AR-V Series

The "AR-V Series" is a robot developed by HIRATA, a manufacture of production facilities.

Basic performance

- Repeated improvements to the robot base structure to ensure high rigidity
  Helps to reduce cycle time by suppressing vibration during high-speed operation and quick and accurate positioning
- Adapted to European Machinery Directive (CE)*, environmental specification IP65* (*: options)
- AR-V can be selected from 3 types of optimum arm lengths which have the same transportability, according to the application.

Easy installation

- Powerful support for system construction through off-line teaching and simulation by tools
  Supports quick start-up with collision-avoidance and teaching-assistant functions

Long-term stable operation

- Adoption of a batteryless motor greatly improves maintainability
- Adoption of a large reduction gear ensures long-term stable operation
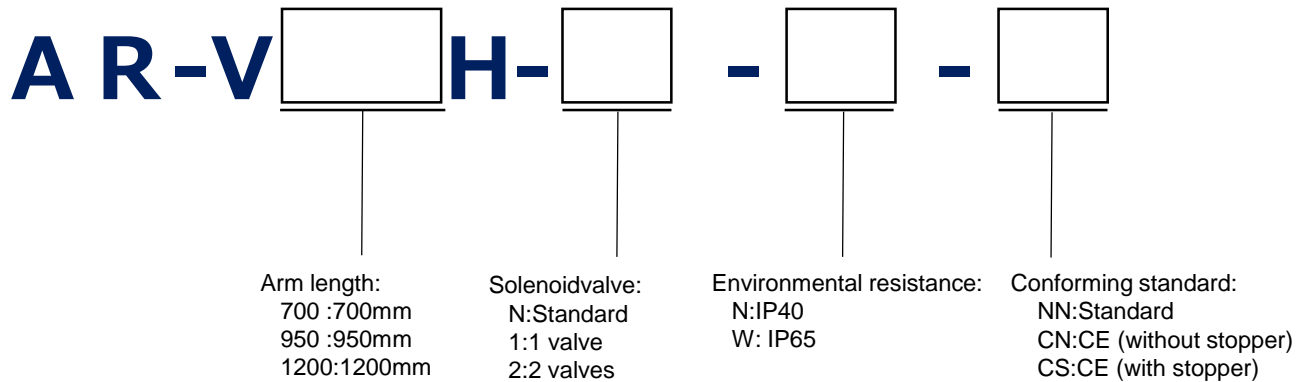- Realizes common operability with other HIRATA robots

