

Electric Wire and cable business

High-speed Digital Transmission Cable for Machine Vision

USB3 Vision cables

USB3- * * series

RoHS compliant

Line-up

When you choose a product, check the specifications and performance of your camera to ensure you choose the optimal product type.

[Table 1] Cable line-up

Selection conditions			Line-up					
Wiring use	Standard transmission distance (m)	Durability against movement (Sliding bending / guideline)	Series name	Cable type	(1) Type symbol	Cable diameter (mm)	Standard color	Page
Fixed part	2 ^{Note 1}	-	USB3-T5 series	Small-diameter	T5	5.4	Gray	Page 22
	3 ^{Note 1}		USB3-T8 series	Standard	T8	6.5		
Moving part (Sliding bending)	2 ^{Note 1}	10 million times or more / R: 50 mm ^{Note 2}	USB3-KT5 series	High-grade sliding	KT5	6.3	Black	Page 23
	3 ^{Note 1}	1 million times or more / R: 100 mm ^{Note 2}	USB-KR1 series	Movable	KR1	8.2		
	Standard: 8 (max10) ^{Note 4}	50 million times or more / R: 70 mm ^{Note 2}	USB3-AVT series	AOC small-diameter ^{Note 3}	AVT	5.8	Orange	Page 24
	Standard: 13 (max20) ^{Note 4}	100 million times or more / R: 70 mm ^{Note 2}	USB3-AV series	AOC standard ^{Note 3}	AV	7.0		

Note 1. Transmission distance (cable length) compliant with USB 3.0 standards. Consult us for lengths that exceed the standards.

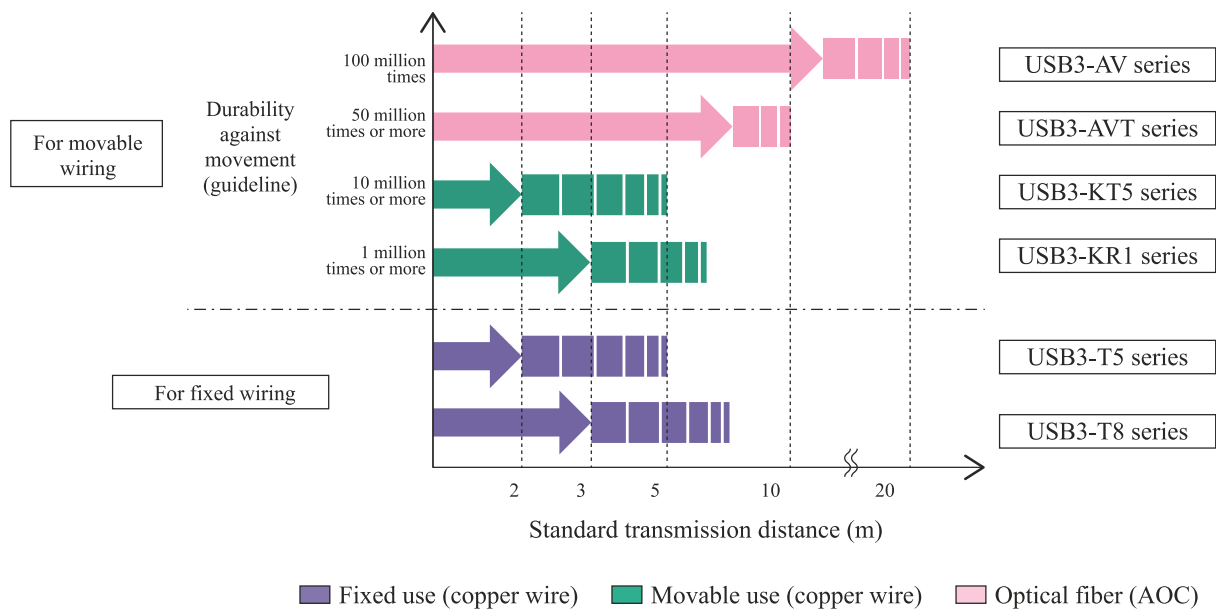
Note 2. Under Oki test conditions and methods. These values are for reference only and are not guaranteed values.

Note 3. Abbreviation of active optical cable (electric/optic conversion cable).

Note 4. Varies by the maximum power consumption of the camera used. (See page 24)

Note 5. This cable cannot be used with equipment that requires compatibility with USB 2.0 as there is no USB 2.0 line.

Guidelines for product selection



Note. We can also manufacture cables in lengths exceeding the standard transmission distance. Contact us for details.

