

Efficiency of time and space in production

# Linear Conveyor Module

## LCMR200

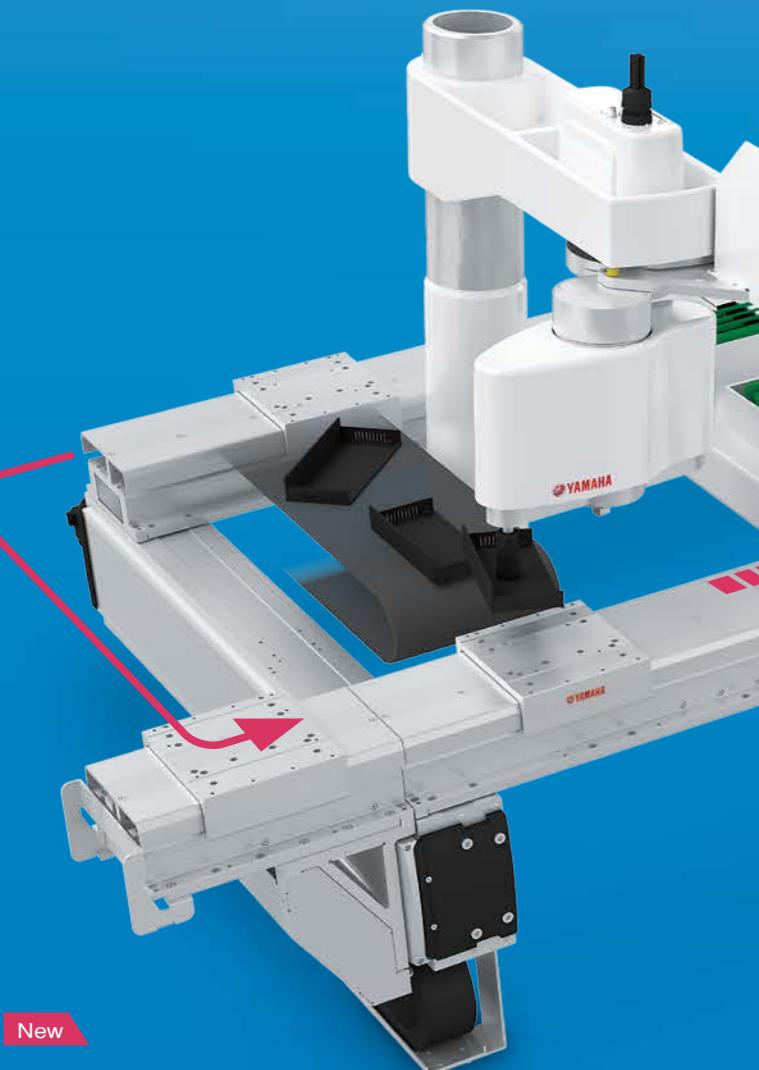


Yamaha's answer to Next Generation of  
Production Line design

- ▶ Reduction of Tact Time in transportation
- ▶ Flexibility in line design
- ▶ Easy maintenance
- ▶ Low operation cost
- ▶ Improved Productivity
- ▶ Reduces line design time
- ▶ Space saving design
- ▶ Durability

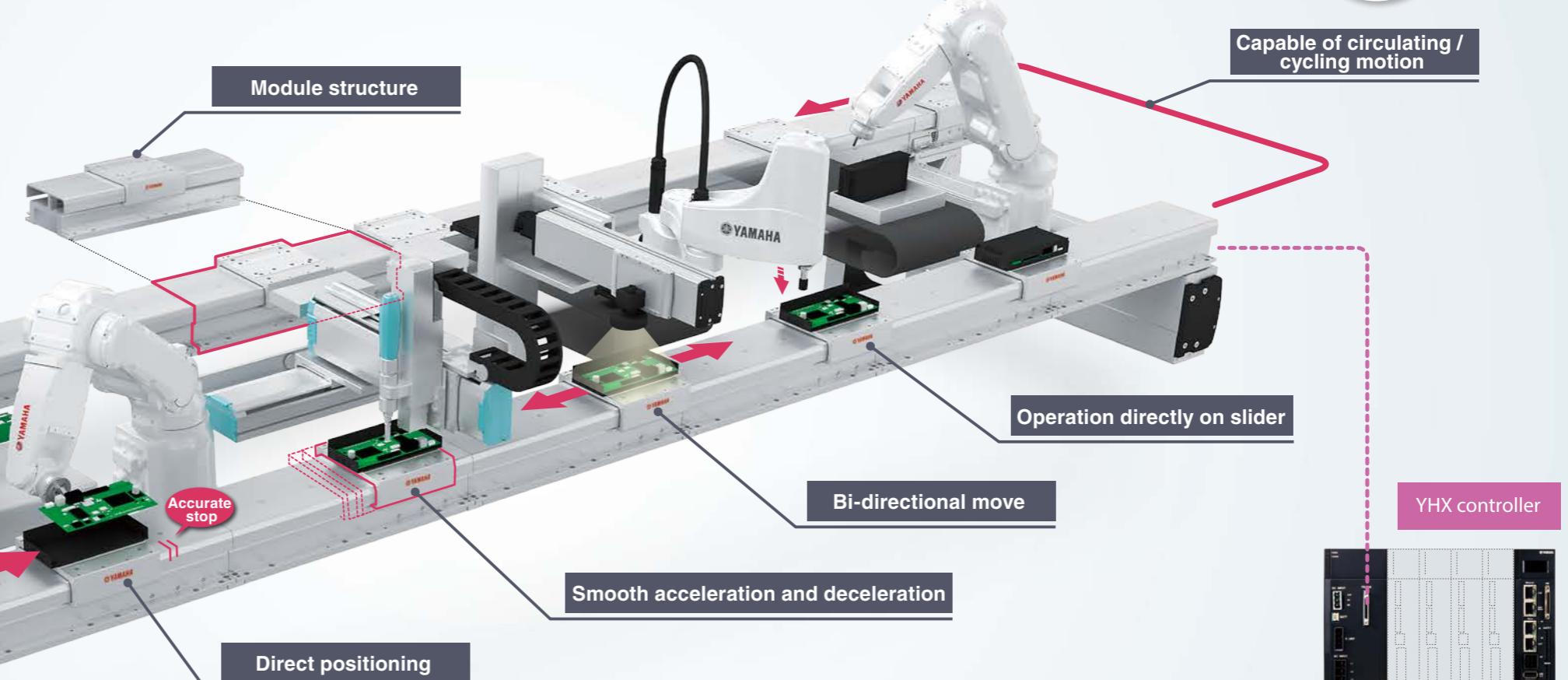
# LCMR200

Linear Conveyor Module



## Adding productivity to transportation process

Convert transfer process into “value-added” assembly process



Controllable line length Max. **25.5 m** \*

Number of simultaneous controllable sliders Max. **64 units** \*

\* It may differ depending on the system configuration.

Able to perform narrow pitch and high speed transport.

Individual ID recognition.

Complete absolute position system. No origin process needed.

Built-in driver and reduced wiring.

Advanced linear conveyor module with high speed transport.



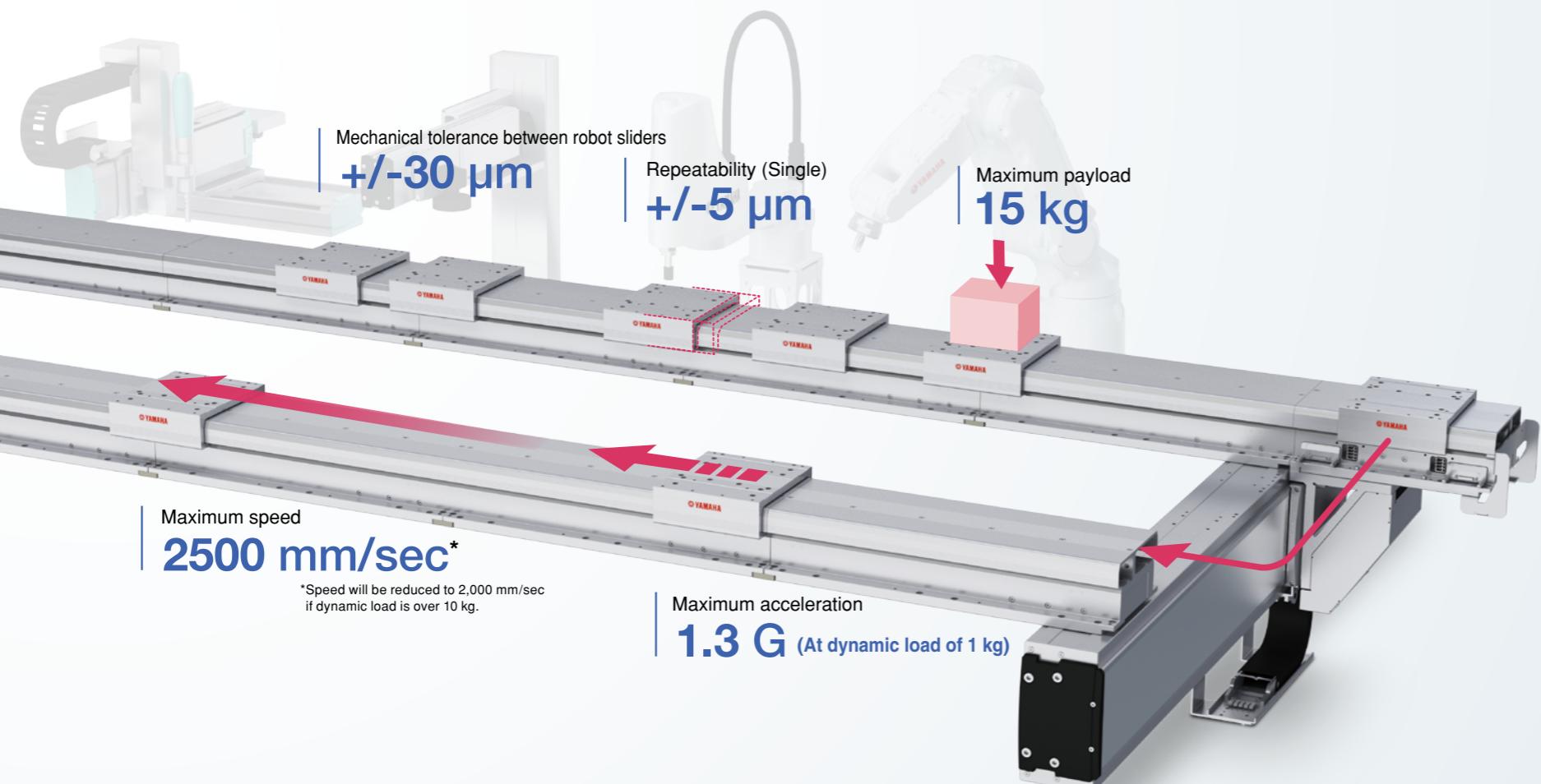
Production line using  
**LCMR200**

LCMR200 Features

YHX Features

LCMR200 Specifications

YHX Specifications



From ordinary “passive flow” to “active position transport”.

