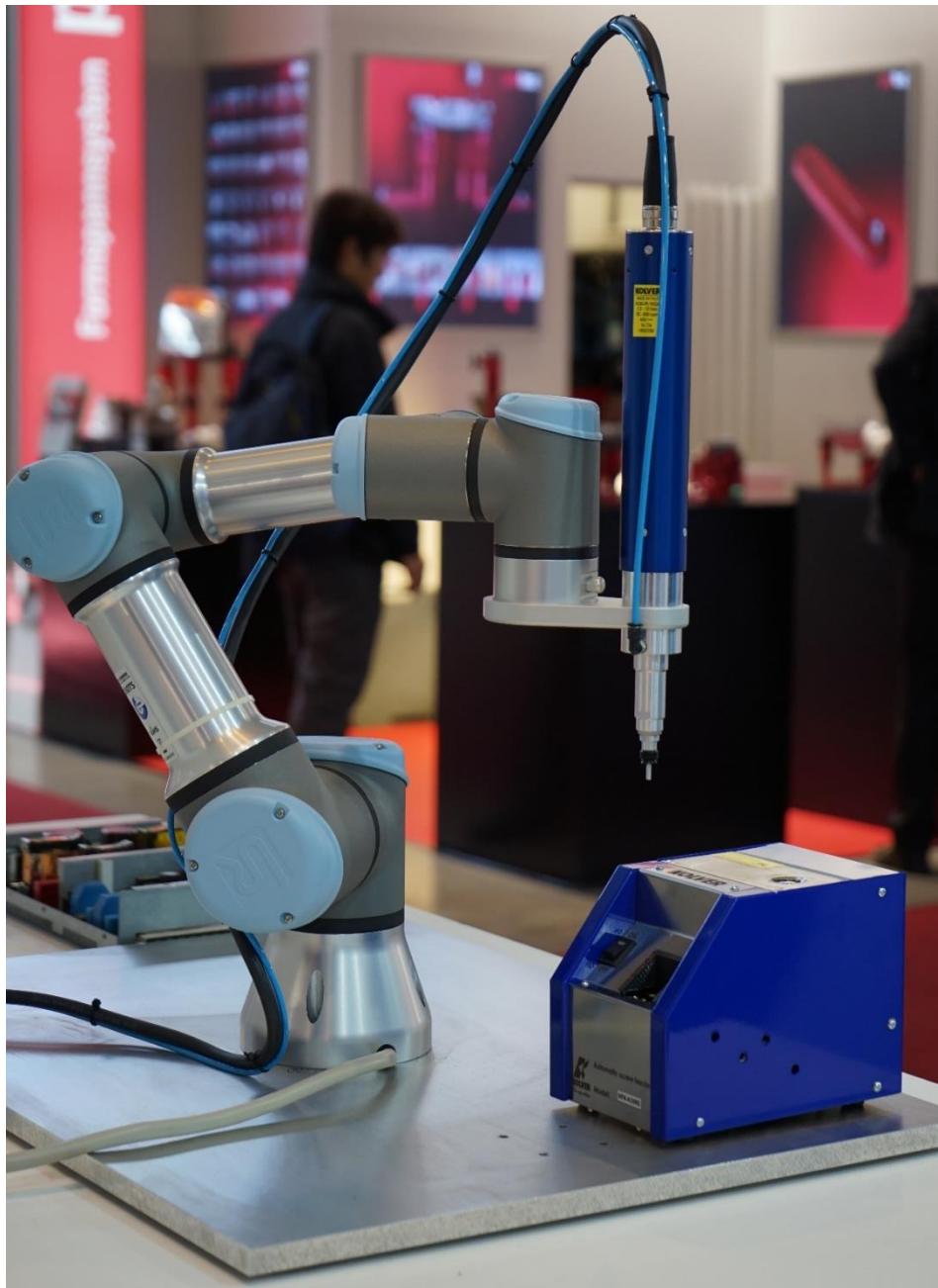
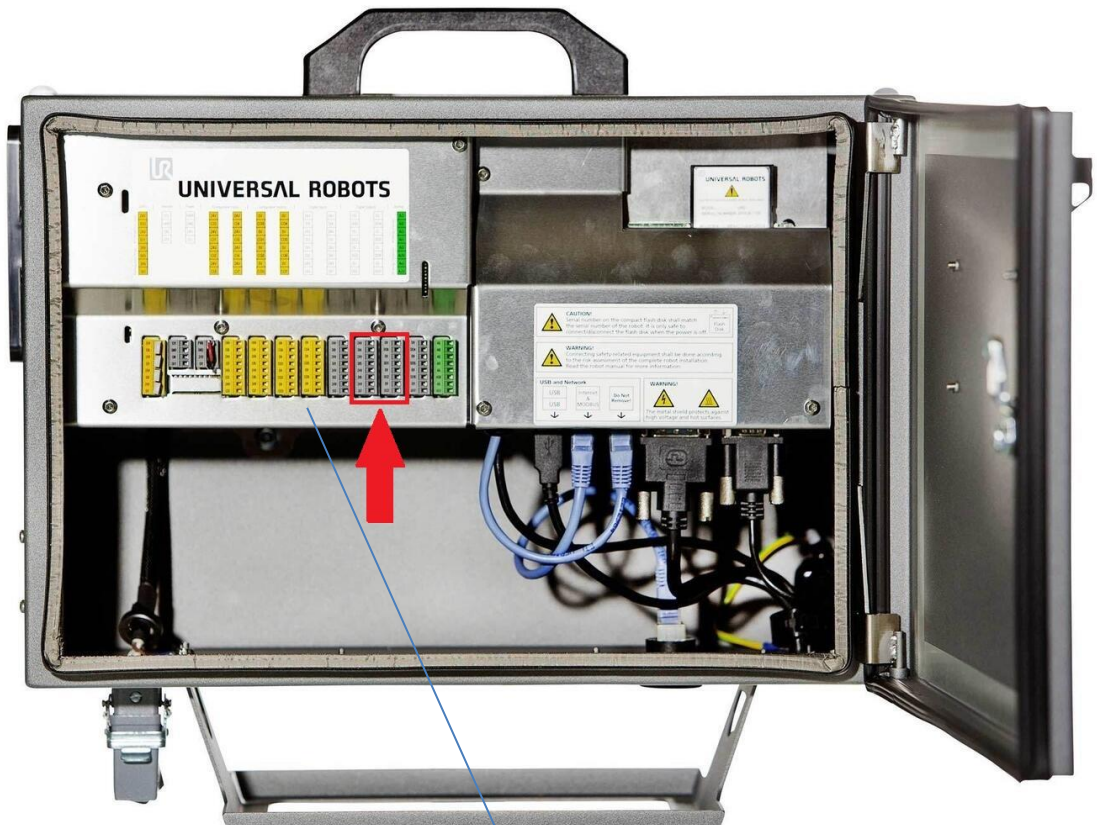