AR-V700H   AR-V950H   AR-V1200H

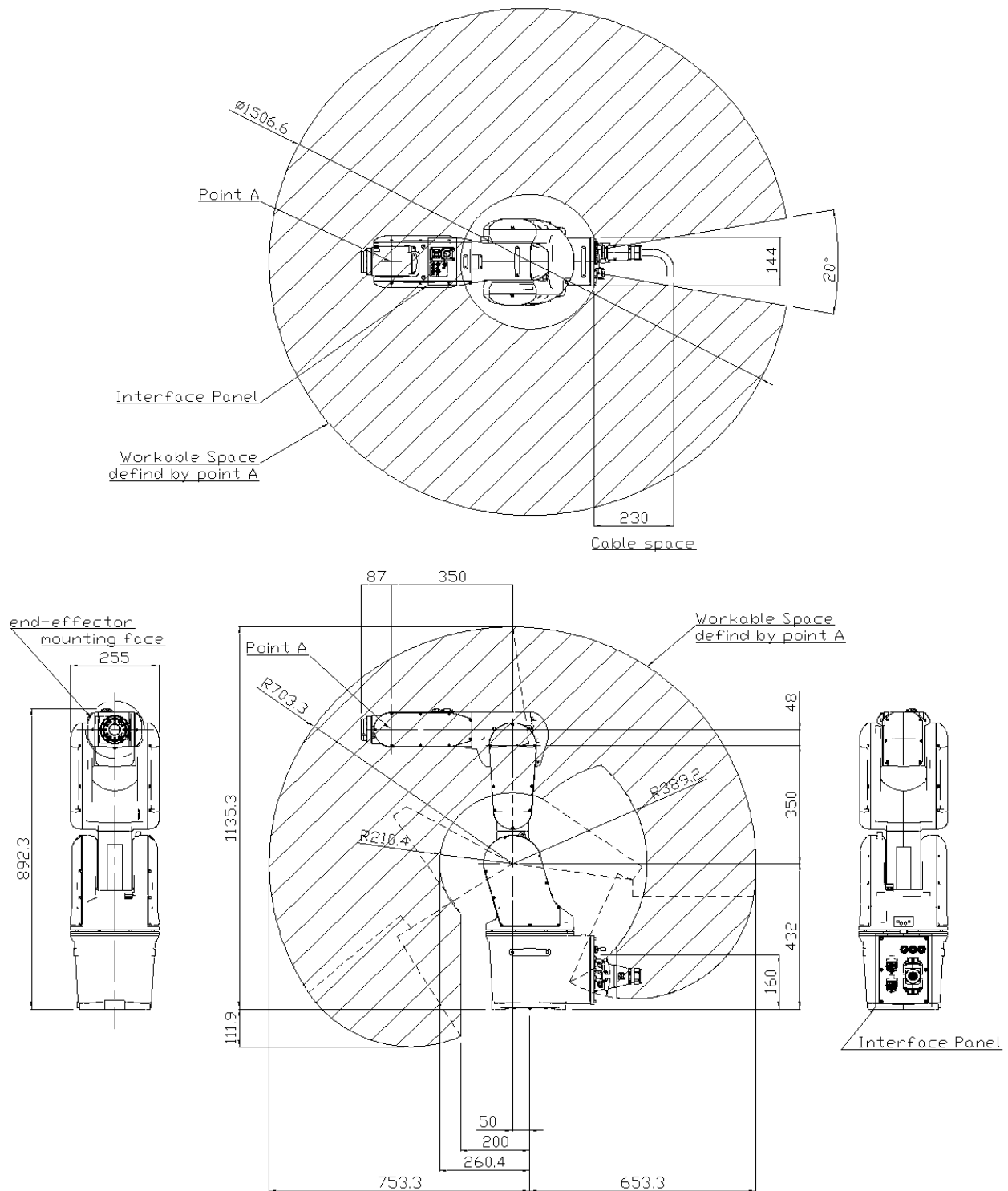## ＜ Example of model number＞

A R - V ☐ H - ☐ - ☐ - ☐

Arm length:
700 :700mm
950 :950mm
1200:1200mm

Solenoidvalve:
N:Standard
1:1 valve
2:2 valves

Environmental resistance:
N:IP40
W: IP65

Conforming standard:
NN:Standard
CN:CE (without stopper)
CS:CE (with stopper)

Model number		AR-V700H	AR-V950H	AR-V1200H
Number of operation axes		6-axis	6-axis	6-axis
Position detecting method		Batteryless absolute	Batteryless absolute	Batteryless absolute
Arm length	Total length	700mm	950mm	1200mm
	First arm	350mm	475mm	600mm
	Second arm	350mm	475mm	600mm
	Max. working radius	753mm	1002mm	1251mm
Operation area	J1	±170 deg	±170 deg	±170 deg
	J2	-98〜123deg	-98〜123deg	-98〜123deg
	J3	-105〜153deg	-105〜153deg	-105〜153deg
	J4	±180deg	±180deg	±180deg
	J5	±130deg	±130deg	±130deg
	J6	±360deg	±360deg	±360deg
Maximum speed	J1	450deg/s	250deg/s	250deg/s
	J2	310deg/s	250deg/s	250deg/s
	J3	440deg/s	250deg/s	250deg/s
	J4	450deg/s	450deg/s	450deg/s
	J5	470deg/s	470deg/s	470deg/s
	J6	720deg/s	720deg/s	720deg/s
Repeatability		±0.02mm	±0.03mm	±0.03mm
Weight capacity	Rating	4Kg	4Kg	4Kg
	Maximum	6Kg	6Kg	6Kg
Allowable inertia moment	J4	$0.50Kg \cdot m^2$	$0.50Kg \cdot m^2$	$0.50Kg \cdot m^2$
	J5	$0.50Kg \cdot m^2$	$0.50Kg \cdot m^2$	$0.50Kg \cdot m^2$
	J6	$0.12Kg \cdot m^2$	$0.12Kg \cdot m^2$	$0.12Kg \cdot m^2$
TCP maximum speed		9200mm/s	7900mm/s	9800mm/s
Application	Signal	$10core×0.2mm^2,7core×0.2mm^2$	$10core×0.2mm^2,7core×0.2mm^2$	$10core×0.2mm^2,7core×0.2mm^2$
	Air	Standard: 2 lines (φ4x1,φ6x1)	Standard: 2 lines (φ4x1,φ6x1)	Standard: 2 lines (φ4x1,φ6x1)
		Option: 5 lines (φ4x4,φ6x1)	Option: 5 lines (φ4x4,φ6x1)	Option: 5 lines (φ4x4,φ6x1)
Noise level		72dB(A)	70dB(A) or less	70dB(A) or less
Protection grade		Standard: IP40	Standard: IP40	Standard: IP40
		Option: IP65	Option: IP65	Option: IP65
Total robot weight		51kg	54kg	57kg

