Feel the action.
From "flow" to "move"
Efficient transfer processes for increased profitability

Connect, expand, and create.
Linear conveyor module

LCM100

Improved tact time	Increased throughput	Excellent maintainability	Reduced transport line space
Flexible line configurations	Shorter start-up time	Lower running costs	Long service life

From "flow" to "move"

Linear Conveyor Module LCM100
Constructing high-speed throughput lines.
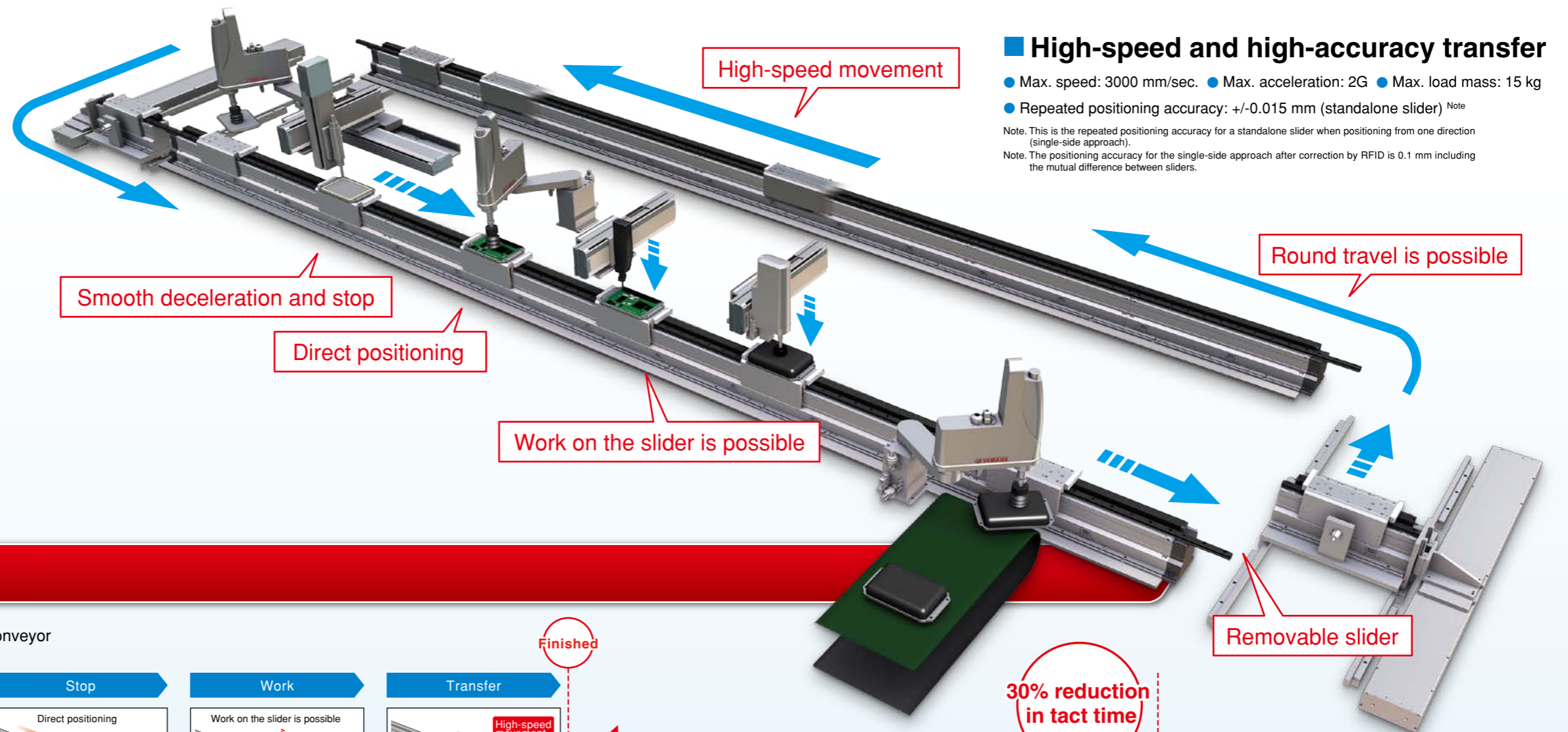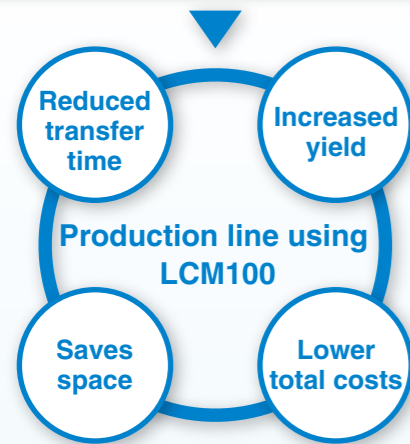
Linear Conveyor Module
LCM100

| Improved tact time | Increased throughput | Excellent maintainability | Reduced transport line space |
| Flexible line configurations | Shorter start-up time | Lower running costs | Long service life |

In a conventional production line:
- Tact time was close to the limit
- Unit changes were cumbersome
- No work could be performed on the conveyor, so the equipment became larger
- Time was wasted from having to perform operations based on the longest work when conducting a combination of works with different cycles such as screw fastening, sealing, and joining
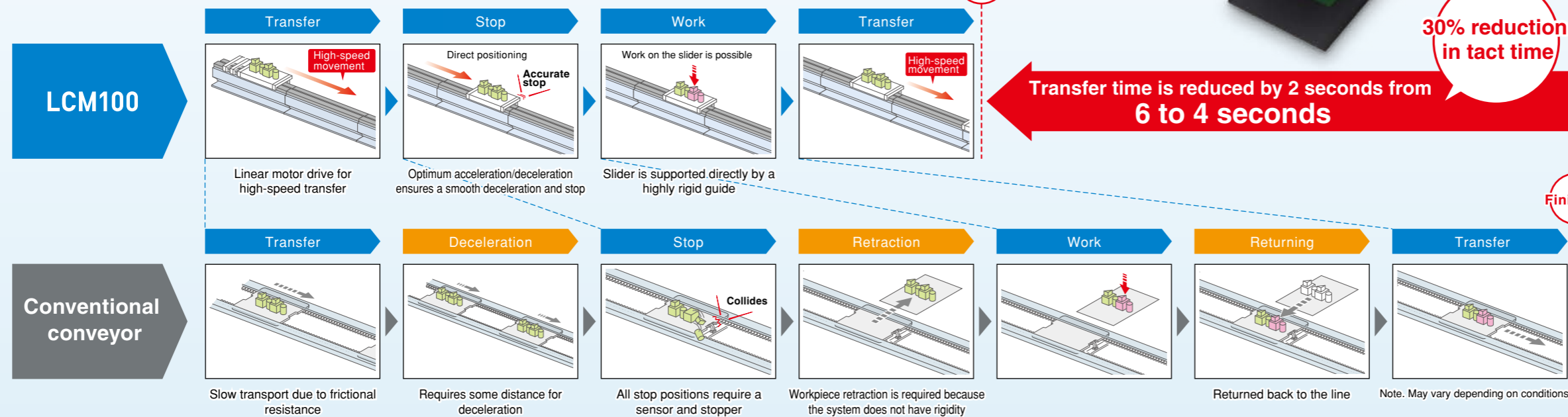
Reduced transfer time

Increased yield

Production line using LCM100

Saves space

Lower total costs

High-speed movement

Smooth deceleration and stop

Direct positioning

Work on the slider is possible
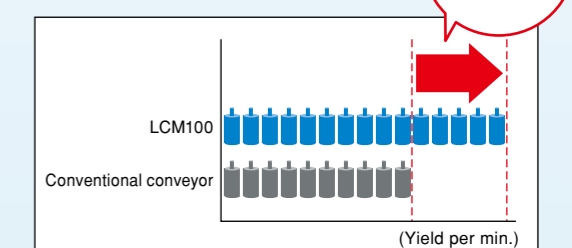
■ High-speed and high-accuracy transfer
- Max. speed: 3000 mm/sec. ● Max. acceleration: 2G ● Max. load mass: 15 kg
- Repeated positioning accuracy: +/-0.015 mm (standalone slider) Note

Note. This is the repeated positioning accuracy for a standalone slider when positioning from one direction (single-side approach).
Note. The positioning accuracy for the single-side approach after correction by RFID is 0.1 mm including the mutual difference between sliders.