Connecting Kolver units and UR robots



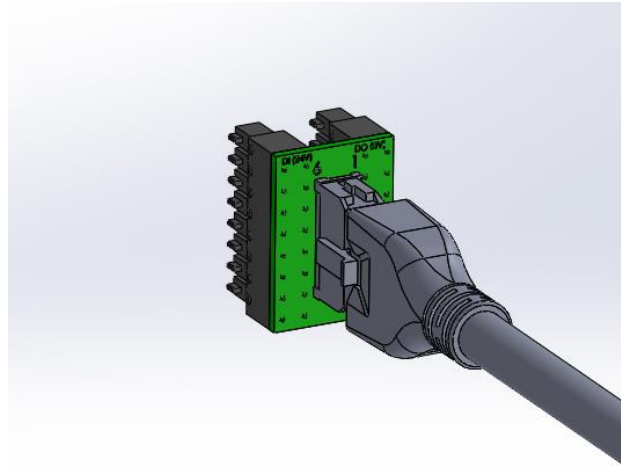
Connection UR robot side



Safety		Remote		Power		Configurable Inputs				Configurable Outputs				Digital Inputs				Digital Outputs				Analog										
Emergency Stop	24V	E10	12V	GND	ON	OFF	PWR	GND	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	AG	AG	AG	AG			
	24V									24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V
Safeguard Stop	24V	S10	DI11	DI10	DI9	DI8	24V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	AG	AG	AG	AG				
	24V	S11							24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	AG	AG	AG	AG
	24V	S11							24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	24V	24V	0V	0V	AG	AG	AG	AG

