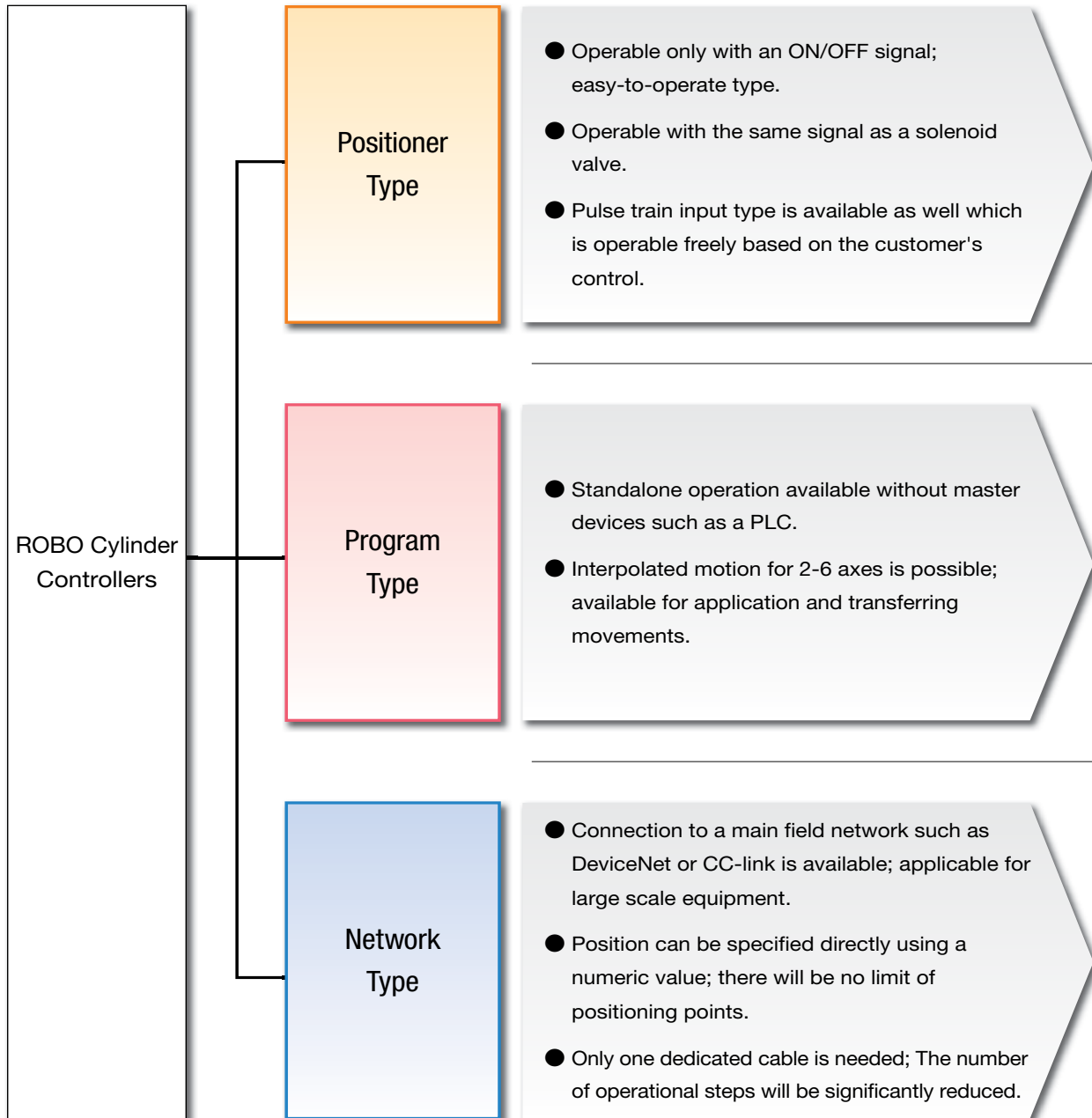


- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers**
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

Controller Overview

The ROBO Cylinder model can be selected from an ultra-simple type, which is operable with the same controls as a solenoid valve, to a high functionality type compatible with networks; A variety of models are available according to the customer's usage.

Controller types can be categorized according to the 3 groups below based on their operations.



463 Controller



3-Position Controller
AC100V/AC200V Type
PMEC/AMEC



3-Position Controller
DC24V Type
PSEP/ASEP



Position Controller
DC24V/AC100V/AC200V Type
PCON/ACON/SCON

See page
465.