■ External dimensions and working area

AR-V700H

Ø1506.6

Point A

144

20°

Interface Panel

Workable Space
defind by point A

230

Cable space

end-effector
mounting face
255

892.3

87   350

Point A

R703.3

Workable Space
defind by point A

48

R389.2

1135.3

R210.4

350

111.9

432

160

Interface Panel

50
200
260.4

753.3   653.3

■ External dimensions and working area

AR-V950H
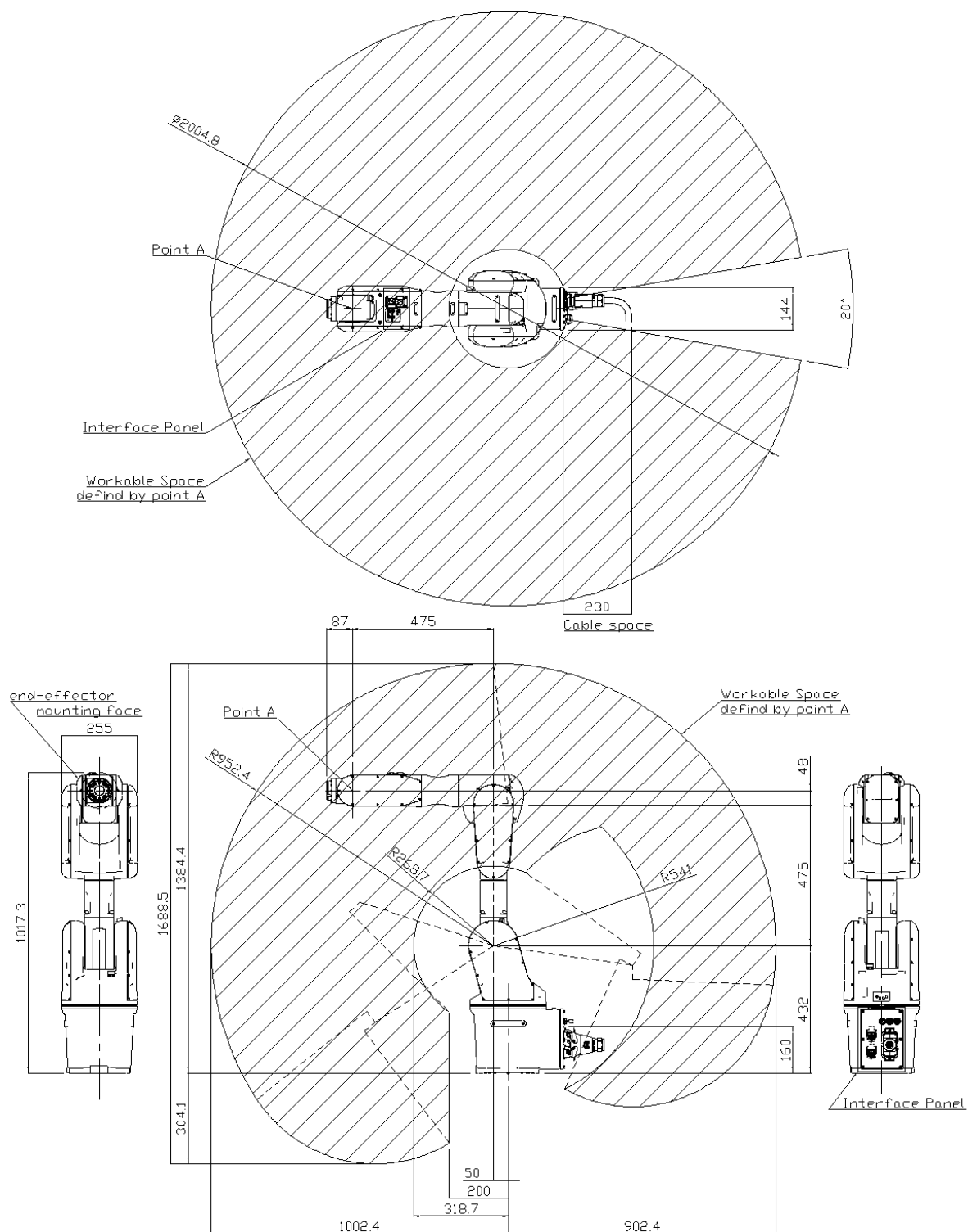
■ External dimensions and working area

