nexCOBOT TP-100-2 Teach Pendant Device User Manual

Contents

nexCOBOT TP-100-2 Teach Pendant Device

Product Information

Teach Pendant TP-100-2 User's Manual

NEXCOBOT Co., Ltd.cobot.com

V1.1 April 12, 2023

www.nex–

Copyright Statement and Disclaimer

To keep this document and its contents correct and complete, NexCOBOT reserves the right to change or revise the document at any time without further notification.

Operating machine or equipment has a certain level of danger. It is the user's responsibility to pay special attention and have safety protection in place before operating any machine or equipment. NexCOBOT shall not be held for any and all direct or indirect damage or loss to the equipment mentioned in this document due to the use for a purpose other than the intended.

Revision History

- **Description:** First Version release
- **Modify the External cable of Accessory Page 3 Content:** 3M /5M /10M / 20M Cable*1 Optional
- **Modify the interface of Specification page7 – Control connector: HDB-44 female > Removable HDB-44 control cable that cable length:** 3M / 5M /10M / 20M (Optional)

Contents

Product Usage Instructions

Product Description

The TP-100-2 teach pendant provides the freedom and convenience by allowing users to move away from the host computer and control the robot locally. It incorporated the Multi-Touch projected capacitive (PCAP) touchscreen technology to reduce the number of buttons and consequently streamlined the operation of the industrial robots.

Overview of TP-100-2

The TP-100-2 teach pendant is a handheld device that controls robot movements, teaches locations, and runs robot programs. It features an ergonomic housing with safety elements, a 10.1 WXGA resolution panel, and the Multi-Touch PCAP touchscreen technology.
The control unit is comfortable to use and has an optional shoulder strap.

Front Back

Handling of TP-100-2

The TP-100-2 teach pendant should be operated in a horizontal/landscape format. Ensure that all necessary cables are connected from the teach pendant to the host computer before operating the device.

TP-100-2 Accessory

The TP-100-2 accessory includes:

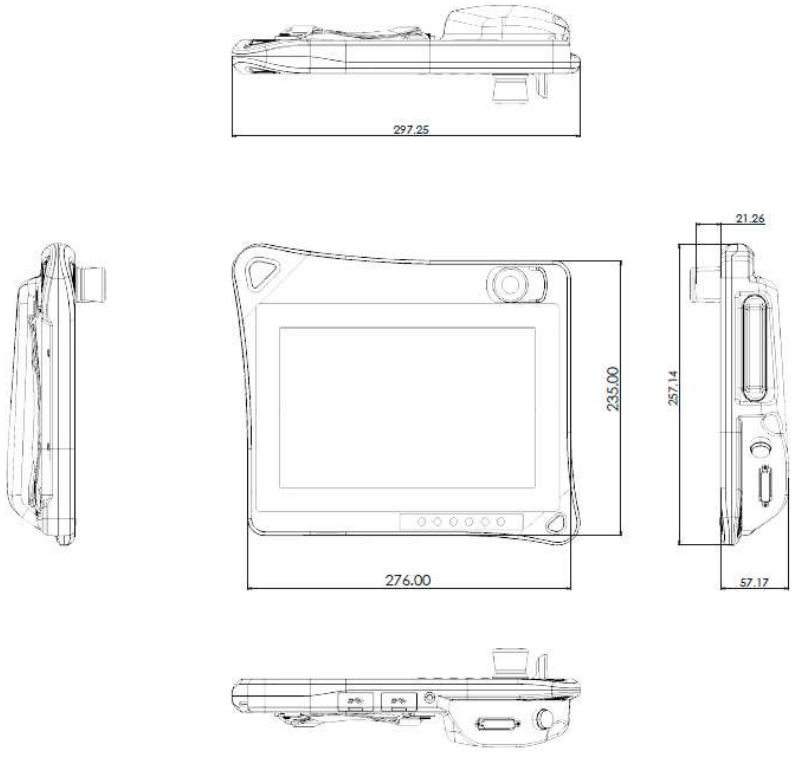
- TP-100-2
- External Cable (3M / 5M / 10M / 20M Cable*1 Optional)
- TP-100-HD-JB (Junction box*1, M3*12mm screw*4, Connector 12P*1 +4P*1+ 3P*1)
- Circular connector cable (30cm)
- Option accessory (1)

To connect the circular connector wire to the Junction box and external cable, follow the provided instructions.