CONNECT TO PCB KOLVER 856610

PCB code 856610 + Cable code 872488



Wiring connections between Kolver units and UR Robot

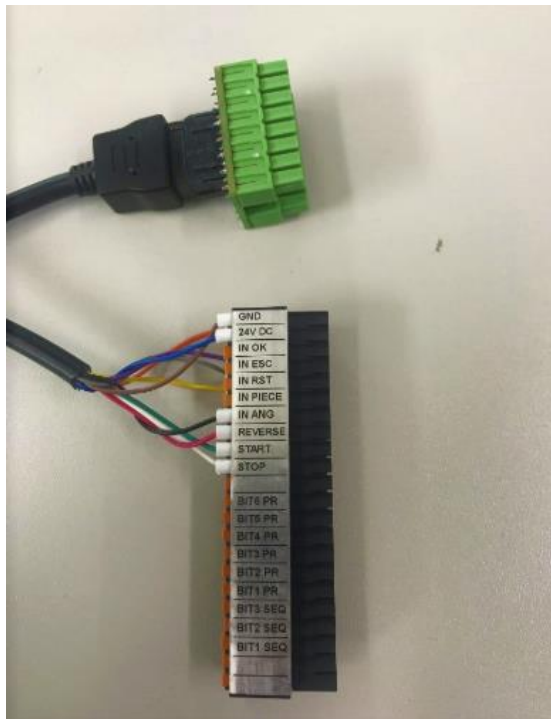
CN3 K-Ducer pin	CN1 EDU 2AE Series pin	Function	UR Robot Digital inputs/output Sockets	Kolver cable 872488 Wire colour
21	1	24V	24V All	Blue
22-44	2	GND	0V All	Orange
40	3	NOK/ERROR	DI 6	Yellow
41	5	OK/SCREW OK	DI 4	Gray
42	4	MOTOR ON	DI 5	Violet
13	7	STOP MOTOR	DO 2	White
14	9	START	DO 0	Green
15	8	REVERSE	DO 1	Red
16	6	T&A INPUT	DO 3	Black

