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CO15CAN KIT CONTACTLESS POWER & DATA

Product Manual



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CO15CAN KIT | 15W CAN CONTACTLESS POWER & DATA

OVERVIEW

This document guides users how to use the Co15CAN Kit. The Co15CAN Kit includes a transmitter (Tx) and receiver (Rx). Modules Tx and Rx are inductive couplers that supply power without physical contact power and data transmission providing 15 W at short range (few centimeters). The kit allows testing the benefits of contactless connectors by enabling cable limits and design barriers for more reliability and flexibility.

APPLICATIONS

Contactless connectors open a new scene for connectivity. By eliminating the needs for physical cables or connectors. Connection for applications in constrained and/or moving environments becomes easier. This new technology finds applications in various industrial, defense and aeronautic applications as well as in the medical field.

For example:

- For example, when changing tools on robots, the life cycle of the connectors is limited because the connectors can deform or break. Contactless connectors make connection more reliable and maintenance-free.
- For example, to communicate or power a system in a harsh or enclosed environment such as in a cleanroom, wired systems with open contacts are very expensive and weaken the system. Contactless connectors make connection more reliable by transferring through any-non electrically conducting material including gasses and liquids without contact or need to drill a hole.

Use cases:

- Supply power through any-non electrically conducting material
- Supply power moving electronic system
- Supply power embedded electronic system
- Enable new design (transfer through sealed enclosures)

FEATURES

- 15 W continuous power transmission
- Bi-directional data transmission
- Short range contactless connectivity
- Misalignment tolerance
- Free-movement due to no decoupling
- Used in pairs (transmitter Tx and receiver Rx)

BENEFITS

- No wear and tear
- Simplify interconnection
- No wifi or bluetooth interface
- No limited by mating cycle
- Free maintenance
- Providing immunity to vibration
- Providing immunity contaminants, moistures, dust



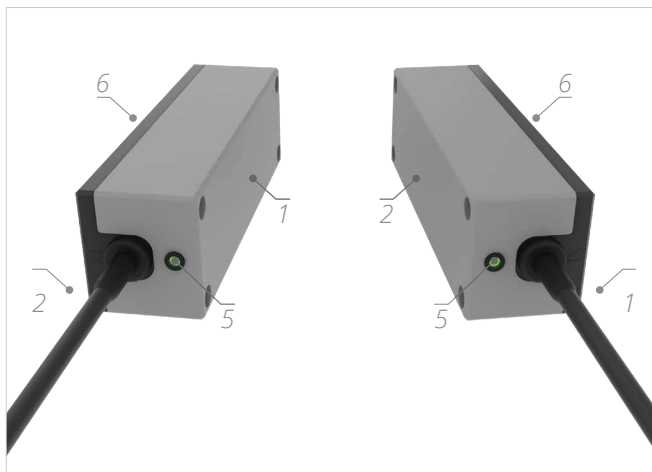
KIT CONTENT ^[1]

Transmitter TX	MU313632012400	Freespace Contactless Power & Data Transmitter 15 W CAN 8-16 mm 24 VDC Rect. Screw	1
Receiver RX	MU323630212400	Freespace Contactless Power & Data Receiver 15 W CAN 8-16 mm 24 VDC Rect. Screw	1

REFERENCES

[1]	Datasheet, MU343632012400	Revision 1
[2]	Handout, MU343632012400	Revision 1
[3]	External Presentation, MU343632012400	Revision 1

SPECIFICATIONS



- 1. Transmitter (Tx)
- 2. Receiver (Rx)
- 3. Power Cable, M12 Female
- 4. Power Cable, M12 Male
- 5. Status LED
- 6. Cooling Fins

GENERAL SPECIFICATIONS

TX Input Voltage	24	Vdc	± 10%	-
RX Output Voltage	24	Vdc	± 5%	-
Input Current Max	1.2	A	-	@ Output Power = 15 W
RX Output Power	15	W	-	@ TX Voltage = 21.6 V / Z = 16 mm / X = Y = 2 mm
Peak Power	15	W	-	-
Maximum Capacitive Load	47	µF	-	-
Efficiency	84%		± 2%	See Efficiency Section
Operating Indication	LED			See LED Indicators Section
Maximum Axial Distance	16	mm	-	See Air Gap & Misalignment Section
Minimum Axial Distance	8	mm	-	
Misalignment X,Y	± 2	mm	-	
Operational Readiness Power	1	s	-	-