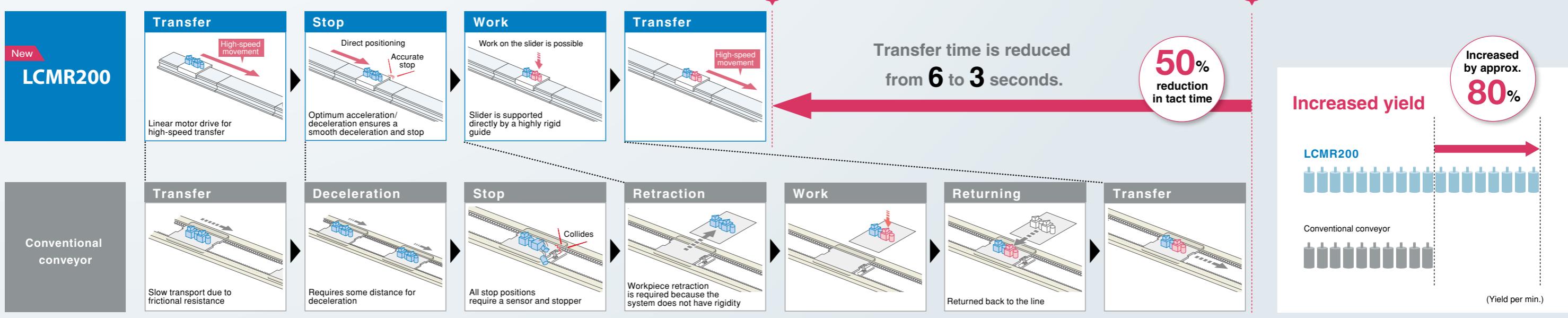
By converting conveyor flow into active production process improves profitability.

## LCMR200 vs Conventional Conveyor System

Conventional type conveyors	
• Mechanical stoppers or sensors are required at each stop position.	<b>New</b> • Direct driving of the slider.
• Complicated control due to various conveyor components.	• Stop positions are controlled with position data in program.
• Stopper adjustments are required each time the stop position is changed.	• No mechanical stoppers or external sensors required.
• Fixed productivity rate.	• Maximum speed of 2.5 m/sec for better transfer time.
• Various adjustments required	• Adjustable transfer speed for total line flow coordination.
	• Actual task times can be easily monitored.

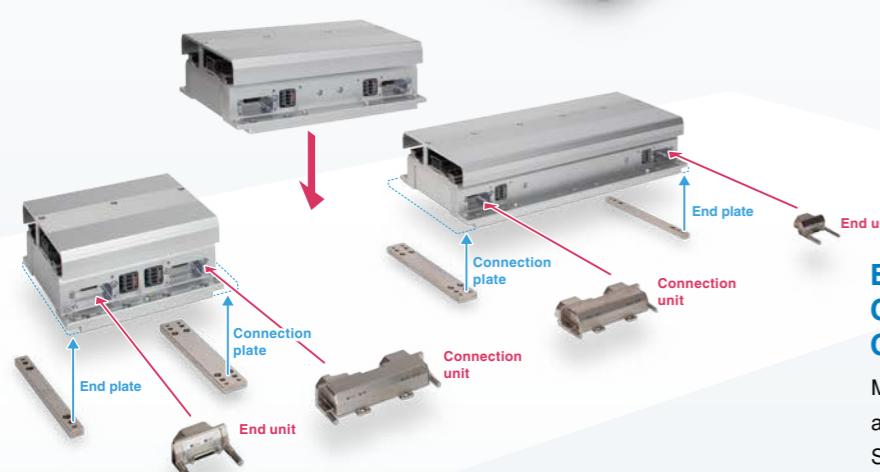
Speed control	△ Same speed required on entire conveyor	○ Able to specify the speed and acceleration speed individually.
Operation control	✗ One (fixed) direction	○ Bi-directional and distance can be set individually for each carriage
Travel / Stops	✗ Physical impact at mechanical stop	○ Smooth servo-controlled acceleration, deceleration, and incremental move
Number of system components	✗ Stopper or sensor required at each stop position	○ No mechanical components required for stop position
Accuracy	△ Additional support is required to increase accuracy	○ Mechanical tolerance between sliders (between total sliders) +/- 30 μm
Rigidity	△ Additional support is required to ensure rigidity	○ Assembly work can be performed directly on carriage supported by high-rigidity guides
Line flow changes	✗ Requires stopper adjustments at each line flow change	○ Simple modification of line layout by modular design. Stop position can be changed in program
Footprint	△ Certain space is required	○ Space saving design

### Reduce transport time. <Comparison between LCMR200 and a conventional conveyor>





# Superior performance that improves the transfer environment.



## Easy modular connection with Connecting Plate and Connecting Unit

Mechanical connection by Connecting Plate and signal communicating by Connecting Unit. Simple yet, secured connecting method of modular system.



## High acceleration rate

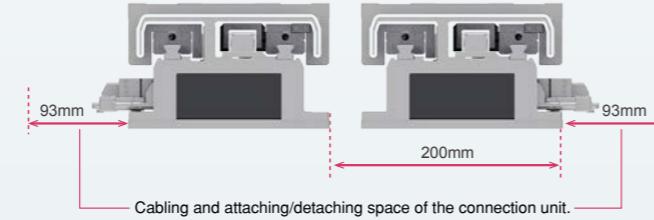
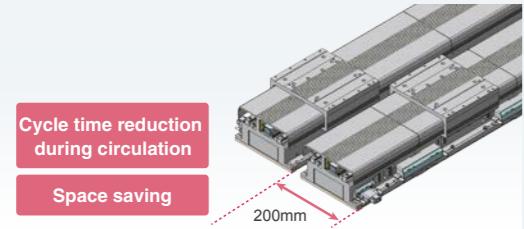
High speed motion between an extremely short distance is possible even in a high density process or pitch feed.

## Recognize slider's individual IDs

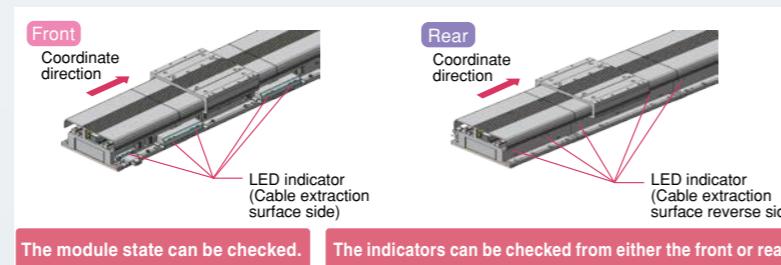
All sliders can be identified when the power is applied.

## Saves space through proximity installation of forward and returning modules

<Cable extraction direction can be selected **Front** **Rear** >

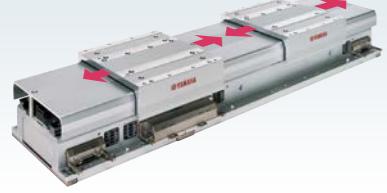


Since the cable extraction direction of a module can be selected, the degree of freedom in electrical wiring is improved when installed on the equipment. In particular, when the cable extraction direction is reversed on the forward and returning modules in the horizontal circulation layout, the module pitch can be made close to the shortest level of 200 mm. This can shorten the cycle time and reduce the installation space during circulation. In addition, the LED indicators that show the module state can be visually checked from both the front and rear sides of the module.



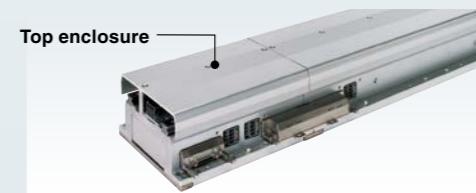
## All the sliders can be operated / programmed independently.

Speed and acceleration can be programmed by each move. All carriages can be controller individually.



## Top enclosure design for protection.

Top enclosure was designed to protect internal mechanism from any fallen object during line setup process.



## Mechanical tolerance between sliders $\pm 30 \mu\text{m}$ (Dowel hole standard)

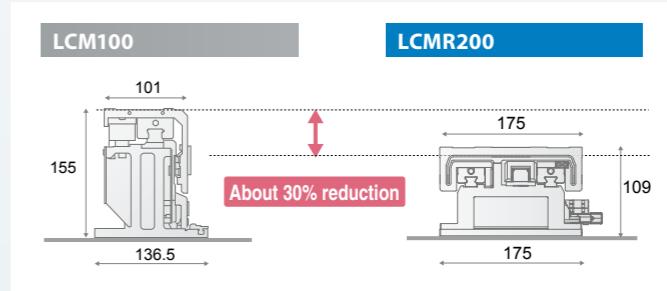
Due to this machined accuracy, each carriage has own tolerance at one stopping point, however, LCMR200 can limit the slide machine difference to  $\pm 30 \mu\text{m}$ , and is suitable for high precision process. As RFID, etc. is not necessary, cost reduction is possible.

## No origin process needed

Newly developed high-precision full-range absolute server eliminates the need for return-to-origin. The operation can be started and stopped easily, so there is no time loss even when starting or restarting.

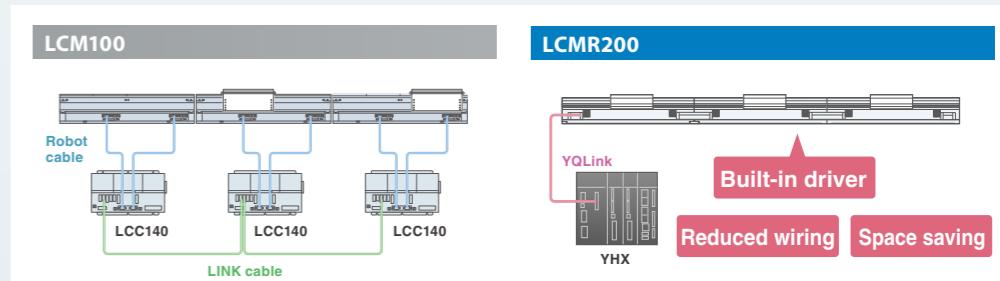
## Low profile structure

By adopting a newly developed linear motor, the module height is approx. 30 % down compared to LCM100. The space under the frame can be effectively utilized.



