

Automation for a Changing World

Delta SCARA Robots



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 **DELTA**
Smarter. Greener. Together.

Delta SCARA Robot DRS Series

Current trends affecting manufacturing industries include labor shortage, harsh environment, short commodity cycles, small-volume and large variety orders, and frequent changeovers. In response, production lines need more smart, agile and flexible workstations. For example, electronics manufacturing processes have to be executed fast and precisely to shorten time and enhance efficiency. Delta's Selective Compliance Assembly Robot Arm (SCARA) is your best choice to reduce labor cost and strengthen manufacturing flexibility.

Delta SCARA features sensor-less compliance control functions and offers excellent speed, linearity, verticality and repeatability to rapidly and precisely perform operation tasks such as insertion, assembly, screw locking, loading and unloading, pick-and-place, stacking and packaging. The automatic process path planning function fulfills industry needs for conveyor tracking processes such as glue dispensing, deburring, coating and soldering. With the aid of Delta's machine vision systems, it can perform smart identification, inspection and sorting to effectively reduce defect rates for consistent quality delivery.

When matched with control units and other peripheral devices such as servo systems, machine vision systems and linear modules, Delta SCARA becomes a highly integrated workstation for industries such as consumer electronics, electrical/electronics, rubber and plastics, packaging, metal fabrication and others. It satisfies both standalone and workstation applications, enabling flexible modularized production lines with consistently good quality to achieve smart and efficient production.

A new industrial revolution is moving towards smart manufacturing and factories. To meet customers' needs, Delta continues to provide innovative and efficient robot solutions as part of our "Automation for a Changing World".

- ▶ **Sensor-less compliance control**
- ▶ **High repeatability, excellent precision, linearity and verticality**
- ▶ **Widely applied in various applications and industries**



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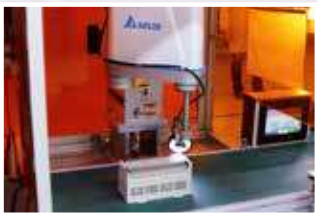
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Success Cases

Delta SCARA has been successfully applied to improve production line efficiency and yield rates for consistent quality delivery

Industries: Electrical/electronics, rubber and plastics, packaging, and metal fabrication

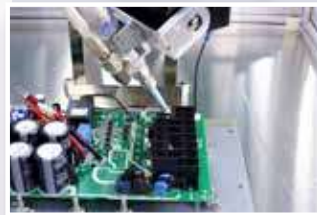
Applications: Insertion, screw locking, assembly, glue dispensing, coating, soldering, load and unload, pick-and-place, stacking, packaging, and inspection



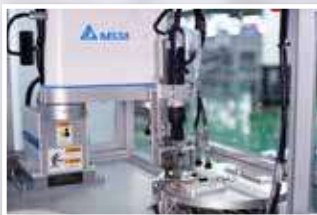
Product Inspection



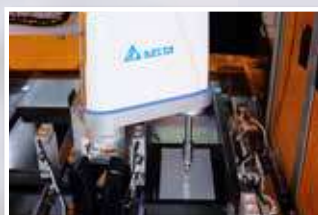
Soldering



Glue Dispensing



Screw Locking



Touch Screen Inspection

Specifications

DRS40L Series

Model		DRS30L3SS1BN002	DRS40L3SS1BN002	DRS40L3SO1BN002	DRS40C4S S1BN002	DRS60L3SS1BN002	DRS40L3SSADN003 DRS40L3SSMDN002 DRS40L3SSFDN003
Number of Axes		4					
Installation		Table-top					
Arm Length(X + Y)		300mm	400mm	400mm	400mm	600mm	400mm
Rated/Max. Payload		1 kg/3 kg	1 kg/3 kg	1 kg/3 kg	1 kg/4 kg	1 kg/3 kg	1 kg/3 kg
Motor power	J1	200W	200W	200W	200W	200W	200W
	J2	200W	200W	200W	200W	200W	200W
	J3	100W	100W	100W	100W	100W	100W
	J4	100W	100W	100W	100W	100W	100W
Maximum Speed	J1 + J2	4,058 mm/s	4,710 mm/s	4,710 mm/s	4,000 mm/s	4,050 mm/s	4,710 mm/s
	J3	1,250 mm/s	1,250 mm/s	1,250 mm/s	1,110 mm/s	1,250 mm/s	1,250 mm/s
	J4	1875 °/s	1875 °/s	625 °/s	1875 °/s	1875 °/s	1875 °/s
Range of Motion	J1	± 130°	± 130°	± 130°	± 130°	± 114°	± 130°
	J2	± 145°	± 146.6°	± 146.6°	± 146.6°	± 148°	± 146.6°
	J3	150mm	150mm	150mm	150mm	150mm	150mm
	J4	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
Standard Cycle Time *		0.39s	0.42s	0.42s	0.5s	0.72s	0.42s
Repeatability	J1 + J2	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.015 mm	± 0.015 mm	± 0.01 mm
	J3	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.015 mm	± 0.01 mm	± 0.01 mm
	J4	± 0.01°	± 0.01°	± 0.01°	± 0.015°	± 0.01°	± 0.01°
Rated/Max. Push Force (J3)		100N/250N					
Permissible Inertia	Rated	0.0091 kg*m ²	0.0091 kg*m ²	0.055 kg*m ²	0.005 Kg-m ²	0.0091 kg*m ²	0.0091 kg*m ²
	Maximum	0.075 kg*m ²	0.075 kg*m ²	0.45 kg*m ²	0.05 Kg-m ²	0.075 kg*m ²	0.075 kg*m ²
User Wiring		15 pin D-Sub					
User Tubing		ø4 mm × 2, ø6 mm × 1					ø4 mm × 1, ø6 mm × 2
Weight (Without Controller)		16kg	16kg	16kg	16kg	22kg	16kg
Controller		DCS-1D00	DCS-1D00	DCS-1D00	DCS-1D00	DCS-1D00	DCS-1B00-CA** DCS-1B00-UA***
Environment	Ambient Temperature	5°C ~ 40°C					
	Storage Temperature	-25°C ~ 55°C					
	Humidity	0 ~ 90 % RH (non-condensing)					

*When carrying a payload of 1kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25°C and within a humidity of 45%~65% RH (non-condensing).

** For CE/CR models

*** For UL models

Model Explanation

DRS40L Series

DRS	40	L	3	S	S	1	B	N	002
Company/ Product/ Robot Type	Arm Length	Level	Max. Payload	Z-Axis Stroke (Horizontal Stroke)	R-Axis Speed Reduction Ratio	Generation	Controller	Teach Pendant	Identification Code
D: Delta R: Robot S: SCARA	30: 300mm 40: 400mm	L: General C: Lite	3: 3kg 4: 4kg	S: 150mm	S: Standard O: High- inertia	1: 1 st generation A: CE/KCs certified M: CR certified F: UL certified	B: Controller with 3m cable K: Controller with 5m cable I: Controller with 10m cable D: Controller with 3m cable for CE/CR/UL certified models	N: N/A	Internal use only

Specifications

DRS60L Series

Model	DRS60L6SS1BN002	DRS60L6SO1BN002	DRS60L6OS1BN002	DRS60H6SS1BN002	DRS60L6SSADN003 DRS60L6SSMDN002 DRS60L6SSFDN003
Number of Axes	4				
Installation	Table-top	Table-top	Table-top	Ceiling-mounted	Table-top
Arm Length(X+ Y)	600mm	600mm	600mm	600mm	600mm
Rated/Max. Payload	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg
Motor power	J1	400W	400W	400W	400W
	J2	200W	200W	200W	200W
	J3	100W	100W	100W	100W
	J4	100W	100W	100W	100W
Maximum Speed	J1 + J2	5,000mm/s	5,000mm/s	5,000mm/s	5,000mm/s
	J3	1,100mm/s	1,100mm/s	1,100mm/s	1,100mm/s
	J4	2,000°/s	600°/s	2,000°/s	2,000°/s
Range of Motion	J1	± 133°	± 133°	± 133°	± 133°
	J2	± 153°	± 153°	± 153°	± 150°
	J3	200mm	200mm	300mm	200mm
	J4	± 360°	± 360°	± 360°	± 360°
Standard Cycle Time *	0.39s	0.39s	0.39s	0.39s	0.39s
Repeatability	J1 + J2	± 0.015mm	± 0.015mm	± 0.015mm	± 0.015mm
	J3	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm
	J4	± 0.01°	± 0.01°	± 0.01°	± 0.01°
Rated/Max. Push Force (J3)	150N/350N				
Permissible Inertia	Rated	0.01 kg*m ²	0.07 kg*m ²	0.01 kg*m ²	0.01 kg*m ²
	Maximum	0.023 kg*m ²	0.5 kg*m ²	0.023 kg*m ²	0.023 kg*m ²
User Wiring	15 pin D-Sub				
User Tubing	ø4 mm × 1, ø6 mm × 2				
Weight (Without Controller)	20 kg	20 kg	20 kg	23 kg	20 kg
Controller	DCS-1D00	DCS-1D00	DCS-1D00	DCS-1D00	DCS-1B00-CA** DCS-1B00-UA***
Environment	Ambient Temperature	5°C~40°C			
	Storage Temperature	-25°C~55°C			
	Humidity	0~90% RH (non-condensing)			

*When carrying a payload of 1 kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25°C and within a humidity of 45%~65% RH (non-condensing).

** For CE/CR models

*** For UL models

Model Explanation

DRS60L Series

DRS	60	L	6	S	S	1	B	N	002
Company/ Product/ Robot Type	Arm Length	Level	Max. Payload	Z-Axis Stroke (Horizontal Stroke)	R-Axis Speed Reduction Ratio	Generation	Controller	Teach Pendant	Identification Code
D: Delta R: Robot S: SCARA	60: 600mm	L: General H: Ceiling-mounted	6: 6 kg	S: 200 mm O: 300 mm	S: Standard O: High-inertia	1: 1 st generation A: CE/KCs certified M: CR certified F: UL certified	B: Controller with 3m cable K: Controller with 5m cable I: Controller with 10m cable D: Controller with 3m cable for CE/CR/UL certified models	N: N/A	Internal use only

Specifications

DRS50 Series

Model		DRS50L6SS1BN002	DRS50L6SO1BN002	DRS50L6OS1BN002	DRS50L6SSMDN002 DRS50L6SSADN003 DRS50L6SSFDN003
Number of Axes		4			
Installation		Table-top			
Arm Length(X+ Y)		500 mm	500 mm	500 mm	500 mm
Rated/Max. Payload		2 kg/6 kg	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg
Motor power	J1	400 W	400 W	400 W	400 W
	J2	200 W	200 W	200 W	200 W
	J3	100 W	100 W	100 W	100 W
	J4	100 W	100 W	100 W	100 W
Maximum Speed	J1 + J2	4,400 mm/s	4,400 mm/s	4,400 mm/s	4,400 mm/s
	J3	1,100 mm/s	1,100 mm/s	1,100 mm/s	1,100 mm/s
	J4	2,000 °/s	600 °/s	2,000 °/s	2,000 °/s
Range of Motion	J1	± 133 °	± 133 °	± 133 °	± 133 °
	J2	± 153 °	± 153 °	± 153 °	± 153 °
	J3	200 mm	200 mm	300 mm	200 mm
	J4	± 360 °	± 360 °	± 360 °	± 360 °
Standard Cycle Time *		0.39 s	0.39 s	0.39 s	0.39 s
Repeatability	J1 + J2	± 0.015 mm	± 0.015 mm	± 0.015 mm	± 0.015 mm
	J3	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm
	J4	± 0.01 °	± 0.01 °	± 0.01 °	± 0.01 °
Rated/Max. Push Force (J3)		150 N/350 N			
Permissible Inertia	Rated	0.01 kg*m ²	0.07 kg*m ²	0.01 kg*m ²	0.01 kg*m ²
	Maximum	0.023 kg*m ²	0.5 kg*m ²	0.023 kg*m ²	0.023 kg*m ²
User Wiring		15 pin D-Sub			
User Tubing		ø 4 mm × 1, ø 6 mm × 2			
Weight (Without Controller)		18.5 kg	18.5 kg	18.5 kg	18.5 kg
Controller		DCS-1D00	DCS-1D00	DCS-1D00	DCS-1B00-CA** DCS-1B00-UA***
Environment	Ambient Temperature	5 °C~40 °C			
	Storage Temperature	-25 °C~55 °C			
	Humidity	0~90% RH (non-condensing)			

*When carrying a payload of 1 kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25 °C and within a humidity of 45%~65% RH (non-condensing).