K-DUCER CABLE CONNECTION KIT CODE 020078

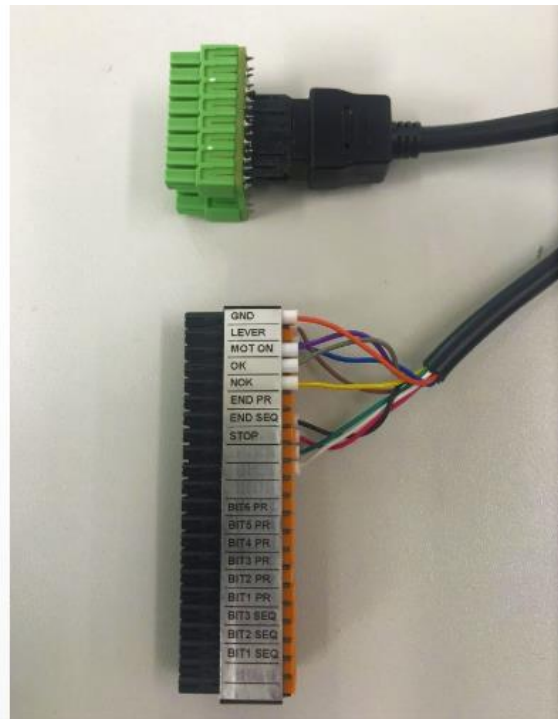
Spare parts

Code	Part
856610	PCB UR ROBOT INPUT SIDE
872488	CABLE CONNECTION UR ROBOT 1MT
872526	CONNECTOR 44 PIN I/O KDU

Input view



Output view

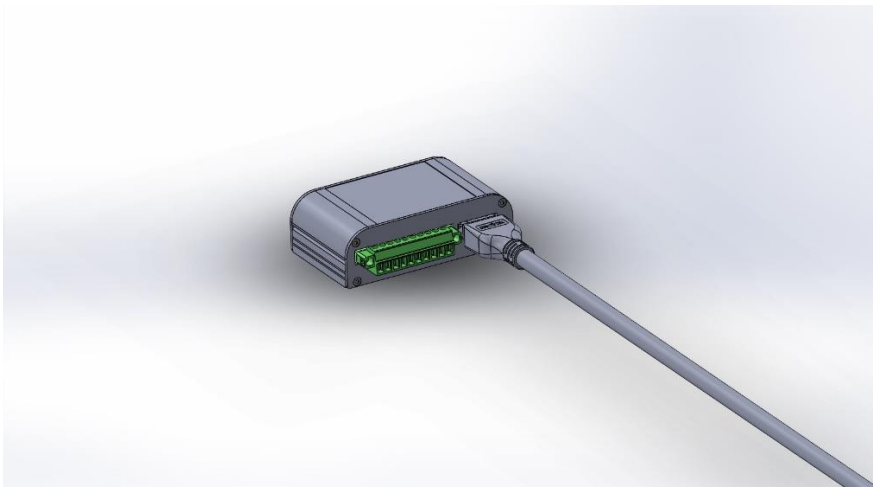


2AE SERIES CABLE CONNECTION KIT CODE 020077

Code	Part
020076	INTERFACE 2AE NPN-PNP
856610	PCB UR ROBOT INPUT SIDE
872488	CABLE CONNECTION UR ROBOT 1MT

CONNECTION EDU 2AE SERIES UNITS SIDE CODE 020076

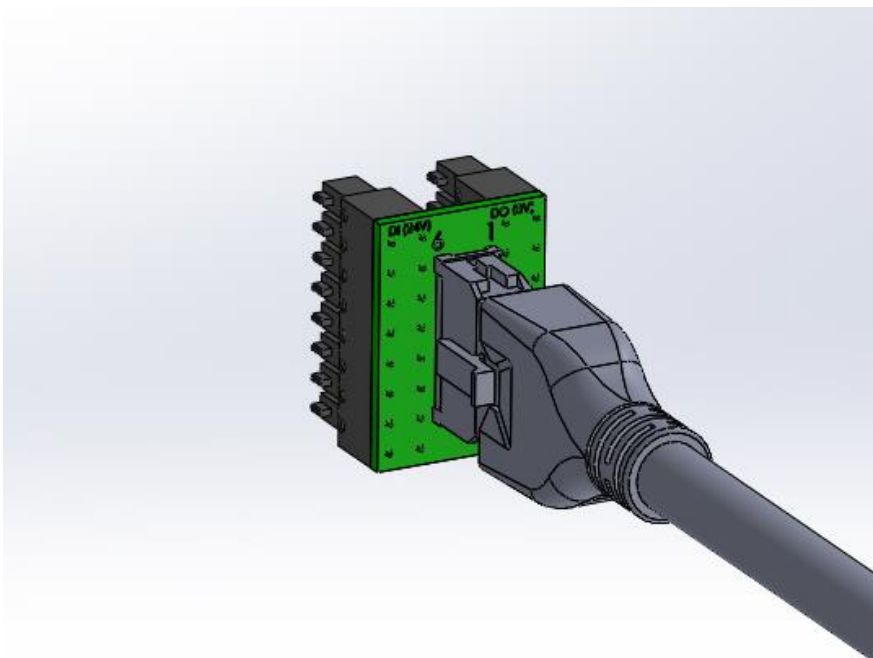
Insert the 10pin male connector into the CN1 connector on the rear panel of the Kolver units



CONNECTION UR ROBOT SIDE

Insert the PCB code 856610 into the digital input/output of the UR connector and connect the cable code 872488

