 g
14.1.7 Buzzer (Standard Pendant only)	
Frequency	2.9 kHz (Nominal)

14.2 Environmental Specifications

Attribute	Qualification
14.2.1 Storage	
Ambient Temperature	-20 to +55° C
Relative Humidity	5 to 95%
14.2.2 Operation	
Operating temperature range at rated continuous current	0 to +50° C
Relative Humidity	5 to 85% non-condensing
Mechanical vibration	Within class 3M1 (IEC 60721-3-3)
Ingress Protection Rating	IP53

14.3 EtherCAT Interface

<i>Attribute</i>	<i>Qualification</i>
Protocol	EtherCAT
Baud Rate	100 Mb/s
Connector	Ethernet RJ-45 (on Patch Board)
EtherCAT Master Cycle Time	1 ms

14.4 Electrical Specifications

<i>Attribute</i>	<i>Qualification</i>
14.4.1 Power Supply	
Input Voltage Range	20.4 to 28.8 VDC (nom. 24 VDC)
Input current (max.)	100 mA
14.4.2 Power Supply Protection	
Input Transient Protection	Yes
Reverse Polarity Protection	Yes

14.5 Mechanical Specifications

Attribute	Qualification
14.5.1 Physical Characteristics	
Mounting position in Operation	Vertical preferred
Device Weight	1 kg
Membrane	MaxDermid, Autotex [®] XE Fine: F200
Materials	
Case	Nylon + 30%GF
LED Light Pipe	TPU
14.5.2 Pendant Standard Dimensions	
Pendant Standard, including cradle (Height x Width x Depth)	276 x 99 x 89 mm
Pendant Standard, excluding cradle (Height x Width x Depth)	276 x 93 x 82 mm
14.5.3 Pendant Lite Dimensions	
Pendant Lite, including cradle (Height x Width x Depth)	276 x 92 x 89 mm
Pendant Lite, excluding cradle (Height x Width x Depth)	276 x 81 x 82 mm
14.5.4 Cable Characteristics	
For standard cable lengths, refer to Figure 2-2 Remote Pendant Product Code	
Type	Straight or spiral
Length (min.)	2 m
Length (max.)	10 m
Diameter	9.5 mm
14.5.5 Patch Board Connectors	
EtherCAT Connector	RJ45
Input/Output Connector	10 position, 3.81 mm pitch, Phoenix

15 Accessories

15.1 Introduction

This chapter contains a summary of the options available for the EtherCAT Remote Pendant, including product part numbers.

Please contact ANCA Motion Sales regarding custom accessories: [16.2 Product, Sales and Service Enquiries](#).

15.2 Pendant Cradle



Figure 15-1 Cradle Assembly

Part Number	Description
646-0-01-8367	Cradle Assembly

Table 21 Cradle Assembly Order Code

15.3 Pendant Patch Board Mk1



Figure 15-2 Patch Board Mk1

Part Number	Description
646-0-00-8366	Patch Board Mk1 Panel-mount Assembly (includes 10-way plug-in terminal block)

Table 22 Patch Board Mk1 Order Code

Refer to [6.3.1 Patch Board Mk1 and Mk2 Cut-out Pattern](#) for panel-mounting instructions.

15.4 Pendant Patch Board Mk2

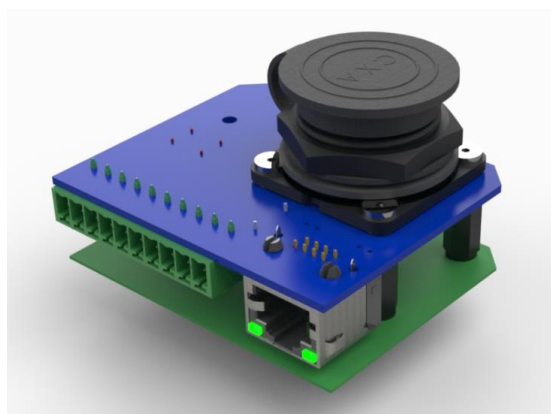


Figure 15-3 Patch Board Mk2

Part Number	Description
619-0-00-2321	Patch Board Mk2 Panel-mount Assembly (includes 10-way plug-in terminal block)

Table 23 Patch Board Mk2 Order Code

Refer to [6.3.1 Patch Board Mk1 and Mk2 Cut-out Pattern](#) for panel-mounting instructions.