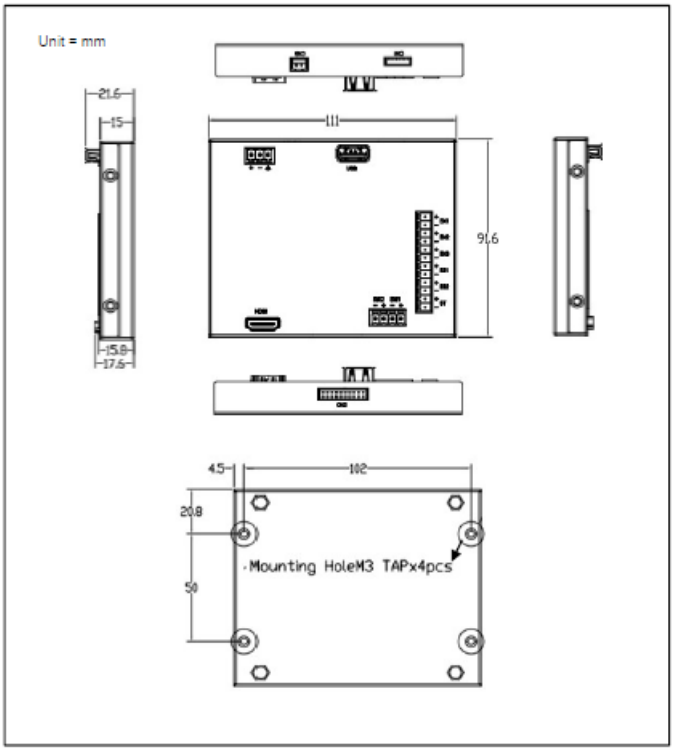
NO.	Items	Q'ty	Figure	Note
1	TP-100-2	1		
2	External Cable	1		**Content:** 3M /5M /10M / 20M Cable*1 Optional
3	TP-100-HD-JB	1	  	**Content:** 1. Junction box*1 2. M3*12mm screw*4 3. Connector 12P*1 +4P*1+ 3P*1
4	Circular connector cable (30cm)	1		Connecting the circular connector wire to Junction box and external cable
5	Option accessory	1	 	1. TP-100 Holders *1 2. CAP*1 for circular connector

Technical Data

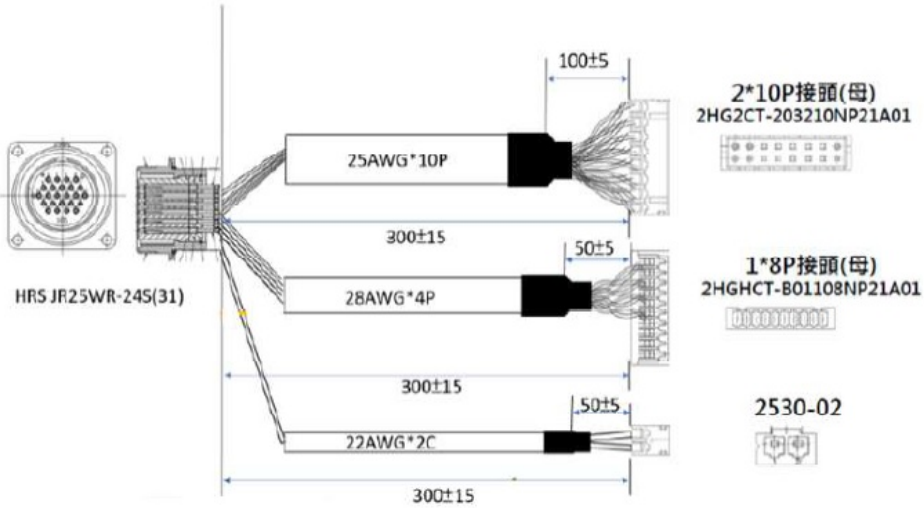
Dimensions of TP-100-2



Dimensions of TP-100-HD-JB



Dimension of Circular connector cable (30cm)