## Built-in driver saves electrical wiring

Motor driver is incorporated inside module and entire LCMR200 is controlled by YHX controller through YQLink cable. It also contributes to space saving inside the control panel.



## Concentrated control by the YHX controller

Including the operation environment, all sliders and single-axis robots on the transfer process can be controlled.

## Simple control with the standard profile

According to the commands from the host PLC, it adopts a simple control method that operates the sliders and single-axis robots as positioners <See Page 12 for detail>.



# Versatile and value added transport between work process.



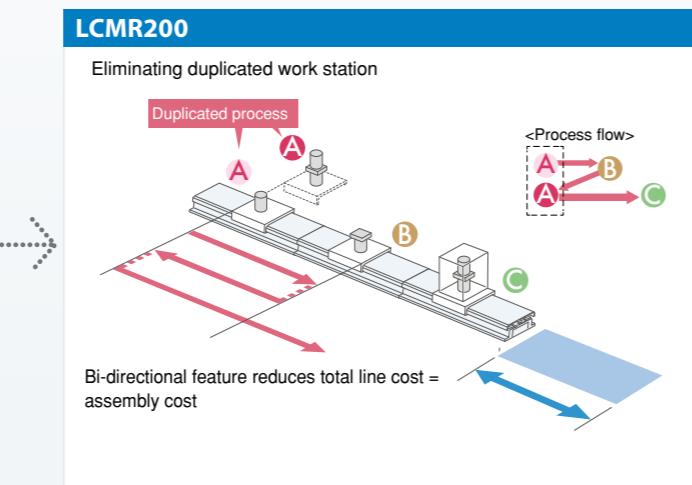
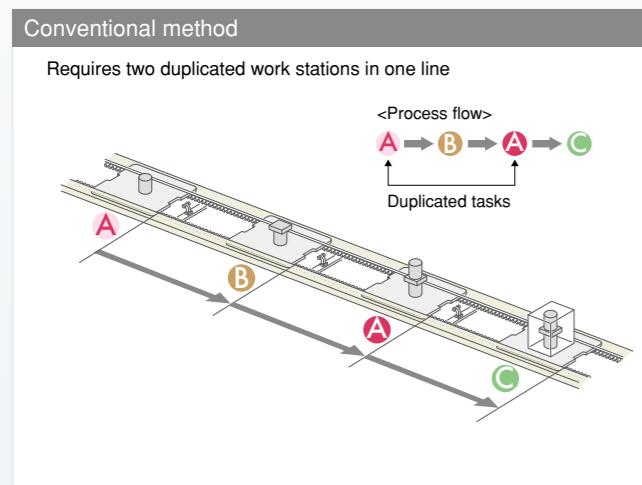
Improve cycle time and reduce line floor space.

Increase productivity and cost performance.

## Process sharing

Direct drive Slider backward travel

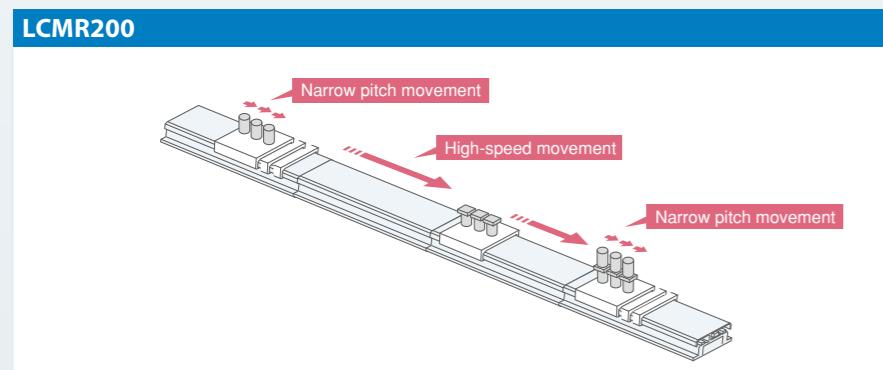
- Carriage is bi-directional and one work station can perform more than one task. Saving total line cost and floor space.
- High speed bi-directional move and simultaneous independent operation of multiple carriages.



## Variable speed control between work stations.

Direct drive Narrow pitch operation

- Servo controlled direct drive eliminates mechanical stoppers and position sensors.
- Simple position setting by entering point data in a program.
- Flexibility in setup for production lot change
- Saving flow time by narrow pitch incremental move and high speed move.



## Easily serviceability = Easy troubleshooting

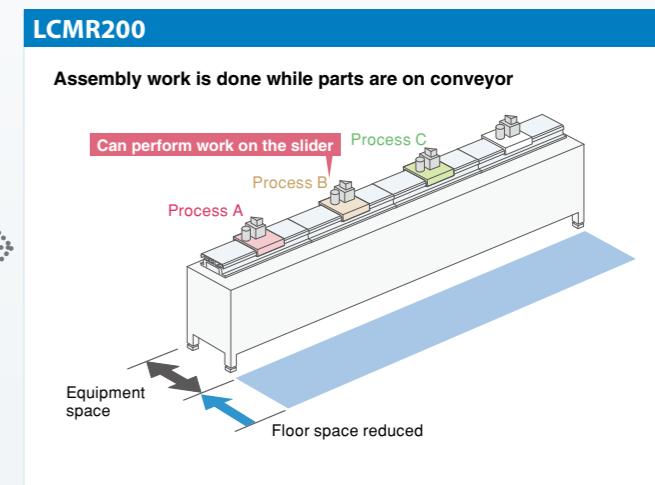
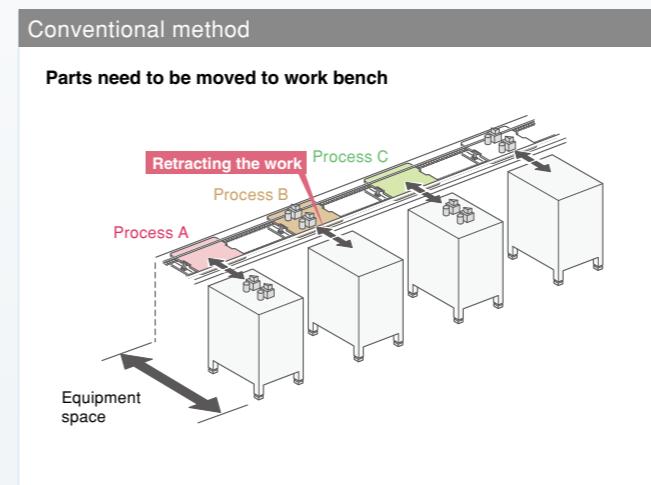
- Covered structure of module keeps internal mechanism free from foreign objects
- The environment-resistant magnetic sensor is resilient to contamination.
- Easy positioning with no precision setting.
- Non-contact motor and linear scale design eliminates mechanical wearing
- Low particle generation (only mechanical contact is guide rail)
- Standardized components reduce spare parts SKU.
- Parts can be replaced easily.
- Operation can be restored just by replacing the slider or linear module, and the manufacturing line down time can be kept to a minimum.



## Assembly can be done while parts are on conveyor

Highly rigid guide

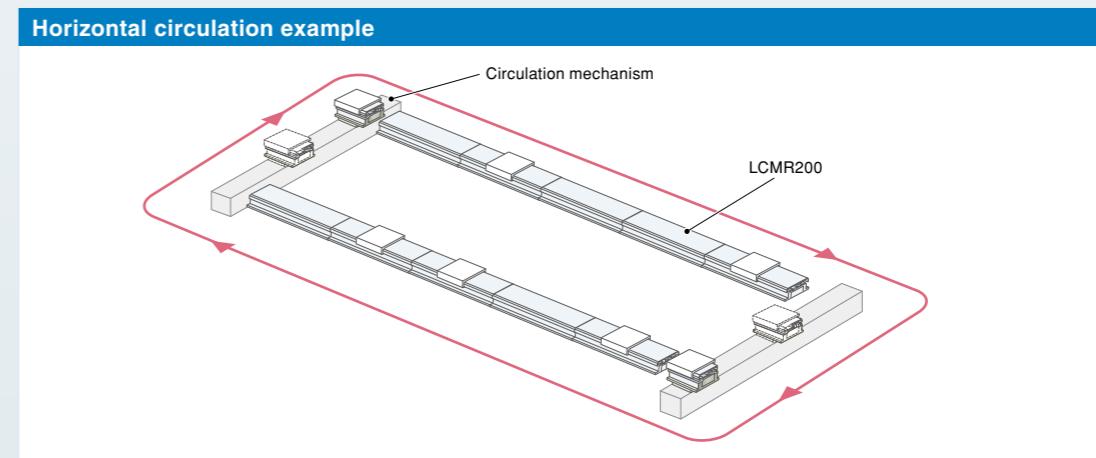
- The highly rigid guide enables assembly and processing on the transport line.
- No need to reposition parts to/from conveyor. Floor line space is reduced substantially.



Sleek and simple configuration.  
Simplified line design process with flexibility and efficiency by modular concept.

All carriages and peripheral linear robots can be controlled by PLC through one YHX controller.

- Layout example with a combination of the module and circulation unit.





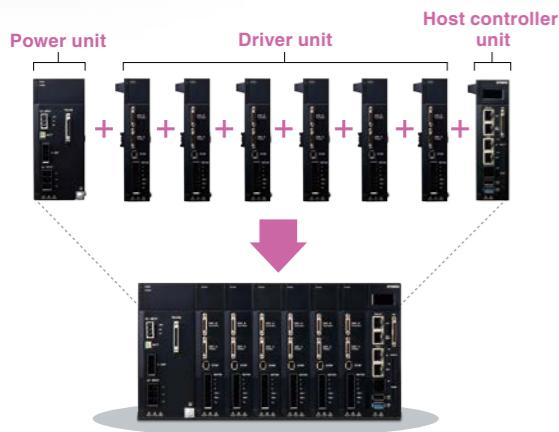
Linear conveyor module "LCMR200" can be controlled via YHX controller from the host PLC.