AR-V1200H
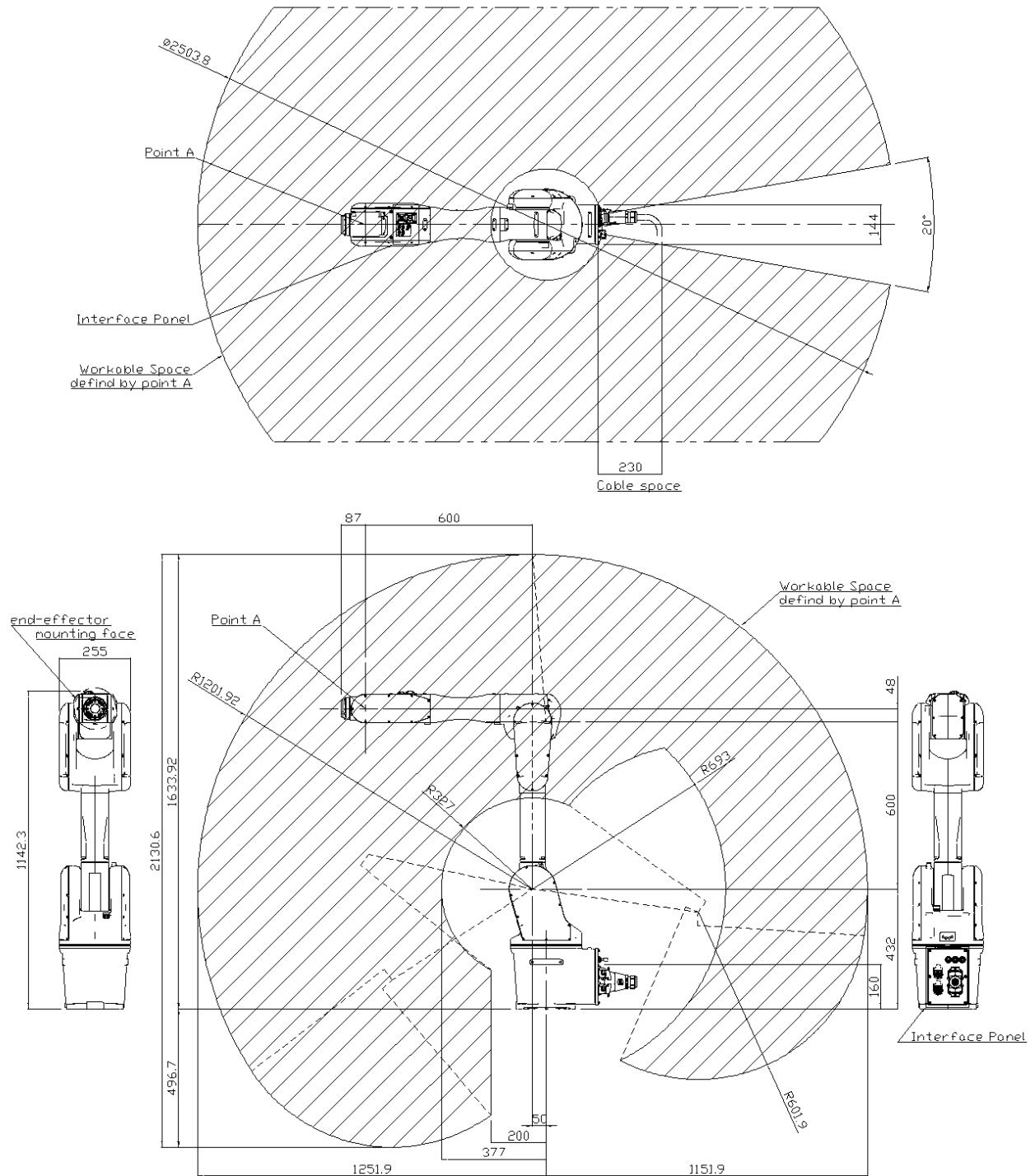
■ [Common] Detailed drawing

■ Interface panel

1/O(1) for Application
10cores × 0.2sq

1/O(2) for Application
7cores × 0.2sq

Air for Application
Ø6 No.5 (Air-2)

Air for Application
Ø4 No.1,2 (optionValve I)
Ø4 No.3,4 (optionValve II)

1/O(1) for Application
10cores × 0.2sq

Exhaust

Air for Application
Ø6 No.5 (Air-2)

Air for Application
Ø4 No.1,2 (optionValve I)
Ø4 No.3,4 (optionValve II)

Robot cable