Round travel is possible

Removable slider

■ Reduced transfer time

● Comparison between LCM100 and a conventional conveyor

Finished

LCM100

Transfer	Stop	Work	Transfer
High-speed movement	Direct positioning / Accurate stop	Work on the slider is possible	High-speed movement
Linear motor drive for high-speed transfer	Optimum acceleration/deceleration ensures a smooth deceleration and stop	Slider is supported directly by a highly rigid guide	

30% reduction in tact time

Transfer time is reduced by 2 seconds from **6 to 4 seconds**

Finished

Conventional conveyor

| Transfer | Deceleration | Stop | Retraction | Work | Returning | Transfer |
| Slow transport due to frictional resistance | Requires some distance for deceleration | Collides / All stop positions require a sensor and stopper | Workpiece retraction is required because the system does not have rigidity | | Returned back to the line | Note. May vary depending on conditions |

■ Increased yield

Increased by approx. 50%

LCM100

Conventional conveyor

(Yield per min.)

Note. May vary depending on conditions

A modular structure that allows the connection of modules

The length of the transfer line can be adjusted freely by adding modules.

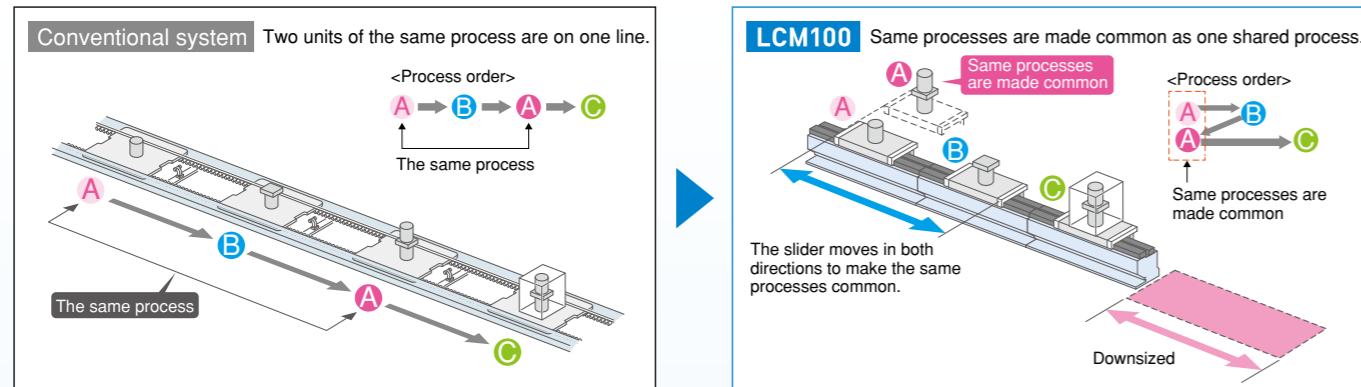**Linear Conveyor Module**

LCM100

| Improved tact time	Increased throughput	Excellent maintainability	Reduced transport line space
Flexible line configurations	Shorter start-up time	Lower running costs	Long service life

---

■ Save equipment space.

● Since the movement direction can be changed, the same processes are made common. This makes the equipment compact and results in cost reduction.
● Forward and backward movement at a high speed can be set freely.
● Flexible actions such as moving only some sliders backward is possible.

Numerical values are used for setting transfer distance and stop positions

Conventional system Two units of the same process are on one line.

<Process order>
A ➡ B ➡ A ➡ C
The same process

A
B
The same process
A
C

LCM100 Same processes are made common as one shared process.

Same processes are made common

A
A
B
C

<Process order>
A
A ➡ B
C

Same processes are made common

The slider moves in both directions to make the same processes common.
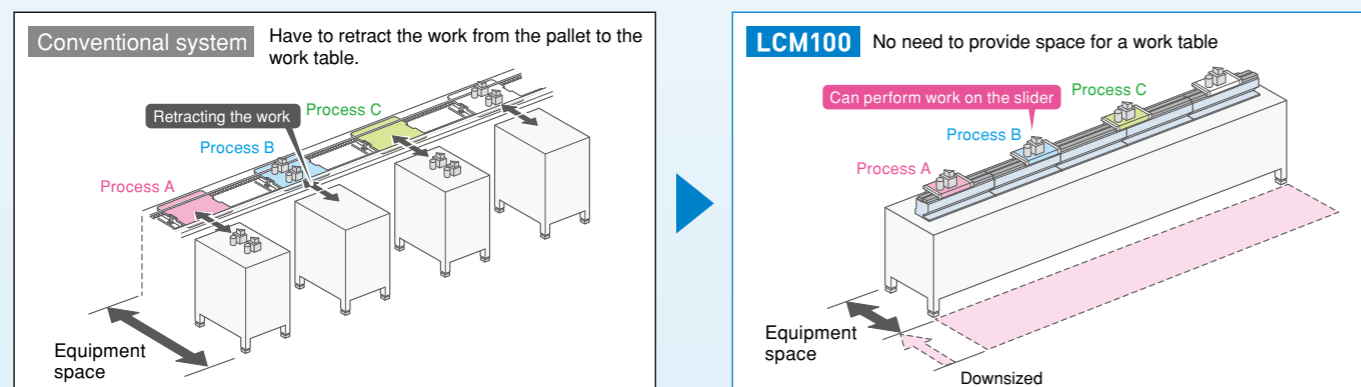
Downsized

■ Can be moved efficiently between processes with different tacts

● Narrow pitch movement is possible.
● Movement time can be reduced by combining the use of different movements, such as using pitch-feed for the same processes in short-time processes while transferring three workpieces at the same time at a high speed in long-time processes.

LCM100
Narrow pitch movement
High-speed movement
Narrow pitch movement
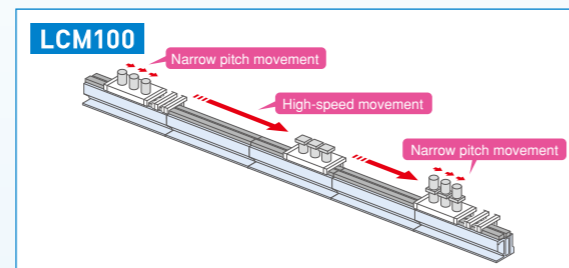
■ Workpieces do not need to be retracted

● As the work moves down, you can assemble and process them on the transfer line.
● Eliminates having to retract the work from the pallet to the work table.
● Reduces costs.

Conventional system Have to retract the work from the pallet to the work table.