## YHX controller

Reduces production line configuration time

### Stacking modular structure

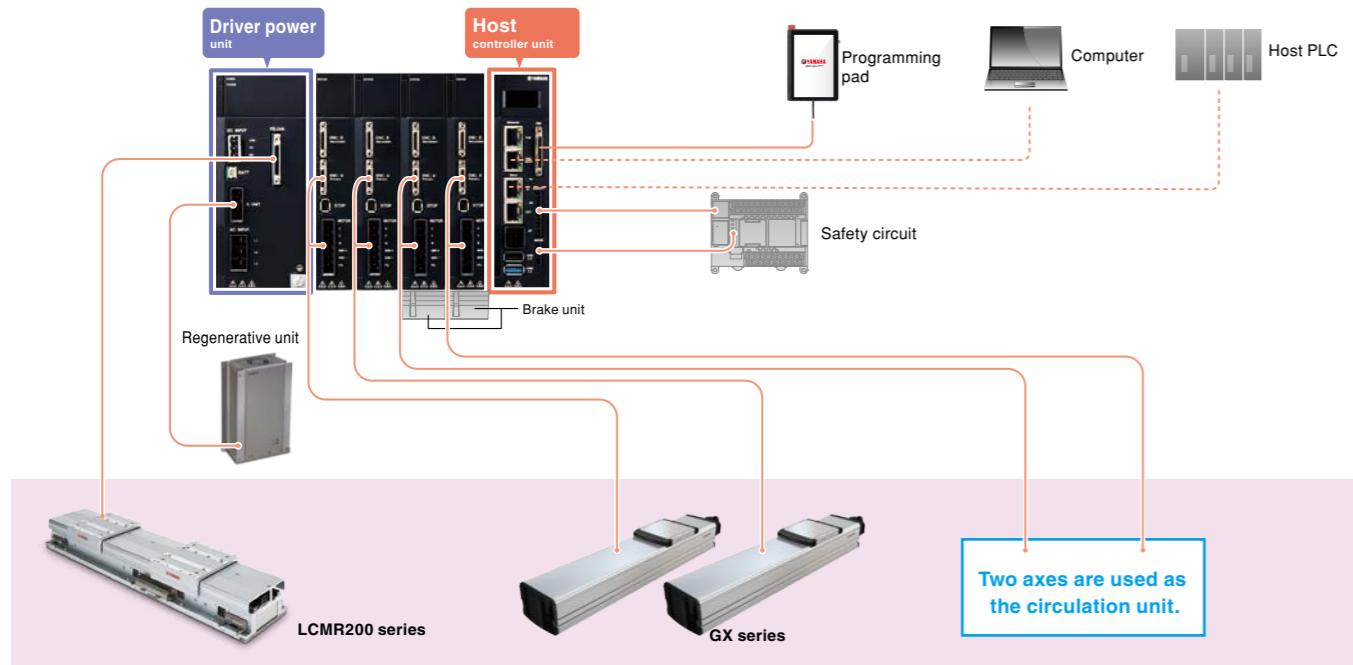
No wiring between modules needed.



Incorporation a control power supply, motor drive power supply, high speed network communication, safety circuit into a stacking modular structure. Eliminates wiring between units, reducing conventional wiring cost and wiring man-hour to 30% to 50%. The stacking structure including host, power and driver is the very first in the industry.



### Configuration example

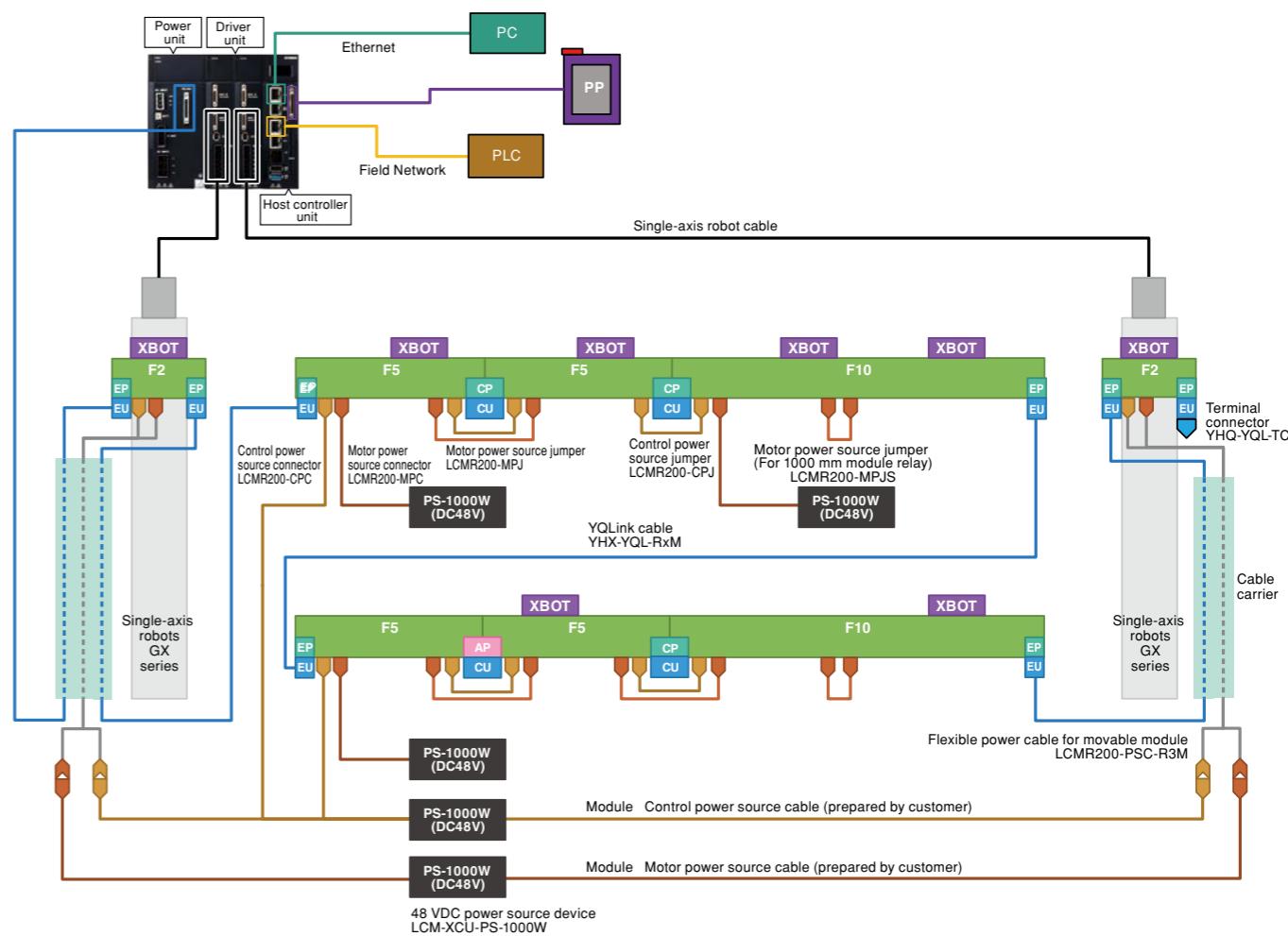


### System configuration diagram

#### Configuration example

One way 2000 mm, vertical circulation transport line

\* 200 mm linear model and single-axis robot are used for circulation section



Icon	Name	Description
	<b>Linear module</b>	Size of modules selected here is for reference only. The cable extraction direction can be selected in units of cluster (multiple linear modules are connected to configure one line). A linear module used in the circulation part is also common.
	<b>Robot slider</b>	A slider that operates on the linear module.
	<b>End plate</b>	Position a linear module on both ends of a cluster.
	<b>Connection plate</b>	The adjacent modules are positioned and connected.
	<b>Adjuster plate</b>	This adjuster plate is used to adjust the return line length to match the reference line.
	<b>End unit</b>	Connect with the YQLink cable or YQLink terminal end unit on both ends of a cluster.
	<b>Connection unit</b>	Between module communication of adjacent modules is connected.
	<b>Control power supply connector</b>	A connector to supply control power source from 48 VDC power source to the linear module.
	<b>Control power source jumper</b>	A jumper cable to supply control power source to adjacent modules.
	<b>Motor power source connector</b>	A connector to supply motor power source from 48 VDC power source to the linear module.
	<b>Motor power source jumper</b>	A jumper cable to supply motor power source to adjacent modules.
	<b>Motor power source jumper (for 1000 mm module relay)</b>	A jumper cable to relay motor power source in 1000 mm module. When 3 to 4 robot sliders stop in 1000 mm module, remove this motor power source jumper, and connect the power source device for additional motor with the motor power source connector.
	<b>YQLink cable</b>	A communication cable between each linear module cluster and the controller. As shown in the above figure, connect from left to right with one line. Connect the YQLink end connector to the terminal of the end cluster.
	<b>48 VDC power supply</b>	General-purpose 48 VDC power source device that can be applied to both control and motor operations. With one power source device, 10 m module control power source can be supplied. Also, one power source device can supply motor power source of two robot sliders. Prepare power source devices for each control power source and motor power source.
	<b>Flexible power cable for movable module</b>	Flexible cable to supply power source to the module that performs reciprocal operation mainly in the circulation part.