** For CE/CR models

*** For UL models

Model Explanation

DRS50 Series

DRS	50	L	6	S	S	1	B	N	002
Company/ Product/ Robot Type	Arm Length	Level	Max. Payload	Z-Axis Stroke (Horizontal Stroke)	R-Axis Speed Reduction Ratio	Generation	Controller	Teach Pendant	Identification Code
D: Delta R: Robot S: SCARA	50: 500 mm	L: General	6: 6 kg	S: 200 mm O: 300 mm	S: Standard O: High-inertia	1: 1 st generation A: CE/KCs certified M: CR certified F: UL certified	B: Controller with 3m cable K: Controller with 5m cable I: Controller with 10m cable D: Controller with 3m cable for CE/CR/UL certified models	N: N/A	Internal use only

Specifications

DRS70L Series

Model	DRS70L6SS1BN002	DRS70L6SO1BN002	DRS70L6OS1BN002	DRS70L6SSADN003 DRS70L6SSMDN002
Number of Axes	4			
Installation	Table-top			
Arm Length(X+ Y)	700 mm	700 mm	700 mm	700 mm
Rated/Max. Payload	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg	2 kg/6 kg
Motor power	J1	400 W	400 W	400 W
	J2	200 W	200 W	200 W
	J3	100 W	100 W	100 W
	J4	100 W	100 W	100 W
Maximum Speed	J1 + J2	5,500 mm/s	5,500 mm/s	5,500 mm/s
	J3	1,110 mm/s	1,100 mm/s	1,100 mm/s
	J4	2,000 °/s	600 °/s	2,000 °/s
Range of Motion	J1	± 133°	± 133°	± 133°
	J2	± 153°	± 153°	± 153°
	J3	200 mm	200 mm	300 mm
	J4	± 360°	± 360°	± 360°
Standard Cycle Time *	0.4 s	0.4 s	0.4 s	0.4 s
Repeatability	J1 + J2	± 0.015 mm	± 0.015 mm	± 0.015 mm
	J3	± 0.01 mm	± 0.01 mm	± 0.01 mm
	J4	± 0.01°	± 0.01°	± 0.01°
Rated/Max. Push Force (J3)	150 N/350 N			
Permissible Inertia	Rated	0.01 kg*m ²	0.07 kg*m ²	0.01 kg*m ²
	Maximum	0.023 kg*m ²	0.5 kg*m ²	0.023 kg*m ²
User Wiring	15 pin D-Sub			
User Tubing	ø4 mm × 1, ø6 mm × 2			
Weight (Without Controller)	23 kg	20 kg	23 kg	20 kg
Controller	DCS-1D00	DCS-1D00	DCS-1D00	DCS-1B00-CA** DCS-1B00-UA***
Environment	Ambient Temperature	5°C~40°C		
	Storage Temperature	-25°C~55°C		
	Humidity	0~90% RH (non-condensing)		

*When carrying a payload of 1kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25°C and within a humidity of 45%~65% RH (non-condensing).

** For CE/CR models

*** For UL models

Model Explanation

DRS70L Series

Company/ Product/ Robot Type	Arm Length	Level	Max. Payload	Z-Axis Stroke (Horizontal Stroke)	R-Axis Speed Reduction Ratio	Generation	Controller	Teach Pendant	Identification Code
D: Delta R: Robot S: SCARA	70: 700 mm	L: General	6: 6 kg	S: 200 mm O: 300 mm	S: Standard O: High-inertia	1: 1 st generation A: CE/KCs certified M: CR certified F: UL certified	B: Controller with 3 m cable K: Controller with 5 m cable I: Controller with 10 m cable D: Controller with 3 m cable for CE/CR/UL certified models	N: N/A	Internal use only

Specifications

DRS60LC / DRS70LC / DRS80LC

Model		DRS60LCSS1BN002	DRS60LCOS1BN002	DRS70LCSS1BN002	DRS70LCOS1BN002	DRS80LCSS1BN002	DRS80LCOS1BN002
Number of Axes		4	4	4	4	4	4
Installation		Table-top	Table-top	Table-top	Table-top	Table-top	Table-top
Arm Length(X + Y)		600mm	600mm	700mm	700mm	800mm	800mm
Rated/Max. Payload		5kg/ 12kg	5kg/ 12kg	5kg/ 12kg	5kg/ 12kg	5kg/ 12kg	5kg/ 12kg
Motor power	J1	750W	750W	750W	750W	750W	750W
	J2	750W	750W	750W	750W	750W	750W
	J3	400W	400W	400W	400W	400W	400W
	J4	400W	400W	400W	400W	400W	400W
Maximum Speed	J1 + J2	7,100 mm/s	7,100 mm/s	7,700 mm/s	7,700 mm/s	8,300 mm/s	8,300 mm/s
	J3	1,180mm/s	1,920mm/s	1,180mm/s	1,920mm/s	1,180mm/s	1,920mm/s
	J4	1,025°/s	1,025°/s	1,025°/s	1,025°/s	1,025°/s	1,025°/s
Range of Motion	J1	± 132°	± 132°	± 132°	± 132°	± 132°	± 132°
	J2	± 152.5°	± 152.5°	± 152.5°	± 152.5°	± 152.5°	± 152.5°
	J3	200mm	420mm	200mm	420mm	200mm	420mm
	J4	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
Standard Cycle Time *		0.43s	0.43s	0.45s	0.45s	0.47s	0.47s
Repeatability	J1 + J2	± 0.025mm	± 0.025mm	± 0.025mm	± 0.025mm	± 0.025mm	± 0.025mm
	J3	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm	± 0.01 mm
	J4	± 0.01°	± 0.01°	± 0.01°	± 0.01°	± 0.01°	± 0.01°
Rated/Max. Push Force (J3)		255N/700N					
Permissible Inertia	Rated	0.02kg*m ²	0.02kg*m ²	0.02kg*m ²	0.02kg*m ²	0.02kg*m ²	0.02kg*m ²
	Maximum	0.25kg*m ²	0.25kg*m ²	0.25kg*m ²	0.25kg*m ²	0.25kg*m ²	0.25kg*m ²
User Wiring		15 pin D-Sub					
User Tubing		ø 4 mm × 2, ø 6 mm × 2					
Weight (Without Controller)		41 kg	41 kg	42 kg	42 kg	43 kg	43 kg
Controller		DCS-1M00	DCS-1M00	DCS-1M00	DCS-1M00	DCS-1M00	DCS-1M00
Environment	Ambient Temperature	5°C~40°C					
	Storage Temperature	-25°C~55°C					
	Humidity	0~90% RH (non-condensing)					

*When carrying a payload of 2kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25°C and within a humidity of 45%~65% RH (non-condensing).

Model Explanation

DRS80LC Series

DRS		80	L	C	S	S	1	B	N	002
Company/ Product/ Robot Type	Arm Length	Level	Max. Payload	Z-Axis Stroke (Horizontal Stroke)	R-Axis Speed Reduction Ratio	Generation	Controller	Teach Pendant	Identification Code	
D: Delta R: Robot S: SCARA	60: 600mm 70: 700mm 80: 800mm	L: General	C: 12kg	S: 200mm O: 420mm	S: Standard	1: 1 st generation	B: Controller with 3m cable K: Controller with 5m cable	N: N/A	Internal use only	

Specifications

DRS60L 3-axis / 5-axis Series

Model		DRS60L6SN1BN302	DRS60L3SS1BN502
Number of Axes		3	5
Installation		Table-top	Table-top
Arm Length(X+ Y)		600mm	600mm
Rated / Max. Payload		2kg/6kg	1kg/3kg
Motor power	J1	400W	400W
	J2	200W	200W
	J3	100W	100W
	J4	100W	100W
	J5		20W
Maximum Speed	J1 + J2	5,000mm/s	5,000mm/s
	J3	1,100mm/s	1,100mm/s
	J4	N/A	2,000°/s
	J5	N/A	600°/s
Range of Motion	J1	± 133°	± 133°
	J2	± 153°	± 153°
	J3	200mm	200mm
	J4	N/A	± 360°
	J5	N/A	± 360°
Standard Cycle Time *		0.39s	0.45s
Repeatability	J1 + J2	± 0.015mm	± 0.015mm
	J3	± 0.01mm	± 0.01mm
	J4	N/A	± 0.01°
	J5	N/A	± 0.01°
Rated / Max. Push Force (J3)		100N/350N	
Permissible Inertia	Rated	N/A	0.01 kg*m ²
	Maximum	N/A	0.023 kg*m ²
User Wiring		15 pin D-Sub	
User Tubing		ø4 mm × 1, ø6 mm × 2	
Weight (Without Controller)		20kg	21kg
Controller		DCS-1D00	DCS-1D00
Environment	Ambient Temperature	5°C~40°C	
	Storage Temperature	-25°C~55°C	
	Humidity	0~90% RH (non-condensing)	

*When carrying a payload of 1kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25°C and within a humidity of 45%~65% RH (non-condensing).

Model Explanation

DRS60L 3-axis / 5-axis Series

DRS	60	L	6	S	S	1	B	N	502
Company/ Product/ Robot Type	Arm Length	Level	Max. Payload	Z-Axis Stroke (Horizontal Stroke)	R-Axis Speed Reduction Ratio	Generation	Controller	Teach Pendant	Identification Code
D: Delta R: Robot S: SCARA	60: 600mm	L: General	3: 3kg 6: 6kg	S: 200mm	S: Standard N: Without R-axis	1: 1 st generation	B: Controller with 3m cable	N: N/A	302: 3-axis 502: 5-axis

Specifications

Screw Driving Robots

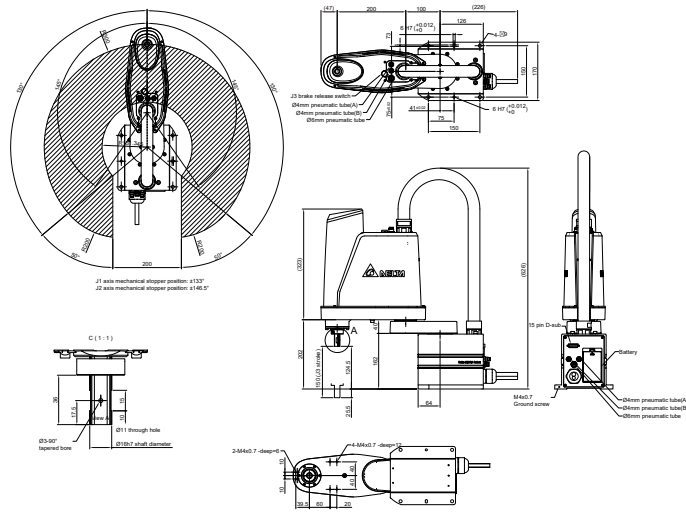
Model		RS-AFS60LA01	RS-AFS60LA02	RS-AFS60LA04	RS-AFS60LA05	RS-AFS60LA06	
SCARA Robots	Number of axes	3					
	Installation method	Table-top					
	Arm length (first arm + second arm)	600 mm					
	Maximum Speed	J1 + J2	5000 mm/sec				
		J3	1100 mm/sec				
		J4	N.A.				
	Range of Motion	J1	±133°				
		J2	±153°				
		J3	200 mm				
		J4	N.A.				
	Repeatability	J1 + J2	±0.015 mm				
		J3	±0.01 mm				
J4		N.A.					
Net Weight		20 kg					
Environment	Ambient Temperature	5°C ~ 40°C					
	Storage Temperature	-20°C ~ 55°C					
	Humidity	< 0~ 90 % RH (non-condensing)					
Screw Driving Modules (dedicated for robots)	Torque Range (kgf / cm)	0.50~1.80	1.50~9.00	1.50~9.00	6.00~25.00	10.00~43.00	
	Torque Range (N / m)	0.05~0.17	0.15~0.88	0.15~0.88	0.58~2.45	0.98~4.20	
	Max. Speed (rpm)	2000	2000	2000	1200	1000	
	Dimensions (L*W*H, mm)	250*57*63	250*57*63	250*57*63	318*57*63	318*57*63	
	Weight (Kg)	1	1.2	1.2	1.7	1.7	
	Screw Size	Metric Types	M1.2-M2	M2-M3	M2-M3	M2.5-M4	M3-M5
Screwdriver Bits		Ø4	Ø5	Hex 1/4"	Hex 1/4"	Hex 1/4"	

Model		RS-AFS60LB01	RS-AFS60LB02	RS-AFS60LB04	RS-AFS60LB05	RS-AFS60LB06	
SCARA Robots	Number of axes	4					
	Installation method	Table-top					
	Arm length (first arm + second arm)	600 mm					
	Maximum Speed	J1 + J2	5000 mm/sec				
		J3	1100 mm/sec				
		J4	600° /sec				
	Range of Motion	J1	±133°				
		J2	±153°				
		J3	200 mm				
		J4	±105°				
	Repeatability	J1 + J2	±0.015 mm				
		J3	±0.01 mm				
J4		N.A.					
Net Weight		20 kg					
Environment	Ambient Temperature	5°C ~ 40°C					
	Storage Temperature	-20°C ~ 55°C					
	Humidity	< 0~ 90 % RH (non-condensing)					
Screw Driving Modules (dedicated for robots)	Torque Range (kgf / cm)	0.50~1.80	1.50~9.00	1.50~9.00	6.00~25.00	10.00~43.00	
	Torque Range (N / m)	0.05~0.17	0.15~0.88	0.15~0.88	0.58~2.45	0.98~4.20	
	Max. Speed (rpm)	2000	2000	2000	1200	1000	
	Dimensions (L*W*H) mm	250*57*63	250*57*63	250*57*63	318*57*63	318*57*63	
	Weight (Kg)	1	1.2	1.2	1.7	1.7	
	Screw Size	Metric Types	M1.2-M2	M2-M3	M2-M3	M2.5-M4	M3-M5
Screwdriver Bits		Ø4	Ø5	Hex 1/4"	Hex 1/4"	Hex 1/4"	