Retracting the work
Process C
Process B
Process A

Equipment space

LCM100 No need to provide space for a work table

Can perform work on the slider
Process C
Process B
Process A

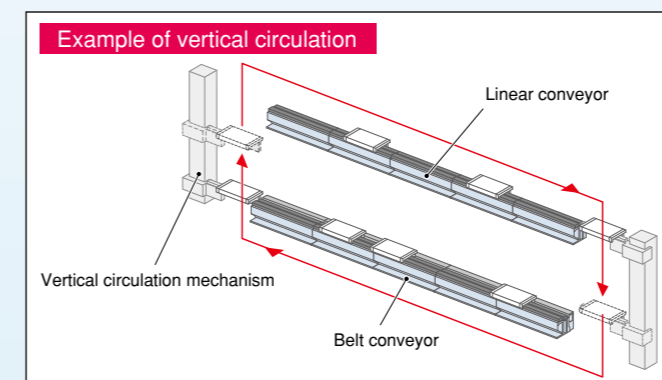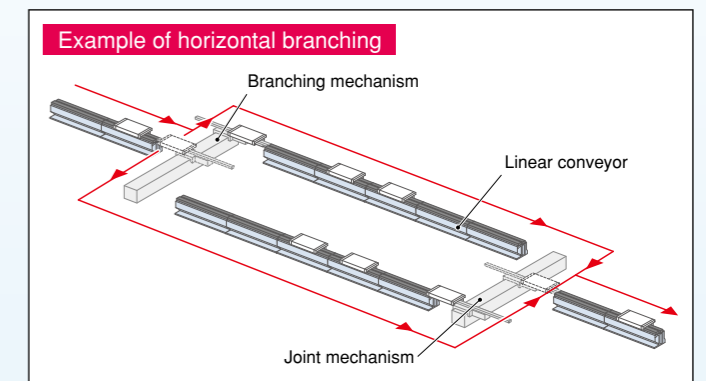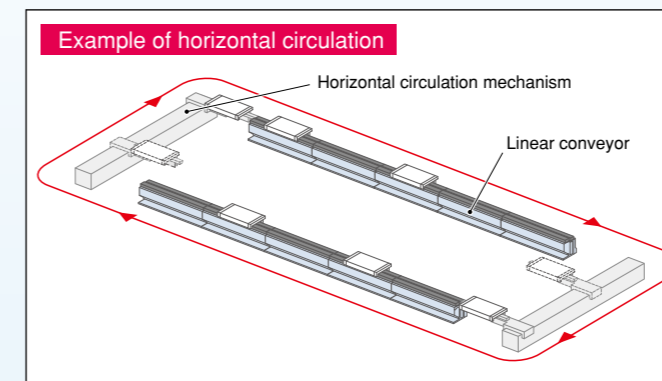Equipment space
Downsized

■ Significant reduction of start-up time

● Just connect modules for easy construction of a transfer line.
● Lifting cylinders, sensors, stoppers, and other complex parts are not necessary.
● Operations can be performed by using only the LCC140 Controller.
● Economical as excess modules can be used for other lines or stored for maintenance.

Stored for maintenance
Module is added
Transfer line is shortened
Transfer line is made longer.
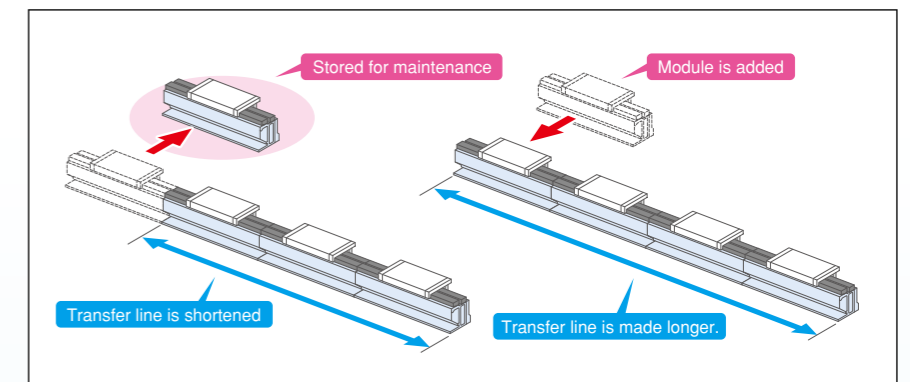
■ Construct branching lines, joint lines, and other lines in flexible configurations.

■ Layout examples by combining modules with circulation mechanisms

Example of horizontal circulation
Horizontal circulation mechanism
Linear conveyor

Example of horizontal branching
Branching mechanism
Linear conveyor
Joint mechanism

Example of vertical circulation
Linear conveyor
Vertical circulation mechanism
Belt conveyor

Note. The customer needs to prepare the return unit and the circulation mechanism.
Note. Modules convenient for the circulation are configured.

An expanding, next-generation transport system

Flexible set-up of the slider's acceleration/deceleration, forward/backward movement, positioning, and other actions.
The variety of possible line structures has been greatly expanded to supersede conventional models.

Linear Conveyor Module
LCM100

Improved tact time	Increased throughput	Excellent maintainability	Reduced transport line space
Flexible line configurations	Shorter start-up time	Lower running costs	Long service life

Linear module
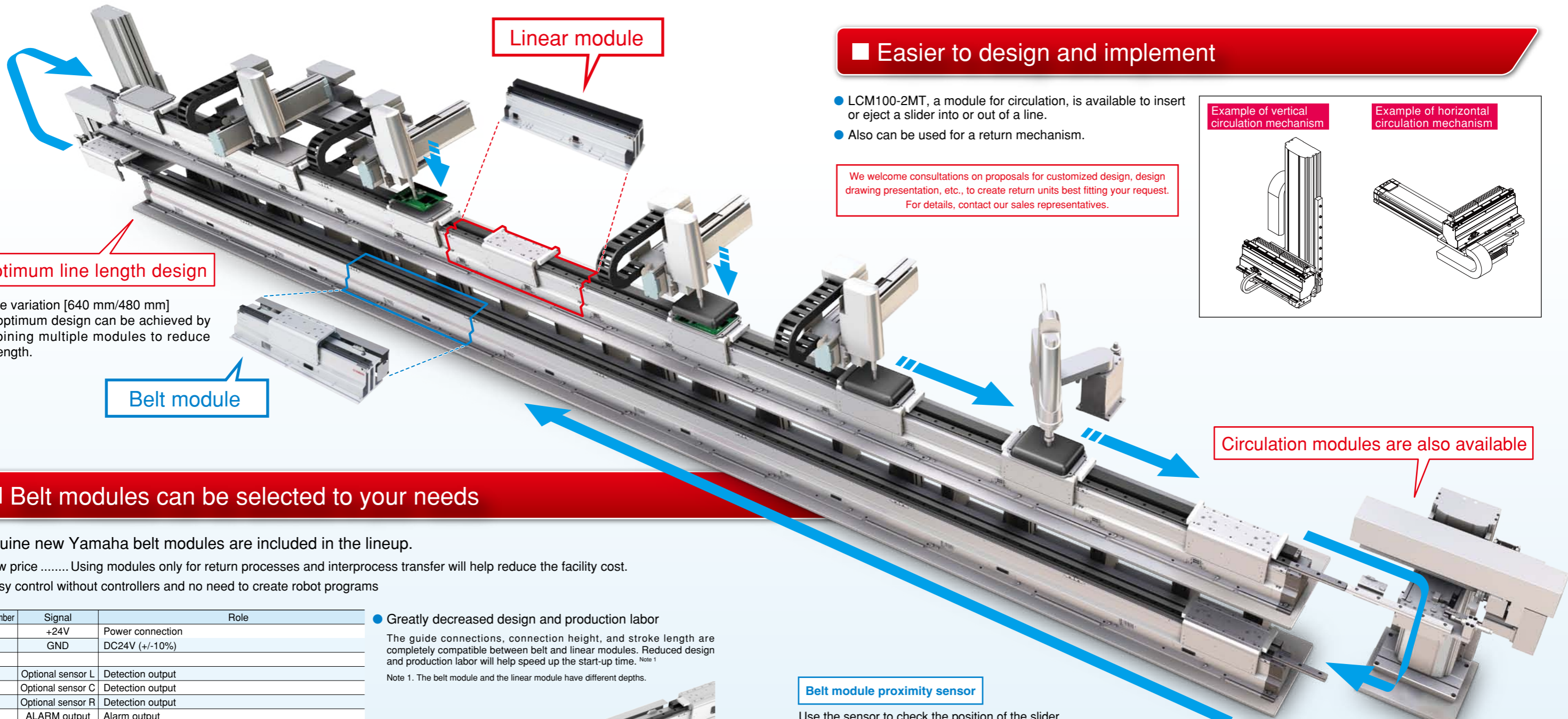
Optimum line length design

Stroke variation [640 mm/480 mm]
The optimum design can be achieved by combining multiple modules to reduce line length.