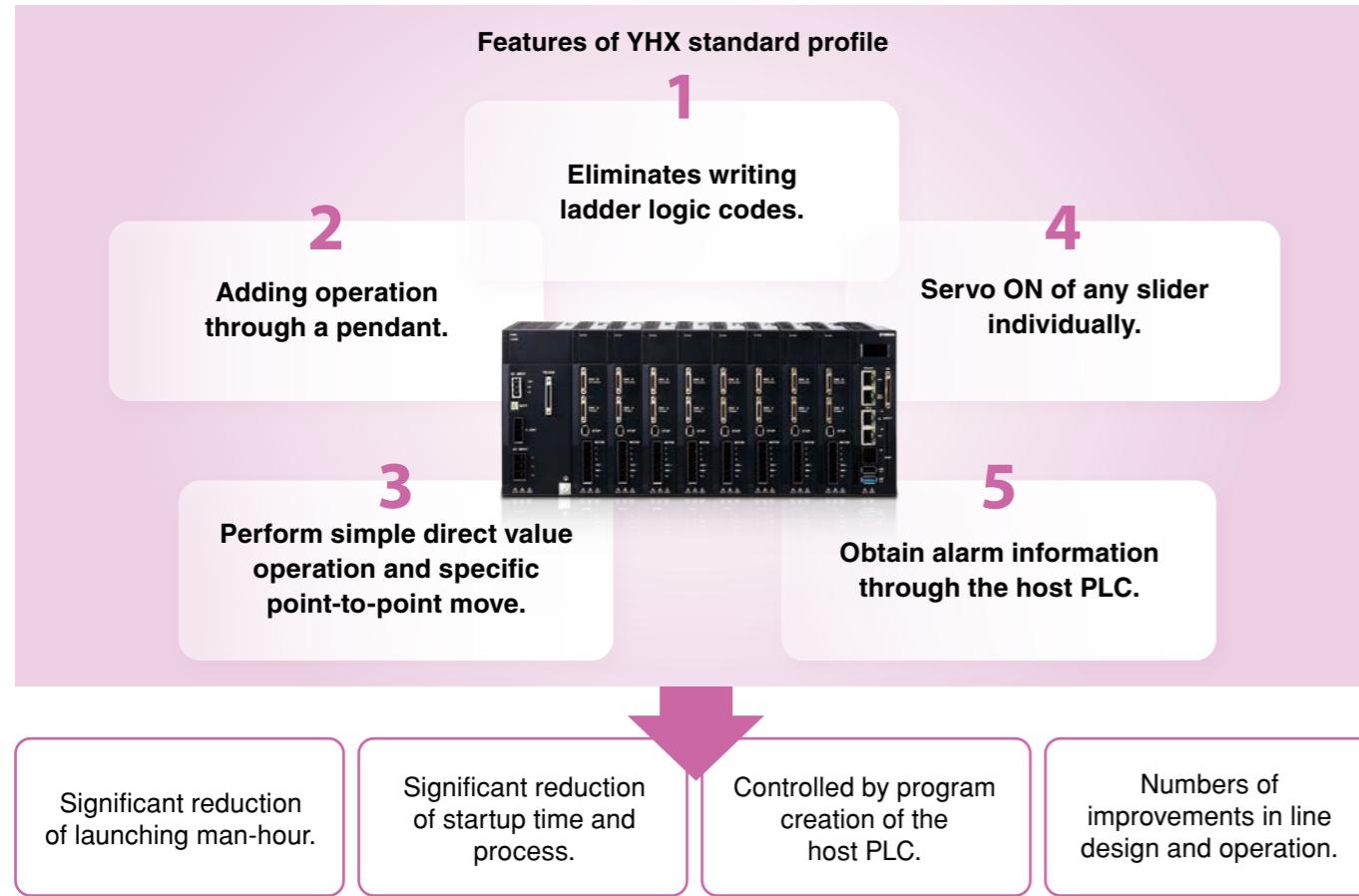
LCMR200 Features

YHX Features

LCMR200 Specifications

YHX Specifications

# YHX Standard Profile



## Implementing a task is simple and easy

### Process

Preparation such as hardware connection.

Registration of robots and sliders, and parameter settings.

Registration of circulation part configuration.

Setting of each stop position.

Program creation of the host PLC

### What is a standard profile

A project file for LCMR200 that moves a single-axis robot and LCMR200 as a positioner via field network from the host PLC.

## Basic specifications of LCMR200

Drive method	Linear motor with moving magnet type core
Position Search	Magnetic absolute position sensor
Maximum payload	15 kg
Maximum speed	2,500 mm/sec <sup>1</sup>
Repeatability	±5 µm
Mechanical tolerance between robot sliders	±30 µm (Dowel hole standard)
Total stroke limit	25.5 m <sup>2</sup>
Maximum number of robot sliders	64 units <sup>3</sup>
Minimum spacing between robot sliders	210 mm <sup>4</sup>
Main frame dimensions	Max. external size of frame cross-section W175 x H109 mm (Including robot slider)
	Linear module length 200 mm / 300 mm / 500 mm / 1000 mm
	Robot slider length 198 mm
Weight	Linear module Approx 20 kg [Per 1 m of linear module]
	Robot slider 2.4 kg
Power supply	Control power supply 48 VDC Required power [W] = 75 [W/m] x Overall length of module [m] <sup>5</sup>
	Motor power supply 48 VDC Yamaha's designated model <sup>6</sup>
Operating environment	Operating temperature 0 °C to 40 °C <sup>6</sup> Storage temperature -10 °C to 65 °C Operating humidity 35 % to 85 %RH [No condensation]
Controller	YHX controller <sup>7</sup>

<sup>1</sup> When the conveying weight exceeds 10 kg, it will drop to 2,000 mm/sec according to the weight.

<sup>2</sup> It may differ depending on the system configuration.

<sup>3</sup> When the jig palette to equip to the robot slider is longer, it shall be the jig palette length + 10 mm.

<sup>4</sup> Up to 13.3 m linear module can be supplied with the optional 1000 W power source.

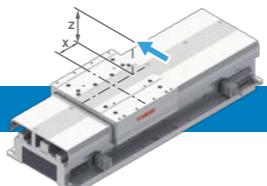
<sup>5</sup> Up to 2 robot sliders can be supplied with the optional 1000 W power source.

<sup>6</sup> Operate LCMR200 in the temperature environment (±5 °C) that installation and adjustment were performed.

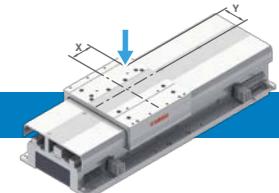
<sup>7</sup> The YHX controller requires a separate electrical power supply.

## Allowable Load

Note. • When center of slider is center of gravity.  
• Allowable load in the moving direction of slider is always 28 N regardless of the loading position.



### Load: Horizontal Direction



### Load: Vertical Direction

Loading Position X [mm]	Loading Position Z [mm]					
	0	20	40	60	80	100
0	611	514	443	390	348	314
20	517	445	391	349	315	287
40	447	393	350	316	288	264
60	394	352	317	289	265	245
80	353	318	289	266	245	228
100	319	290	266	246	229	214

Unit: [N]

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	924	687	546	453	387	339
20	760	593	485	411	356	314
40	647	521	436	375	328	293
60	562	465	396	345	305	274
80	498	420	362	319	285	258
100	446	382	335	297	268	243

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	874	650	517	429	367	320
20	721	561	459	389	337	297
40	613	493	413	355	311	277
60	533	440	375	327	289	260
80	471	397	343	303	270	244
100	423	362	317	282	254	231

Loading Position X [mm]	Loading Position Y [mm]					
	0	20	40	60	80	100
0	826	614	488	406	347	303
20	680	529	433	367	318	281
40	578	466	390	335	294	261
60	503	416	354	309	273	245
80	445	375	324	285	255	231
100	399	342	299	266	239	217

Unit: [N]

## Configuration parts

### LCMR200 Main Body



Linear module		
Length	Front* cable extraction	Rear* cable extraction
200mm	LCMR200-F2	LCMR200-B2
300mm	LCMR200-F3	LCMR200-B3
500mm	LCMR200-F5	LCMR200-B5
1000mm	LCMR200-F10	LCMR200-B10

\* The direction for the order of the driver numbers.

The motor power source connector is attached to the module.

### Robot slider



Model	LCM200-XBOT-****
Parts No.	KNA-M2264-**

When ordering the robot slider, specify slider ID number 1001 to 1139 in the last 4 digits "\*\*\*\*" section of the model.

### ID, model, and parts No. correspondence example

ID	Model	Parts No.*
1001	LCMR-XBOT-1001	KNA-M2264-01
1002	LCMR-XBOT-1002	KNA-M2264-02
1099	LCMR-XBOT-1099	KNA-M2264-99
1100	LCMR-XBOT-1100	KNA-M2264-A0
1112	LCMR-XBOT-1112	KNA-M2264-B2

ID 1100s are A\*.  
ID 1110s are B\*.

### YQLink cable

#### YQLink movable cable



This cable connects the controller (YHX) and linear conveyor module. Refer to the system configuration drawing for a connection example.

Cable length	Model	Parts No.
0.3m	YHX-YQL-R0.3M	KFA-M5361-P1
3m	YHX-YQL-R3M	KFA-M5361-30
7m	YHX-YQL-R7M	KFA-M5361-71
10m	YHX-YQL-R10M-N	KFA-M5361-A1

#### YQLink fixation cable

Length	Model	Parts No.
15m	YHX-YQL-M15M	KNA-M5362-F0

#### YQLink terminating connector

Model	Parts No.
YHX-YQL-TC	KFA-M5361-00

### Other power source options

#### Module electric power supply (48 VDC-1000 W)



This general-purpose 48 VDC power supply unit can be used for both module control and motor drive.

- Rated output 21 A, peak output rating 42 A (within 5 sec.)
- Unit type general-purpose power, efficiency > 80%, power factor > 90%

Model	Parts No.
LCM-XCU-PS-1000W	KFA-M6561-00

#### Flexible power cable for movable module

Model	Parts No.
LCMR200-PJ-R2M	KNA-M539H-20

### LCMR200 Connection Parts

#### Module connection kit

Model	Parts No.	Configuration parts
LCMR200-CKIT	KNA-M2043-C0	Connection unit Connection plate Motor power source jumper Control power source jumper

#### Module terminal kit\*

Model	Parts No.	Configuration parts
LCMR200-EKIT	KNA-M2043-E0	End unit x2 End plate x2 Control power supply connector

\* When a circulation unit made by Yamaha is not used, one terminal kit is necessary for one cluster.

The components for two terminal kits are assembled to or supplied with Yamaha circulation unit.

#### Adjuster kit\*

Model	Parts No.	Configuration parts
LCMR200-AKIT	KNA-M2043-A0	Connection unit Adjuster plate Motor power source jumper Control power source jumper

Return line length	Number of adjuster kit
3 m or less	1
More than 3 m and 14 m or less	2
More than 14 m and 25.5 m or less	3

\* For the return line, use the specified number of adjuster kit according to the return line length.  
For details about the usage location and how to use, see the user's manual.

