KEYENCE

Intuitive Vision System

CV-X Series

Setup Manual

(Area Camera Edition)

Read this manual before use.
Keep this manual in a safe place for future reference.

Examples of Cable Connection Between the Controller and a Camera

This section shows typical examples of cable connections from the controller to the camera. Check cable models that are compatible with the camera to be used in "List of maximum cable lengths by camera" (page 4-5) and use it as a reference for the system configuration to be used.

Connection Examples (When the CA-CH** Cable is Used)
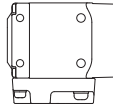
Connecting with one camera cable

Controller
Example: CV-X472
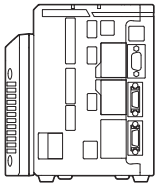
Camera cable
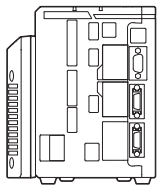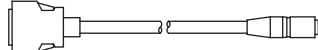Example: CA-CH3, CA-CH10R etc.

Camera
Example: CA-035C,
CA-H048MX etc.

Connecting by using one repeater to extend the camera cable

Controller
Example: CV-X472

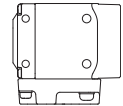Camera cable
Example: CA-CH3, CA-CH10R etc.

Repeater
CA-CHX10U

Repeater camera cable
Example:
CA-CH10X, CA-CH3BEX etc.

Camera
Example:
CA-035C,
CA-H048MX
etc.

Connecting by using two repeaters to extend the camera cable

Controller
Example: CV-X472

Camera cable
Example: CA-CH3, CA-CH10R etc.

Repeater
CA-CHX10U

Repeater camera cable
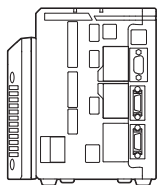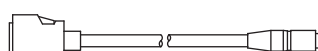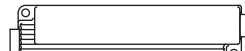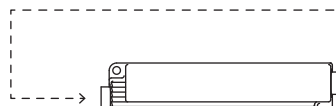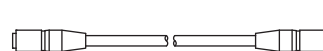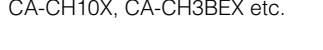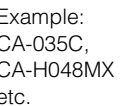Example:
CA-CH10X, CA-CH3BEX etc.

Repeater
CA-CHX10U

Repeater camera cable
Example:
CA-CH10X, CA-CH3BEX etc.

Camera
Example:
CA-035C,
CA-H048MX
etc.

Camera Cables (CA-CH** Series)

| Reference | For information about cameras that can be connected, see "List of maximum cable lengths by camera" (page 4-5). |

Standard type (CA-CH**)

Model	Cable length	Weight
CA-CH3	3 m	290 g
CA-CH5	5 m	440 g
CA-CH10	10 m	880 g

High flex robotic type (CA-CH**R)

Model	Cable length	Weight
CA-CH3R	3 m	250 g
CA-CH5R	5 m	410 g
CA-CH10R	10 m	740 g
CA-CH17R*	17 m	1300 g

* CA-CH17R can only be connected to CA-035C/035M.

L-shaped connector type (CA-CH**L)

Model	Cable length	Weight
CA-CH3L	3 m	270 g
CA-CH5L	5 m	450 g
CA-CH10L	10 m	810 g

High flex robotic extension type (CA-CH3BE)

| NOTICE | • CA-CH3BE cannot be used on its own because it is an extension cable. This is used by connecting CA-CH3/CH3R/CH3L/CH3X to the connector on the controller side.
• CA-CH3BE is comparable to a 7m cable, not a 3m cable due to the electric characteristics. Use this within the range of the maximum extension of the camera that is used by converting it by calculation to a 7m cable. |

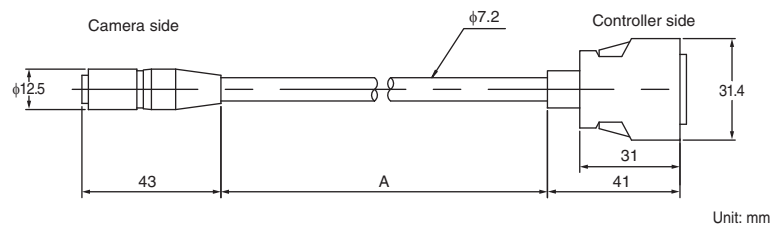| Model	Cable length	Weight
CA-CH3BE	3 m	280 g

Environment resistant type (CA-CH**P)

Model	Cable length	Weight
CA-CH3P	3 m	250 g
CA-CH10P	10 m	750 g

Camera Cables (CA-CH** Series)

| Reference | For information about cameras that can be connected, see "List of maximum cable lengths by camera" (page 4-5). |

Standard type (CA-CH**)

Camera side   φ7.2   Controller side

φ12.5   31.4

43   A   31   41

Unit: mm

Model	Cable length (A)
CA-CH3	3 m
CA-CH5	5 m
CA-CH10	10 m

High flex robotic type (CA-CH**R)

Camera side   φ7.6   Controller side

φ14   φ12.5   31.4

54   A   31   41
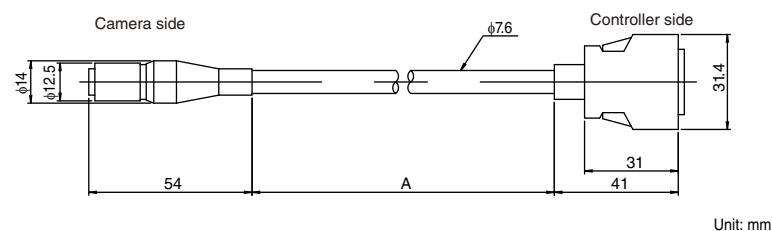
Unit: mm

Model	Cable length (A)
CA-CH3R	3 m
CA-CH5R	5 m
CA-CH10R	10 m
CA-CH17R	17 m

L-shaped connector type (CA-CH**L)