Belt module

■ Easier to design and implement

● LCM100-2MT, a module for circulation, is available to insert or eject a slider into or out of a line.
● Also can be used for a return mechanism.

We welcome consultations on proposals for customized design, design drawing presentation, etc., to create return units best fitting your request. For details, contact our sales representatives.

Example of vertical circulation mechanism
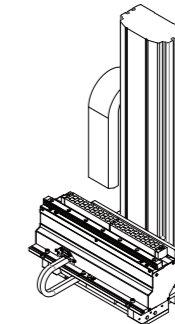
Example of horizontal circulation mechanism
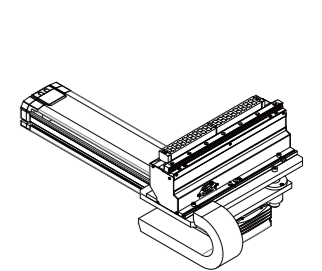
Circulation modules are also available

■ Belt modules can be selected to your needs

Genuine new Yamaha belt modules are included in the lineup.

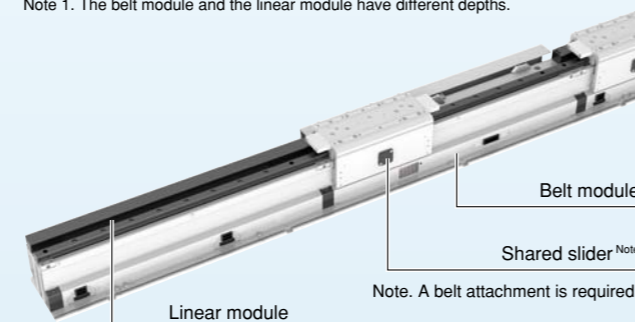● Low price .... Using modules only for return processes and interprocess transfer will help reduce the facility cost.
● Easy control without controllers and no need to create robot programs

Pin Number	Signal	Role
A1	+24V	Power connection
A2	GND	DC24V (+/-10%)
A3		
A4	Optional sensor L	Detection output
A5	Optional sensor C	Detection output
A6	Optional sensor R	Detection output
A7	ALARM output	Alarm output
A8	SPEED output	Speed output
B1	ALARM-RESET input	Alarm reset input ON [L]: reset. OFF [H]: normal.
B2	INV.VR/EXT input	Speed setting device switching input ON [L]: internal. OFF [H]: External.
B3	CW/CCW	Rotation switching input ON [L]: CW. OFF [H]: CCW
B4	RUN/BRAKE	Brake input ON [L]: run. OFF [H]: momentary stop.
B5	START/STOP	Start/stop input ON [L]: start. OFF [H]: stop.
B6	VRL	– side Speed setting current power
B7	VRM	+ side DC 0 - 5V 1mA or higher
B8	VRH	(When a dedicated speed setting device used)

● Greatly decreased design and production labor

The guide connections, connection height, and stroke length are completely compatible between belt and linear modules. Reduced design and production labor will help speed up the start-up time. Note 1

Note 1. The belt module and the linear module have different depths.

Belt module

Shared slider Note

Note. A belt attachment is required.

Linear module

Belt module proximity sensor

Use the sensor to check the position of the slider.
This prevents collisions between sliders and enables smooth action.

A maximum of three proximity sensors can be used (optional).

Model	L (left) :	KDJ-M2205-L0
	C (center) :	KDJ-M2205-C0
	R (right) :	KDJ-M2205-R0

Create a new transfer environment.

Loss-free transport that was not possible with conventional conveyors can be achieved with LCM100. Reduce losses while increasing profitability.

Linear Conveyor Module

LCM100

| Improved tact time | Increased throughput | Excellent maintainability | Reduced transport line space |
| Flexible line configurations | Shorter start-up time | Lower running costs | Long service life |

■ Optimal for small batch production of various product types
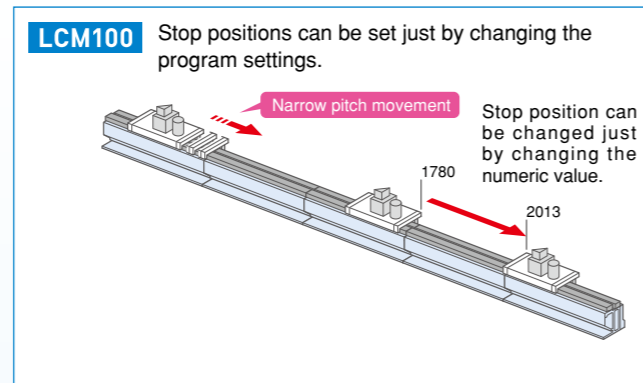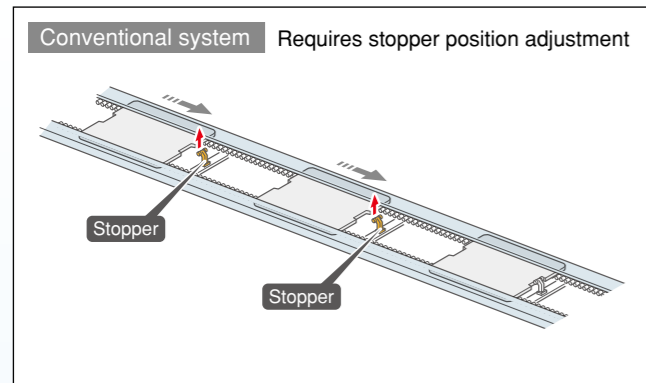
- No need for mechanical stoppers or sensors. Change layout easily.
- Reconstruction can be finished quickly by just changing the program to set a stop position.
- Frequent unit changes for different models can be handled flexibly.

Conventional system — Requires stopper position adjustment

Stopper
Stopper

LCM100 — Stop positions can be set just by changing the program settings.

Narrow pitch movement

Stop position can be changed just by changing the numeric value.

1780
2013

■ Quick recovery by replacing the slider when machine trouble occurs

- Parts can be replaced easily.
- Parts can be kept for maintenance as they are standardized.
- Possible to minimize the downtime of a production line.

LCM100 module   Slider

■ Easy maintenance

- Motors and scales do not make contact and are free from abrasion.
- As only the rails are sliding parts, dust generation is low.
- There are only a few consumable parts, which mean a long service life.

■ System configuration diagram (when 3 sliders are connected)

<Linear module>

The module is standardized and can also be stored for maintenance.

If a short line is used and modules are in excess, they can be diverted to another line or stored for maintenance.

Standardized slider

The slider is standardized and can be used for any line. It is also possible to share the slider on multiple lines. Production can be restored immediately by replacing a failed slider if trouble occurs.

RFID antennae
Insertion/ejection rail

Termination module

Robot cable

Programming box HPB

LINK cable

Note. One controller is required for every module.

PLC cable (CC-Link network etc.)