Program Controller
DC24V Type
PSEL/ASEL



Program Controller
AC100V/AC200V Type
SSEL/XSEL

See page
467.



Network Dedicated Controller
DC24V Type
RPCON/RACON



Network Compatible Controller
DC24V/AC100V/AC200V Type
PCON/ACON/SCON/PSEL/ASEL/SSEL/XSEL

See page
469.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers**
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

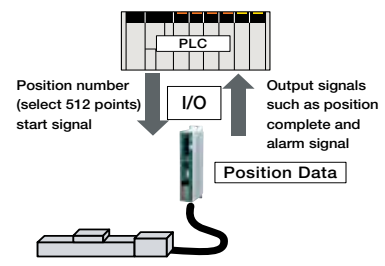
Positioner Type

The positioner type controller stores positions to which the actuator is moved by specifying a target position number.

In particular, PMEC/AMEC, PSEP/ASEP controllers specify 2 or 3 positions and can be operated with the same signals used for an air cylinder.

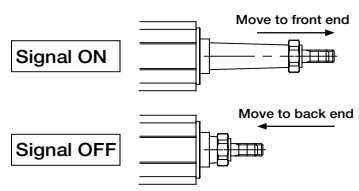
1 No programming needed

The positioner type controller operates by selecting the target position number externally using I/O after teaching the position data. Therefore, no operation programming is needed, allowing for immediate operation directly after mounting to the equipment.



2 Operation using the same signal as solenoid valve possible (PMEC/AMEC, PSEP/ASEP controllers)

Same as single solenoid-type valve, traveling between front/back ends is possible only by the single ON/OFF. Furthermore, if the double solenoid-type valve signal (two signals) are used, positioning at 3 points including an intermediate position is possible.



3 Reasonable price

A reasonable price range is offered for the pulse motor type controllers which maintain the effective functionality of a servo motor. The PMEC controller, including the power supply, PC software and communication cable, is sold as a set at a reasonable price.



4 No homing needed for absolute type and simple absolute type

A direct operation without homing upon power-on is possible if an absolute-type actuator and controller are used with the SCON Controller. Other controllers(*) are also operable without homing just like the absolute-type actuator by installing the simple absolute unit between the actuator and the controller.
 (*) Except PMEC/AMEC



465 Controller

PMEC/AMEC Controller

- Every element needed for operation such as the controller, power supply, PC software and communication cable, etc. are supplied in the set so that direct operation right after the purchase is possible.
- Intuitive operation is possible without the need for instruction. Acceleration/deceleration and speed can be programmed from the front panel of the controller.
- Operable with the same signals as a solenoid valve.
- Power supply of the controller is single-phase AC100V/AC200V (Only AC100V for AMEC)



See page
477.

PSEP/ASEP Controller

- Operable with the same signals as a solenoid valve.
- Splash-proof type having good resistance to water splashes.
- Simple absolute type setting which eliminates the need for homing upon power-on.
- Controller power supply: DC24V



See page
487.

PCON/ACON/SCON Controller

- Positioning is possible for up to 512 points.
- Compatible for pulse train input control.
- Incremental type and absolute type are available for the SCON. Same as the absolute type; no homing is needed for the PCON/ACON with an incremental type actuator using a simple absolute unit.
- Controller power supply is DC24V for PCON/ACON and single-phase AC100V/200V for SCON.



See page
525.



See page
535.



See page
547.

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers**
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm/Flat Type
- Mini
- Standard
- Gripper/Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers**
- PMEC/AMEC
- PSEP/ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor

Program Type

The program type controller executes programs that are input to it.

Programs input to the controller are used to perform various tasks such as operating the actuator and communicating with external equipment. Ideal for small systems where a PLC is not required which leads to cost savings.

1 High-level control available using simple language.

A program is generated for the program type controller using the simple and easy Super SEL Language to execute operation of the actuator and communication between peripheral equipment.

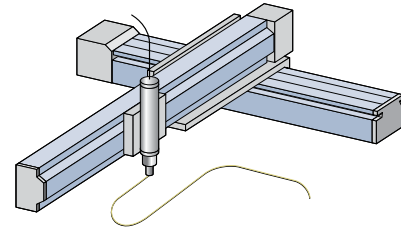
Expert knowledge is not needed to use the Super SEL Language, so it's easy to create programs even for beginners.