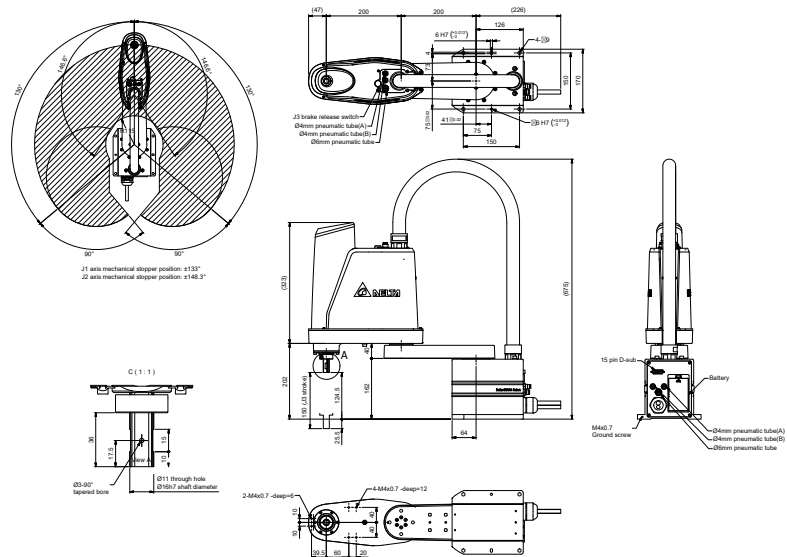
RS	AF	S	60L	A	01
Company/Product/Robot Type	Applications	Robot Types	Arm Length	Axis Code	Screwing Driving Modules
RS: Robot Solution	AF: Screw Driving	S: SCARA	60L: 600 mm (One standard 3-m robot cable included)	A: 3 axes B: 4 axes	01: Torque 0.5-1.80 kgf · cm 02: Torque 1.5- 9.0 kgf · cm 04: Torque 1.5- 9.0 kgf · cm 05: Torque 6.0- 25.0 kgf · cm 06: Torque 10.0- 43.0 kgf · cm