Interface Panel

1/O(2) for Application
7cores × 0.2sq

■ Hand part

45°

Ø6H7 Depth 6

4×M6 Depth 8
(P.C.D 50)

5

$Ø63\ h8^{\ 0}_{-0.046}$

$Ø31.5H7^{+0.025}_{\ 0}$
Depth 5

■ Installation dimensions

211.2

109   (102.2)

4-Ø13
(M12 screw)

2-Ø5 H7 Depth 6
(reference hole)

175

145

175

(102)

204

102

109

15

72.5±0.05

87.5±0.05

175
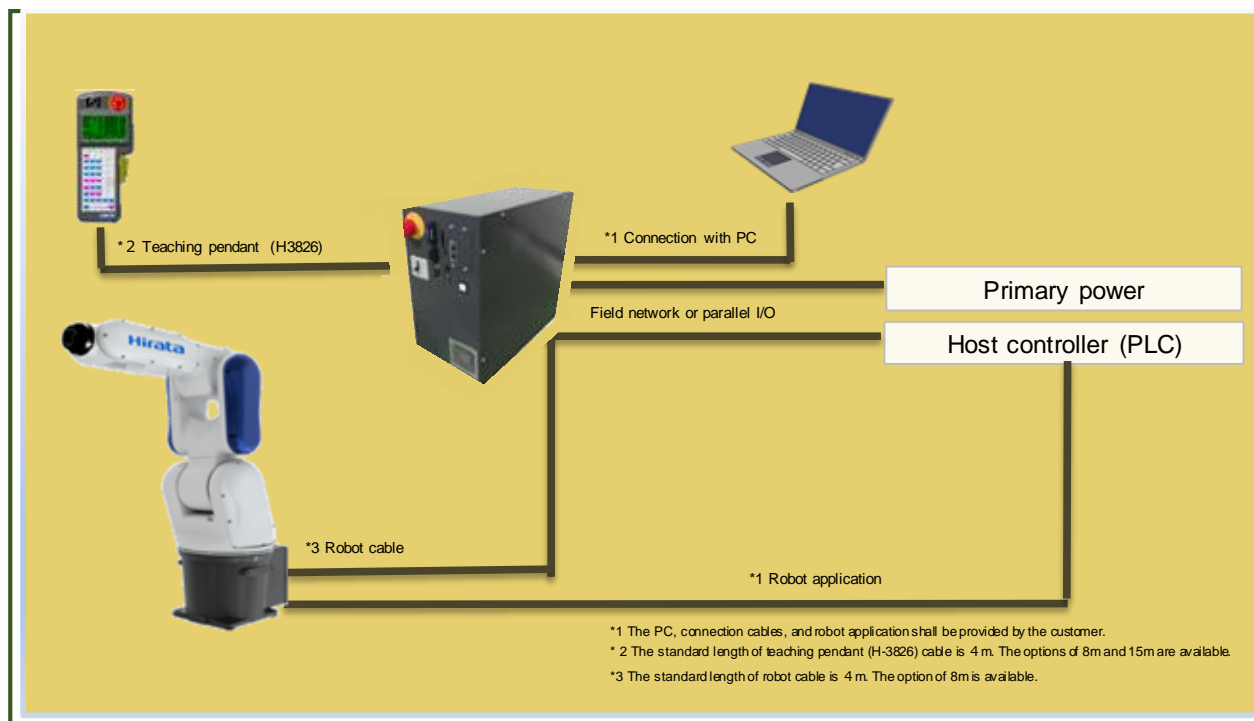
7
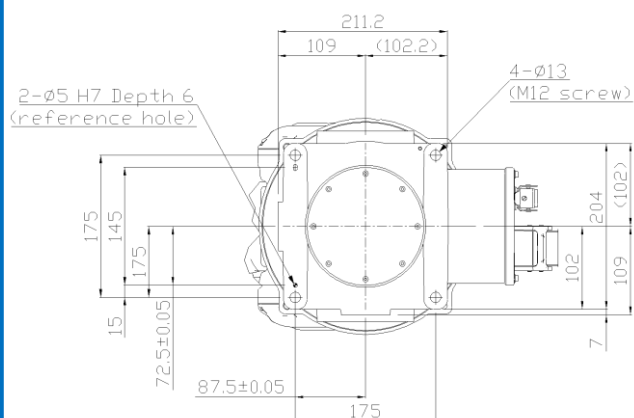
Controller specification