PLC on market

Note. One controller needs to be connected to the PLC.
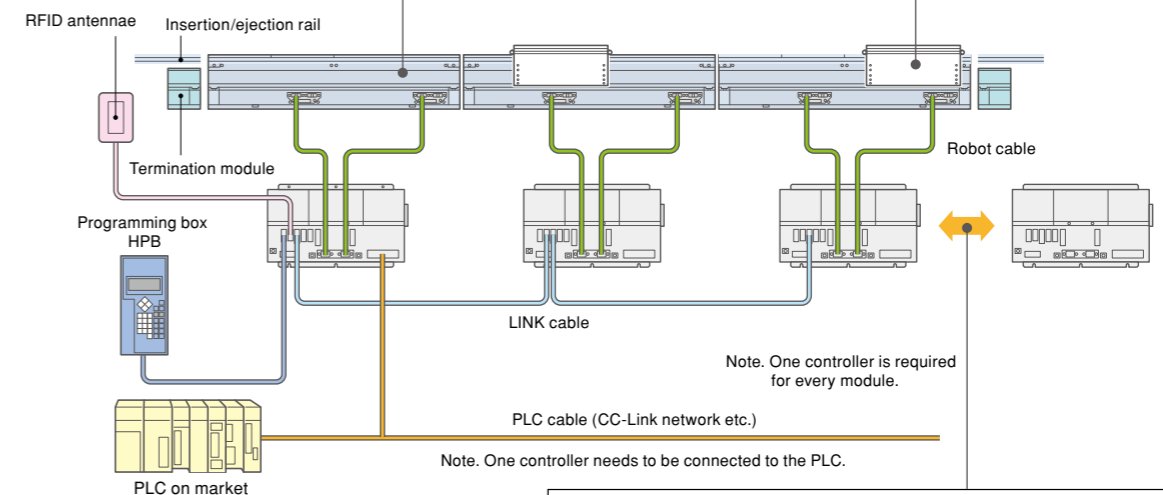
Controller is replaceable

The connected controller and module combinations can be changed as needed. Note that initial setting is required when a combination is changed. Replacing just the controller or the module is also possible.

<Belt module>

Power cable

PLC cable (parallel I/O)

PLC on market   24V power
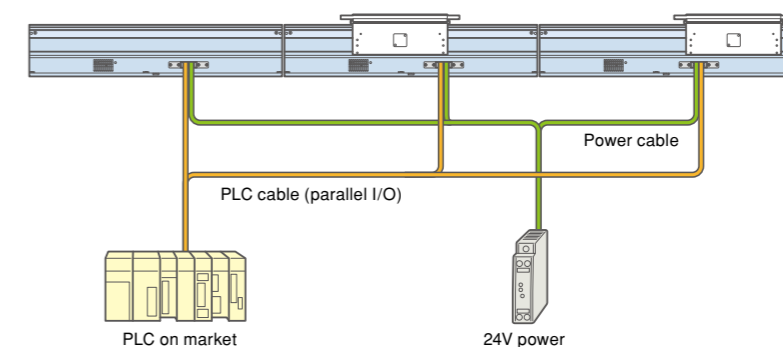
This interface allows the customer to supply 24V power and select just the necessary signals to use.[Note]
Note. The customer will need to prepare the wiring on the user side.

LCM100/LCC140 Accessory parts
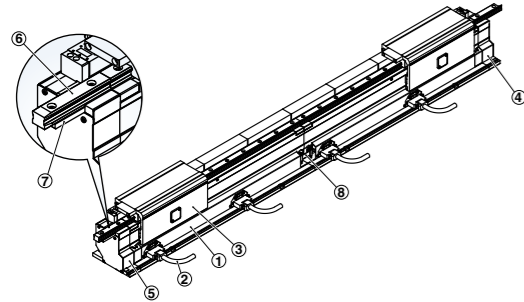
① Module	⑤ Termination module (L side)
② Robot cable	⑥ Insertion/ejection rail
③ Slider	⑦ Module connection block (with fastening bolts)
④ Termination module (R side)	⑧ Module connection cable

LCM100 main body

LCM100 module

Linear module

Belt module

① Linear module

Model	LCM100-4M
	KDJ-M2020-40 (640mm)
	LCM100-3M
	KDJ-M2020-30 (480mm)
	LCM100-2MT (for circulation)
	KDJ-M2022-20 (400mm)

Belt module

Model	LCM100-4B
	KDJ-4K111-40 (640mm)
	LCM100-3B
	KDJ-4K111-30 (480mm)

Robot cable for linear module

Robot cables for the number of modules are required.

②

Model	For LCM100-4M/3M
	KDJ-M4710-30 (3m×2 pcs.)
	KDJ-M4710-50 (5m×2 pcs.)
	For LCM100-2MT
	KDJ-M4721-30 (3m×1 pc.)
	KDJ-M4721-50 (5m×1 pc.)

Slider

For linear module   For belt module

③ Linear module

Model	KDJ-M2264-00

Belt module

Model	KDJ-M2264-10

Parts for LCM100

Termination module for linear module (R side)

This part is attached to the right end of the module. One termination module per line is required. Note 1 Additionally, even when using only one module without connections, one termination module is required.

④

Model	KDJ-M2021-R0

Termination module for linear module (L side)

This part is attached to the left end of the module. One termination module per line is required. Note 1 Additionally, even when using only one module without connections, one termination module is required.

⑤

Model	KDJ-M2021-L0

Insertion/ejection rail

Tapered rail.
Up to two rails per line can be installed.

340mm
100mm
44mm

⑥

Model	44mm : KDJ-M6200-00
	(With a dedicated 44mm connection block)
	100mm : KDJ-M2222-10
	160mm : KDJ-M2222-20 Note
	220mm : KDJ-M2222-30 Note
	280mm : KDJ-M2222-40 Note
	340mm : KDJ-M2222-50

Note. Not in stock. We require some lead time for delivery.

Module connection block (with fastening bolts)

This block connects modules.
([Number of modules making up the line Note 1] - 1) blocks are required.
Additionally, when installing insertion/ejection rails, one block per rail is required.

⑦

Model	KDJ-M6100-00

Module connection cable

This cable connects modules.
([Number of modules] - 1) cables per line are required. Note 1

⑧

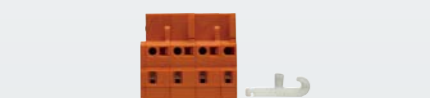| Model	KDJ-M4811-00

Note 1. A state, in which multiple modules are connected, is called "line".

Parts for LCC140 controller

Power connector + connection lever

One set of parts per LCC140 is required.

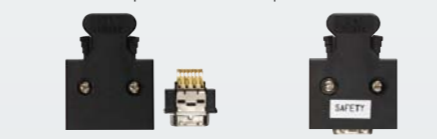| Model	KAS-M5382-00

HPB dummy connector

When performing the operation with the programming box HPB removed, connect this dummy connector to the HPB connector.
One connector per LCC140 is required.

Model	KDK-M5163-00

SAFETY connector

One connector per LCC140 is required.

Not wired (plug + shell kit)   Wired Note

Model	Not wired : KDK-M5370-10
	Wired Note : KDK-M5370-00

Note. The wired connector is that the wiring for the emergency stop cancel was performed inside the connector. Select this model when performing the operation check or debugging with single linear conveyor.

Parts for line configuration

LINK cable

([Number of modules] - 1) cables per line are required.

Model	1m : KDK-M5361-10
	3m : KDK-M5361-30
	5m : KDK-M5361-50

Terminator connector

When connecting modules, two connectors per line are required.

Model	KDK-M5361-00

Dust cover (for LINK connector)

This dust cover is attached to the insertion port, into which the the LINK cable terminator connector is not inserted. When using only one module without connections, two dust covers are required.
Note. The dust cover is essential for the 2MT.

Model	KDK-M658K-00

Selection parts

Proximity sensor for belt module

A sensor for checking the slider position. Install this to prevent slider collisions and to ensure smooth action.