Dimensions and Working Range

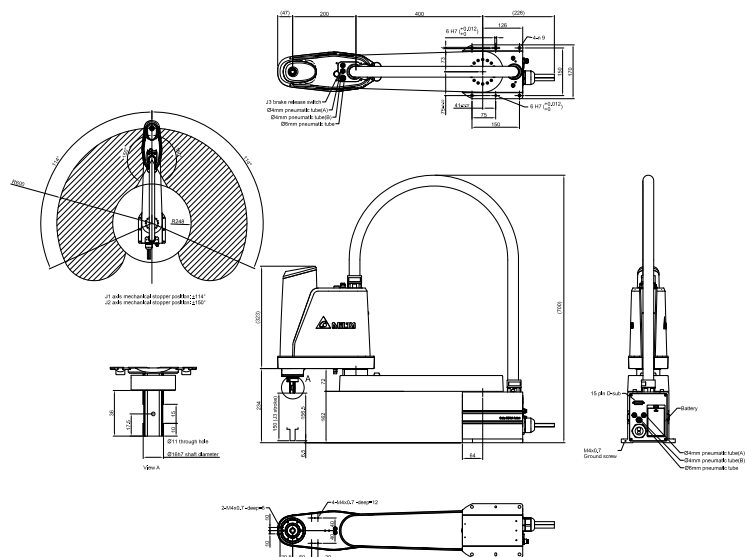
DRS30L Series



DRS40L Series

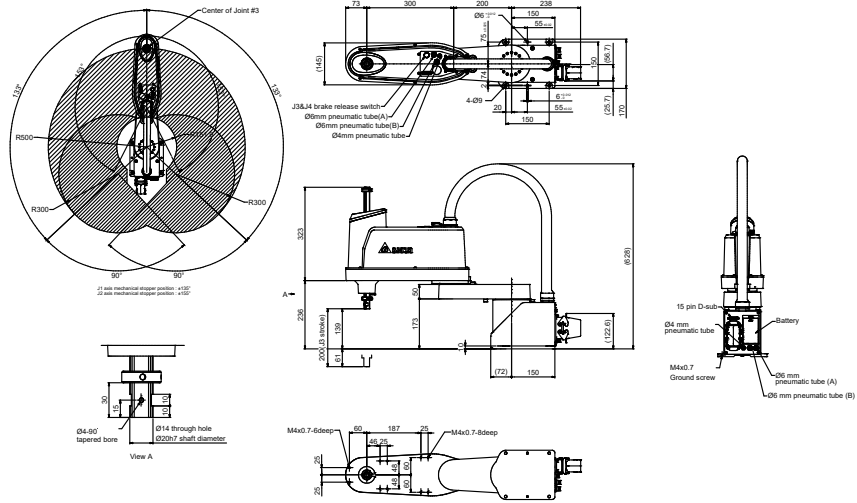


DRS60L3 Series

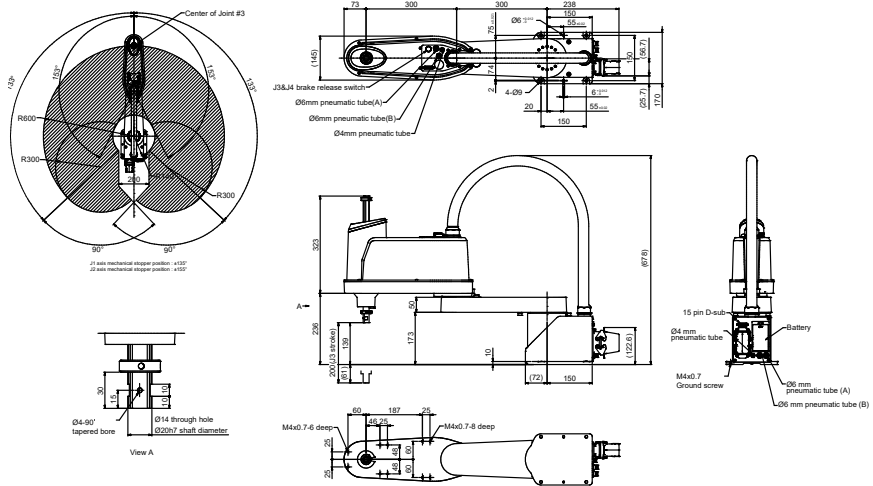


Dimensions and Working Range

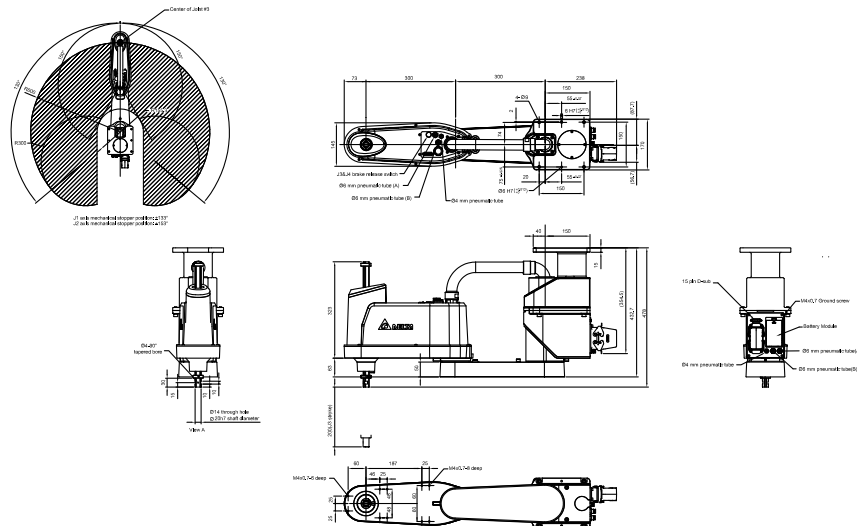
DRS50L Series



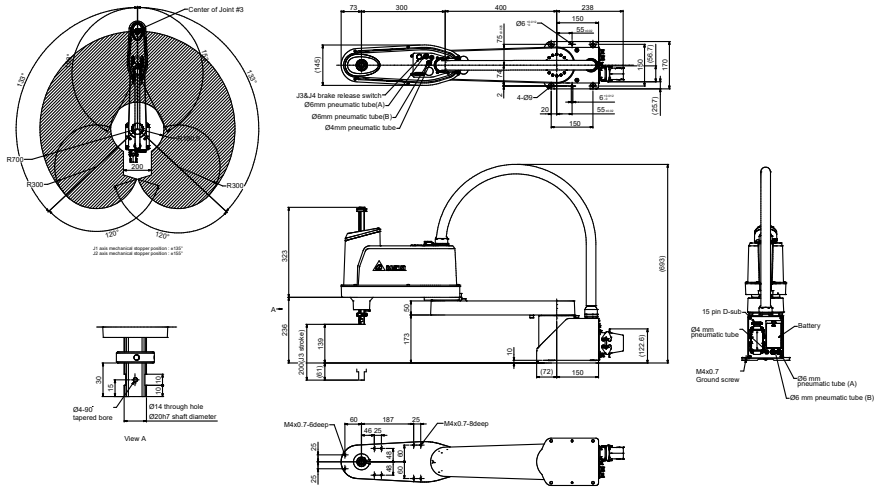
DRS60L Series



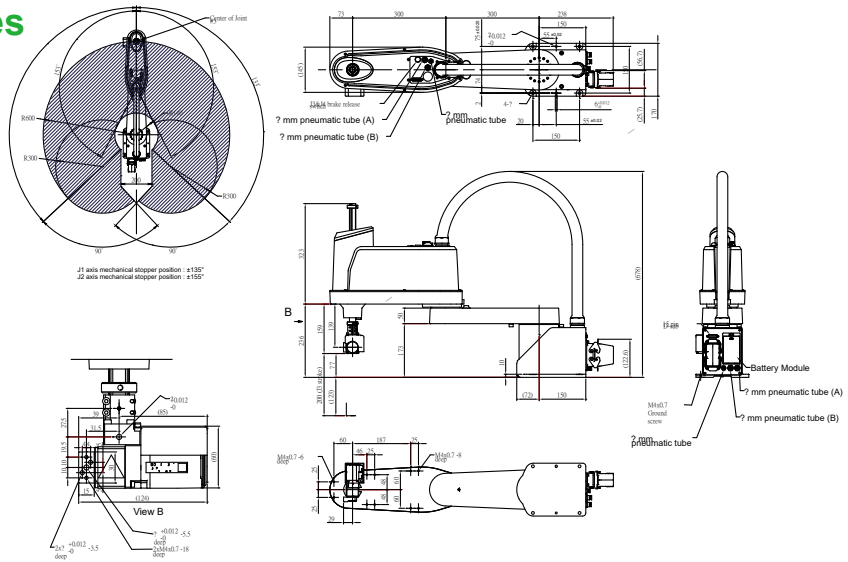
DRS60H Series



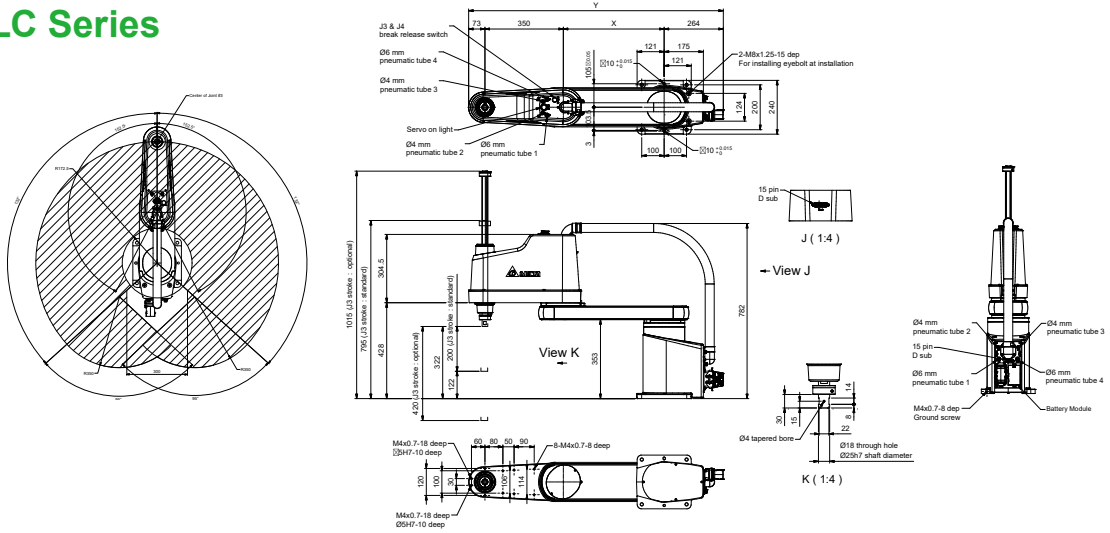
DRS70L Series



DRS60L3 5-axis Series

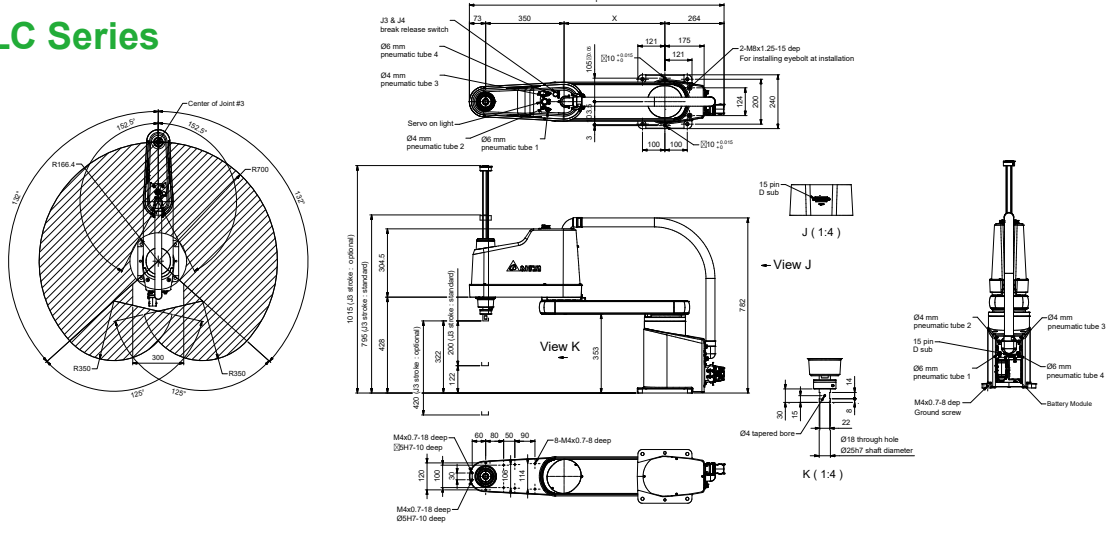


DRS60LC Series

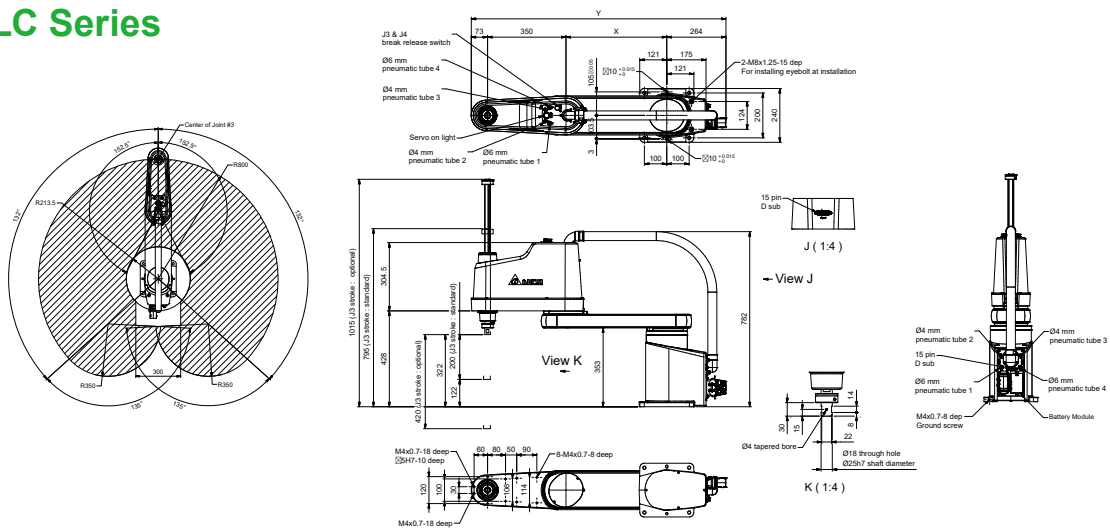


Dimensions and Working Range

DRS70LC Series



DRS80LC Series

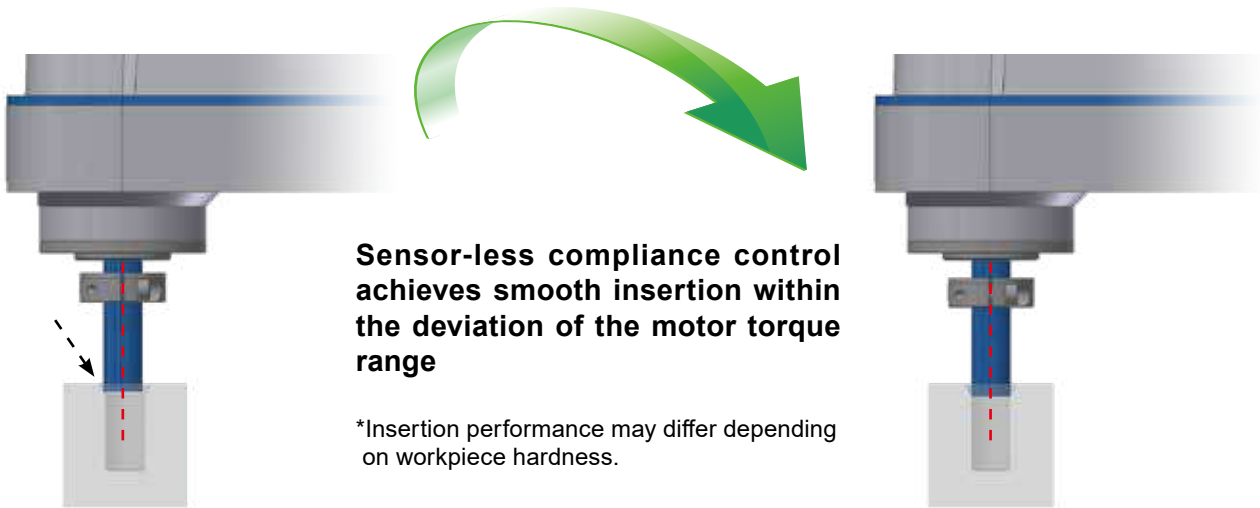


Model List

Series	Model Name
DRS30L Series	DRS30L3SS1BN002
DRS40L Series	DRS40L3SS1BN002 DRS40L3SO1BN002 DRS40L3SSADN003 DRS40L3SSF DN003 DRS40L3SSMDN002
DRS60L3 Series	DRS60L3SS1BN002
DRS50L Series	DRS50L6SS1BN002 DRS50L6SO1BN002 DRS50L6OS1BN002 DRS50L6SSADN003 DRS50L6SSF DN003 DRS50L6SSMDN002
DRS60L Series	DRS60L6SS1BN002 DRS60L6SO1BN002 DRS60L6OS1BN002 DRS60L6SSADN003 DRS60L6SN1BN302 DRS60L6SSF DN003 DRS60L6SSMDN002
DRS70L Series	DRS70L6SS1BN002 DRS70L6SO1BN002 DRS70L6OS1BN002 DRS70L6SSADN003 DRS70L6SSF DN003 DRS70L6SSMDN002
DRS60H Series	DRS60H6SS1BN002
DRS60L3 Series (5-axis)	DRS60L3SS1BN502
DRS60LC Series	DRS60LCSS1BN002 DRS60LCOS1BN002
DRS70LC Series	DRS70LCSS1BN002 DRS70LCOS1BN002
DRS80LC Series	DRS80LCSS1BN002 DRS80LCOS1BN002

Product Features

Sensor-less Compliance Control Function



Simple and Easy Operation

- ▶ Multiple Teaching Methods



HMI



Teaching Pendant



PC

Product Features

Simple and Easy Operation

▶ User-friendly Robotic Integration Software

- Built-in standard testing modules for quick testing (E.g. I/O points and motors)
- Standard modular program design for easy robot motion programming, high maintainability and low maintenance cost
- Integrates customer's UI tools to ensure the uniqueness and completeness of individual robotics systems

▶ Axis Expansion Available

- Supports up to 6 expansion axes for easy integration

▶ Easy Commands

- RL commands for simple programming

Programming Module



Built-in Testing Module



Customized UI Module



* UI = User Interface

▶ Direct Teaching (Lead by Hand)



Positions are directly taught and controlled by hand, and recorded by SCARA



Robotic Integration Software

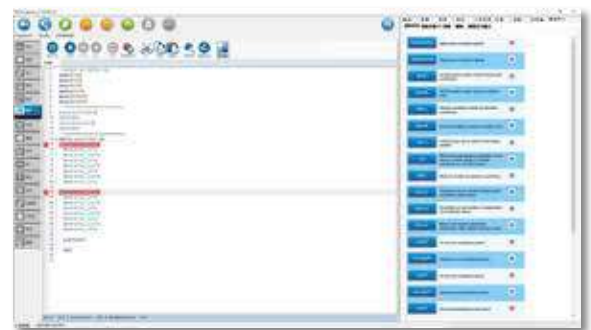
DRAStudio Features

- Easy programming for various applications
- Creates an offline simulation environment for robots
- Supports articulated robots operation



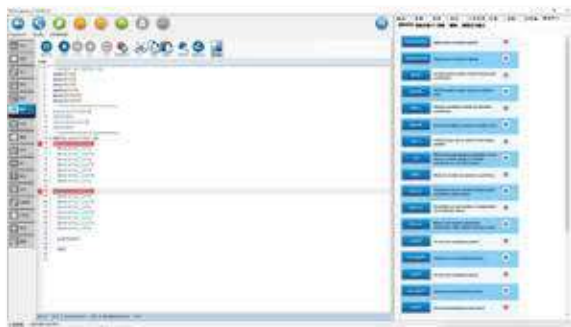
Friendly Programming Environment

- Quick and easy graphical programming
- Simplified programming languages and shorter commands to fulfill quick operation
- Integrates data and signals of peripheral devices to configure user-defined interface



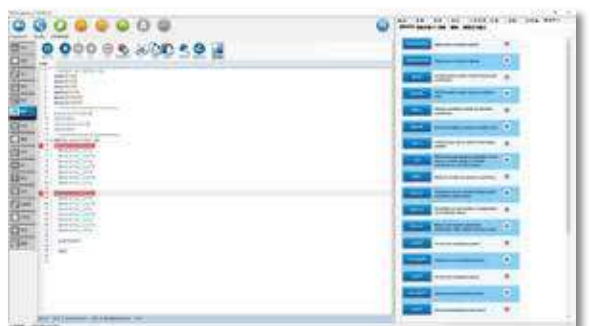
Various Robot Motion Commands and Parameter Setting Environment

- Motion commands: MovJ, MovP, MovL, MovPR, MovLR, MArc, Mcircle, Lift
- Motion parameters: SpdJ, AccJ, DecJ, SpdL, AccL, DecL, Accur



Process Control Environment Setting

- Process control commands: if ... then...end, while...do...end, fordo...end, function, repeat



Robotic Integration Software

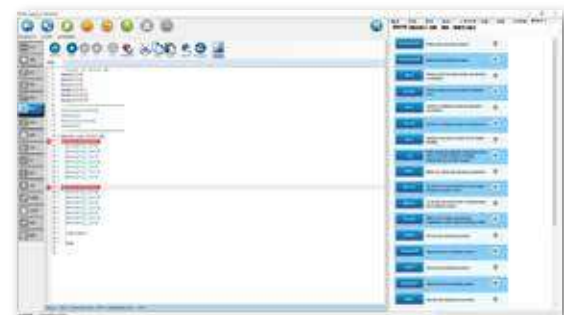
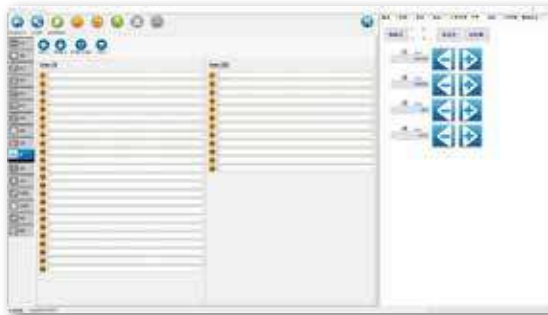
Coordinate System Environment Setting