Connect the cable also into the Interface 2AE NPN-PNP code 020076 Rev1

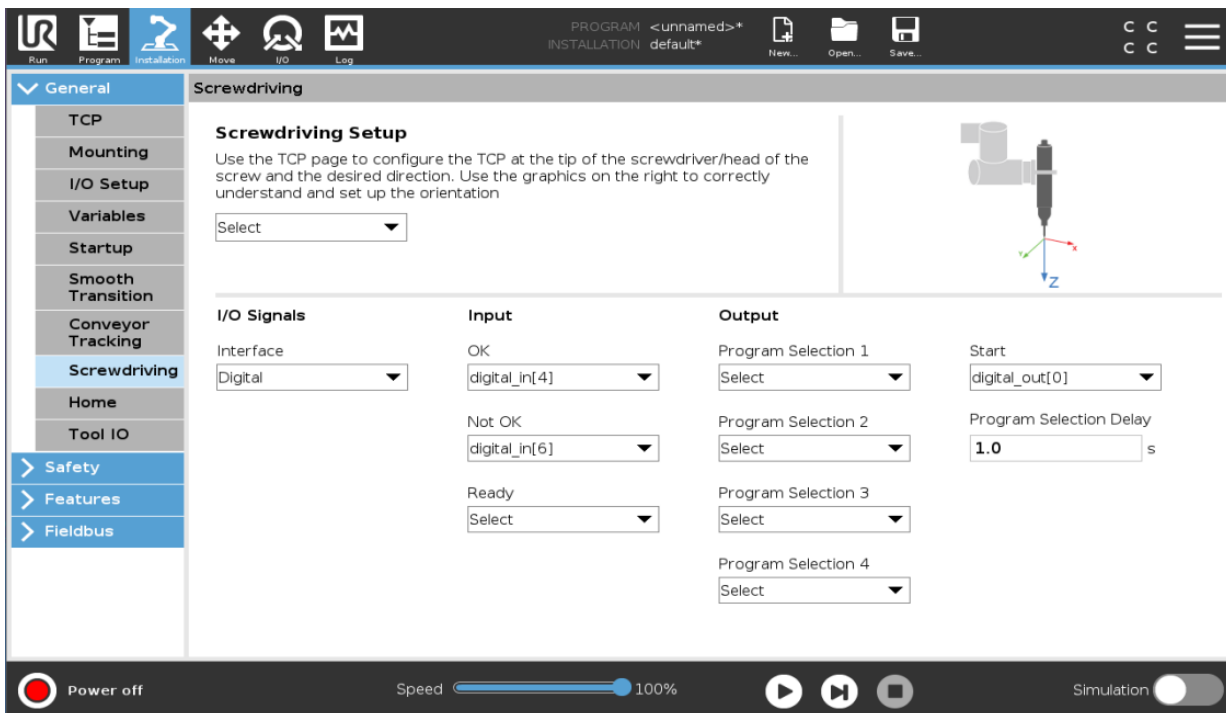


Screwdriving program node configuration

After setting up the “Tool Center Point” appropriately for your screwdriver (following UR manual instructions), navigate to the installation pane and setup the screwdriving program as follows:

- ❖ I/O Signals
 - Interface: Digital
- ❖ Input available
 - OK: digital_in [4]
 - Not OK: digital_in [6]
 - Motor ON: digital in [5]
- ❖ Output available
 - Start: digital_out [0]
 - Reverse: digital_out [1]
 - Stop: digital_out [2]
 - T&A Input: digital_out [2]

Screwdriving installation node



Then, configure a UR program according to your needs.