Model	L (left) : KDJ-M2205-L0
	C (center) : KDJ-M2205-C0
	R (right) : KDJ-M2205-R0

Programming box HPB/HPB-D

All operations, such as robot manual operation, program input or edit, teaching, and parameter setting can be performed with this programming box.
As an interactive interface with the screen display is used, even personnel who use this programming box for the first time can easily understand how to operate it.

Model	HPB : KBB-M5110-01
	HPB-D : KBB-M5110-21
	(CE specifications / with 3-position enable switch)

HPB-D   Backside of HPB-D (with enable switch)

PC supporting software POPCOM+

POPCOM+ software model	KBG-M4966-00

Data cables (5m)

Communication cable for POPCOM+.
Select from USB cable or D-sub cable.

USB   D-Sub

Model	USB type (5m)	KBG-M538F-00
	D-Sub type 9pin-9pin (5m)	KAS-M538F-10

Note. This USB cable supports Windows 2000/XP or later.
Note. Data cable jointly used for POPCOM, POPCOM+, VIP, VIP+.
Note. Older type data cable is made for 9Pin-25Pin specifications.
Note. USB driver for communication cable can also be downloaded from our website.

POPCOM+ environment

OS	Microsoft Windows XP / Vista (32/64bit) / 7 (32bit/64bit) / 8, 8.1 (32bit/64bit)
CPU	Processor that meets or exceeds the suggested requirements for the OS being used.
Memory	Suggested amount of memory or more for the OS being used.
Hard disk	50MB of available space required on installation drive.
Disk operation	RS-232C
Applicable controllers	SRCX/ERCX/DRCX/TRCX/SRCP/SRCD/ERCD/SR1/LCC140

Note. Windows is the registered trademark of US Microsoft Corporation in U.S.A. and other countries.
Note. LCC140 is applicable to Ver. 2.1.1 or later.

RFID

RFID (manufactured by BALLUFF GmbH)

Reader/writer cable

Model	KDK-M6300-00

RFID (manufactured by OMRON)

Antenna amplifier controller cable

Model	KDK-M6300-A0

Whether or not the RFID system can be used may vary depending on the destination place (country). Before selecting a RFID system, please contact YAMAHA.

Maintenance parts

Robot cable for LCM100

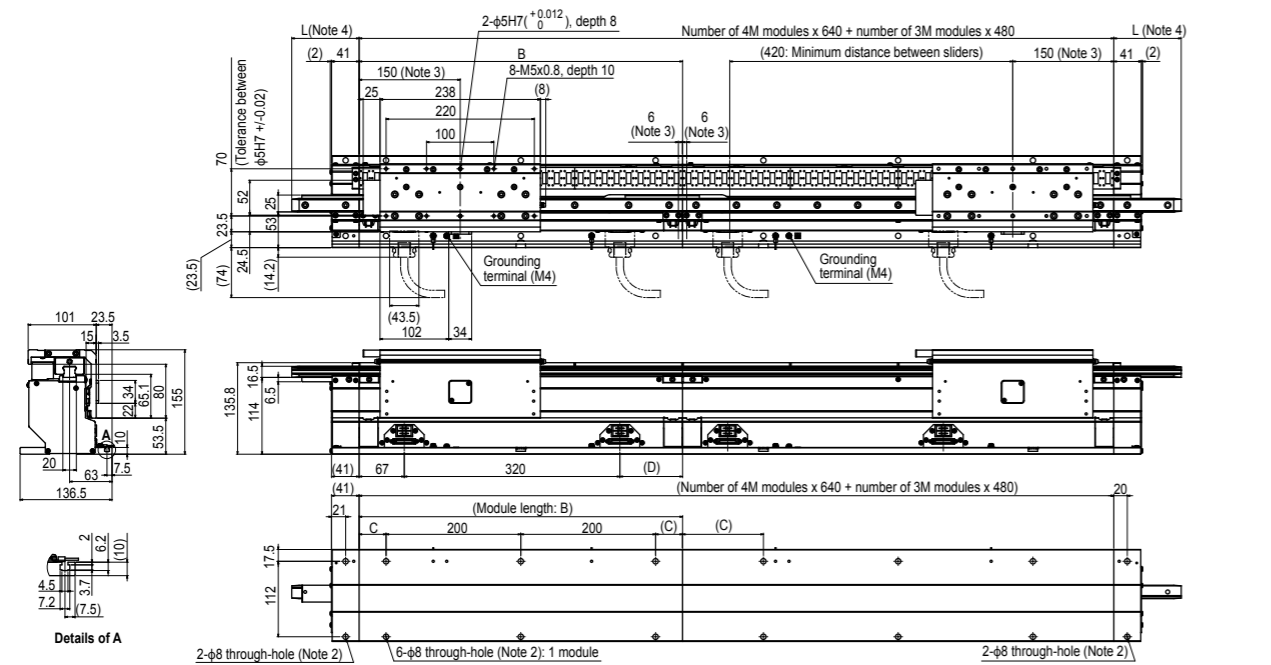| Model	KDJ-M4751-30 (3m×1 pc.)
	KDJ-M4751-50 (5m×1 pc.)
	KDJ-M4755-30 (Flexible cable 3m×1 pc.)
	KDJ-M4755-50 (Flexible cable 5m×1 pc.)

Lithium battery for system backup

Model	KDK-M4252-00

Replacement filter for LCC140 (5 pcs. in package)

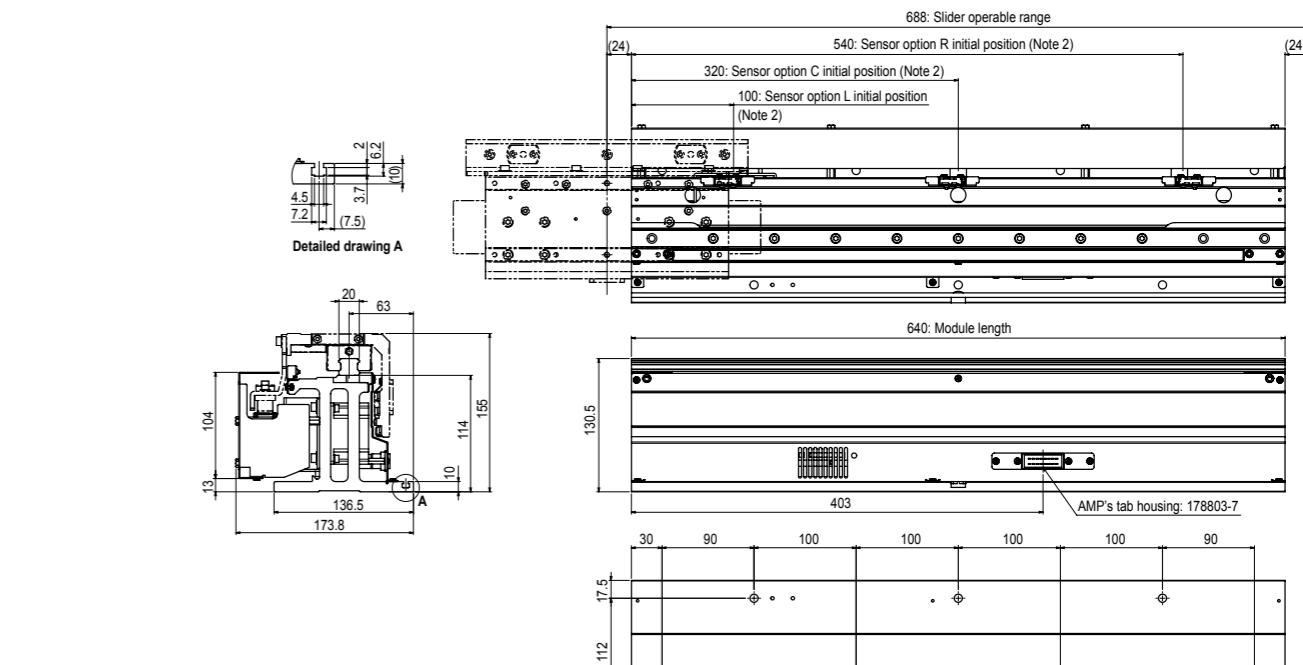| Model	KDK-M427G-00

■ LCM100-4M/3M Linear conveyor module (640mm/480mm)