- Coordinate commands: SetUF, ChangeUF, SetTF, ChangeTF
- Positioning commands: SetGlobalPoint, CopyPoint, ReadPoint, WritePoint, RobotX, RobotY, RobotZ, RobotRz, RobotHand



Digital I/O Control Setting

- Provides digital I/O control commands and monitoring



Coordinate System and Movement Recording Function

- Provides coordinate system (Joint/Tool/User/World) to teach robots movements
- Records real-time robot teaching movement for positioning verification



Workable Space Setting

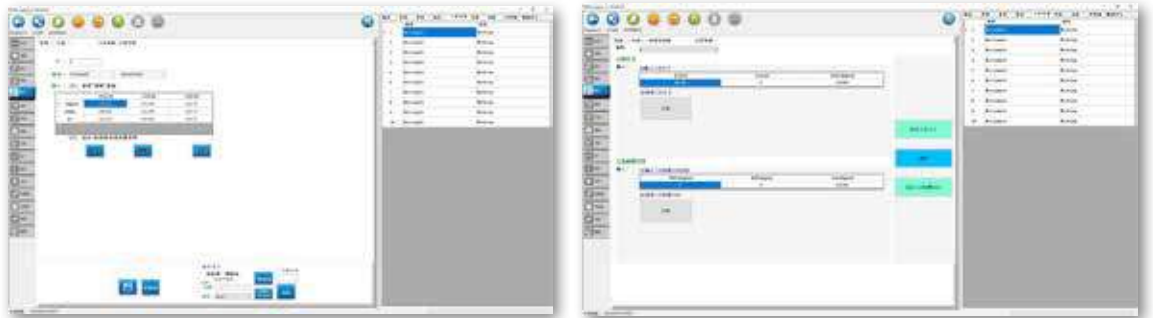
- Up to 10 sets of 3D cylinder and rectangle shape workable space
- Limit robotic movement for safety



Robotic Integration Software

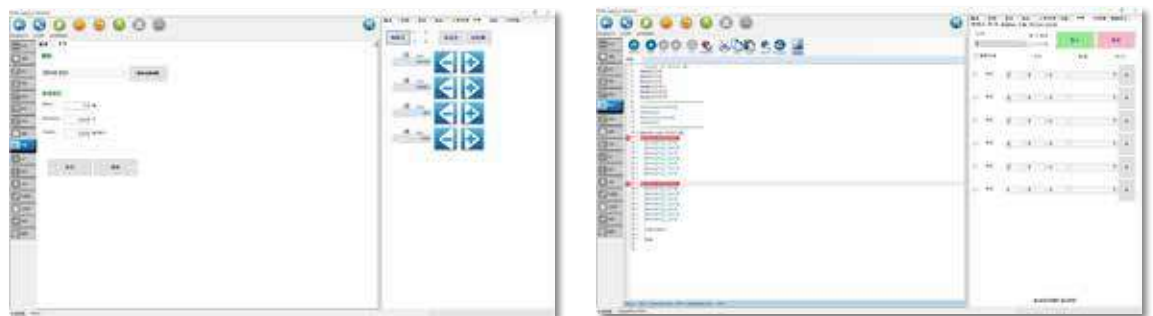
Tool Setting and User Interface

- Simple parameter setting
- Various user interface settings for easy integration



Fast Payload Adjustment and Information Transmission

- Quick payload setting to optimize robot systems
- Real-time monitoring information exchange between robot and peripheral devices for system efficiency



Sample Code and Templates for System Integration

- Adopt templates including vision sample code for customized applications



Features

- 1 Machine vision for precise positioning
- 2 Pre-drive function to prevent incomplete processes
- 3 Precise torque and downward pressure control
- 4 Drive tightening function to ensure a precise lock
- 5 Real-time alarm to track driving status



System Functions and Operation Interface

Screw locking status monitoring

- Loose or stripped screws, inspection error or anomaly

Screw locking parameter setting

- Screw driving parameters: speed, force, torque, feed rate
- Multi-section electric driving torque / speed
- Screw driving sequence
- Test / driving mode switchable
- Operation speed, Teach, JOG, RL

Error alarm notification

Screw driving data log

Integrates machine vision setting functions



Main Page



Screw Driving Settings



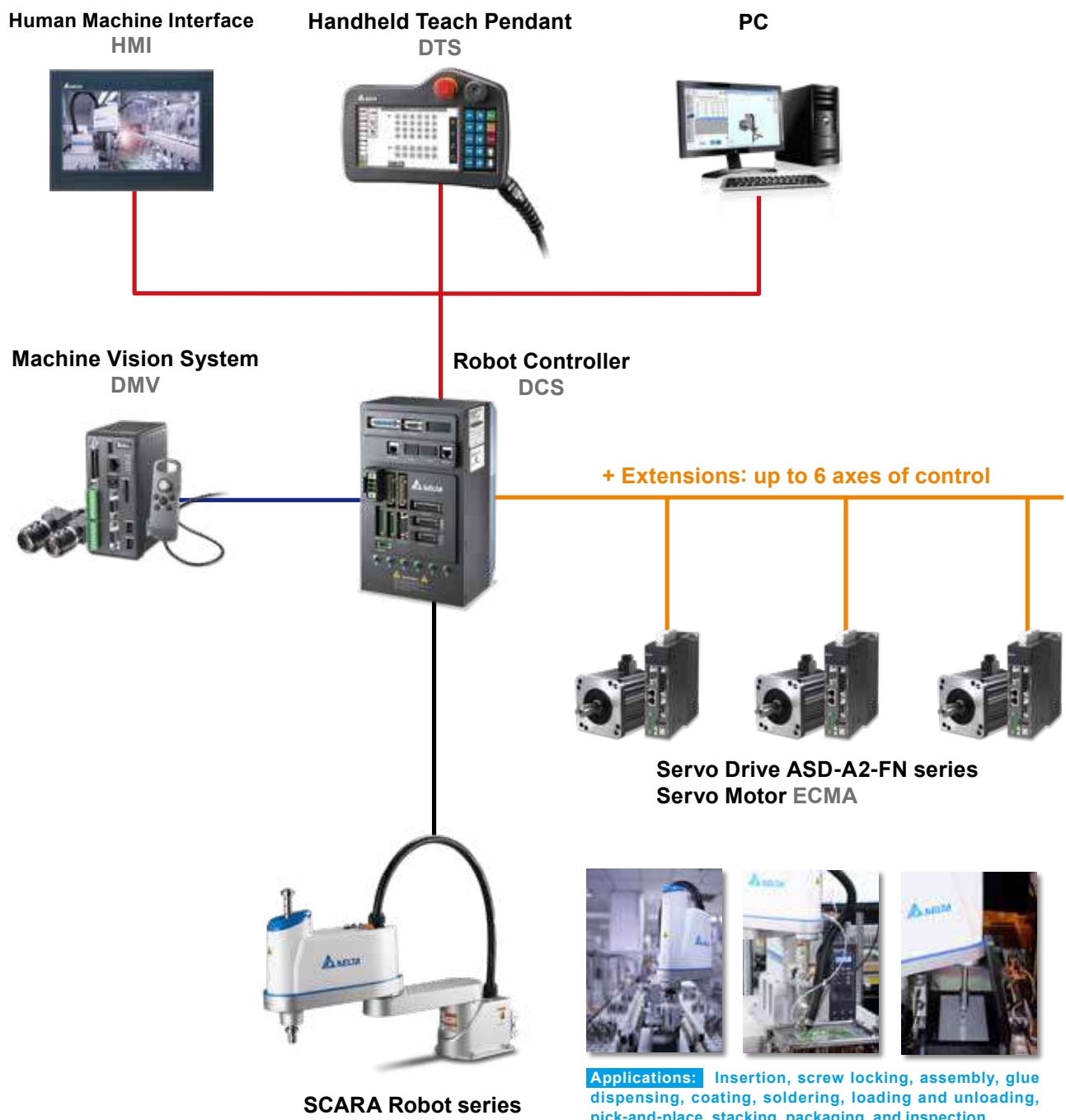
Recipe Settings



Screw Driving Data

SCARA Robot Workstation Solution

- ▶ The highly flexible robotic workstation integrates control units and other peripheral devices
- ▶ Easy integration with machine vision systems achieves smart identification, inspection and automatic adjustment for consistent quality delivery



Applications: Insertion, screw locking, assembly, glue dispensing, coating, soldering, loading and unloading, pick-and-place, stacking, packaging, and inspection

Industries: Consumer electronics, electrical/electronics, food and beverages, rubber and plastics, metal fabrication

Robot Controller DCS Series

Part Information

Teach Pendant Connection Port

High-speed Communication and Software Port

- Ethernet: connects PCs or notebooks, capable of accessing data through DROE software
- USB1, USB2: Directly connects to USB flash drives
- DMCNET: Connects DMCNET peripherals

Main Circuit Terminal (RS)

Connects 200-230 Vac, 50/60 Hz commercial power supply

Brake Control Digital Output Terminal (BRK.DIO)

STO I/O Terminal (Safe Torque Off)

Connects a certified safety relay or switch for controlling STO I/O signals

Control Power Input

Connects DC24V power supply

System I/O Terminal (SYS. DIO)

Serial Communication Port

For Modbus communication control, supporting RS-485/RS-232 serial communication

LED Display

The 5 digit, 7 segment LED displays the controller status or fault codes

Servo Motor Output (U, V, W)

Connects servo motors. Never connect the output terminal to main circuit power as the drive may be damaged beyond repair if incorrect cables are connected to the output terminals

Standard I/O Terminal (STD. DIO)

Full-closed Loop Control Interface (EXT. ENC)

Feeds back the position signals of the full closed linear scale and encoder for controlling A, B, Z phase signals

Motor Encoder Interface (MOTOR. ENC.)

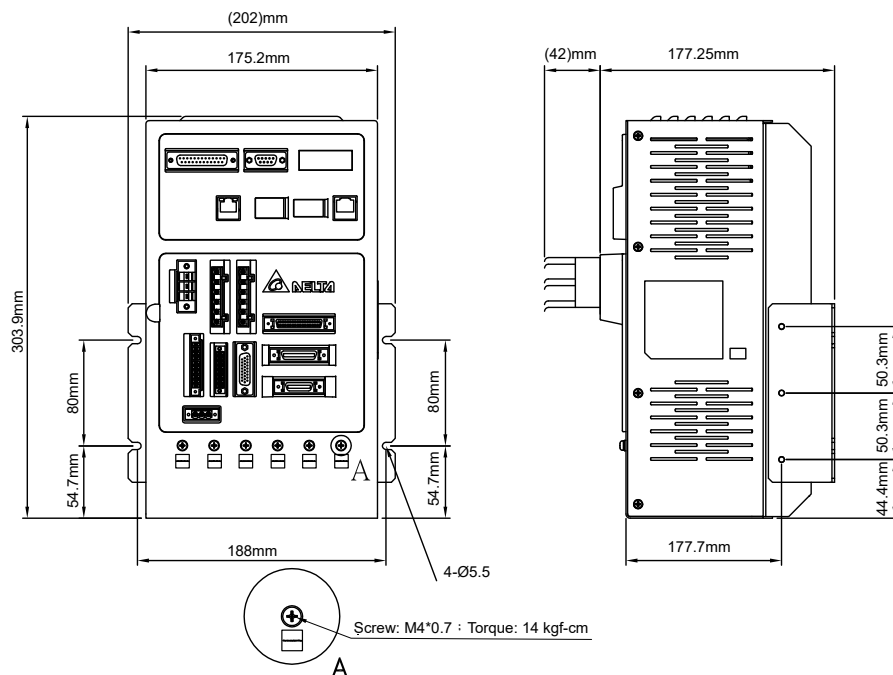
The encoder signals of four servo motors

Ground Terminal

Grounding wire of power supply and servo motor



Dimensions



NOTE

- 1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and pounds (lbs)
- 2) Dimensions and weights of the robot controller may be revised without prior notice