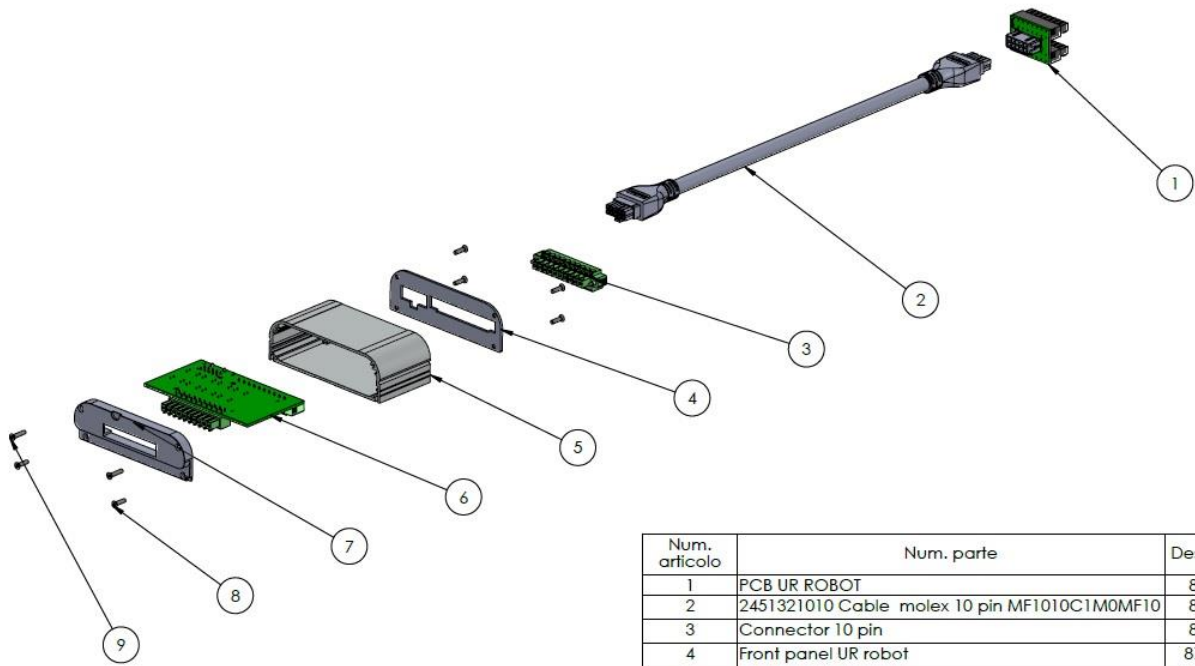
In the example below, we have a simple screwdriving program with force control and two “Until” conditions, one for “Screw OK” and one for “Error: not OK”.

An experienced UR user will be able to program the robot in this fashion to suit their automation needs.

Screwdriving program node

The screenshot shows a software interface for configuring a screwdriving program node. The interface is divided into several sections:

- Top Bar:** Contains icons for Run, Program, Installation, Move, I/O, and Log. It also displays the current program name 'kducer*' and installation 'default', along with 'New...', 'Open...', and 'Save...' buttons.
- Left Panel:** A navigation menu with 'Basic' and 'Advanced' sections. Under 'Advanced', 'Screwdriving' is selected. Other options include Loop, SubProg, Assignment, If, Script, Event, Thread, Switch, Timer, Screwdriving, and Home. A 'Templates' section is also visible.
- Command Panel:** Shows a tree view of the program structure:
 - 1 Robot Program
 - 2 Screwdriving
 - 3 Until OK
 - 4 'Add actions for screw OK'
 - 5 Error: Not OK
 - 6 'Add actions for screw error'
- Screwdriving Configuration Panel:**
 - Screwdriver:** User-Defined
 - Direction:** Radio buttons for Tighten (selected) and Loosen.
 - Enable Starting Point
 - Enable Machine Error Handler
 - Process:**
 - Follow the screw using: Force (dropdown menu)
 - Force: 1.00 N
 - Speed limit: mm/s
 - Add Until
- Bottom Bar:** Includes a 'Power off' button, a 'Speed' slider set to 100%, and 'Simulation' controls (play, stop, and a toggle switch).



NB.Position components 3 to 9 form the code 020076:
KIT INTERFACE 2AE NPN-PNP

Rev1: new plastic panel position #7, housing 40mm #5,
screws #9

Num. articolo	Num. parte	Descrizione	Quantità
1	PCB UR ROBOT	856610	1
2	2451321010 Cable molex 10 pin MF1010C1M0MF10	872488	1
3	Connector 10 pin	800109	1
4	Front panel UR robot	8711728	1
5	Housing 40mm	811720/C	1
6	PCB interface NPN-PNP UR robot	856609	1
7	Plastic panel	811727/MK	1
8	BN388 M2X8mm TSP ZN	811726	6
9	BN388 M2X10mm TSP ZN	811750	2
3-9	Kif interface 2AE NPN-PNP	020076 Rev1	1