These machine vision interface cables for 5 Gbps high speed transmission can be used for USB3 Vision.
 We offer a full line-up to meet various needs, including fixed-part cables, moving-part cables with excellent durability, and optic fiber (AOC) types suitable for long-distance transmission.

[Table 2] Connector line-up

Connector					Suitable cable		
Type	Shape	Screw lock	Cable projection direction	(2) Board-side connector symbol (3) Camera-side connector symbol	USB3-T5 series USB3-T8 series USB3-KT5 series	USB-KR1 series	USB3-AVT series USB3-AV series
Standard A	Straight	No	—	A	○	○	○
		Yes	—	AS	○	○	—
Standard B	Straight	No	—	B	—	○	—
Micro B	Straight	No	—	MB	—	○	—
		Yes	—	MBS	○	○	○
	Right angle	Yes	Up	MBS(U)	○	○	—
		Yes	Down	MBS(D)	○	○	—
		Yes	Left	MBS(L)	○	—	—
		Yes	Right	MBS(R)	○	—	—

Note 6. Contact us when you want a combination not marked by a check mark (○).

Display of product names

USB3 - (1) - (2) - (3) - (4)

- (1): Cable type symbol (See Table 1)
 - (2): Board-side connector symbol (See Table 2)
 - (3): Camera-side connector symbol (See Table 2)
 - (4): Cable length symbol (See below)
- (Example) 1 m: 010, 2.5 m: 025, 20 m: 200



Small-diameter / standard cables for fixed wiring

USB3 Vision cables

USB3-T5 series

Fixed part

Small-diameter

Features

Narrow and flexible for excellent routing characteristics.

Name

USB3 - T5 - (2) - (3) - (4)

(2): Board-side connector symbol (See page 21)

(3): Camera-side connector (See page 21)

(4): Cable length (See page 21)



Specifications

	UL	UL758 Style 20276
Cable	Rated temp./volt.	80°C / 30 V
	Sheath material	Oil-proof PVC
	Color	Gray
	Outer diameter	5.4 mm
	Flame retardant	VW-1
Complete product	Connector type ^{Note 1}	Standard A Micro B
	Connector color	Black

Note 1. For presence of a screw lock, see page 21.

Performance

Transmission distance	Standard: 2 m ^{Note 2}
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Note 2. Transmission distance (cable length) compliant with USB 3.0 standards. Consult us for lengths that exceed the standards.

Usage environment

Application location	Fixed part
Operation temperature range	-20 to 75°C
Minimum bend radius (Recommended value) ^{Note 3}	30 mm or more

Note 3. The minimum bend radius is the recommended value for stable use.

USB3 Vision cables

USB3-T8 series

Fixed part

Features

A standard cable for fixed wiring.

Name

USB3 - T8 - (2) - (3) - (4)

(2): Board-side connector symbol (See page 21)

(3): Camera-side connector (See page 21)

(4): Cable length (See page 21)



Specifications

	UL	UL758 Style 20276
Cable	Rated temp./volt.	80°C / 30 V
	Sheath material	Oil-proof PVC
	Color	Gray
	Outer diameter	6.5 mm
	Flame retardant	VW-1
Complete product	Connector type ^{Note 1}	Standard A Micro B
	Connector color	Black

Note 1. For presence of a screw lock, see page 21.

Performance

Transmission distance	Standard: 3 m ^{Note 2}
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Note 2. Transmission distance (cable length) compliant with USB 3.0 standards. Consult us for lengths that exceed the standards.

Usage environment

Application location	Fixed part
Operation temperature range	-20 to 75°C
Minimum bend radius (Recommended value) ^{Note 3}	35 mm or more

Note 3. The minimum bend radius is the recommended value for stable use.

Movable wiring cables with excellent sliding durability

USB3 Vision cables

USB3-KT5 series

Fixed part

Moving part

Small-diameter

Features

Provides both thinness and excellent movement (sliding) durability.

Name

USB3 - KT5 - (2) - (3) - (4)

(2): Board-side connector symbol (See page 21) (3): Camera-side connector (See page 21)

(4): Cable length (See page 21)



Specifications

	UL	UL758 Style 20276
Cable	Rated temp./volt.	80°C / 30 V
	Sheath material	Oil-proof PVC
	Color	Black
	Outer diameter	6.3 mm
	Flame retardant	VW-1
Complete product	Connector type ^{Note 1}	Standard A Micro B
	Connector color	Black

Note 1. For presence of a screw lock, see page 21.

Performance

Transmission distance	Standard: 2 m ^{Note 2}
Mobility	Sliding bending: 10 million times or more ^{Note 3} Bend radius R: 50 mm

Note 2. Transmission distance (cable length) compliant with USB 3.0 standards. Consult us for lengths that exceed the standards.