15.5 Pendant Patch Board Mk2 Enclosure



Figure 15-4 Patch Board Mk2 Enclosure

Part Number	Description
619-0-00-2203	Patch Board Mk2 in a DIN-mount enclosure (includes 10-way plug-in terminal block)

Table 24 Patch Board Mk2 Enclosure Order Code

Refer to [6.3.2 Patch Board Mk2 Enclosure](#) for DIN-rail mounting instructions.

15.6 Patch Board Terminal Block

A 10-way plug-in terminal block is supplied with all Patch Board models Mk1, Mk2 and Mk2 Enclosure.

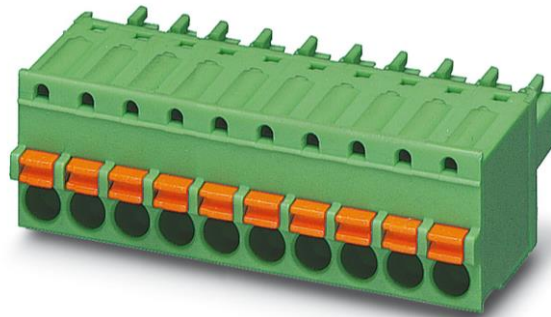


Figure 15-5 Patch Board Terminal Block

A replacement terminal block is available. Refer to [Table 25](#).

Part Number	Description
ICN-3077-1610	10-way plug-in terminal block

Table 25 Patch Board Terminal Block Order Code

15.7 EtherCAT Cables



Figure 15-6 EtherCAT Cable Cat 5e

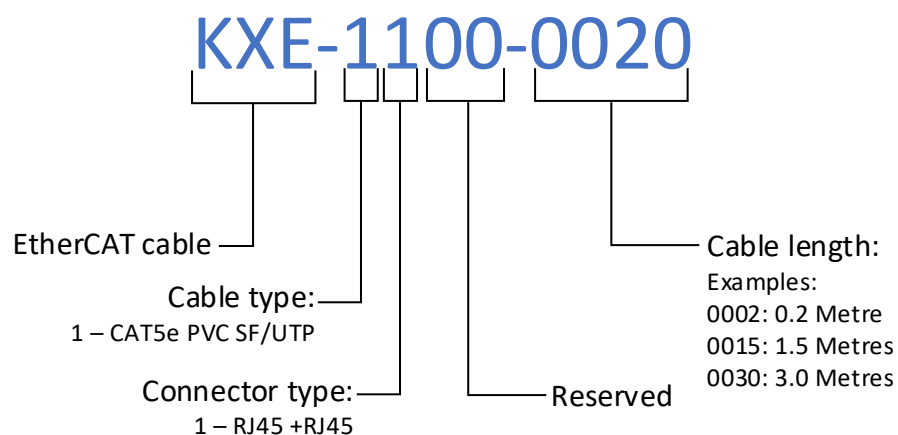


Figure 15-7 Product Order Code

Catalogue Number	Description
KXE-1100-0002	EtherCAT Cable, Cat 5e, SF/UTP, 0.2m
KXE-1100-0015	EtherCAT Cable, Cat 5e, SF/UTP, 1.5m
KXE-1100-0030	EtherCAT Cable, Cat 5e, SF/UTP, 3.0m

Table 26 EtherCAT Cable Order Codes

15.8 Pendant Cable Clamp

A Pendant Cable Clamp is supplied with all Remote Pendant models having a spiral cable. Refer to [Table 27](#) and [Figure 2-2 Remote Pendant Product Code](#).

Part Number	Cable Type	STR-SPIRAL-STR	Length Coiled	Length Extended
AMI5-C0xxx-DEB1-x	Spiral	0.5m - 1.5m - 0.5m	1.5m	2.5m
AMI5-C0xxx-DEC1-x	Spiral	0.5m - 2.4m - 0.5m	1.8m	3.4m

Table 27 Remote Pendant Models having a Spiral Cable

The Pendant Cable Clamp includes a polypropylene clamp body and a thermoplastic elastomer insert, as shown in [Figure 15-8](#).