■ Standalone type

This controller can be used immediately after wiring is done and the power is supplied.

*2 Teaching pendant (H3826)

*1 Connection with PC

Field network or parallel I/O

Primary power

Host controller (PLC)

*3 Robot cable

*1 Robot application

*1 The PC, connection cables, and robot application shall be provided by the customer.
*2 The standard length of teaching pendant (H-3826) cable is 4 m. The options of 8m and 15m are available.
*3 The standard length of robot cable is 4 m. The option of 8m is available.

■ Supports major field networks

By adding an optional board, the controller can support major field networks.
As a result, host devices and robots can be easily connected.

◎ Field network

CC-Link	HPC-913
DeviceNet	HPC-992/40DNET
PROFINET	HPC-992/30PRON
EtherNetIP	HPC-992/30EIP
CC-Link IE	HPC-992/40CCIE

◎ DI/DO

PIO (NPN)	HPC-962
PIO (PNP)	HPC-963

◎ Option

Teach-pendant with 4m cable	H-3826-※-04-※-※
Teach-pendant with 8m cable	H-3826-※-08-※-※
Teach-pendant with 15m cable	H-3826-※-15-※-※
Brake release unit	H-3830
CV Tracking	HPC-865B
PC tool	Hr Works
System I/O	
Serial port	

When using robot language, it is possible to use up to 3 boards in combination with DI/DO×2 boards + field network×1 board. It is also possible to make 32 IO points.

Controller specification

■ External connections

The external connections of the controller are shown in the figure below.

- Emergency stop button
- Emergency stop connector (EMG1)
- Status LED/SD card slot
- Host interface
- Maintenance port (USBmini)
- EtherNet
- *1 Serial port (RS-232C)
- Emergency stop reset
- Teaching pendant (H-3826)
- Main breaker
- *1 System I/O
- *2 Brake release connector
- Robot cable connector
- Power connector

*1 Serial port RS-232C and system I/O are optional.
*2 An optional release unit is required for break releasing.