Specification

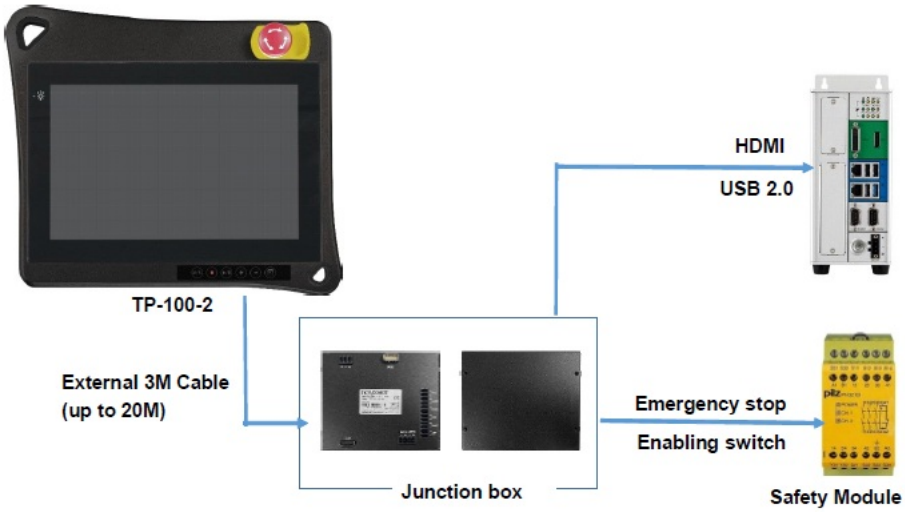
Technical Data	TP-100-2	Technical Data	TP-100-2

Panel	• 10.1”, 16:10, WXGA, 1280 x 800 • Luminance: 400 cd/m2 • Contrast ratio: 800:1 • LCD color: 16.7M • Viewing angle: 89 (U), 89 (D), 89 (L), 89 (R) • Backlight: LED	Interface	• Data back-up: 2 x USB 2.0 • Control connector: HDB-44 female > Removable HDB-44 control cable that cable length: 3M / 5M /10M / 20M (Optional) > including power, E-stop button,3-Position Enabling switch, Buttons Switch, USB 2.0 and HDMI
Touch	• Touch: 5 points P-Cap • Touch light transmission: 87% • Touch interface: US • Anti-scratch surface: 7H hardness	Ratings	• Power supply voltage: 24 Vdc (19.2 to 28.8 Vdc) • Current consumption: > 0.265A(max.) at 24Vdc
Safety Elements	– Emergency Stop Button > 2 NC channels, B10d=130,000 > Contact function: latching > Reset: by rotating -3-Position Enabling Switch > 3 channels 2NO & 1 NC, B10d=100,000	Mechanical	• Dimension: > 297.3 x 257.2 x 57.2 mm (78.5mm including E-stop button) – Weight (without external control ca- ble): 1.5Kg • IP protection class: Full IP65 • Color: > Front bezel: aluminum magnesium alloy; c**olor:** Black > Back cover: ABS+PC; color: Pantone 432C
Operating Eements	• 2-Position button switch (1 NO& 1 NC) • 6 membrane keys	• Environment	• Operating temperature: 0°C to 50°C • Storage temperature: -20°C to 75°C • Operating humidity: 10%~90% relative humidity, non-condensing • Vibration resistance/shock- proof /free-fall according to EN 61131 2

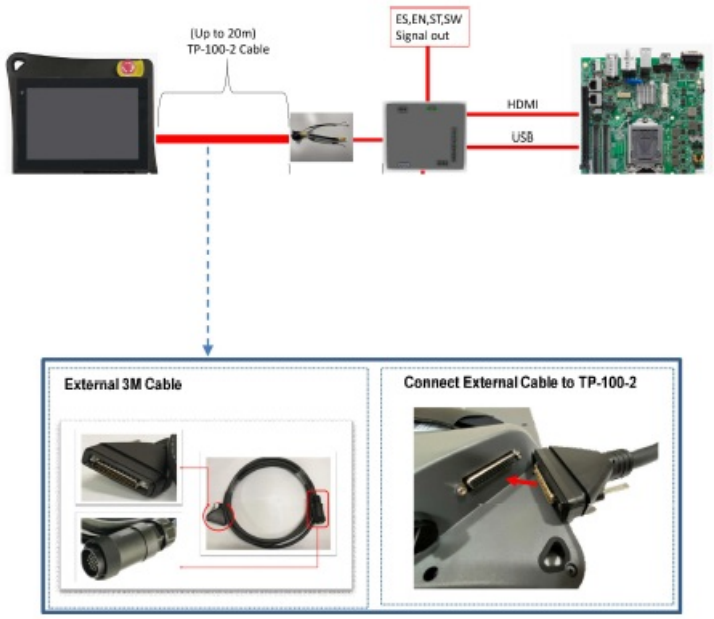
System	• TP-100-2: HDMI input • USB 2.0 upstream	• Certifications	• CE (EN 61000-6-2; EN61000-6-4) for installation in industrial environments • FCC Class A