2-φ5H7($^{+0.012}_{0}$), depth 8
Number of 4M modules x 640 + number of 3M modules x 480
L(Note 4)
L(Note 4)
(2) 41
150 (Note 3)
(420: Minimum distance between sliders)
150 (Note 3)
41 (2)
B
8-M5x0.8, depth 10
25 238 (8)
220
100
6 (Note 3)
6 (Note 3)

70 (Tolerance between φ5H7 +/-0.02)
52 25
53.5 23.5
(74) 24.5
(23.5) (14.2)

Grounding terminal (M4)
Grounding terminal (M4)

(43.5)
102 34

101 23.5
15 3.5
22 34
65.1 80
155
53.5
135.8 16.5
114 6.5

A
20 63 7.5
136.5

(41) 67 320 (D)
(Number of 4M modules x 640 + number of 3M modules x 480)
20

(41) (Module length: B)
21
C 200 200 (C) (C)
17.5
112

2-φ8 through-hole (Note 2)
6-φ8 through-hole (Note 2): 1 module
2-φ8 through-hole (Note 2)

Details of A
4.5 7.2 (7.5) 3.7 6.2 2 (10)

Insertion/ejection rail length selection table

Stroke variations	B	C	D
4M	640	120	253
3M	480	40	93

Insertion/ejection rail (mm)	L
	44
	100
	340

Note 1. All sliders and modules have the same dimensions.
Note 2. Use M6 hex socket head bolts to install the main body.
Note 3. An area of +/-6mm from both ends of each connected module and an area of 150mm from the line end become slider stop inhibited areas.
 (These dimensions are obtained when the slider is located at its center position.)
Note 4. Select an appropriate rail length of the insertion/ejection rail option from the "Insertion/ejection rail length selection table" shown on the left.
Note 5. The LCM100 is installed only in the horizontal direction.
Note 6. Module variations can be combined freely within the same line. (This figure shows that 3M on the left is combined with 4M on the right.)
Note 7. It is recommended to install rail support parts on the insertion/ejection rail.
 When no support parts are installed, the rail may be deflected by the slider's own weight, leading to poor rail accuracy or short service life of the guide.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

■ LCM100-4B Belt module (640mm)

688: Slider operable range
(24)
540: Sensor option R initial position (Note 2)
(24)
320: Sensor option C initial position (Note 2)
100: Sensor option L initial position (Note 2)

4.5 7.2 (7.5) 3.7 6.2 2 (10)
Detailed drawing A

20 63
104
13 136.5 A
173.8
155 114

640: Module length
130.5
403
AMP's tab housing: 178803-7
7-φ8 through-hole

30 90 100 100 100 100 90
17.5
112

Note 1. Use the M6 hex socket head bolts to install the main unit.
Note 2. The sensor option position can be moved in a range of +/-50mm.
Note 3. Input power supply and signals to drive the motor.
 The connector is AMP's dynamic connector D-3100D series.
 Prepare 178289-7 (16 poles) for the housing and 175217-2 (gold plated contact) for the contact.
Note 4. Select 24V power supply with a capacity of 5A or more.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

■ LCM100-2MT Module for circulation

2 396 (2)
(130) Effective stroke: 140 (Note 3) (130)
190 (Note 2) (80) (80) 190 (Note 2)

20
53
(74) (14.2)

Grounding terminal (M4)

A
20 63 7.5 10
136.5

Details of A
4.5 7.2 (7.5) 3.7 6.2 2 (10)

Module length: 400
135.8 16.5
114 6.5

107
50 300
17.5 112

4-φ8 through-hole

Note 1. Use M6 hex socket head bolts to install the main body.
Note 2. For the stop point when the slider enters, specify a point 190mm or more away from the module end face.
 When ejecting the slider, eject the slider after it has been stopped at a point 190mm or more away from the end face of the module on the ejection side. Otherwise, the slider may not be stopped or ejected correctly.
Note 3. The movement range above the module is 140mm around the center.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

■ LCM100-3B Belt module (480mm)

605: Slider operable range
(62.5)
380: Sensor option R initial position (Note 2)
(62.5)
240: Sensor option C initial position (Note 2)
100: Sensor option L initial position (Note 2)

4.5 7.2 (7.5) 3.7 6.2 2 (10)
Detailed drawing A

20 63
104
13 136.5 A
173.8
155 114

480: Module length
130.5
287.5
AMP's tab housing: 178803-7
7-φ8 through-hole

30 10 100 100 100 100 10
17.5
112

Note 1. Use the M6 hex socket head bolts to install the main unit.
Note 2. The sensor option position can be moved in a range of +/-50mm.
Note 3. Input power supply and signals to drive the motor.
 The connector is AMP's dynamic connector D-3100D series.
 Prepare 178289-7 (16 poles) for the housing and 175217-2 (gold plated contact) for the contact.
Note 4. Select 24V power supply with a capacity of 5A or more.
Note. No mechanical stoppers are provided due to product characteristics. When necessary, the customer installs appropriate mechanical stoppers.

Details including specifications and restrictions should be consulted before considering specific applications of LCM100.
Please contact our sales representatives in advance for consultations concerning the customer's requests.
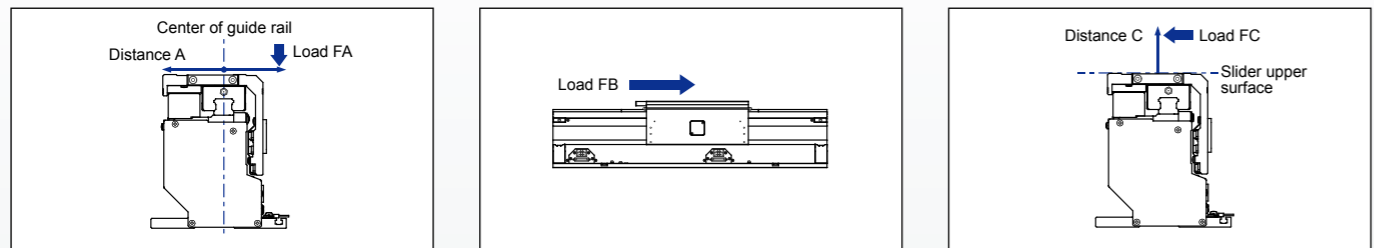
■ Linear module slider

2-φ5 H7 $^{+0.012}_{0}$ depth 8
8-M5 × 0.8 depth 10
220
100
70 (Tolerance between φ5H7 +/-0.02)
23.5
101　3.5
39.5
15
25　238　(8)
21.5
36.4
101.5

■ Belt module slider

2-φ5 H7 $^{+0.012}_{0}$ depth 8
8-M5 × 0.8 depth 10
220
100
70 (Tolerance between φ5H7 +/-0.02)
23.5
35.2　101　3.5
9.8
39.5
15
31.5　238　31.5
79.5
46.6
36.4
101.5
(19)　276　(19)

Static tolerable load of slider

Static loads shown below are tolerable as references when performing the screw tightening, part assembly, or light press-fitting on the slider.