Note 3. Under Oki test conditions and methods. These values are for reference only and are not guaranteed values.

Usage environment

Application location	Fixed or moving part
Operation temperature range	-20 to 75°C
Minimum bend radius (Recommended value) ^{Note 4}	Fixed: 35 mm or more Mobile: 50 mm or more

Note 4. The minimum bend radius is the recommended value for stable use.

USB3 Vision cables

USB3-KR1 series

Fixed part

Moving part

Features

Excellent transmission performance and suitable for long transmission distances.

Name

USB3 - KR1 - (2) - (3) - (4)

(2): Board-side connector symbol (See page 21) (3): Camera-side connector (See page 21)

(4): Cable length (See page 21)



Specifications

	UL	UL758 Style 20276
Cable	Rated temp./volt.	80°C / 30 V
	Sheath material	Oil-proof PVC
	Color	Black
	Outer diameter	8.2 mm
	Flame retardant	VW-1
Complete product	Connector type ^{Note 1}	Standard A Standard B Micro B
	Connector color	Black

Note 1. For presence of a screw lock, see page 21.

Performance

Transmission distance	Standard: 3 m ^{Note 2}
Mobility	Sliding bending: 1 million times or more ^{Note 3} Bend radius R: 100 mm

Note 2. Transmission distance (cable length) compliant with USB 3.0 standards. Consult us for lengths that exceed the standards.

Note 3. Under Oki test conditions and methods. These values are for reference only and are not guaranteed values.

Usage environment

Application location	Fixed or moving part
Operation temperature range	-20 to 75°C
Minimum bend radius (Recommended value) ^{Note 4}	Fixed: 35 mm or more Mobile: 100 mm or more

Note 4. The minimum bend radius is the recommended value for stable use.

Electric Wire and cable business

High-speed Digital Transmission Cable for Machine Vision

Active optical cables suitable for long-distance transmission

The cable contains a high-speed circuit board that converts electrical signals to optical signals in the connector, and signal transmission is carried out over optical fiber.

The cable contains a feeder wire, which makes it optimal for small instruments that cannot accept power from external sources.

(Important) This cable cannot be used with equipment that requires compatibility with USB 2.0 as there is no USB 2.0 line.

USB3 Vision cables

USB3-AVT series

Fixed part	Optical transmission
Moving part	Small-diameter

Features

- Although it has a thin external diameter of 5.8 mm, it supports a maximum transmission distance of 10 m.
- Because it uses optical transmission, it has excellent noise resistance.

Name

USB3 - AVT - (2) - (3) - (4)

(2): Board-side connector symbol (See page 21) (3): Camera-side connector (See page 21)

(4): Cable length (See page 21)



Left) USB3-AV series
Right) USB3-AVT series

Specifications

	UL	UL758 Style 20276
Cable	Rated temp./volt.	80°C / 30 V
	Sheath material	Oil-proof PVC
	Color	Orange
	Outer diameter	5.8 mm
	Flame retardant	VW-1
Complete product	Connector type ^{Note 1}	Standard A Micro B
	Connector color	Black

Note 1. For presence of a screw lock, see page 21.

Performance

Transmission distance	Standard: 8m (max10m) ^{Note 4}
Mobility	Sliding bending: 50 million times or more ^{Note 2}
	Bend radius R: 70 mm

Note 2. Under Oki test conditions and methods. These values are for reference only and are not guaranteed values.

Note 4. As shown below, varies by the maximum power consumption of the camera used.

Maximum power consumption	3.0W	3.5W	4.0W
Maximum transmission distance	10m	9m	8m

Usage environment

Application location	Fixed or moving part
Operation temperature range	-10 to 70°C
Minimum bend radius (Recommended value) ^{Note 3}	40 mm or more

Note 3. The minimum bend radius is the recommended value for stable use.

USB3 Vision cables

USB3-AV series

Fixed part	Optical transmission
Moving part	

Features

- Supports a maximum transmission distance of 20 m.
- Has a sliding durability of over 100 million times (R = 70 mm)
- Because it uses optical transmission, it has excellent noise resistance.

Name

USB3 - AV - (2) - (3) - (4)

(2): Board-side connector symbol (See page 21) (3): Camera-side connector (See page 21)

(4): Cable length (See page 21)



Specifications

	UL	UL758 Style 20276
Cable	Rated temp./volt.	80°C / 30 V
	Sheath material	PVC
	Color	Orange
	Outer diameter	7.0 mm
	Flame retardant	VW-1
Complete product	Connector type ^{Note 1}	Standard A Micro B
	Connector color	Black

Note 1. For presence of a screw lock, see page 21.