### Maintenance items\*

#### Control power supply connector

Model	Parts No.
LCMR200-CPC	KNA-M4431-00

#### Control power source jumper

Model	Parts No.
LCMR200-CPJ	KNA-M4421-10

#### Motor power source connector

Model	Parts No.
LCMR200-MPC	KNA-M4432-00

#### Motor power source jumper

Model	Parts No.
LCMR200-MPJ	KNA-M4422-10
Model	Parts No.
LCMR200-MPJ5 (for 1000 mm module relay)	KNA-M4422-20

#### End plate

Model	Parts No.
LCMR200-EP	KNA-M22GM-E0

#### Connection plate

Model	Parts No.
LCMR200-CP	KNA-M22GM-C0

#### Adjuster plate

Model	Parts No.
LCMR200-AP	KNA-M22GM-A0

#### End unit

Model	Parts No.
LCMR200-EU	KNA-M2040-E0

#### Connection unit

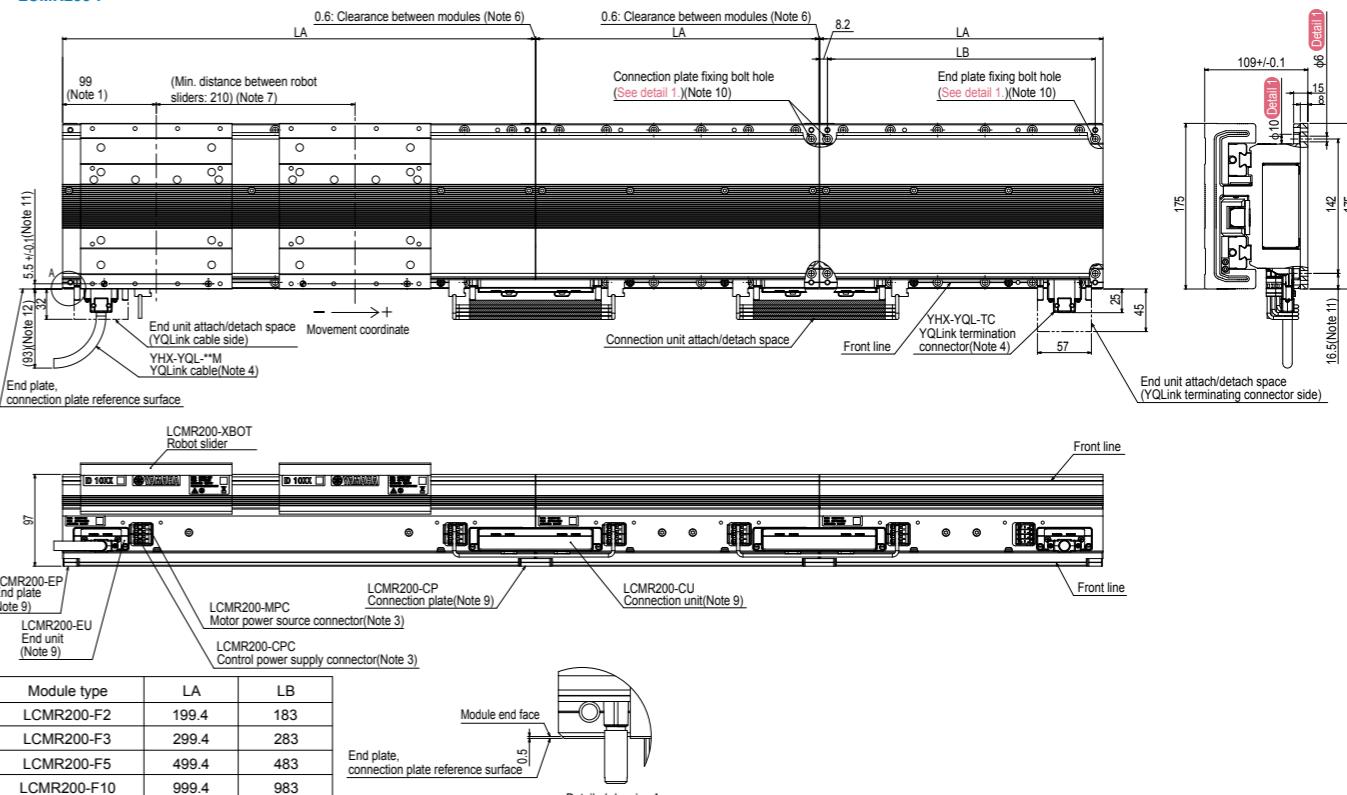
Model	Parts No.
LCMR200-CU	KNA-M2040-C0

\* These are single models of parts included in the module connection kit, adjuster kit, module terminal kit, circulation unit, or module main body.

## External view

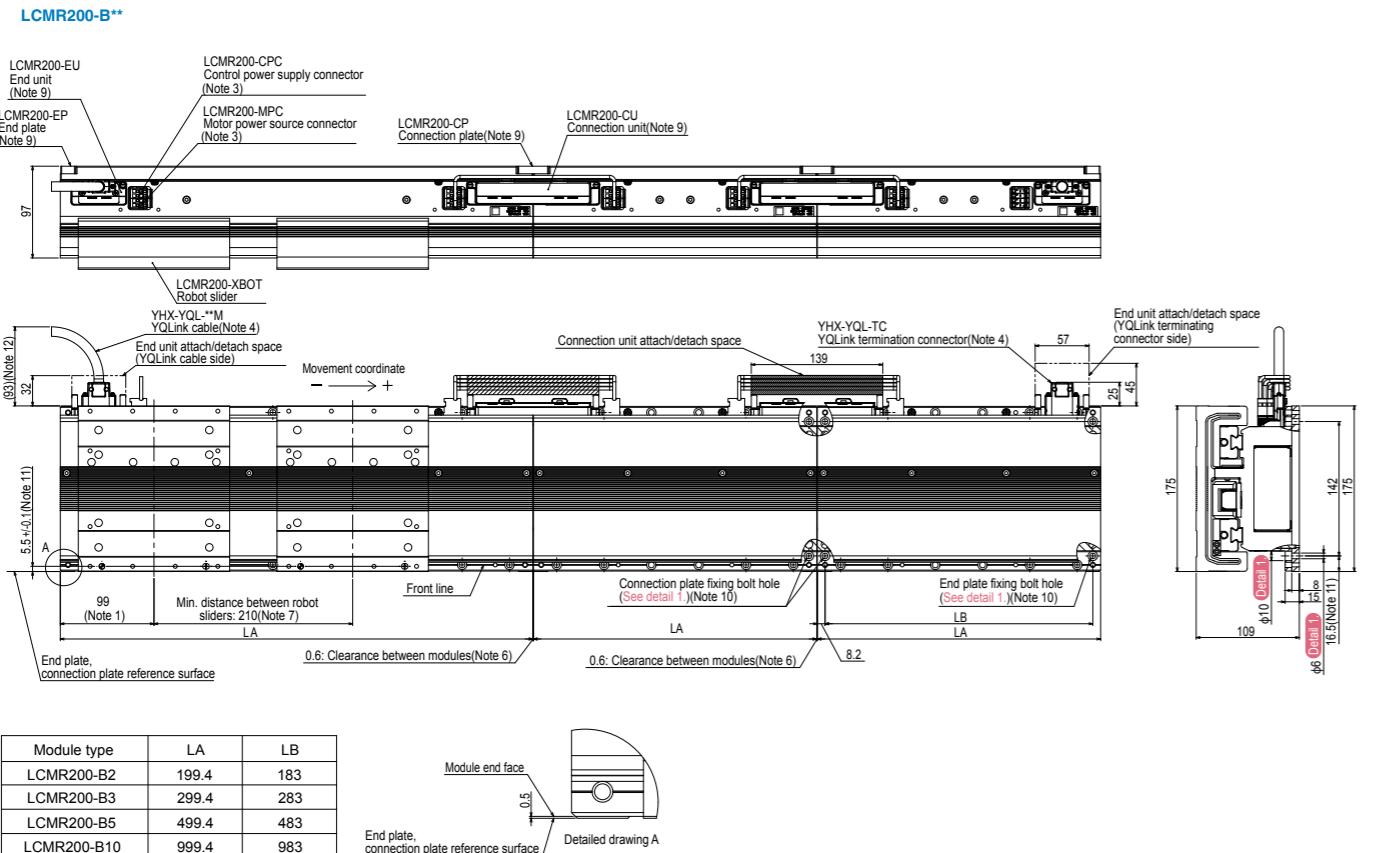
### LCMR200 Module connection and installation

#### LCMR200-F\*\*

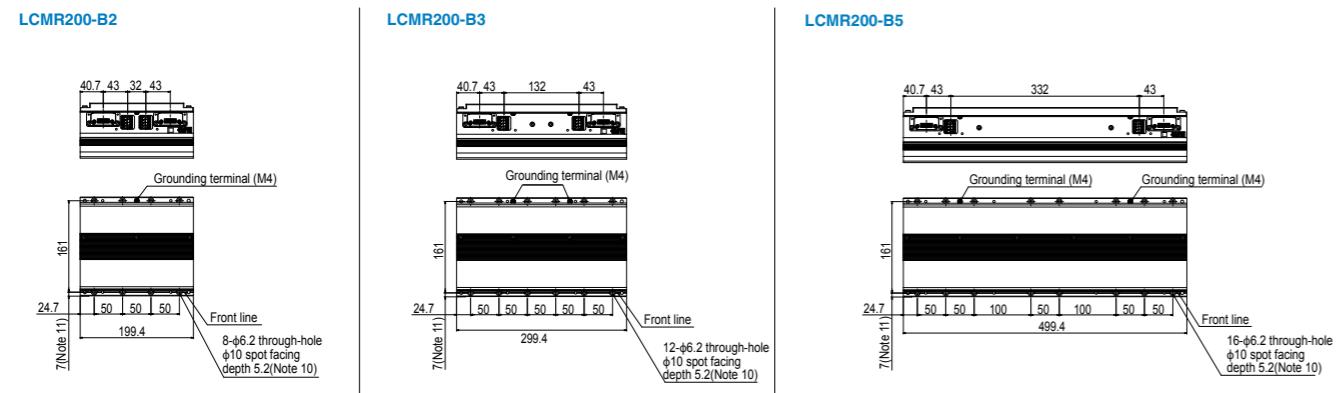


## External view

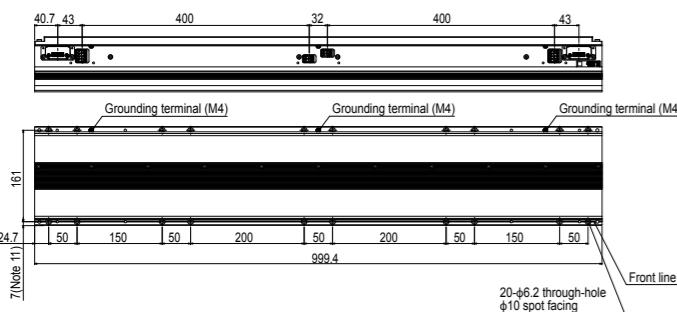
### LCMR200 Module connection and installation



### Linear module



### LCMR200-B10



Note 1. The area of 99 mm from both ends of the cluster is the range where the robot slider cannot be stopped.  
 The robot slider stopper is exposed from the end face, causing interference.  
 (Dimension at the center of the robot slider)

Note 2. Module types can be freely combined within the same cluster after the front and rear of the cable extraction direction have been aligned.

Note 3. The control power source and motor power source can be passed and received by the jumper connector. See the manual for detail of passing and receiving.