■ Controller specification

<Model number>
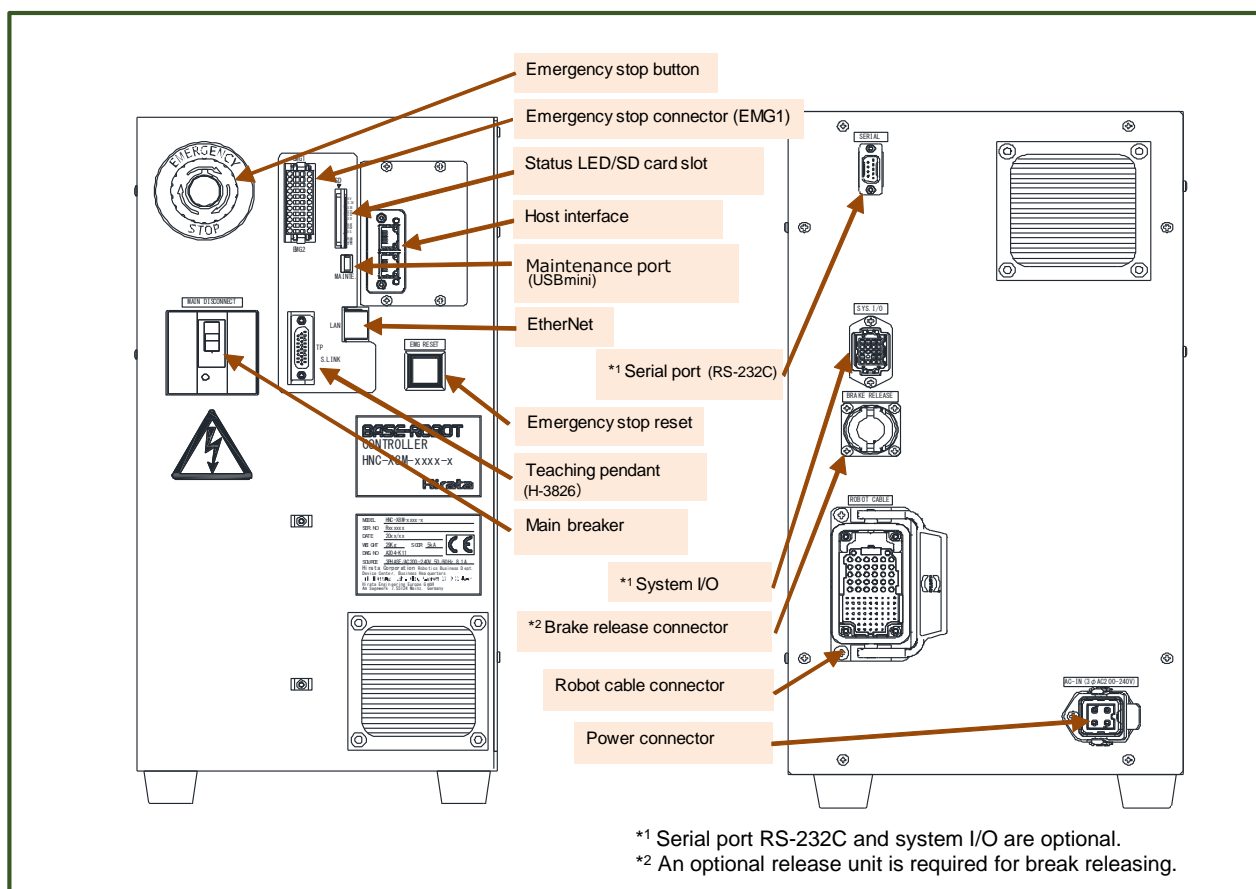
HNC-X8M-0000-6

- Series name
- Spec. number
- Number of axes

Model	HNC-X8M	
Type	Standalone	
Dimensions	W215×D430×H400[mm]	
Weight(max.)	29Kg	
Power source	Single-phase*3 or three-phase	
	AC200V～240V±10%　50/60Hz	
Power capacity	2.8kVA (three-phase)	2.5kVA (single phase)
Rated current	8.1A (three-phase)	12.1A (single-phase)
Safety category	3	
Number of axes	6 axes	

*3 Please consult with Hirata when using the controller with single-phase power.