DATA COMMUNICATIONS

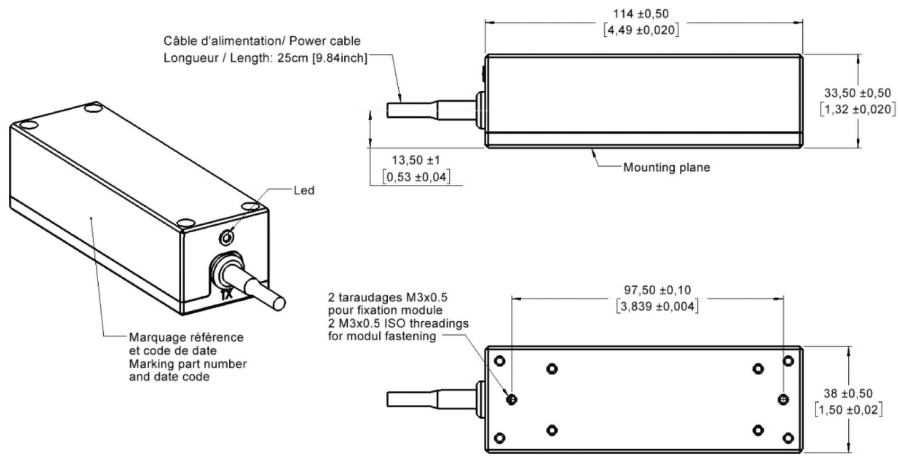
Protocol	CAN 2.0A CAN 2.0B			
Data Rate	250	kbps	-	-
Latency	400	µs	-	Minimum Latency
Termination	No			120 Ohms on Request

Notes

1. Available in sample volumes only

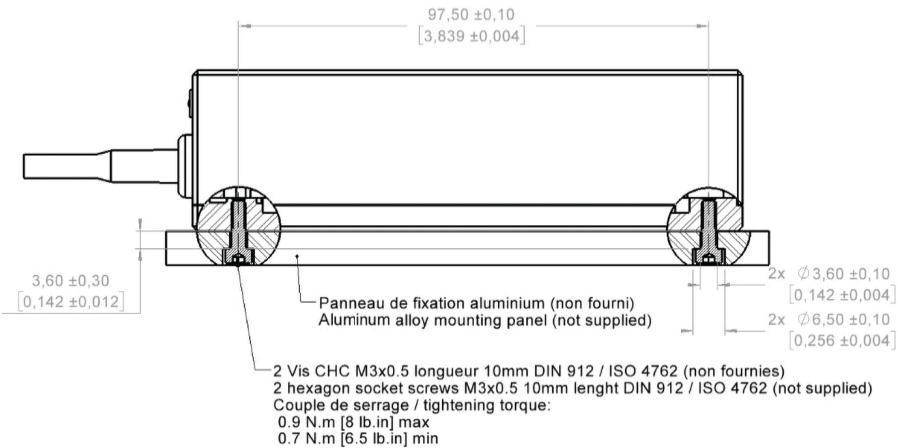


MECHANICAL SPECIFICATIONS ^[1]



Size	14 x 38 x 33.5	mm	-
Typ. Weight	220	g	-
Cable Length	25	cm	± 5 cm
Case	Aluminum Alloy		
Top Cover	PET		

**INSTRUCTIONS DE FIXATION PANNEAU
 PANEL MOUNTING INSTRUCTIONS**



Notes

1. Tx and Rx have similar mechanical specifications.



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40 to 70 °C	
Storage Temperature	-55 to +85 °C	
Quick Temperature Change	10 °C/Min	
Protection Degree	IP65	
Reverse Polarity Protection of the Power Supply	Yes	
Short-Circuit Protection of the Power Output	Yes	
Short-Circuit Protection for Data Output	Yes Under Conditions	CAN Link: Yes
Overheating Protection	Yes	
Dynamic Coupling	Yes	

CONNECTOR PINNING

Connector Pinning Receiver (Rx)

Industry Standard Cable Connector M12, Female, 5 Pin, A-Coded

<p>M12, Female (A-Coded)</p>	POS NUMBER	M12	NOTES
	1	SHIELD	Internally Connected to Main Frame
	2	V+	Power Supply
	3	V-	Ground / 0V
	4	CAN_H	CAN_H Bus Line
	5	CAN_L	CAN_L Bus Line

Connector Pinning Transmitter (Tx)

Industry Standard Cable Connector M12, Male, 5 Pin, A-Coded

<p>M12, Male (A-Coded)</p>	POS NUMBER	M12	NOTES
	1	SHIELD	Internally Connected to Main Frame
	2	V+	Power Output
	3	V-	Ground / 0V
	4	CAN_H	CAN_H Bus Line
	5	CAN_L	CAN_L Bus Line

LED INDICATORS

There is a status LED on each transmitter Tx and receiver Rx.