Robot Controller DCS Series

Specifications

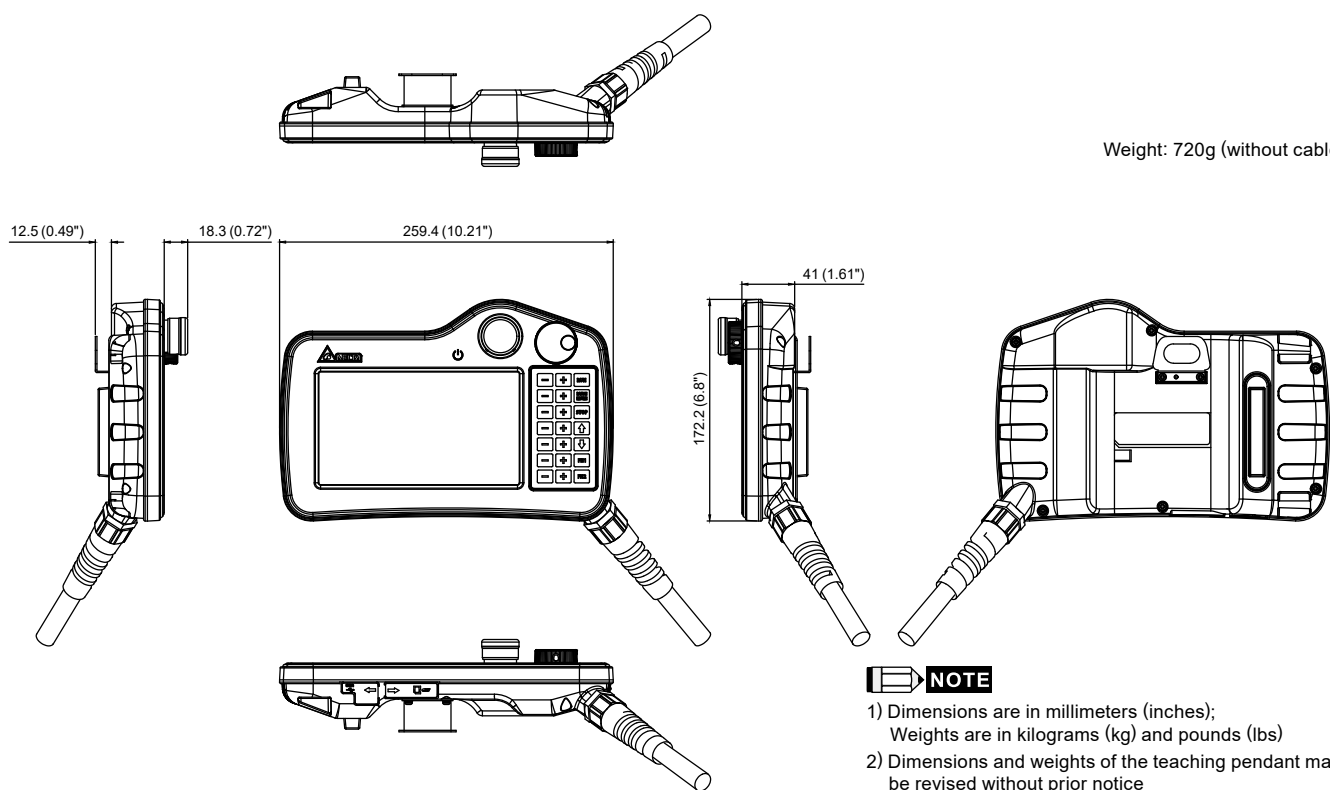
Controller		DCS-1D00 Series	DCS-1M00 Series	DCS-1B00-UA Series DCS-1B00-CA Series
Power Supply	Phase/Voltage	Single phase: 200-230Vac, 5A	Single phase: 220 Vac+PE, 10A	200-230Vac +PE, 10A
	Control Power Supply	N/A		
Dimensions (W) × (H) × (D)mm/Weight		175mm x 300mm x 159mm/5.6kg		453mm x 268mm x 381mm/20kg
Cooling Method		Fan cooling		
External Optical Scale or Encoder		A, B, and Z format		
Robot Control	Programming Language	Delta robot language		
	Motion Mode	Point-to-point motion, linear interpolation, circular interpolation		
	Memory Capacity	20 MB: for program editing and data 16 KB: for PLC SV/DV variables (without power failure detection) 60 KB: for PLC DH variables (with power failure detection) 1 K location point for universal variables (shared among different programs) Up to 32 K location point for programming		
Input/Output	Input/Output	User I/O: 24 sets of inputs and 12 sets of outputs System I/O: 8 sets of outputs and 8 sets of inputs		
Communication Interface	Ethernet	One channel		
	RS-232/RS-485	One connecting port (allows switching between two communication protocols)		
	DMCNET	One channel		
	USB Host	N/A		
Environment	Installation	Indoor (avoid direct sunlight), no corrosive liquid and gas (avoid oil mist, flammable gas, dust)		
	Altitude	Altitude 1,000m or lower above sea level		
	Atmospheric Pressure	86 kPa~106 kPa		
	A MBient Temperature	0C~55 °C (If a MBient temperature is above 45 °C, cooling is required)		
	Storage Temperature	-20 °C~55 °C		
	Humidity	0~90 % RH (non-condensing)		
	Vibration	9.80665m/s ² (1G) less than 20Hz, 5.88m/s ² (0.6G) 20 to 50 Hz		
	IP Rating	IP20		
Power System	TN system ^{*1}			

*1 TN system: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that points by a protective earth conductor.

Handheld Teach Pendant DTS Series



Dimensions



Handheld Teach Pendant DTS Series

Specifications

Model	DTS-2FM	DTS-3FD	DTS-3GD
LCD Module	Display Type: 7" Widescreen TFT LCD Resolution (pixels): 800 × 480 Backlight Luminance (cd/m ²): 450		Colors: 65536 Backlight: LED Back Light Backlight Lifetime (Hr) ^{*1} : 20,000
Arithmetic-Logic Unit (ALU)	CPU: 400MHz Flash ROM (Bytes): 128MB RAM (Bytes): 64MB Backup Memory (Bytes): 16MB	CPU: 800MHz Flash ROM (Bytes): 256MB RAM (Bytes): 256MB Backup Memory (Bytes): 32K	
Buzzer	Multi-tone Frequency (2K~4KHz) / 80dB		
Connector	Military (17 pin)	D-Sub (25 pin)	
Real Keys	21 Keys		
USB	1 USB Client Ver 2.0		
SD	SD card (support SDHC)		
Ethernet	1 Port ^{*2}		
Cable Length	5m	5m	10m
Emergency Stop Switch	IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL 508, CSA C22.2 No.14, GB 14085.5		
3-Position Operation Switch	Compliant with IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL 508, CSA C22.2 No.14, GB 14085.5 Certified with ISO12100-1 \ -2/EN12100-1 \ -2, IEC60204-1/EN60204-1, ISO11161/prEN11161, ISO10218/EN775, ANSI/RIA R15.06, ANSI B11.19	Compliant with EN/IEC60947-5-8, IEC60947-5-1, EN60947-5-1, JIS C8201-5-1, UL508, CSA C22.2 NO. 14 Certified with ISO12100-1 \ -2/EN12100-1 \ -2, IEC60204-1/EN60204-1, ISO11161/prEN11161, ISO10218/EN775, ANSI/RIA R15.06, ANSI B11.19	
Protection Rating	IP54		
Voltage Endurance ^{*3}	22-28Vdc	22-28V _{DC}	
Waterproof Degree	24Vdc terminal and FG terminal: 500Vac, 1min Power Consumption		
Power Consumption	5.6W		
Backup Battery	3V lithium CR2450 × 1		
Backup Battery Life	5 years or more at 25°C, may vary due to temperature and usage condition		
Operation Temperature	0°C~40°C		
Storage Temperature	-20°C~+60°C, 10%~90% RH		
Operation Environment	10%~90% RH (0~40°C), 10%~55% RH (41~50°C), pollution degree 2		
Vibration Resistance	Conforms to IEC61131-2, 5Hz~8.3Hz 3.5mm, 8.3Hz~150Hz 1G		
Shock Resistance	Conforms to IEC60068-2-27, 11ms, 15G Peak, X, Y, Z direction for 6 times		
Dimensions W × H × D	257.4 × 170.3 × 71.8 (Emergency stop button and hook included)		
Weight	750g (Wire excluded)		

Note: 1) The half-life of the backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to the HMI.

2) Built-in isolated power circuit

3) Adopting isolated power supplies is suggested

Model Explanation

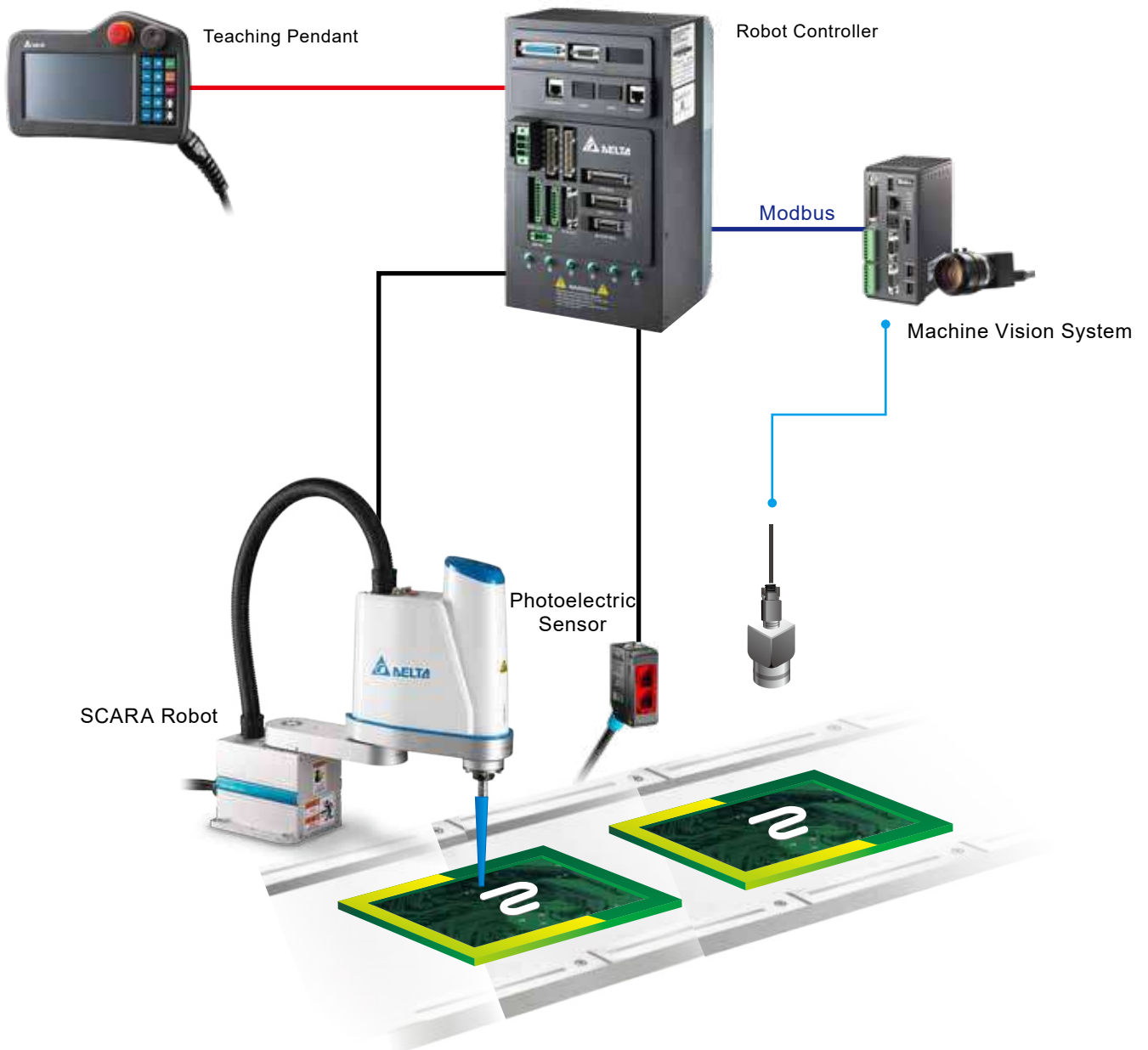
DTS Series

DT	S	1	F	D
Company/ Product	Category	Generation	Cable Length	Connector
D: Delta T: Teach Pendant	S: SCARA	1: Generation 1 (15 Keys)	F: Cable length 5m	D: D-Sub
		2: Generation 2 (21 Keys)		M: CE military model
		3: Generation 3 (21 Keys)		