No.	B	E	N	Cnd	Cand	Operand 1	Operand 2
1					HOME	100	
2					HOME	11	
3					VEL	200	
4					WTON	1	
5					MOYL	1	
6					BTON	301	
7					WTON	2	
8					BTOF	301	
9					MOYL	2	
10					BTON	302	

2 Interpolation possible up to 2/6 axes

Simultaneous movement of the actuators are possible up to 2 axes for PSEL/ASEL/SSEL controllers and 6 axes for the XSEL controller.

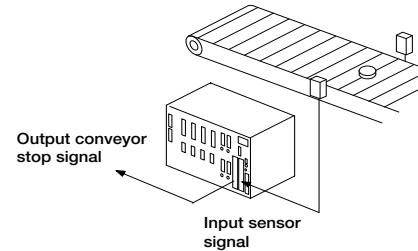
Depending on the program, interpolation is available to easily perform arc or path movements needed for dispensing jobs.



3 Controlling external equipment is possible

Multi-purpose I/O signals are available for the controller which makes communication with peripheral equipment possible.

Therefore, receiving signals from sensors and such through the controller or outputting signals from the controller to lamps or moving equipment, etc. to operate them is possible.



4 No homing needed for absolute type and simple absolute type

A direct operation without homing is possible upon power-on if an absolute-type actuator and controller are applied for ASEL/SSEL/XSEL Controllers.

The PSEL controller is also operable without homing just like an absolute-type actuator by installing the simple absolute unit between the actuator and the controller.



467

Controller

PSEL/ASEL/SSEL Controller

- Program controller with reasonable price and compact body.
- Interpolation of up to 2 axes is possible which is applicable for dispensing jobs.
- By selecting the positioner mode, can be used in the same manner as the position controller.
- Communication via PC USB port and direct USB cable is possible with integrated USB port.
- Can store up to 1500 points for PSEL/ASEL and 20000 points for SSEL.
- Absolute type available for ASEL/SSEL controllers. PSEL controller is available for the same operation if a simple absolute unit is connected.
- Controller power supply is DC24V for PSEL/ASEL and single-phase AC100V/200V for SSEL.



See page
557.



See page
567.



See page
577.

XSEL Controller

- High-function controller with up to 6 axes that can be simultaneously controlled.
- Precise dispensing jobs are possible through high velocity uniformity and tracking accuracy.
- Absolute type available for selection.
- 20000 points can be stored for positioning.
- Expansion I/O is available up to a maximum of 384 points.
- P/Q type controls PCON/ACON/SCON/ROBONET via serial communication for up to 16 axes. (→ Refer to Gateway function p469)
- Controller power supply is single-phase AC100V/200V for XSEL-J/K type and three-phase AC200V for XSEL-P/Q type.



See page
587.

Slider Type

Mini

Standard

Controllers Integrated

Rod Type

Mini

Standard

Controllers Integrated

Table/Arm /Flat Type

Mini

Standard

Gripper/ Rotary Type

Linear Servo Type

Cleanroom Type

Splash-Proof

Controllers

PMEC /AMEC

PSEP /ASEP

ROBO NET

ERC2

PCON

ACON

SCON

PSEL

ASEL

SSEL

XSEL

Pulse Motor

Servo Motor (24V)

Servo Motor (200V)

Linear Servo Motor

Network Type

The network type controller is available for field networks or serial communication.

Compatible with the majority of main field networks widely used over the world.

There is a large variety available for use with various kinds of FA equipment such as a PLC or touch panel, etc.

1 Compatible with main field networks

Direct connection is possible with main field networks such as DeviceNet or CC-Link, etc.

A position controller is available for an operation defined by movement specified with position number and direct coordinate value using the network. When defining coordinate values directly, there is no restriction for the number of positioning points.

Compatible Network and Function

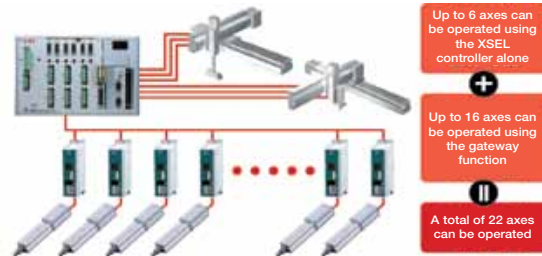
Controller series		ROBONET	PCON	ACON	SCON	PSEL	ASEL	SSEL	XSEL
Network Type	DeviceNet	○	○	○	○	○	○	○	○
	CompoNet		○	○					
	CC-Link	○	○	○	○	○	○	○	○
	MECHATROLINK		○	○					
	PROFIBUS-DP	○	○	○	○	○	○	○	○
	Ethernet								○
Applicable ROBO Cylinder		RCP2/RCP3 RCA/RCA2/RCL	RCP2/RCP3	RCA/RCA2/RCL	RCS2	RCP2/RCP3	RCA/RCA2/RCL	RCS2	RCS2
Number of positioning points		768 points (*)	768 points (*)	768 points (*)	512 points	1500 points	1500 points	20000 points	20000 points
Operating Method	Movement by specifying positions	○	○	○	○	○	○	○	○
	Movement by specifying direct values	○	○	○	×	×	×	×	×