STATUS LED	CODE ⁽¹⁾	MEANING
Flashing Red, Green and Off	● ● ● ● ● ● ● ● ● ●	Searching for Rx and Tx Connection
Blink Red	● ● ● ● ● ● ● ● ● ●	Rx Disconnected
Fast Flashing Green and Red	● ● ● ● ● ● ● ● ● ●	Mode Binding
Fix Green	● ● ● ● ● ● ● ● ● ●	Normal Operation
Fix Red	● ● ● ● ● ● ● ● ● ●	Waiting for Input Voltage Higher than 21.6 Vdc

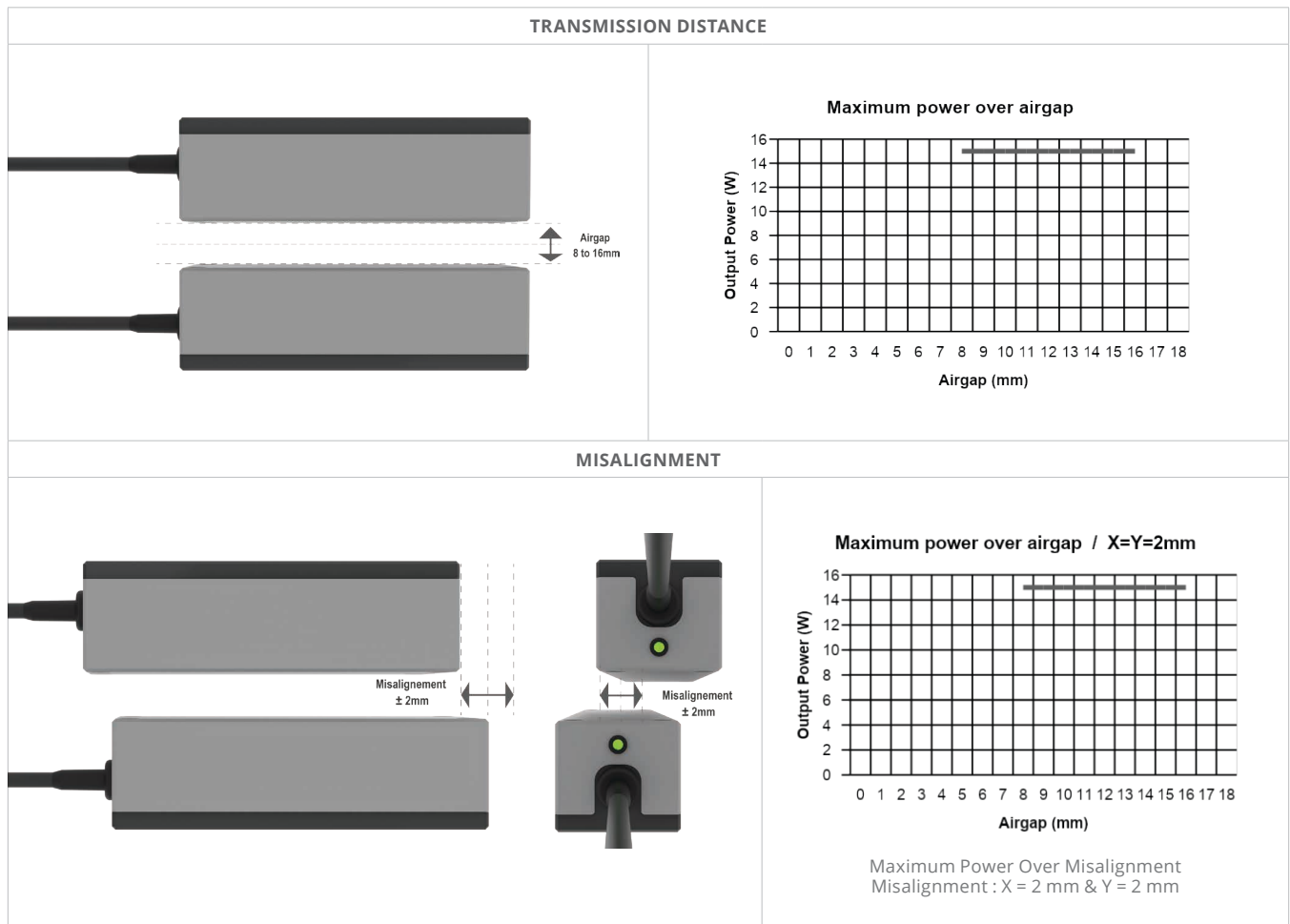
Notes

1. 100 ms step



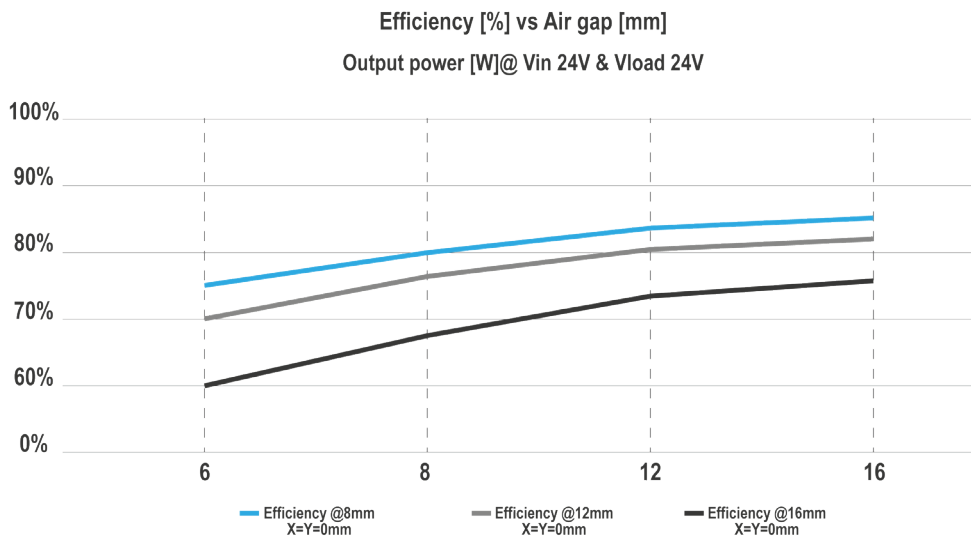
AIRGAP & MISALIGNMENT

The system transmits contactless power at 8 to 16 mm for max power level of 15 W.



EFFICIENCY

84% of efficiency guarantee at 8 mm of transmission with the transmitter and receiver aligned.





GUIDE

QUICK START

1. INSTALLATION

Fix the transmitter Tx and the receiver Rx following the mounting instruction

2. POWER SUPPLY

To power the transmitter Tx and the receiver Rx, connect the power source to the Tx.

- Connect the Transmitter Tx to power supply (24 VDC)
- Connect Receiver Rx to a load by the connector M12 - see connector pinning

Please do not use both power supply input at the same time. It could damage the module and/or the device which it is attached to.

3. INITIATE CONTACTLESS CONNECTIVITY

Align the transmitter Tx and the receiver Rx.

Following LEDs status which indicate the achieved power and/or data transmission:

- with a distance of transmission 12 mm +/- 3 mm