Success Cases

Conveyor Tracking and Glue Dispensing

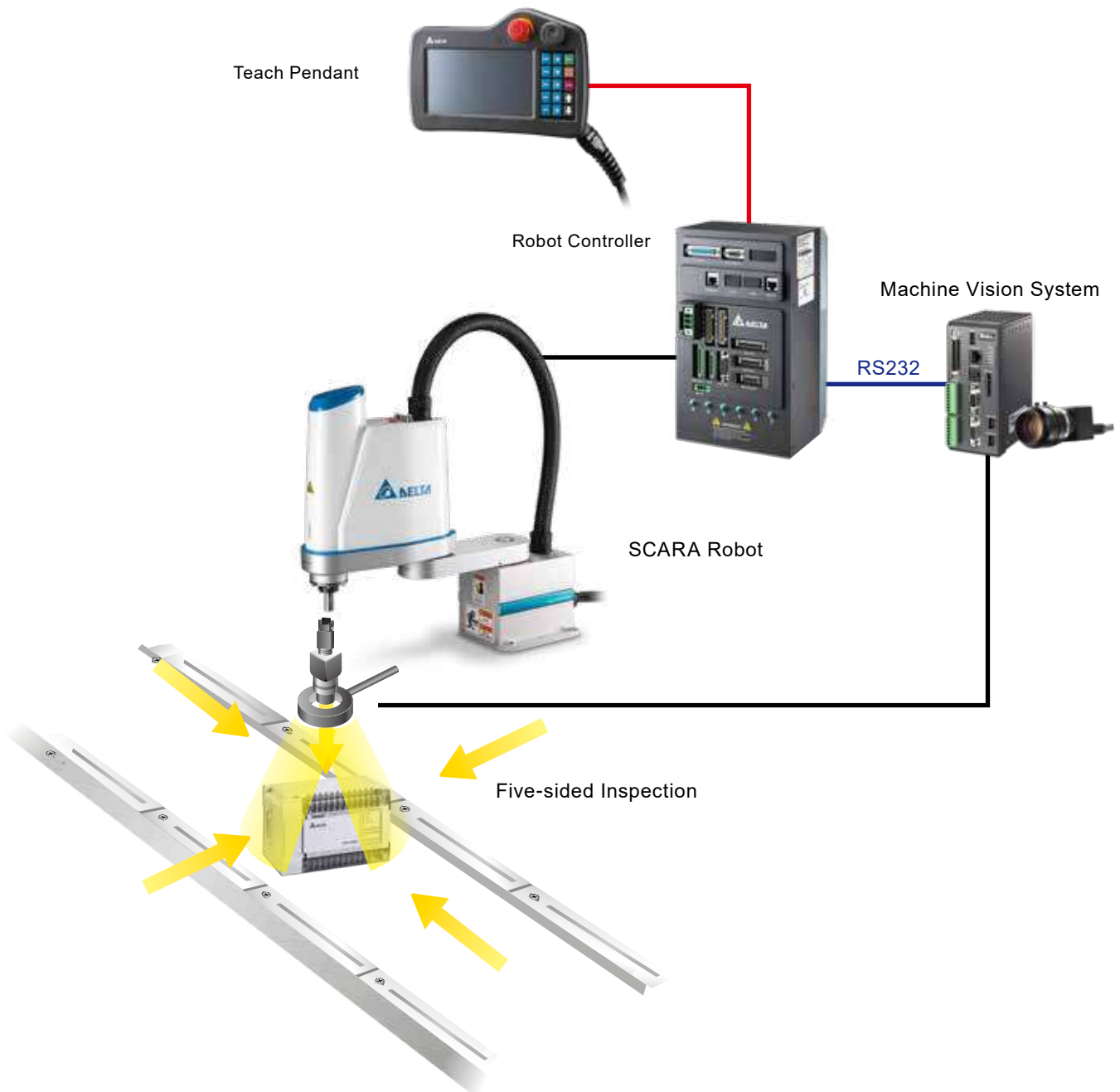
- Fixture-less conveyor tracking with SCARA
- Synchronizes the robot and motion of the conveyor without stopping it to enhance production efficiency
- Secondary development platform for easy and flexible customization
- General communication interface easily connects different machine vision systems and modules
- Simple system structure for easy configuration
- The solution adopts Delta industrial automation products for easy integration and maintenance



Success Cases

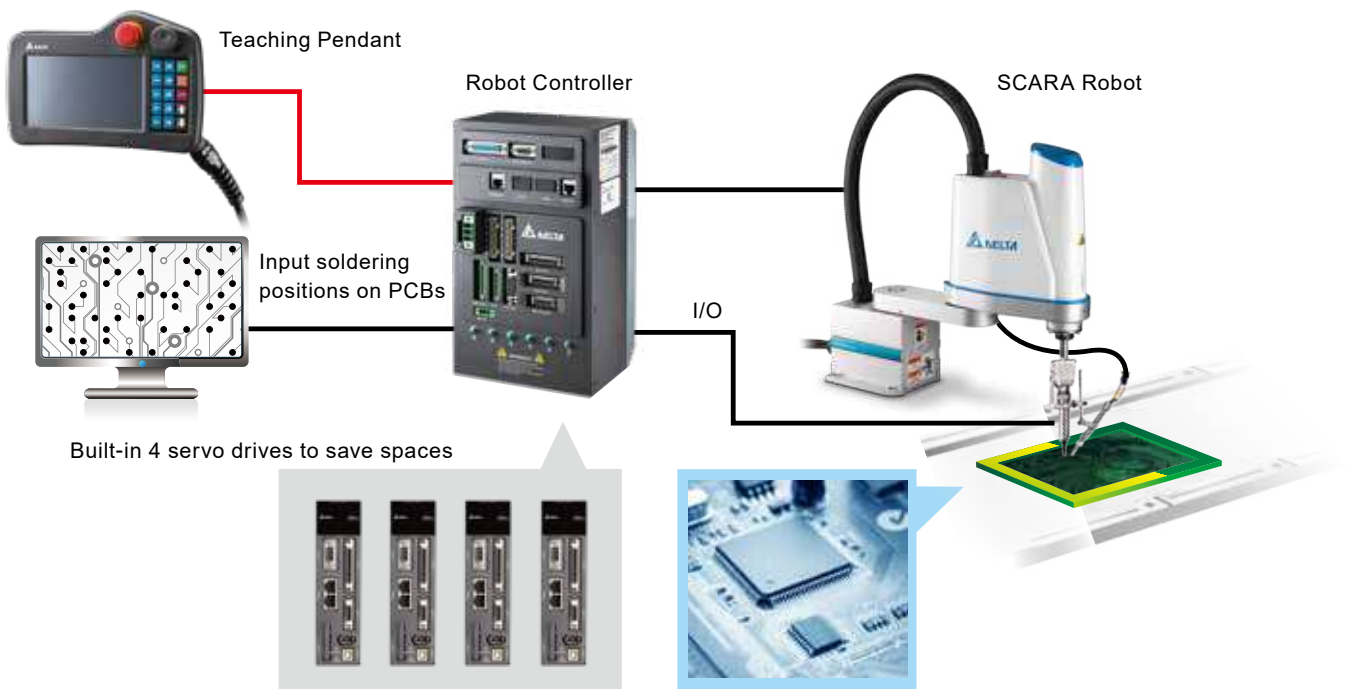
Five-sided Product Inspection

- Robot controller with servo drive integrated saves spaces and wiring
- Matches with machine vision system for flexible robot movement and easy interchangeable product inspection
- Adopts one communication protocol and simple wiring configuration with high reliability
- Links to MES System for optimized manufacturing and interchangeable production
- The solution adopts Delta industrial automation products for easy integration and maintenance



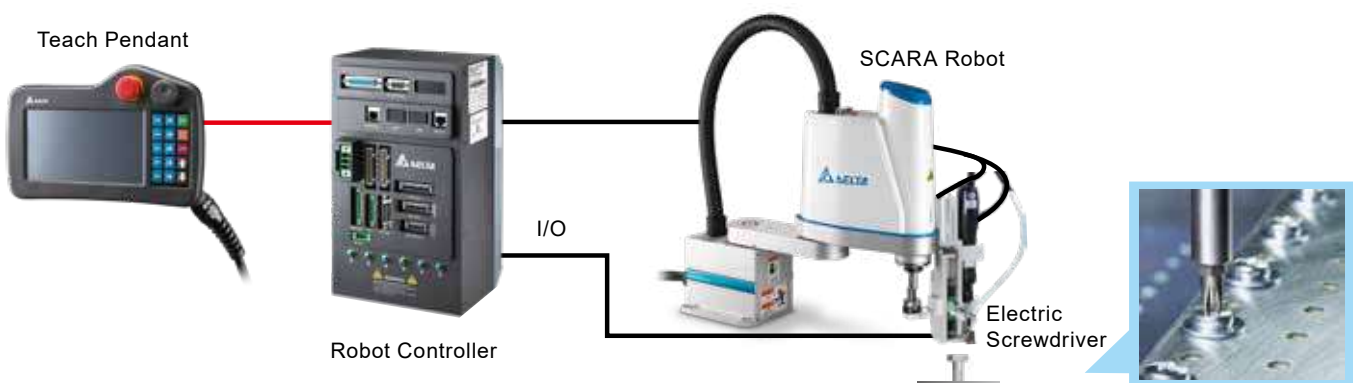
Robotic Soldering

- Robot controller with servo drive integrated saves spaces and wiring
- Uses soldering software to transform positions of solder holes in CAD PCB files for robots to achieve fast interchangeable production
- Auto calibration function compensates deviation caused by tool changes
- The solution adopts Delta industrial automation products for easy integration and maintenance



Automatic Screw-locking

- Robot controller with servo drive integrated saves spaces and wiring
- SCARA delivers consistent quality with high repeatability
- Flexible robot teaching movement and motion control for interchangeable production
- The solution adopts Delta industrial automation products for easy integration and maintenance



Success Cases

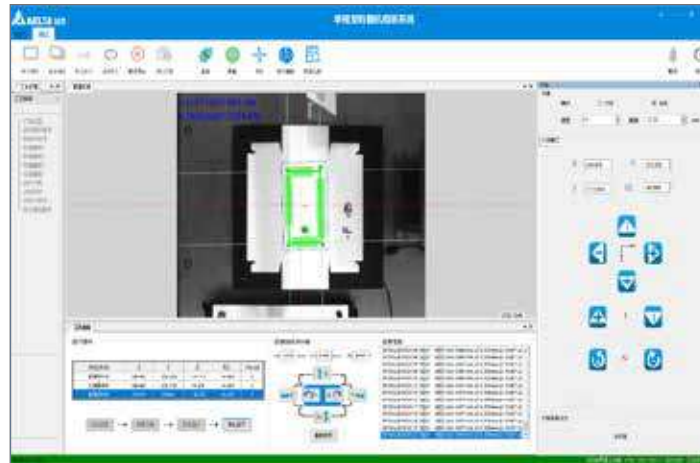
Lid and Tray Packaging

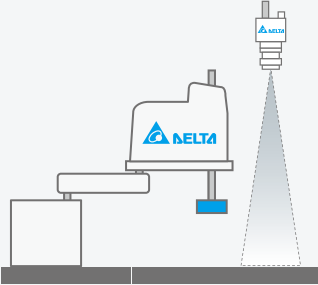
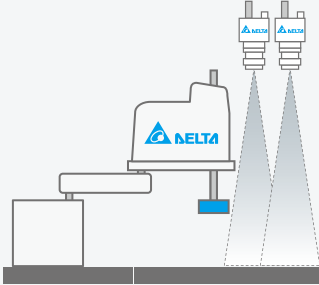
One-stop Solution

- Quick switching between multiple positioning methods for various applications
- One-click to set up the machine vision systems and robots for quick calibration
- Easy flow for quick changeover
- Project management function for mixed production
- Real-time production data analysis for accurate monitoring

User-friendly and Intuitive Interface

- Intuitive model changing process for quick parameter setting and calibration
- Integrates machine vision systems and robots for easy operation



System Structure	 Single Vision System		 Dual Vision System
Resolutions	5 MP	11 MP	5 MP
Productivity	45 Pcs/Min	40 Pcs/Min	40 Pcs/Min
Accuracy	± 0.2 mm	± 0.1 mm	± 0.1 mm
Positioning	Line matching		Line matching
Features	Simple structure, quick assembly		Suitable for large papers