Note 4. For the YQLink cable and YQLink terminating connector connection location, see the manual.

Note 5. Sixty-four robot sliders can be installed in a system connected by the YQLink cables \* (depending on the number of robots that are controlled by the same controller).

Note 6. Where modules are connected with the connection plate, the clearance between the adjacent modules is 0.6 mm.

Note 7. The minimum pitch of each slider at the stopping state is 210 mm; however, when they start at the same time, they may collide due to operation conditions, and conditions such as command timing from the upper PLC, programming with YHX, etc. In the case, it is necessary to adjust by securing more distance (pitch) between the sliders, changing the start timing (sequential start), etc.

Note 8. There is no mechanical stopper due to the nature of the product. Please install a mechanical stopper by the customer as needed.

Note 9. The connection plate and connection unit are used to connect the modules, and the end plate and end unit are used at the cluster end.

Note 10. When securing the module, end plate, and connection plate to the installation base, use M5 hexagonal socket head bolts.

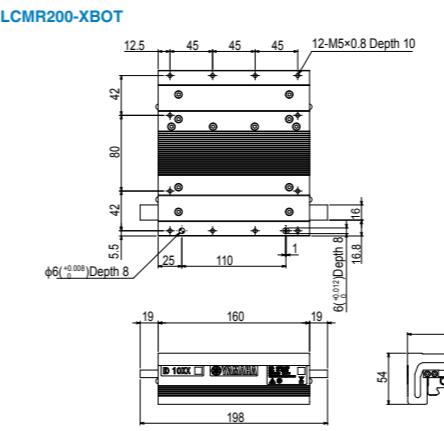
Note 11. Distance from the end plate reference surface and connection plate reference surface to the spot facing hole for the module clamp bolt.

Note 12. The YQLink movable cable is used. When the YQLink fixation cable is used, the distance is 104 mm.

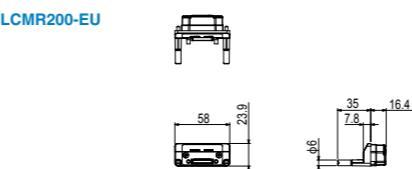
\* It may differ depending on the system configuration.  
 \* Orientation corresponds to the order of the driver numbers.

### Rear\* cable extraction

### Robot slider



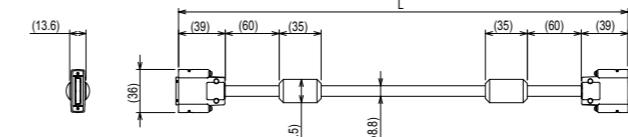
### End unit



### YQLink movable cable

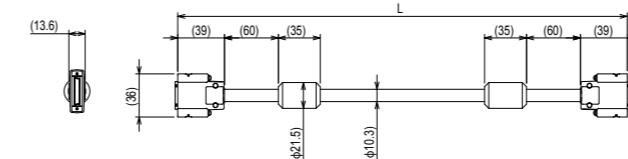
#### YHX-YQL-R□M (Only 10 m for R10M-N)

Within	Cable length
0.3	0.3m
3	3m
7	7m
10	10m



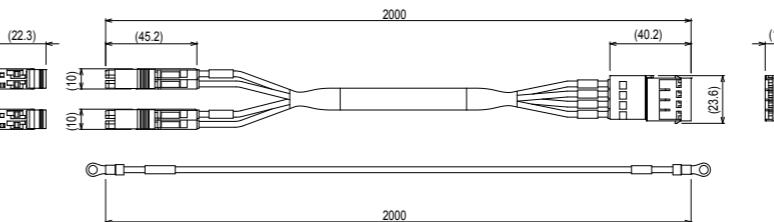
### YQLink fixation cable

#### YHX-YQL-M15M

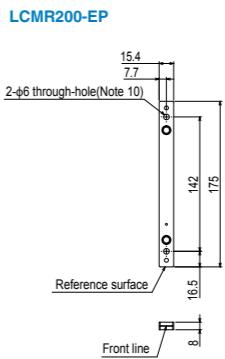


### Flexible power cable for movable module

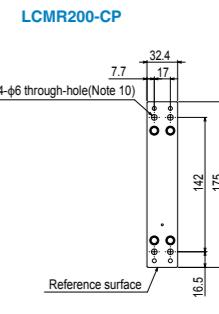
#### LCMR200-PJ-R2M



### End plate



### Connection plate



## LCMR200 Features

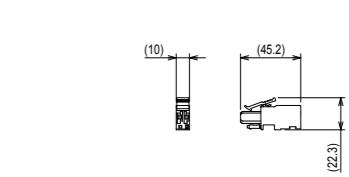
## YHX Features

## LCMR200 Specifications

## YHX Specifications

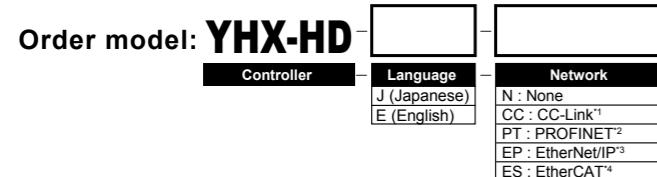
### Control power supply connector / Motor power source connector

#### LCMR200-CPC/LCMR200-MPC



## YHX controller

### Controller



<sup>1</sup> CC-Link is a registered trade mark of Mitsubishi Electric Corporation.  
<sup>2</sup> PROFINET is a registered trade mark of PROFIBUS Nutzerorganisation e.V. (PNO).  
<sup>3</sup> EtherNet/IP is a registered trade mark of ODVA, Inc.  
<sup>4</sup> EtherCAT is a patented technology and a registered trademark licensed by Beckhoff Automation GmbH (Germany).

The YHX-HD is a set model of the host controller unit, driver power unit, and related components shown below. Each unit should be assembled by the customer.



### YHX-HD Configuration parts

#### Control unit

##### Host controller unit



1	LCD	Indicates the status of the controller.
2	PoE	PoE compatible giga bit Ethernet connector.
3	GbE	PoE non-compatible giga bit Ethernet connector.
4	IN	LAN connector for connecting with master devices of field network communications connector (EtherNet/IP, EtherCAT, PROFINET)
5	OUT	LAN connector for connecting with other slave devices of field network communications connector (EtherNet/IP, EtherCAT, PROFINET)
6	OP	Connector for field network communications adaptors (CC-Link)
7	USB 2.0	Connector compatible with USB 2.0
8	USB 3.0	Connector compatible with USB 3.0
9	HMI	Connector for connecting with a programming pad, display and other devices
10	SAFETY	Connect with external PLC, safety devices and the like.
11	MODE	CPU OK output Programming pad AUTO/MANUAL select switch contact output
12		Connector for connection between units (control signal/Power)

This unit can control multiple robots by combining with the linear conveyor. Although the unit is compact, it is multifunctional and has an enhanced interface.

Japanese	Model	YHX-HCU
	Parts No.	KEK-M4200-0A
English	Model	YHX-HCU-E
	Parts No.	KEK-M4200-1A



##### Safety connector

Host YQLink

Used for building up an external safety circuit while connecting with the safety dedicated port of a host controller.

Model	YHX-CN-SAFE
Parts No.	KEK-M4432-00



##### Mode connector

Host

Used for building up an external safety circuit while using the mode switch output port of a host controller unit.

Model	YHX-CN-MODE
Parts No.	KEK-M4432-10



##### HMI short circuit connector

Host

Used when a programming pad is not connected with a host controller. Note that if not connected, robots do not operate because the controller enters the state of emergency stop.

Model	YHX-CN-HMIS
Parts No.	KEK-M4429-00



### ▶ Power unit

#### Driver power unit



This unit supplies power to each unit. Be sure to use it together with the host controller unit or a YQLink expansion unit. Use the dedicated cables to connect with linear conveyor modules.

Model	YHX-DPU
Parts No.	KEK-M5880-0A



#### Control power supply connector

D. Power	Used when supplying the control power supply.
Model	YHX-CN-CP
Parts No.	KEK-M4512-00



#### Main power supply connector

D. Power	Used when supplying the main power supply.
Model	YHX-CN-DP
Parts No.	KEK-M5382-00



#### Regenerative unit short circuit connector

D. Power	Used when not connecting a regenerative unit. An error is generated if the short circuit connector of a regenerative unit is not connected.
Model	YHX-CN-RUS
Parts No.	KEK-M4431-00



### Selection options

#### Field network

##### EtherCAT slave

Model	YHX-NWS-ECAT
Parts No.	KEK-M440A-A0

##### EtherNet/IP adapter (slave)

Model	YHX-NWS-ENIP
Parts No.	KEK-M440A-E0

##### PROFINET slave

Model	YHX-NWS-PFNET
Parts No.	KEK-M440A-N0

##### CC-Link slave (with adapter and connector)

Model	YHX-NWS-CCL
Parts No.	KEK-M440A-C0



#### Connector for CC-Link

CC-Link connector	Model	YHX-CN-CCL
	Parts No.	KEK-M4872-C0



CC-Link branch-out connector	Model	YHX-CN-CCSP
	Parts No.	KEK-M4873-00



<Cautionary notes on field networks>

The YHX controllers are not equipped with a field network board. Entering the activation code, which is issued for each host controller, into the host controller unit enables field network functions. The activation code certificate comes with a host controller unit.

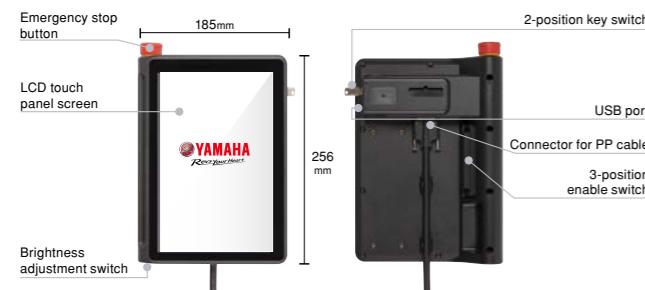
\* If purchasing a field network only later on, inform us of the serial number of the host controller unit because it is necessary to issue the activation code.

\* When the CC-Link option is selected, the CC-Link adapter x 1, CC-Link connector x 2, and CC-Link branch connector x 1 are supplied with the product. When the CC-Link terminating connector is needed, order it separately.

## YHX controller

### Programming pad (cable set)

#### Order model: **YHX-PP6L** (KEK-M5110-0B)



Use the touch panel screen for various operation. Equipped with safety functions (emergency stop button and enable switch) and a USB connector.