Connection and Wiring

Connection



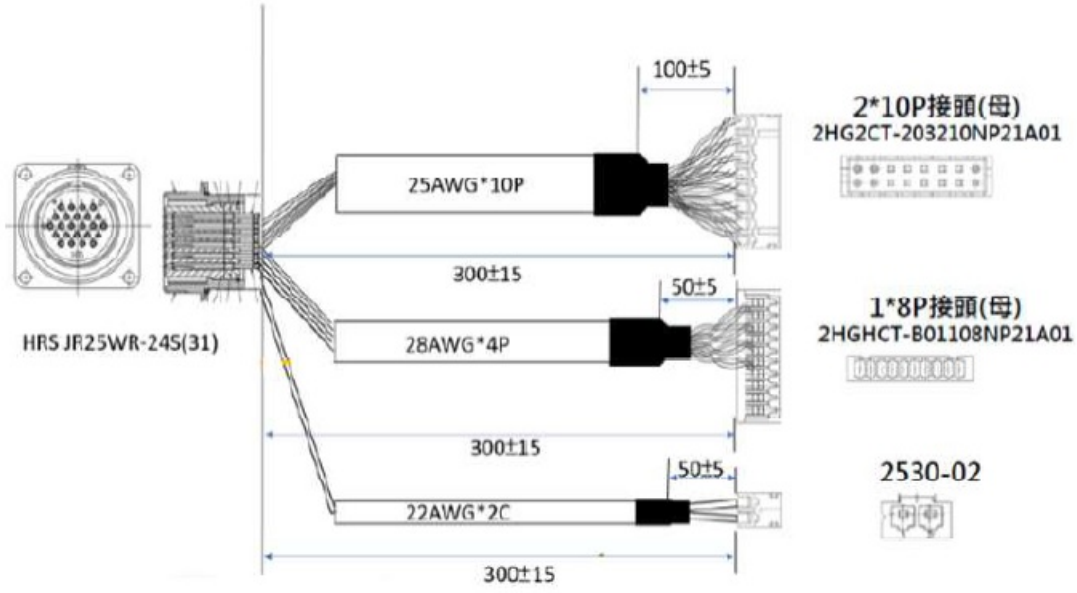
Wiring Example



Pin define of Junction Cable

Function	Pin	Description
DC24V	+	DC power input (24V, 0V, Shielding)
	–	
VGA	VGA	VGA signal for display
USB	USB	USB 2.0 of TP-100-2
Enabling Switch	EN1+	An enabling switch is a 3-position (OFF-ON-OFF) switch to allow a machine operation only when the switch is lightly pressed and held i n the middle position.
	EN1-	
	EN2+	
	EN2-	
	EN3+	
	EN3-	
Emergency Stop But- ton	ES1+	Emergency stop button are switches that quickly and reliably provide two-channel signal for switching ma- chines and systems to a safe st ate in an emergency.
	ES1-	
	ES2+	
	ES2-	
Switch Button	SW1+	A general-purpose button which provide two-channel signal and can be used as power switch of system.
	SW1-	
	SW2+	
	SW2-	
Membrane Stop Key	ST+	The stop key on membrane provides a hard-wired signal can be use d as program stop function.
	ST-	