FPC Transferring

One-stop Solution

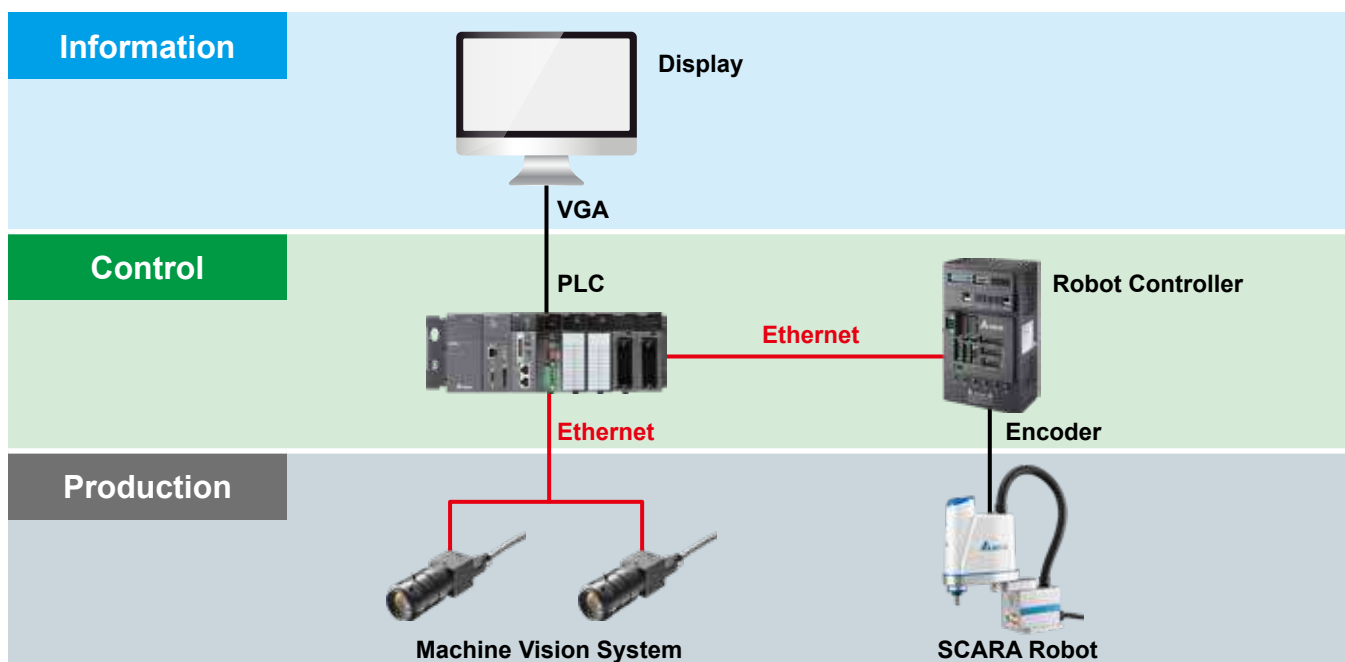
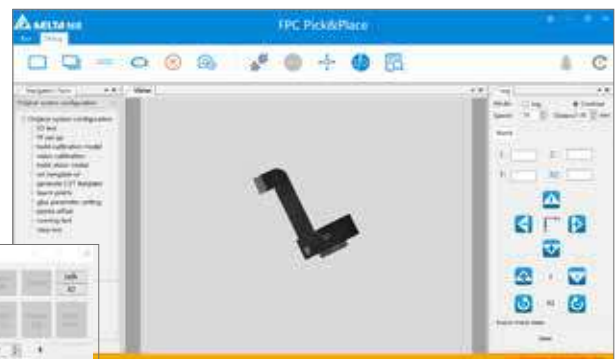
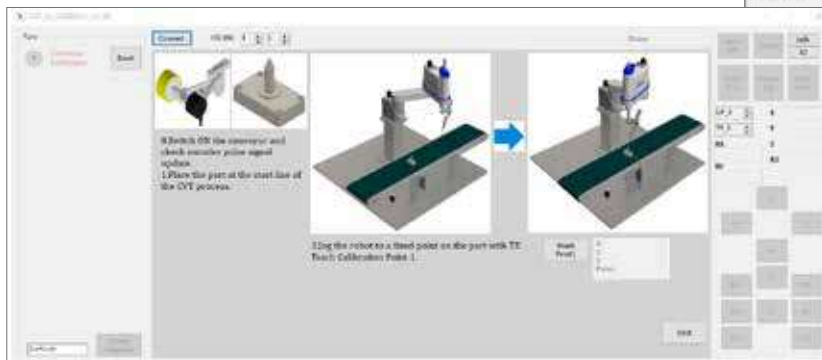
- Precise robotic work for consistent quality
- Easy maintenance with complete Delta's products
- Project management function for mixed production
- One-click for machine vision systems and robots calibration with unified coordinates

Enhanced Efficiency

- Replaces manual work for automated and efficient production

Enhanced Efficiency

- Intuitive line changing flow for quick parameter setting of new products and automated coordinate generation
- Integrates robot control, visual positioning, and product category display in a unified interface



Success Cases

CCD Traying

Precise Assembly

- High repeatability for consistent quality
- Machine vision system enhances stability and precision

Enhanced Efficiency

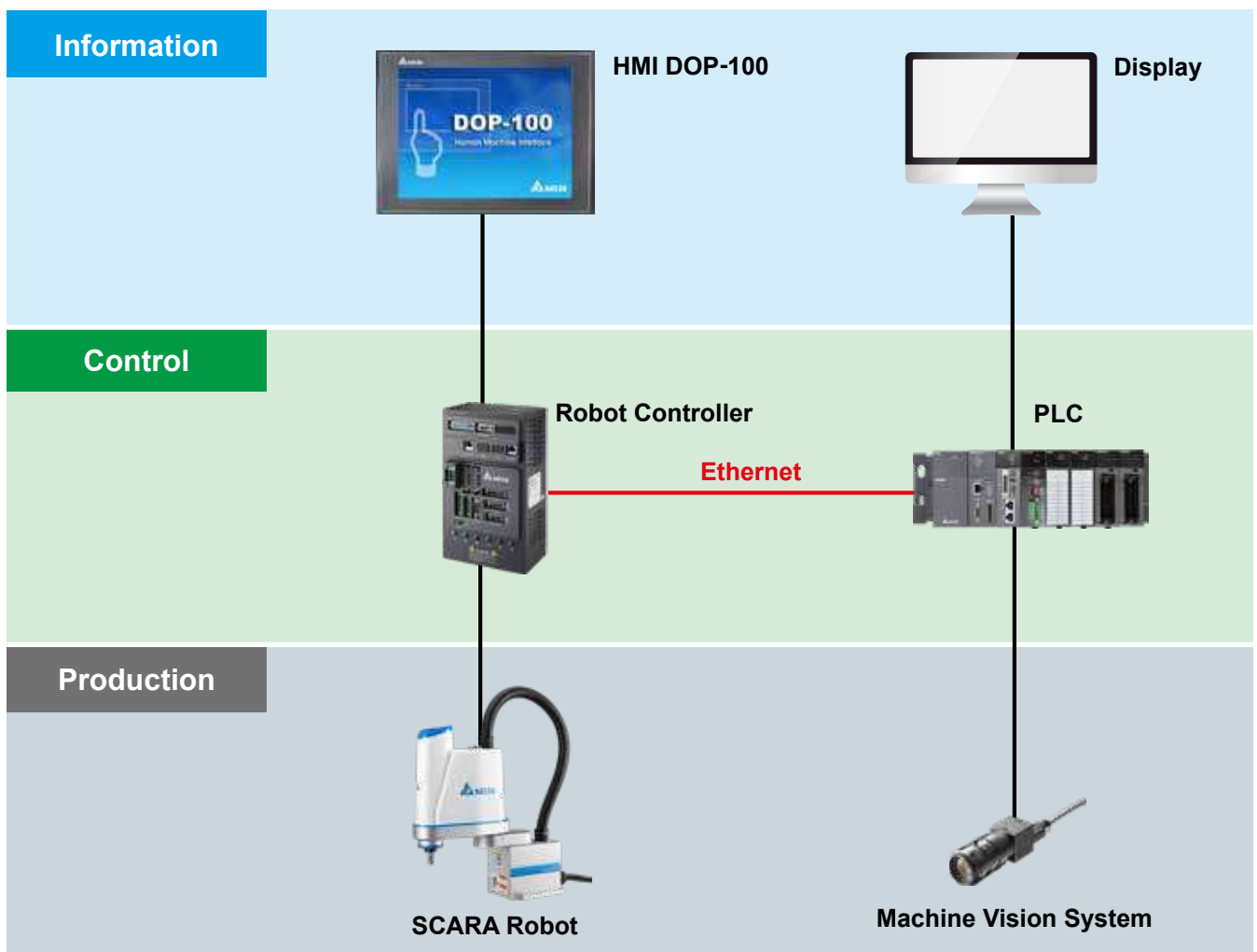
- Requires only 1 labor to load and start the equipment, saving 6 headcount
- Replaces manual work for efficient automated production

Visual Inspection for Optimized Quality

- Inspect front/back side of materials and anomalies to ensure quality

Other Features

- Auto calibration software with machine vision system saves tuning time
- Programming with the functions blocks offered by DRASstudio
- Quick visual templates set up for flexible applications
- Real-time visual inspection



Conveyor Tracking (CVT) Solution

Features

- **Simple & Flexible Setup** for diverse CVT applications, no need for any fixture
- **User-friendly Guidance Wizard** to easily create CVT projects with simplified calibration
- **Seamless Integration** with Delta's automation products



Applications

- Fields** Glue-dispensing, loading, alignment, assembly, packaging, soldering
- Industries** Electronics & Electrics | Consumer Electronics | Food Packaging | Rubber & Plastics | Metal Manufacturing

Success Story of Soldering

Delta's conveyor tracking robot allows accurate dynamic soldering for high performance, high accuracy, and fully automated processing.

Video QR Code



Specifications

The supplied CVT dongle should be used with the robot controller DCS Series, and it enables auto project generation, easy calibration, and integration with Delta's machine vision system.

CVT Dongle	
Model Name	DRSW-CVSED01
Max. Storable Task Queue	100
*Conveyor Speed	200mm/s
Communication Interface	Modbus (RS-232 / RS-485 / TCP)
Max. Recognizable Objects (in a specified range)	10w
Max. Number of Conveyors	2

* Delta reserves the right to change specifications without prior notice.

* The specifications are for reference only. The values may vary with the actual applications and equipment integration.

Ordering Information

Model	Description	Note
SCARA Robots DRS Series		
DRS30L3SS1BN002	4-axis, 300 mm arm length, 3 kg	Optional models with 5 m / 10 m cable
DRS40L3SS1BN002	4-axis, 400 mm arm length, 3 kg	Optional models with 5 m / 10 m cable, high inertia, CE/UL/CR/KCs certifications (only with 3 m cable)
DRS60L3SS1BN002	4-axis, 600 mm arm length, 3 kg	Optional models with 5 m / 10 m cable
DRS50L6SS1BN002	4-axis, 500 mm arm length, 6 kg	Optional models with 5 m / 10 m cable, 200 mm / 300 mm Z-axis, high inertia, CE/UL/CR/KCs certifications (only with 3 m cables)
DRS60L6SS1BN002	4-axis, 600 mm arm length, 6 kg	
DRS70L6SS1BN002	4-axis, 700 mm arm length, 6 kg	
DRS60H6SS1BN002	4-axis, 600 mm arm length, 6 kg, ceiling-mounted	Optional models with 5 m / 10 m cable
DRS60L6SN1BN302	3-axis, 600 mm arm length, 6 kg	
DRS60L3SS1BN502	5-axis, 600 mm arm length, 3 kg	
DRS60LCSS1BN002	4-axis, 600 mm arm length, 12 kg	Optional models with 5 m / 10 m cable, 200 mm / 420 mm Z-axis
DRS70LCSS1BN002	4-axis, 700 mm arm length, 12 kg	
DRS80LCSS1BN002	4-axis, 800 mm arm length, 12 kg	
Screw Driving Robot		
RS-AFS60LA01	3-axis, 600 mm arm length, torque 0.5-1.8kgf · cm	
RS-AFS60LA02	3-axis, 600 mm arm length, torque 1.5-9.0 kgf · cm	
RS-AFS60LA04	3-axis, 600 mm arm length, torque 1.5-9.0 kgf · cm with hex screwdriver bits	
RS-AFS60LA05	3-axis, 600 mm arm length, torque 6.0-25.0 kgf · cm with hex screwdriver bits	
RS-AFS60LA06	3-axis, 600 mm arm length, torque 8.0-43.0 kgf · cm with hex screwdriver bits	
RS-AFS60LB01	4-axis, 600 mm arm length, torque 0.5-1.8 kgf · cm	
RS-AFS60LB02	4-axis, 600 mm arm length, torque 1.5-9.0 kgf · cm	
RS-AFS60LB04	4-axis, 600 mm arm length, torque 1.5-9.0 kgf · cm with hex screwdriver bits	
RS-AFS60LB05	4-axis, 600 mm arm length, torque 6.0-25.0 kgf · cm with hex screwdriver bits	
RS-AFS60LB06	4-axis, 600 mm arm length, torque 8.0-43.0 kgf · cm with hex screwdriver bits	

Model	Description	Note
Handheld Teaching Pendants		
DTS-2FM	TP for CE / CR certified SCARA robots, 5m cable, 21 keys	
DTS-3FD	TP for SCARA robots, 5m cable, 21 keys	
DTS-3GD	TP for SCARA robots, 10m cable, 21 keys	
Robot Applications		
DRSW-CVS1D01	Conveyor tracking software package for robots	
DRSW-OFS1D01	On-the-fly software package for robots	
DRSW-SCS1D01	Delta Robotic Simulation Platform DRASimuCAD	
Optional Accessories		
3534518900	Optional standard digital I/O (STD) module for connecting the STD port to terminal adapter, 1 m cable included	
3534518800	Optional system digital I/O (SYS) module for connecting the SYS port to terminal adapter, 1 m cable included	
3081422700	Adapter cable for connecting STD connectors, no welding needed, with numerical cap on the other head, 1 m cable included	
3865397100	5 m cable for controller connecting	Not applicable for DRS30L3/ DRS40L3/DRS60L3
3865387400	10 m cable for controller connecting	Not applicable for DRS30L3/ DRS40L3/DRS60L3



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