(*) When it is operated by movement by specifying direct values, the number of positioning points is unlimited.

2 RC Gateway function for XSEL controller

The ROBO cylinder gateway function controls the ROBO cylinder via serial communication from the XSEL controller. Wiring work is significantly reduced, comparing with PIO control. The ROBO cylinder can be operated using the XSEL controller via the SEL Language.

- ROBO Cylinder gateway function is available in the controller firmware (main CPU application) V0.68 or higher (for P/Q type), or V0.34 or higher (for PX/QX type).
- The version of the PC software (IA-101-X-MW) that is compatible with the ROBO Cylinder gateway function is V7.2.0.0 or later.
- The teaching pendants compatible with the ROBO Cylinder gateway function are IA-T-X (XD) V1.4.6 or later, or SEL-T (TD) V1.0.1 or later.



(Comparison of PIO Control and Gateway function)

	PIO control	Gateway function
Wiring process	Many wires	Only two wires
Control method	Only ON/OFF of I/O	Program available
Movement position	Requires input into controller ahead of time	Can send command from XSEL controller
Current actuator position	Verify with end position No.	Can numerically check current position

Type

Item	Description
Number of maximum connected axes for ROBO Cylinder	16 axes
Number of maximum operation axes for XSEL Controller	6 axes
Available ROBO Cylinder series	ERC2 / RCP2 / RCP3 / RCA / RCA2 / RCS2
Connectible controller	ERC2 / PCON / ACON / SCON / ROBONET
Communication system	Modbus

Connectible Units

The following units are required to use the ROBO Cylinder Gateway function. Please contact us for further details for wiring.

Name	Model	Notes
RS232 conversion unit	RCB-CV-GW	1 unit needed for each XSEL controller.
Communication cable	CB-RCB-SIO050	1 cable needed for each XSEL controller.
Controller link cable	CB-RCB-CT002	1 cable needed for each ROBO Cylinder controller to be connected.

3 Connection with various types of FA equipment

Available for direct connection with a touch panel, PLC (serial communication unit) or vision system of various manufacturers.

■ **Main Connecting Equipment** * Please contact us for further details for connectable equipment, etc.

Name of product	Manufacturer
Touch Panel	Digital, Omron, Hakko Electronics, Keyence, Mitsubishi Electric, Beijer, Proface, Red Lion
PLC (Serial communication)	Omron, Mitsubishi Electric, Keyence
Vision System	Omron, Cognex, Keyence

ROBONET Controller

- ROBONET is a controller dedicated for field networks.
Wiring was reduced significantly as it can be connected with up to a maximum of 16 control units for a single gateway unit which is compatible with various networks.
- Operation is available with target position, speed or acceleration, etc. sent through a network by means of a value; this is effective when target position changes based on conditions.
- Simple absolute unit can be installed to make homing unnecessary.
- Controller power supply; DC24V



See page
503.

Controller compatible with field network * Network type set for each controller



See page
525.



See page
535.



See page
547.



See page
557.



See page
567.



See page
577.

- Can be connected to the main network directly.
- The position controller is able to be operated with the value of the target position, speed or acceleration etc. directly sent via the network.



See page
587.

Controller **470**

- Slider Type
- Mini
- Standard
- Controllers Integrated
- Rod Type
- Mini
- Standard
- Controllers Integrated
- Table/Arm /Flat Type
- Mini
- Standard
- Gripper/ Rotary Type
- Linear Servo Type
- Cleanroom Type
- Splash-Proof
- Controllers**
- PMEC /AMEC
- PSEP /ASEP
- ROBO NET
- ERC2
- PCON
- ACON
- SCON
- PSEL
- ASEL
- SSEL
- XSEL
- Pulse Motor
- Servo Motor (24V)
- Servo Motor (200V)
- Linear Servo Motor