Pin define of Circular connector cable

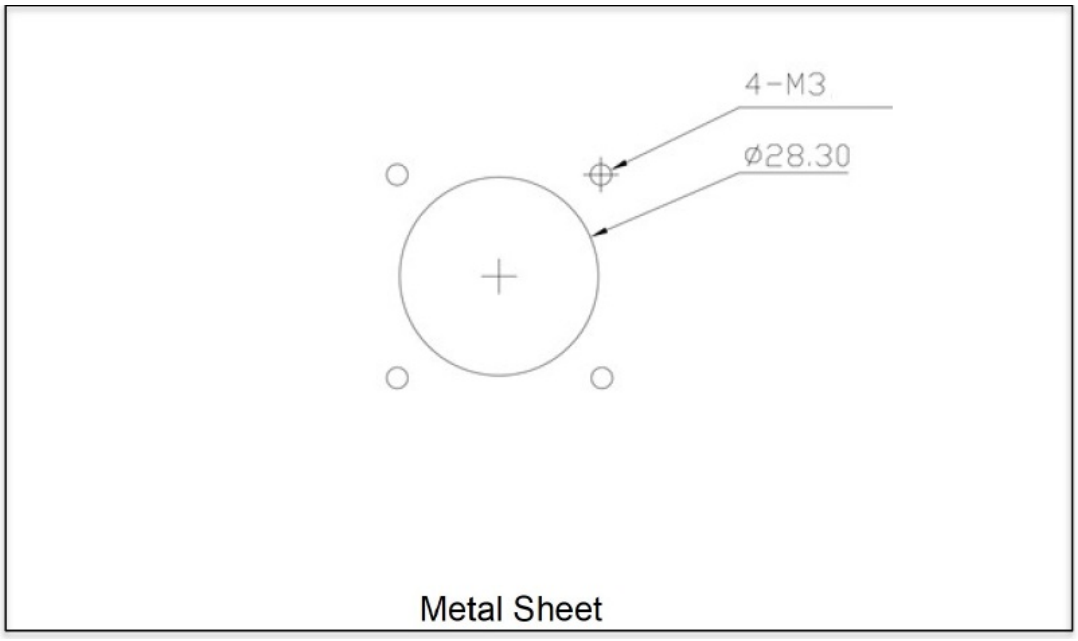

100±5
2*10P接頭(母)
2HG2CT-203210NP21A01
25AWG*10P
300±15
50±5
1*8P接頭(母)
2HGHCT-B01108NP21A01
28AWG*4P
HRS JR25WR-24S(31)
300±15
50±5
2530-02
22AWG*2C
300±15

25AWG*10P (CN2)		
HRS Connector JR25WR- 24S(31)	Pin Define	2*10P Con. (Female)
1	CHASIS_GND CHASIS_GND CHASIS_GND	18 19 20
4	ES_NC_1-A	8
5	ES_NC_1-B	10
6	ES_NC_2-A	12
7	ES_NC_2-B	14
8	ES_NO_1-A	5
9	ES_NO_1-B	7
10	ES_NO_2-A	9
11	ES_NO_2-B	11
12	SW_NC_1-A	1
13	SW_NC_1-B	3
14	SW_NO_1-A	2
15	SW_NO_1-B	4
16	C_STOP_O_2	6

28AWG*4P (CN1)		
HRS		
Connector JR25WR-	**Pin Define**	**1*8P Con. (Female)**
24S(31)		
17	**BI_DA-**	**2**
18	**BI_DA+**	**1**
19	**BI_DB-**	**4**
20	**BI_DB+**	**3**
21	**BI_DC-**	**6**
22	**BI_DC+**	**5**
23	**BI_DD-**	**8**
24	**BI_DD+**	**7**

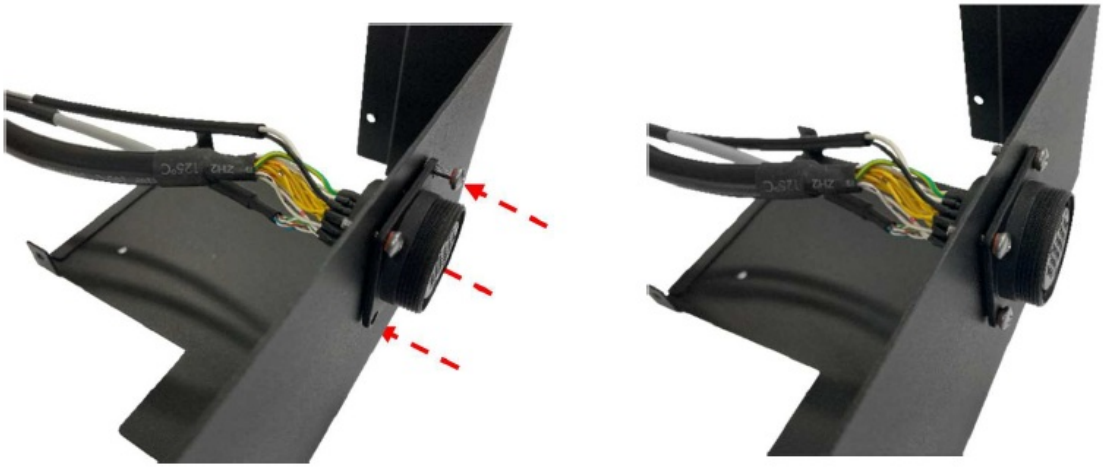
22AWG*2C (CN3)		
HRS		
Connector JR25WR-	**Pin Define**	**2530-02 Con.**
24S(31)		
2	**DC Power+**	**1**
3	**DC Power-**	**2**