■ Appearance

215　33.1　431.6　48.7
400
20
4-ゴム脚
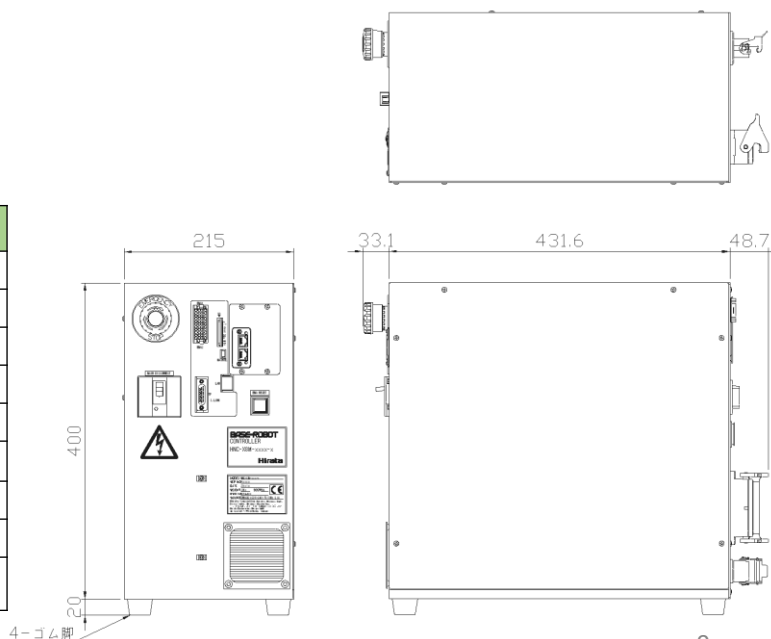
Option

■ Teaching pendant

＜ Example of model number ＞

H-3826-☐-☐-☐-☐

Emergency stop switch label:
  N: No label (normal)
  R: ROBOT STOP
  E: EMERGENCY STOP

Cable length:
  04: 4m (normal)
  08: 8m
  15: 15m

CE marking：
  N : No CE (normal)
  C : Confirming CE

Operation mode key switch:
  K : With key switch
  N : No key switch

External dimensions	114mm（W）×253mm（D）×43mm（H）
Weight	Approx.1 kg（cable excluded）
Display	LCD
	20Digits×8Line, Monochrome
Language	English
Operation interface	Emergency stop switch
	Enable switch (3-position)
	Operation mode switch
Teaching	Registering current position
	Editing registered position data
	Adding and editing position data
	Checking position data
Protection grade	IP54
Parameter setting	Checking and setting parameters
Monitoring	Robot operation monitor (error status)
	Signal monitor（I/O signal status）
	Servo monitor (position, speed, current)

Option

■ PC tools

HrWorks is an integrated development tool for system using robots.
It enables to program and debug using a robot language (HrBasic).
Using the following tools from the installation to start-up shortens required time.
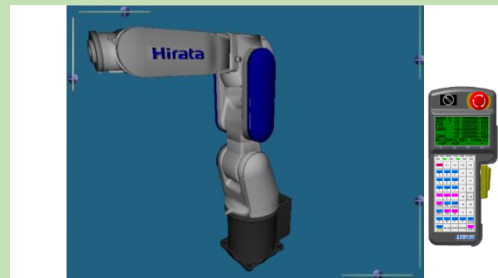
- Collect operation logs -
HrLog

You can collect operation logs easily.
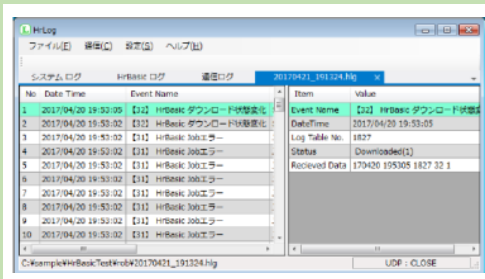
- Check cycle time easily -
WinHNC10/ WinSTP Console

The robot is displayed as a 3D image on the monitor screen of a PC. The image moves like an actual production and emulates robotic system.
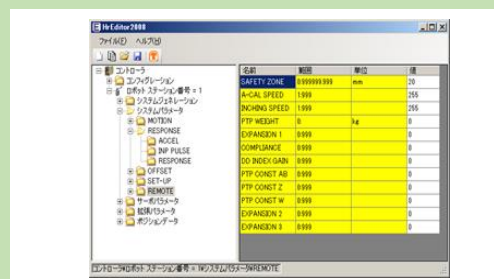

HrWorks

- Get data using a PC -
HrTransfer

Robot data can be uploaded/downloaded between PC and controller.
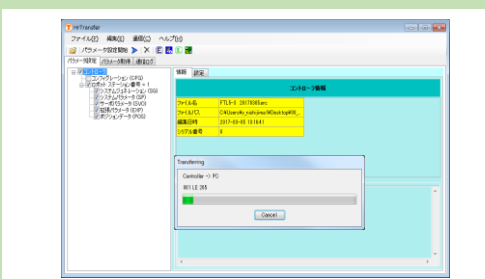
- Edit robot data freely -
HrEditor

HrEditor is computer utility software for editing data on-line and making a backup copy.

Hirata

Robot Division, Hirata Corporation

We are looking for an agent.

111 Hitotsugi, Ueki, Kita, Kumamoto, 861-0198 JAPAN   **TEL**:+81-96-272-3953   **E- MAIL**:robotics@hirata.co.jp

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