#### Programming pad

Model	YHX-PP
Parts No.	KEK-M5110-0A



#### Programming pad cable

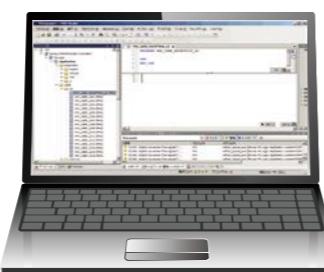
Host	Used when connecting a programming pad.
Model	YHX-PP-6M
Parts No.	KEK-M5362-61



### Software YHX Studio

#### Order model: **YHX-SW-STUDIO**

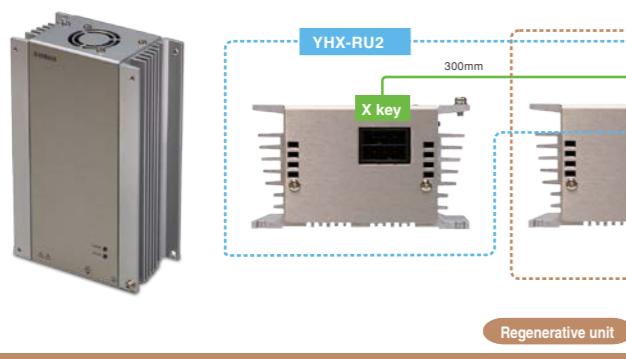
The YHX Studio is a software program for programming and adjusting a YHX controller.



PC operating environment	OS: Windows 7 SP1/8/8.1/10 (64-bit version only for all) CPU: Equivalent to Intel Core (TM) i5-6200U 2.30 GHz or better. Memory: 8 GB or larger Hard disc drive capacity: 2 GB or more of empty space for destination of installing the YHX Studio. Communications port: Ethernet Display: 1920 x 1080 or higher resolution is recommended. Other: Ethernet cable (Category 5 or better) USB port: One port (for USB key)
Applicable controllers	YHX Host controller unit
Applicable robots	Robots connectable to YHX

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### Regenerative unit set



#### Regenerative unit

Regenerative unit	Model: YHX-RU Parts No.: KEK-M5850-0A

#### Regenerative unit connection cable

D. Power	Regenerative unit
Used when connecting a regenerative unit.	
0.5 m	Model: YHX-RU-50C Parts No.: KEK-M5363-00



#### Order model: **YHX-RU1** (KEK-M4107-0A)

Regenerative unit	Model: YHX-RU Parts No.: KEK-M5850-0A



#### Regenerative unit connection cable

D. Power	Regenerative unit
Used when connecting a regenerative unit.	
0.5 m	Model: YHX-RU-50C Parts No.: KEK-M5363-00



#### Order model: **YHX-RU2** (KEK-M4107-0B)

Regenerative unit	Model: YHX-RU Parts No.: KEK-M5850-0A



#### Regenerative unit connection cable

Regenerative unit	Regenerative unit
Used when adding a regenerative unit.	
0.3 m	Model: YHX-RU-EX30C Parts No.: KEK-M5364-00



### YQLink expansion unit set

#### Order model: **YHX-YQL-SET** (KEK-M4406-0B)



This unit cancels the physical restrictions of the universal controller for its expansion.

#### YQLink expansion unit

Model	YHX-YQL
Parts No.	KEK-M4406-0A



#### Safety connector

Host	YQLink
Used for building up an external safety circuit while connecting with the safety dedicated port of a host controller.	
Model	YHX-CN-SAFE



1	STATUS	Blue: 24 VDC power supply available Red: Error
2	YQLink	Connect with YQLink communications connector (input) driver power unit.
3	SAFETY	Connect with external PLC, safety devices and the like.
4	Connector for connection between units (control signal/Power)	

### Other options

#### Battery holder box

#### Order model: **YHX-BATT-HLD**

##### D Power

Used to store the ABS batteries.  
Up to eight batteries can be stored.

Model	YHX-BATT-HLD
Parts No.	KEK-M53G7-00



#### Battery holder connection cable

#### Order model: **YHX-BATT-15C**

##### D Power

Used when the battery holder box is connected.

Model	YHX-BATT-15C
Parts No.	KEK-M53G4-00



#### CC-Link terminating connector

#### Order model: **YHX-CN-CCTM**

Model	YHX-CN-CCTM
Parts No.	KEK-M4874-00



#### Connector for brake power

#### Order model: **YHX-CN-BU**

##### Drivers

Used when the brake power is supplied externally.  
The driver is not needed when the brake power unit is used.

1 m	Model	YHX-CN-BU
	Parts No.	KEK-M4427-00





# YHX controller

## Basic specifications

### Host

#### Host controller unit

Japanese	Model	YHX-HCU
	Parts No.	KEK-M4200-0A
English	Model	YHX-HCU-E

Item		Host controller unit
Power supply		Voltage: 21.6 to 26.4 VDC (24 V +/-10%) Current: 3.5 A (Including PoE)
Connector		Giga bit Ethernet · Compatible with PoE yet 1 port (23 W) · Not compatible with PoE yet 1 port Field network (Slave) Select one from the following 4 kinds. · EtherCAT      · CC-Link* · EtherNet/IP      * A separate adaptor is necessary. · PROFINET USB · USB 2.0 1 Port (Bus power 0.5 A) · USB 3.0 1 port (Bus power 1.0 A)
External I/F		
HMI		Connector for connecting programming pad
SAFETY		Emergency stop contact output Enable switch contact output Emergency stop input
MODE		CPU OK output Programming pad AUTO/MANUAL select key switch output
Indicator	LCD	128 x 64 dots, Yellow 41.6x150x125 (mm)
Dimensions		
Weight		750g
Protection structure / Protection rating		IP20 / class 1

### D. power

#### Driver power unit

Model	YHX-DPU
Parts No.	KEK-M5880-0A

Item		Driver power unit
Power supply		Voltage: 21.6 to 26.4 VDC (24 V +/-10%) Current: 0.5A
Main power supply		Input: Single phase / 3-phase 180 to 253 VAC / (200 to 230 VAC +/-10%), 50/60 Hz Power supply capacity: Single phase 3.5 kVA 3-phase 6 kVA
Connection motor capacity		Single phase within 1.6 kW, 3-phase within 3.0kW / Driver unit within 16 units (16 axes)
Connector		Regenerative unit connector External I/F ABS Battery
Dimensions		63.2x150x125 (mm)
Weight		1050g
Protection structure / Protection rating		IP20 / class 1

### Regenerative unit

#### Regenerative unit

Model	YHX-RU
Parts No.	KEK-M5850-0A

Item		Regenerative unit
Power supply		Input: 254 to 357 VDC (Controller DCBUS connected)
Connector		Regenerative connector (For connecting regenerative unit/ For adding regenerative unit)
Dimensions		62.5x180x110 (mm)
Weight		1450g
Protection structure / Protection rating		IP20 / class 1

### YQLink

#### YQLink expansion unit

Model	YHX-YQL
Parts No.	KEK-M4406-0A

Item		YQLink expansion unit
Power supply		Voltage: 21.6 to 26.4 VDC (24 V +/-10%) Current: 0.3A
Connector		External I/F SAFETY
Dimensions		Emergency stop input 31.6x150x125 (mm)
Weight		380g
Protection structure / Protection rating		IP20 / class 1

### Driver

#### Driver unit

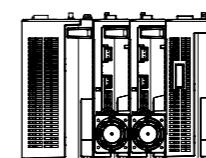
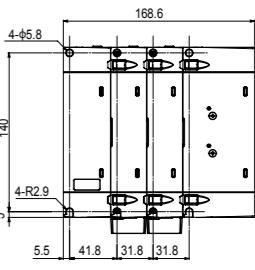
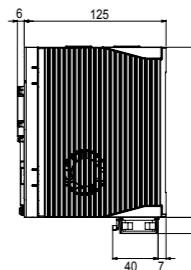
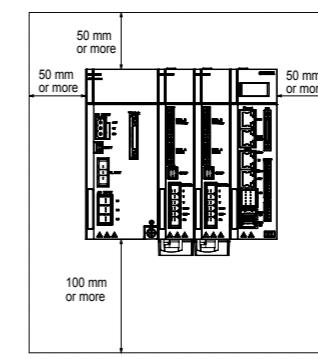
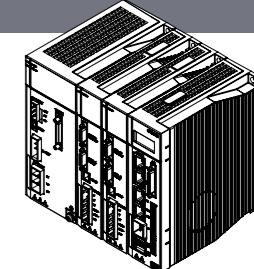
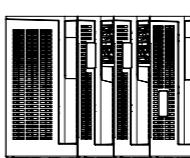
##### Servo motor specifications (30A)

Model	YHX-A30
Parts No.	KEK-M5800-1A

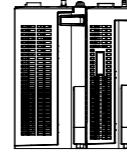
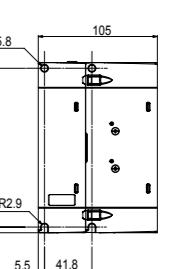
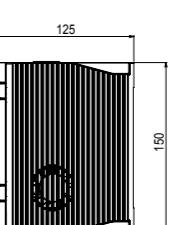
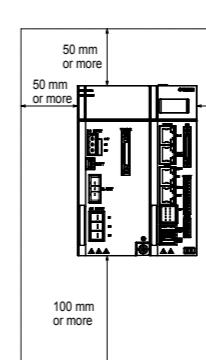
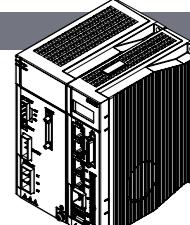
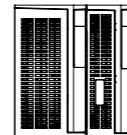
Item		Driver unit 30 A
Power supply		Voltage: 21.6 to 26.4 VDC (24 V +/-10%) Current: 0.8A (Including brake unit power supply)
Connector		ENC.A ENC.B STOP MOTOR ABS Battery Fan unit connector Brake unit connector Dimensions Weight Protection structure / Protection rating
ENC.A		Encoder input
ENC.B		Encoder input (Dedicated use)
STOP		Gate off input, 2 points Gate status output, 1 point
MOTOR		Motor drive power supply output Brake power supply output
ABS Battery		ABS Battery connector
Fan unit connector		Accessory fan unit connection
Brake unit connector		Brake unit is connectable.
Dimensions		31.6x150x125 (mm)
Weight		570 g
Protection structure / Protection rating		IP20 / class 1

## External view of YHX unit combination

### Combination of host controller (HCU), driver unit (A30), and driver power unit (DPU)



### Combination of host controller (HCU) and driver power unit (DPU)



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