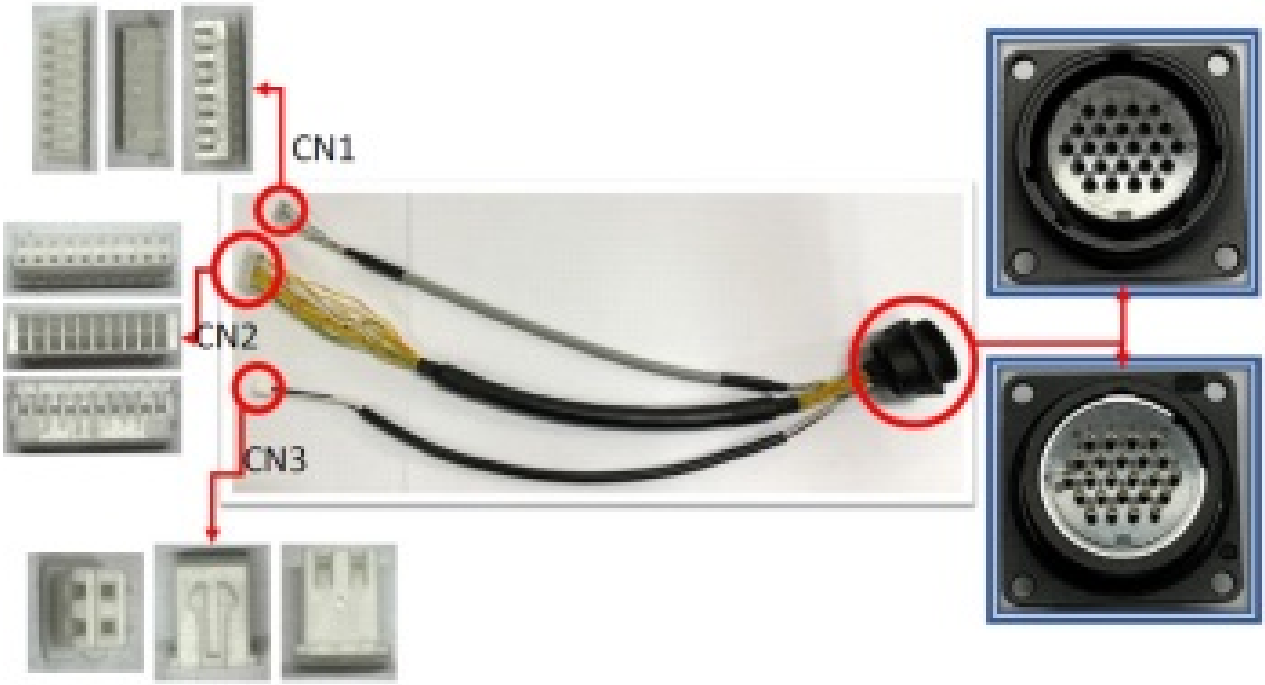
Installation the Junction Box
Step 1: Drill a hole on the metal sheet for fixing the circular connector
NOTE: M3*L6 screws *4