Camera side   φ7.2   Controller side

30   31.4

φ14

38   A   31   41
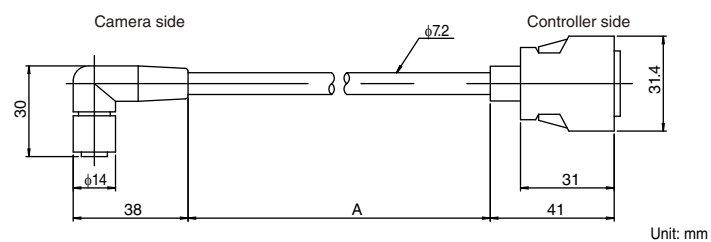
Unit: mm

Model	Cable length (A)
CA-CH3L	3 m
CA-CH5L	5 m
CA-CH10L	10 m

Direction to attach the L-shaped connector

| NOTICE | The direction to attach the L-shaped connector is shown in the figure below. The attachment direction cannot be changed. Make sure to extend the cable downwards |

Cables

Model	Description	Reference page
CA-CN1	Camera cable (CA-CN** Series) (1 m)	Page 4-87
CA-CN3	Camera cable (CA-CN** Series) (3 m)	
CA-CN5	Camera cable (CA-CN** Series) (5 m)	
CA-CN10	Camera cable (CA-CN** Series) (10 m)	
CA-CN17	Camera cable (CA-CN** Series) (17 m)	
CA-CN3R	High flex robotic camera cable (CA-CN** Series) (3 m)	
CA-CN5R	High flex robotic camera cable (CA-CN** Series) (5 m)	
CA-CN10R	High flex robotic camera cable (CA-CN** Series) (10 m)	
CA-CN17R	High flex robotic camera cable (CA-CN** Series) (17 m)	
CA-CN7RE	High flex robotic camera extension cable (CA-CN** Series) (7 m)	Page 4-57
CA-CN3L	L-shape connector camera cable (CA-CN** Series) (3 m)	Page 4-87
CA-CN5L	L-shape connector camera cable (CA-CN** Series) (5 m)	
CA-CN10L	L-shape connector camera cable (CA-CN** Series) (10 m)	
CA-CN17L	L-shape connector camera cable (CA-CN** Series) (17 m)	
CA-CN3BE	High flex robotic camera extension cable (CA-CN** Series) (3 m)	
CA-CH3	Camera cable (CA-CH** Series) (3 m)	Page 4-85
CA-CH5	Camera cable (CA-CH** Series) (5 m)	
CA-CH10	Camera cable (CA-CH** Series) (10 m)	
CA-CH3R	High flex robotic camera cable (CA-CH** Series) (3 m)	
CA-CH5R	High flex robotic camera cable (CA-CH** Series) (5 m)	
CA-CH10R	High flex robotic camera cable (CA-CH** Series) (10 m)	
CA-CH17R	High flex robotic camera cable (CA-CH** Series) (17 m)	
CA-CH3L	L-shape connector camera cable (CA-CH** Series) (3 m)	
CA-CH5L	L-shape connector camera cable (CA-CH** Series) (5 m)	
CA-CH10L	L-shape connector camera cable (CA-CH** Series) (10 m)	
CA-CH3BE	High flex robotic extension cable (CA-CH** Series) (3 m)	
CA-CH3P	Environment resistant camera cable (CA-CH** Series) (3 m)	
CA-CH10P	Environment resistant camera cable (CA-CH** Series) (10 m)	
CA-CNX10U	Camera cable extension amplifier (CA-CN** Series)	Page 2-10, Page 4-58, Page 4-89
CA-CHX10U	Camera cable extension amplifier (CA-CH** Series)	
CA-CN3X	Repeater camera cable (CA-CN** Series) (3 m)	Page 4-89
CA-CN10X	Repeater camera cable (CA-CN** Series) (10 m)	
CA-CN17X	Repeater camera cable (CA-CN** Series) (17 m)	
CA-CH3X	Repeater camera cable (CA-CH** Series) (3 m)	
CA-CH10X	Repeater camera cable (CA-CH** Series) (10 m)	
CA-CH3BEX	Repeater high flex robotic camera cable (CA-CH** Series) (3 m)	
CA-CN3RX	Repeater high flex robotic camera cable (CA-CN** Series) (3 m)	
CA-CN10RX	Repeater high flex robotic camera cable (CA-CN** Series) (10 m)	
CA-CN17RX	Repeater high flex robotic camera cable (CA-CN** Series) (17 m)	
CA-CH10RX	Repeater high flex robotic camera cable (CA-CH** Series) (10 m)	
CA-CN3LX	Repeater L-shape connector camera cable (CA-CN** Series) (3 m)	
CA-CN10LX	Repeater L-shape connector camera cable (CA-CN** Series) (10 m)	
CA-CN17LX	Repeater L-shape connector camera cable (CA-CN** Series) (17 m)	
CA-D2	LED light cable (2 m)	Page 4-139
CA-D5	LED light cable (5 m)	
CA-D3R	High flex robotic LED light cable (3 m)	
CA-D5R	High flex robotic LED light cable (5 m)	
CA-D10R	High flex robotic LED light cable (10 m)	
CA-D17R	High flex robotic LED light cable (17 m)	
CA-D1W	Y-split LED light cable (0.5 m)	
OP-84457	Bare wire LED light cable (1 m)	