Center of guide rail
Distance A — Load FA

Load FB

Distance C — Load FC
Slider upper surface

FA (N)

A (mm)	Payload		
	5kg	10kg	15kg
0	2550	1560	1270
10	1790	1280	1170
20	1380	780	630
30	1130	520	420
40	900	390	310
50	720	310	250
60	600	260	210

Note. The loads shown above are tolerable loads at a position "A"mm away from the center of the guide rail.

FB (N)

Payload		
5kg	10kg	15kg
38		

FC (N)

C (mm)	Payload		
	5kg	10kg	15kg
0	1190	850	780
10	970	710	650
20	760	610	560
30	630	530	490
40	540	480	430
50	470	430	390
60	410	390	360

Note. The loads shown above are tolerable loads at a position "C"mm away from the slider upper surface.

Ordering method

Linear module

LCM100 - [　] - [　] - LCC140 - 10 - [　]

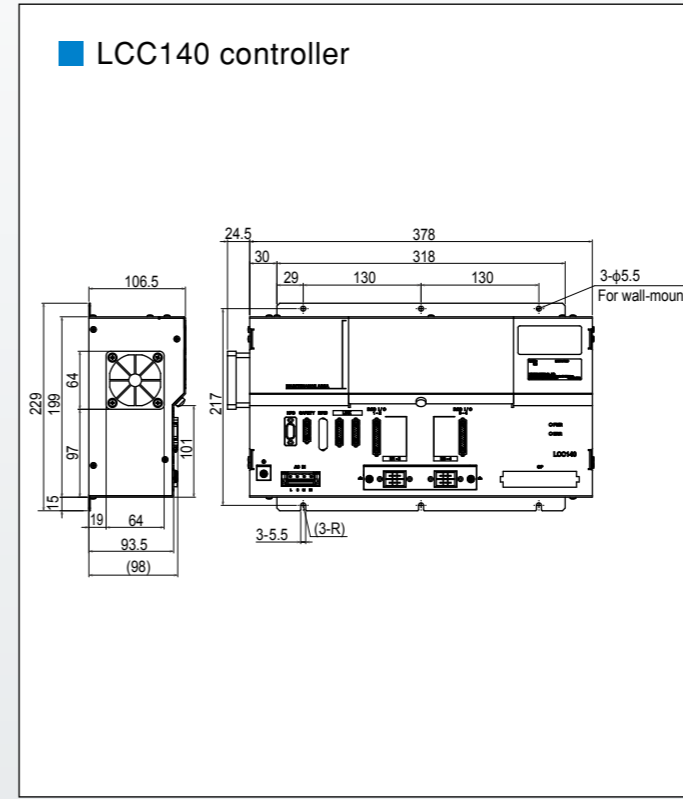| Model	Cable length Note 1	Controller	Current sensor	Network option Note 2
4M: 640mm	3L: 3m		10: 10A	No entry: None
3M: 480mm	5L: 5m			CC: CC-Link
2MT: Module for circulation	3K: 3m (Flexible cable)			DN: DeviceNetTM
	5K: 5m (Flexible cable)			EP: EtherNet/IPTM

The above shows "one module + one controller" ordering method.
When connecting modules, please separately inform the number of necessary modules.

Note 1. The cable for 2MT has flexible specifications.
Note 2. For 2MT, be sure to select an appropriate network option.

Belt module

LCM100 - [　] - [　]

Model	Termination module for belt module Note 1
4B: 640mm	No entry: None
3B: 480mm	R: Linear module is connected to the right.
	L: Linear module is connected to the left.
	RL: Linear module is connected to both sides.

Note. Please see page 07 for the proximity sensor used for checking the slider position.
Note 1. Parts necessary to connect the belt module and linear module. Parts are incorporated into the belt module.

Linear module controller LCC140

Feature 01

Program operation

The LCC140 controller can perform operations using registered programs and operations using remote commands from the PLC.
In addition to the control of input/output signals such as movement or positioning, processes related to the insertion/ejection of sliders can be performed.

Feature 02

SR1 controller base operation system

The same user interface as the SR1 controller is incorporated, and specifications and functions specific to the linear conveyor module have been added based on this user interface. A very user friendly operation system is provided.[Note 1]

Feature 03

Controller-linking function

You can use the link cables dedicated to LCC140 controllers to connect the controllers when two or more modules are connected. You can handle multiple controllers as if they were one controller.

Feature 04

Position correction function using RFID

When multiple sliders are each stopped at a position of your choice, actual stop positions has an error width (machine difference) of 500 μm. This is because each slider has a different stopping accuracy. Link the RFID unit and LCC140 controller to suppress the machine difference of individual sliders to an error width of approximately 100 μm.[Note 2]

Note 1. Please note that some Yamaha single-axis controller SR1 functions are not available with the linear conveyor controller.
Note 2. All sliders stop within the width of 100μm that includes a teaching point.

■ LCC140 controller

24.5　378
30　318
106.5
29　130　130
3-φ5.5 For wall-mount
229　199
64
97　217
15　101
19　64
93.5
(98)
3-5.5　(3-R)

Basic specifications of LCC140 (Controller for linear module)

Controllable robot	Linear conveyor module LCM series
Outside dimensions	W 402.5 × H 229 × D 106.5mm
Main body weight	4.8kg
Input power voltage	Single-phase AC200 to 230V +/-10% or less (50/60Hz)
Maximum power consumption	350VA (LCM100-4M 1 slider is driven.)
External input/output	SAFETY
	RS-232C (dedicated to RFID)
	RS-232C (for HPB / doubles as POPCOM+)
Network option	CC-Link Ver. 1.10 compatible, Remote device station (2 stations)
	DeviceNetTM Slave 1 node
	EtherNet/IPTM adapter 2 ports
Programming box	HPB, HPB-D (Software version 24.01 or later)

Basic specifications of linear conveyor module

Model	LCM100-4M / 3M / 2MT
Drive method	Moving magnet type, Linear motor with flat core
Repeat positioning accuracy	+/-0.015 mm (single slider) [Note 1] / width 0.1 mm (mutual difference among all sliders) [Note 2]
Scale	Electromagnetic type / resolution 5 μm
Max. speed	3000 mm/sec
Max. acceleration	2 G
Max. payload	15 kg [Note 3] [Note 4]
Rated thrust	48 N
Total module length	640 mm (4M) / 480 mm (3M) / 400 mm (for 2MT circulation)
Max. number of combined modules	16 (total length: 10240 mm)
Max. number of sliders	16 (when 16 modules are combined)
Min. pitch between sliders	420 mm
Mutual height difference between sliders	0.08 mm
Max. external size of body cross-section	W 136.5 mm × H 155 mm (including slider)
Bearing method	1 guide rail / 2 blocks (with retainer)
Module weight	12.5 kg (4M) / 9.4 kg (3M) / 7.6 kg (2MT)
Slider weight	2.4 kg / 3.4 kg (when the belt module is used.)
Cable length	3 m / 5 m
Controller	LCC140

Note 1. Repeated positioning accuracy when positioning in the same direction (pulsating).
Note 2. Positioning accuracy in the pulsating when using the position correction function with the RFID.
Note 3. Weight per single slider.
Note 4. When used together with the belt module, the max. payload becomes 14 kg since the parts dedicated to the belt are attached to the slider.

Basic specifications of belt module

Model	LCM100-4B / 3B
Drive method	Belt back surface pressing force drive
Bearing method	1 guide rail / 2 blocks (with retainer)
Max. speed	560 mm/sec
Max. payload	14 kg
Module length	640 mm (4B) / 480 mm (3B)
Max. number of sliders	1 slider / 1 module
Main unit maximum cross-section outside dimensions	W 173.8 mm × H 155 mm (including slider)
Cable length	None
Controller	Dedicated driver (Included)
Power supply	DC 24 V 5A
Communication I/F	Dedicated input/output 16 points
Module weight	11.2 kg (4B) / 8.8 kg (3B)