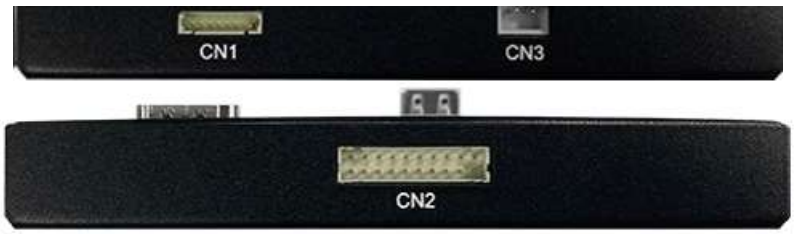


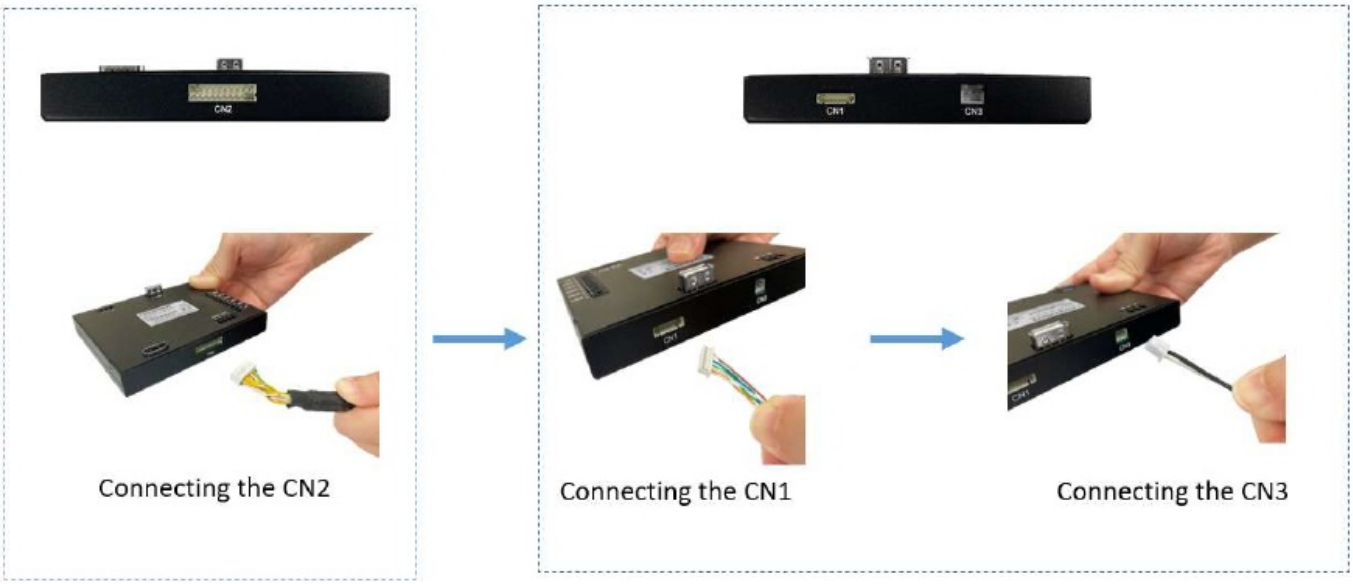
Step 2: Fix the metal sheet made sure the circular connector cable can through the holes of metal3

Step 3: Fix the circular connector cable with metal sheet with 4 pcs screws
Note: M3*L6 screws *4