- with maximum misalignment of 2 mm (X:Y)

Please do not put any conducting materials between the transmitter Tx and the Receiver Rx.

PAIRING

To communicate correctly, the Tx transmitter and Rx receiver must be synchronized. By default, the kit pairs the Tx and Rx supplied are paired. If you wish to connect another Tx or Rx or replace a system you will need to synchronize them manually. Contact the technical support for information.

SAFETY INSTRUCTIONS & WARNING

The MU230341011401 is for evaluation purpose only and has not qualified to standards required for conformity with the CE making. MU343632012400 are intended for feasibility and evaluation testing only in laboratory or development environments by qualified engineers or technicians because of the risks associated with handling electrical equipment.

REVISION HISTORY

DATE	REVISION	CHANGES
31/07/2023	1.0	Initial Version



Freespace Contactless Power & Data Transmitter + Receiver 15 W CAN 8-16mm 24 VDC Rect. Screw Kit

Version	15W CAN Contactless Power & Data
Part Number	MU343632012400
Type	MUCPDTR15WCAN 8/16MM24DRBK00
Qty.	1

This user manual is valid for Co15CAN kit version 0.1 - MU343632012400. It provides guidelines to quickly understand the system. It allows recommendations for users to achieve optimal performances for testing contactless power and data transmission.