Performance

Transmission distance	Standard: 13m (max20m) ^{Note 4}
Mobility	Sliding bending: 100 million times or more ^{Note 2}
	Bend radius R: 70 mm

Note 2. Under Oki test conditions and methods. These values are for reference only and are not guaranteed values.

Note 4. As shown below, varies by the maximum power consumption of the camera used.

Maximum power consumption	2.5W	3.0W	3.5W	4.0W
Maximum transmission distance	20m	17m	15m	13m

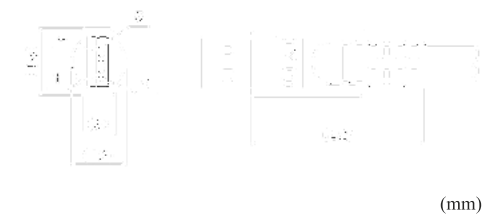
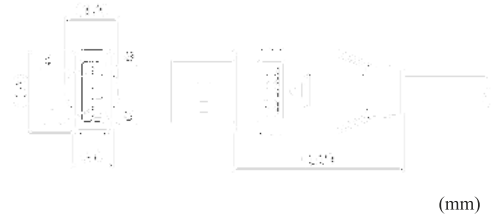



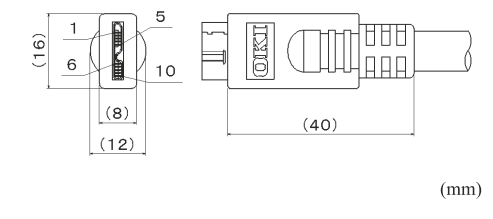

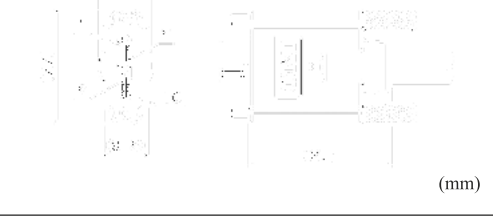
Usage environment

Application location	Fixed or moving part
Operation temperature range	-10 to 70°C
Minimum bend radius (Recommended value) ^{Note 3}	50 mm or more

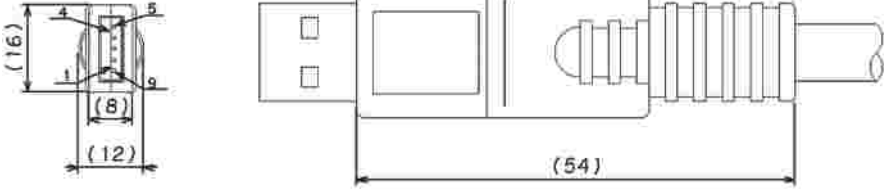
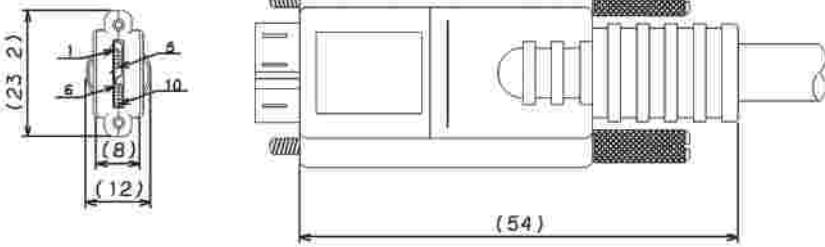
Note 3. The minimum bend radius is the recommended value for stable use.

Connector dimension diagrams

For USB3-T5 series, USB3-T8 series, USB3-KT5 series, and USB3-KR1 series (1)

Type/model	Symbol	Dimension diagram	
(1) Cable type symbol		KR1	T5, T8, KT5
Standard A Straight	A	 <p>(mm)</p>	 <p>(mm)</p>
Standard A Straight With screw lock	AS	 <p>(mm)</p>	 <p>(mm)</p>
Standard B Straight	B	 <p>(mm)</p>	—
Micro B Straight	MB	 <p>(mm)</p>	—
Micro B Straight With screw lock	MBS	 <p>(mm)</p>	 <p>(mm)</p>

For USB3-AV series and USB3-AVT series

Type/model	Symbol	Dimension diagram
(1) Cable type symbol		AV, AVT
Standard A Straight	A	 <p style="text-align: right;">(mm)</p>
Micro B Straight With screw lock	MBS	 <p style="text-align: right;">(mm)</p>