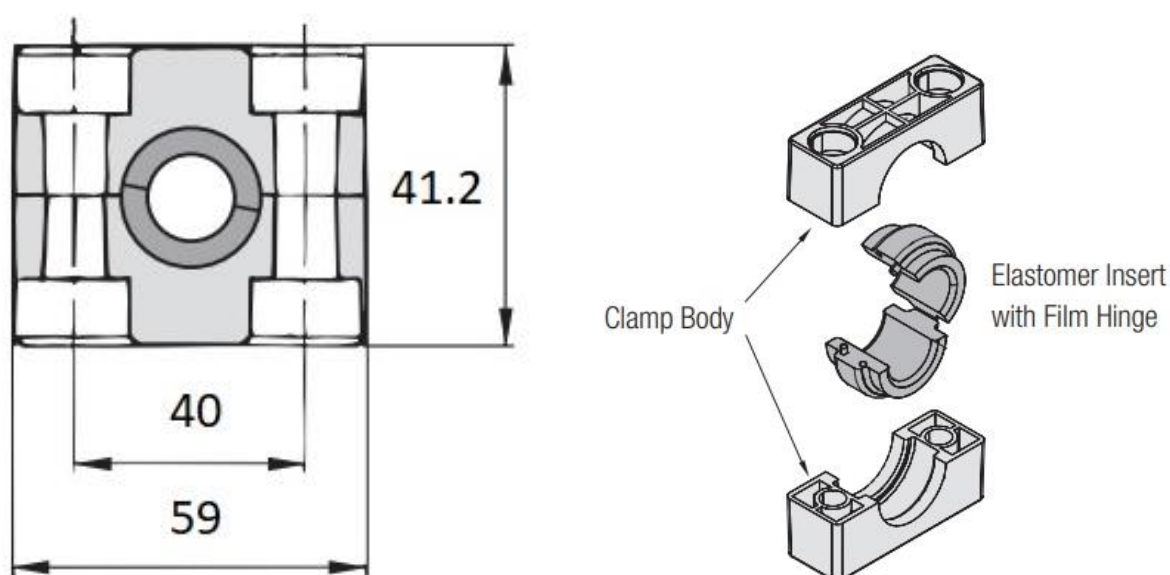


Figure 15-8 Pendant Cable Clamp

A replacement Pendant Cable Clamp is available. Refer to [Table 28](#).

Part Number	Description
ICN-3159-0057	Cable Clamp, 8mm

Table 28 Pendant Cable Clamp Order Code

15.9 Accessory Kits

The Remote Pendant is available stand-alone, or in kit form together with a Cradle and Patch Board.

The last digit in the Pendant Catalogue Number specifies the kit type, as described in [Table 29](#). Refer to [Figure 2-2 Remote Pendant Product Code](#).

Kit Part Number	Kit Contents		
	Quantity	Description	Component Part Number
AMI5-C0xxx-DExx-1	1	Remote Pendant	AMI5-C0xxx-DExx
	1	Remote Pendant Cradle	646-0-00-8601
	1	Patch Board Mk1	646-0-00-8874
AMI5-C0xxx-DExx-2	1	Remote Pendant	AMI5-C0xxx-DExx
	2	Remote Pendant Cradle	646-0-00-8601
	1	Patch Board Mk1	646-0-00-8874
AMI5-C0xxx-DExx-3	1	Remote Pendant	AMI5-C0xxx-DExx
	1	Remote Pendant Cradle	646-0-00-8601
	1	Patch Board Mk2	619-0-00-2183
AMI5-C0xxx-DExx-4	1	Remote Pendant	AMI5-C0xxx-DExx
	1	Remote Pendant Cradle	646-0-00-8601
	1	Patch Board Mk2 enclosure	619-0-00-2203

Table 29 Remote Pendant Kit Contents

16 Additional Information

16.1 Maintenance and Repairs

There are no user serviceable parts inside the Remote Pendant. If the polyester is soiled, it can be wiped with a moist cloth and detergent. Do not use abrasive cleaners. For any repairs please contact your nearest ANCA Motion office or Authorized Service Agent.

16.2 Product, Sales and Service Enquiries

If you require assistance for installation, training, or other customer support issues, please contact the closest ANCA Motion Customer Service Office in your area for details.

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16.3 Feedback

This Manual is based on information available at the time of publication. Reasonable precautions have been taken in the preparation of this Manual, but the information contained herein does not purport to cover all details or variations in hardware and software configuration. Features may be described herein which are not present in all hardware and software systems. We would like to hear your feedback via our website:

www.ancamotion.com/Contact-Us

