

Robot arm

Technical specification

UR3e



UR5e



UR10e



UR16e



UR20



UR30



Specification

Payload	3 kg (6.6 lbs)	5 kg (11 lbs)	12.5 kg (27.5 lbs)	16 kg (35.3 lbs)	20 kg (44.1 lbs) 25 kg (55.1 lbs) with boundary conditions according to manual	30 kg (66.1 lbs) 35 kg (77.1 lbs) with boundary conditions according to manual
Reach	500 mm (19.7 in)	850 mm (33.5 in)	1300 mm (51.2 in)	900 mm (35.4 in)	1750 mm (68.9 in)	1300 mm (51.2 in)
Degrees of freedom	< 6 rotating joints >				< 6 rotating joints >	
Programming	< 12 inch touchscreen with PolyScope graphical user interface >				< 12 inch touchscreen with PolyScope graphical user interface >	

Performance

Power consumption													
Maximum power	300 W		570 W		615 W		585 W		750 W		750 W		
Moderate operating settings	100 W		200 W		350 W		350 W		300 W		300 W		
Operating temperature range	< Ambient temperature: 0-50 °C (32-122 °F) >								< Ambient temperature: 0-50 °C (32-122 °F) >				
Safety functions	< 17 configurable safety functions >								< 17 configurable safety functions >				
In compliance with	< EN ISO 13849-1 (PLd category 3) EN ISO 10218-1 >								< EN ISO 13849-1 (PLd category 3) EN ISO 10218-1 >				
Force sensing, tool flange/torque sensor	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Torque, x-y-z
Range	30.0 N	10.0 Nm	50.0 N	10.0 Nm	100.0 N	10.0 Nm	160.0 N	10.0 Nm	200.0 N	20.0 Nm	200.0 N	20.0 Nm	20.0 Nm
Precision	2.0 N	0.1 Nm	3.5 N	0.2 Nm	5.0 N	0.2 Nm	5.0 N	0.2 Nm	5.5 N	0.2 Nm	5.5 N	0.2 Nm	0.2 Nm
Accuracy	3.5 N	0.1 Nm	4.0 N	0.3 Nm	5.5 N	0.5 Nm	5.5 N	0.5 Nm	0.1 N	1.0 Nm	0.1 N	1.0 Nm	1.0 Nm

Movement

Maximum TCP speed	3 m/s		4 m/s		4 m/s		3 m/s		5 m/s		4 m/s		
Pose repeatability per ISO 9283	± 0.03 mm		± 0.03 mm		± 0.05 mm		± 0.05 mm		± 0.1 mm		± 0.1 mm		
Axis Movement	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Maximum speed
Base	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 120°/s	± 360°	± 120°/s	± 360°	± 120°/s	± 360°	± 120°/s	± 120°/s
Shoulder	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 120°/s	± 360°	± 120°/s	± 360°	± 120°/s	± 360°	± 120°/s	± 120°/s
Elbow	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 150°/s	± 360°	± 150°/s	± 150°/s
Wrist 1	± 360°	± 360°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 210°/s	± 360°	± 210°/s	± 210°/s
Wrist 2	± 360°	± 360°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 210°/s	± 360°	± 210°/s	± 210°/s
Wrist 3	Infinite	± 360°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 180°/s	± 360°	± 210°/s	± 360°	± 210°/s	± 210°/s

Features

IP classification	IP54 water protection	IP54 water protection	IP54 water protection	IP54 water protection	IP54 water protection	IP65 water protection	IP65 water protection
Cleanroom classification	Class 6 at 20%*	Class 4 at 20%*	Class 5 at ≤ 40%*	Class 5 at ≤ 40%*	Class 5 at ≤ 40%*	Class 4 at ≤ 80%*	Class 4 at ≤ 80%*
ISO 14644-1	Class 7 at ≥ 40%*	Class 5 at ≥ 40%*		Class 6 at 80%*	Class 6 at 80%*		
*Velocity and payload							
Noise	< 60 dB(A)	< 65 dB(A)	< 65 dB(A)	< 65 dB(A)	< 65 dB(A)	< 65 dB(A)	< 65 dB(A)
Arm mounting	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation	Any orientation
I/O Ports							
Digital in	2	2	2	2	2	2	2
Digital out	2	2	2	2	2	2	2
Analog in	2	2	2	2	2	2	2
Tool I/O power supply voltage	12/24 V	12/24 V	12/24 V	12/24 V	12/24 V	12/24 V	12/24 V
Tool I/O power supply	600 mA	1.5 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)	2 A (Dual pin) 1 A (Single pin)

Physical

Footprint	Ø 128 mm	Ø 149 mm	Ø 190 mm	Ø 190mm	Ø 245 mm	Ø 245 mm
Materials	< Aluminium, Plastic, Steel >				< Aluminium, Plastic, Steel >	
Tool flange interface	< M8 8-pin female, EN ISO-9409-1-50-4-M6 >				< M8 8-pin female, EN ISO-9409-1-80-6-M8 >	
Std. cable length (robot arm)	< 6 m (236 in) >				< 6 m (236 in) >	
Weight including cable	11.2 kg (24.7 lbs)	20.6 kg (45.4 lbs)	33.5 kg (73.9 lbs)	33.1 kg (73 lbs)	64 kg (141.1 lbs)	63.5 kg (139.9 lbs)
Humidity	< ≤ 90% RH (non-condensing) >				< ≤ 90% RH (non-condensing) >	