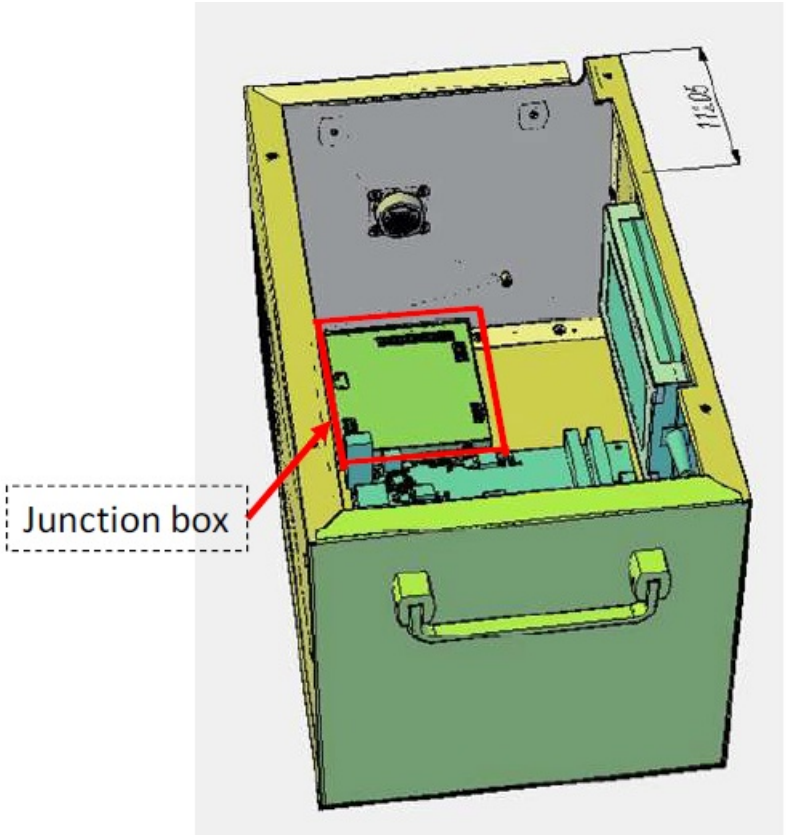



CN1
CN2
CN3


CN1
CN3
CN2

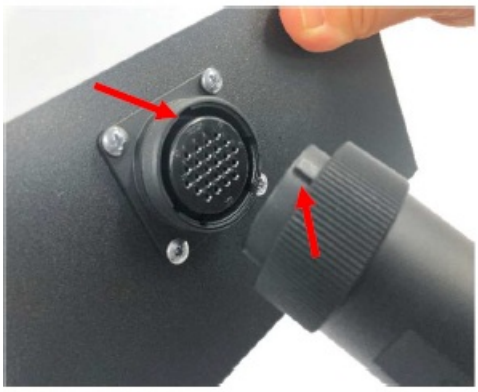


Step 5: Fix junction box on the metal sheet
Note: These 4 screws are in TP-100-HD-JB



Connecting extension cable to the Junction Box
Circular connectors that meet military specifications are used to connect with the junction box. The connector consists of a plug (male, pin) and a receptacle (female, socket). Follow the steps below to connect the junction box with the teach pendent

1. Align the notch of the plug with the latch of the receptacle.



2. Turn the “first ring” on the plug clockwise until you cannot turn it anymore until the junction box and plug are tightly connected.

Note 1: DO NOT twist the “black ring” to tighten the connection.

For disconnecting the Junction Box

1. Turn the “first ring” on the plug counterclockwise to disconnect the junction box.

Note 2: DO NOT pull the “black ring” to disconnect the connection.

Connect extension wire to TP-100-2

CAUTION
DO NOT power on the system before finishing wiring. DO NOT remove the wiring during power on, which may result in damage to the system.

Operation Behaviors

Membrane Keys

The TP-100-2â€™s membrane keys are located at the lower-right of the teach pendant. Review the key definitions below

Key Definition	Defined Keyboard Mapping
M/A	[Ctrl] + [Shift] + [m]
Stop	[Ctrl] + [Shift] + [s]
Play/Pause	[Ctrl] + [Shift] + [p]
+	[Ctrl] + [Shift] + [ ]]
–	[Ctrl] + [Shift] + [[ ]
Error Log	[Ctrl] + [Shift] + [e]

The stop key on membrane provides a hard-wired signal and connects to ST+ and ST- at the back of junction box. When the stop button is pressed, the ST+ and ST- status will then change from Normal Open (NO) to Normal Close
(NC).

Emergency Stop Button
The Emergency Stop button locates at the upper-right corner of the TP-100-2 and connects to ES1 and ES2 at the back of the junction box. When an emergency occurs, the Emergency Stop button is pressed to stop all activities, the ES1 and ES2â€™s status will then change from Normal Close (NC) to Normal Open (NO). To reset the button, turn it clockwise or counterclockwise to raise the button.

Enabling Switch
The Enabling switch checks the two-channel mechanical switching elements and filter out any asynchronous output signals. It ensures the approval control (circuit 1 and circuit 2) and both outputs of the teach pendant are synchronized at all time.

	Position Pin	Position 1	Position 2	Position 3
	Position travel (mm)	**0.0**	**3.0**	**6.0**
When pressing the switch	EN1 +	Open	Close	Open
	EN1 –			
	EN2 +	Open	Close	Open
	EN2 –			
	EN3 +	NA	NA	NA
	EN3 –			
When releasing the switch	EN1 +	Open	Open	Open
	EN1 –			
	EN2 +	Open	Open	Open
	EN2 –			
	EN3 +	NA	NA	NA
	EN3 –			

Switch Button

The switch button connects to SW1 at the back of the junction box. When the switch button is pressed, the SW1 status will change from Normal Close (NC) to Normal Open (NO).

	Pin	Contact
When pressing the switch	SW1 +	Open
	SW1 –	
	SW2 +	NA
	SW2 –	
When releasing the switch	SW1 +	Close
	SW1 –	
	SW2 +	NA
	SW2 –	

Front

Back

Documents / Resources

	nexCOBOT TP-100-2 Teach Pendant Device [pdf] User Manual TP-100-2, TP-100-2 Teach Pendant Device, Teach Pendant Device, Pendant Device, Device