Control box and teach pendant

Technical specification



Control box

CB 5.6

CB 5.5

OEM 5.6

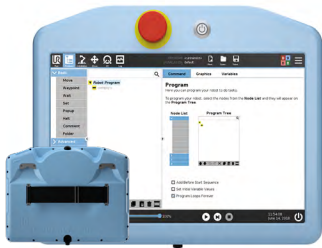
OEM 5.5

Features

Robot types	e-Series, UR Series	e-Series, UR Series	e-Series, UR Series	e-Series, UR Series
Software compatibility	PolyScope X	PolyScope 5	PolyScope X	PolyScope 5
IP classification	IP44 water protection	IP44 water protection	IP20 water protection	IP20 water protection
ISO 14644-1 class cleanroom	6	6	6	6
Operating temperature range	0-50 °C (32-122 °F)	0-50 °C (32-122 °F)	0-50 °C (32-122 °F)	0-50 °C (32-122 °F)
I/O Ports				
Digital In	16	16	16	16
Digital Out	16	16	16	16
Analog In	2	2	2	2
Analog Out	2	2	2	2
Quadrature Digital Inputs	4	4	4	4
I/O power supply	24V, 2A	24V, 2A	24V, 2A	24V, 2A
Industrial protocols	Modbus TCP (Client/Server)	Modbus TCP (Client/Server)	Modbus TCP (Client/Server)	Modbus TCP (Client/Server)
	Ethernet/IP Adapter	Ethernet/IP Adapter	Ethernet/IP Adapter	Ethernet/IP Adapter
	PROFINET device/PROFIsafe	PROFINET device/PROFIsafe	PROFINET device/PROFIsafe	PROFINET device/PROFIsafe
	ROS/ROS2	ROS/ROS2	ROS/ROS2	ROS/ROS2
Hardware interfaces	Ethernet 1 Gb/s	Ethernet 1 Gb/s	Ethernet 1 Gb/s	Ethernet 1 Gb/s
	USB 2.0	USB 2.0	USB 2.0	USB 2.0
	USB 3.0	USB 3.0	USB 3.0	USB 3.0
	Mini DisplayPort	Mini DisplayPort	Mini DisplayPort	Mini DisplayPort
	Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)	Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)	Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)	Injection Moulding Machine Interface (SPI AN-146 & Euromap-67)
Power Source	100-240 VAC, 47-440 Hz	100-240 VAC, 47-440 Hz	AC model: 100-240 VAC, 47-440 Hz DC model: 24 - 48 VDC	AC model: 100-240 VAC, 47-440 Hz DC model: 24 - 48 VDC

Physical

Control box size (W x H x D)	460 mm x 449 mm x 254 mm (18.2 in x 17.6 in x 10 in)	460 mm x 449 mm x 254 mm (18.2 in x 17.6 in x 10 in)	451 mm x 168 mm x 150 mm (17.6 in x 6.6 in x 5.9 in)	451 mm x 168 mm x 150 mm (17.6 in x 6.6 in x 5.9 in)
Weight	12 kg (26.5 lbs)	12 kg (26.5 lbs)	AC model: 4.7 kg (10.4 lbs) DC model: 4.3 kg (9.48 lbs)	AC model: 4.7 kg (10.4 lbs) DC model: 4.3 kg (9.48 lbs)
Power supply output	1500 W	1500 W	1500 W	1500 W
Materials	Powdered coated steel	Powdered coated steel	Aluminium	Aluminium
Humidity	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)



Teach pendant

Standard

3PE

Features

Robot types	e-Series (standard)	e-Series (optional), UR Series (standard)
IP classification	IP54 water protection	IP54 water protection
Incl. in certifications	EN ISO 10218-1	EN ISO 10218-1
	EN ISO 13849-1	EN ISO 13849-1
Humidity	≤ 90% RH (non-condensing)	≤ 90% RH (non-condensing)
Display resolution	1280 x 800 pixels	1280 x 800 pixels
Freedrive	1 button	2 buttons to support for ambidextrous operation

Physical

Materials	Plastic (PC/ASA)	Plastic (PC/ASA)
Teach pendant size	300 mm x 231 mm x 50 mm (11.8 in x 9.1 in x 1.97 in)	300 mm x 231 mm x 50 mm (11.8 in x 9.1 in x 1.97 in)
Weight (including 1 m TP cable)	1.6 kg (3.5 lbs)	1.8 kg (3.961 lbs)
Cable length (Teach pendant)	4.5 m (177.17 in)	4.5 m (177.17 in)

Long and short cable options

Our cables made of flexible materials, specialized insulation and long durability. Find the perfect cable that matches your application needs best.

	Material	Color	Length	Diameter	Gross weight	e-Series	UR Series
Power cable							
700-3xx-xx	PVC	Black	6 m (236.22 in)	country specific	0.75 kg (1.7 lbs)	●	●
Standard robot cable							
200145		Black	1 m (39.37 in)	12.1 mm (0.84 in)	0.4 kg (1 lbs)	○	○
200146		Black	2 m (78.74 in)	12.1 mm (0.84 in)	0.6 kg (1.3 lbs)	○	○
165100		Black	6 m (236.22 in)	12.1 mm (0.84 in)	2 kg (4.4 lbs)	●	-
165101		Black	12 m (472.44 in)	12.1 mm (0.84 in)	3.25 kg (7.16 lbs)	○	-
High flex robot cable							
166100		Blue	6 m (236.22 in)	13.4 mm (0.53 in)	2.3 kg (5.07 lbs)	○	-
166101		Blue	12 m (472.44 in)	13.4 mm (0.53 in)	4.5 kg (9.92 lbs)	○	-
200113		Blue	6 m (236.22 in)	14.6 mm (0.57 in)	2.3 kg (5.07 lbs)	-	●
200114		Blue	12 m (472.44 in)	14.6 mm (0.57 in)	4.5 kg (9.92 lbs)	-	○



● Standard ○ Optional - Not applicable