Control unit
UQ1-01

Can be connected to Mitsubishi Electric PLCs! The industry's first displacement sensor control unit

With three industry firsts, this unit enables high-speed connection of displacement sensors!
Easy connection and set up.

Selection table

Type	Applicable models	Model
Displacement sensor control unit	CD5 series	UQ1-01

With three industry firsts, this unit enables high-speed connection of displacement sensors!

Industry first Internal automatic processing

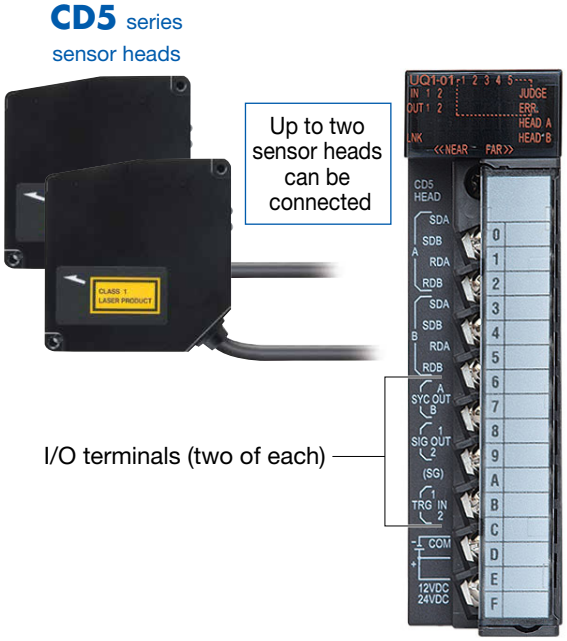
No load on the CPU

The UQ1 obtains measured values from the displacement sensor automatically and updates calculation results and judgment in periods with maximum speed of 100 µs.
These processes are performed by the UQ1 unit itself so there is no load on the CPU.

Industry first Equipped with I/O terminal

High-speed response up to 100 µs

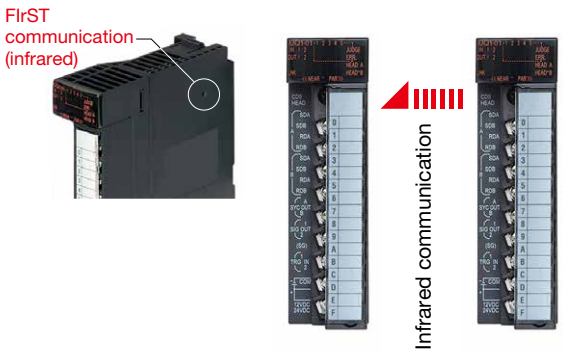
By equipping I/O terminals (2 each) to the UQ1, high-speed response times of max. 100 µs have been achieved independent of the CPU scan times.



Industry first Infrared communication between UQ1s

High-speed unique infrared communication "FIrST"

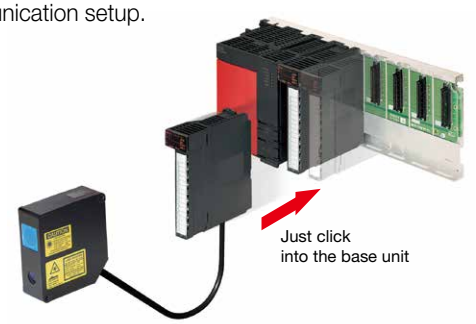
UQ1 units can communicate through "FIrST" infrared communication which was originally developed for the UQ1 series.
Calculations such as adding values from displacement sensor connected to other units can be processed at maximum speed of 100 µs.



Easy connection and set up.

Communication setup is not needed

UQ1 series is recognized simply by installing on the MELSEC-Q series base unit with no communication setup required. Unit setup is not necessary, nor is displacement sensor communication setup.



Easy-to-read LED display

Although only the communication status was displayed in the case of conventional general-purpose communication units, UQ1 series models feature a greatly expanded display that enable the following statuses to be confirmed.

- Measurement results
- Error display (head disconnection, etc.)
- I/O status
- Bar graph
  (simple distance display, received light waveform display)

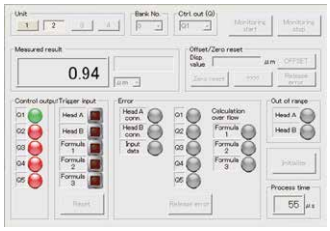
Software with intuitive operation

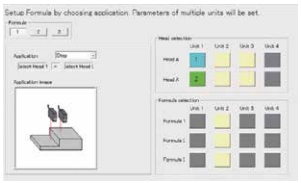
Dedicated software “UQ1 Navigator” is now available (free-of-charge). Easily access the intuitive software, change the setup parameters and check the measurement status without knowledge of PLC and ladder programming.

Downloadable for free at the Optex FA homepage

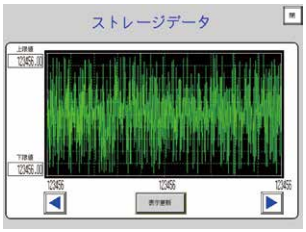
Touch panel is also easy to use

Data for GOT touch panels and sample ladder data are also available. Operation confirmation can be performed just by installing the sample data. Also, because the UQ1 features an embedded storage function, saving and batch acquisition of all measurement data is possible.


Main menu


Calculation settings

Measurement results



Data storage

Specifications

Number of occupied I/O points		32-points, 1 slot
Sampling period		Max. 100 μs
Communication method (between adjacent units)		Infrared ray
Terminal block	Usable wire	Core 0.3 to 0.75 mm² (outer diameter 2.8 mm or less)
	Usable solderless terminal	R1.25-3 without sleeve
Protocol (Between UQ1 to CD5)	No. of sensor head	Max. 2 heads
	Protocol	RS-422
	Baud rate	921.6 kbps
	Cable	DOL-1212-G□□M
	Cable extension	Up to 50 m using an optional extension cable (not included)
Judgment output	I/O terminals	2 Input / 2 Output
	Mode	NPN open collector output
	Output voltage	12 to 24 VDC (±10%)
	Output current	80 mA (12 to 24 VDC)
	Residual voltage	2 V or less
	Leak current	0.2 mA or less
	Protection	Overcurrent detection circuit

Trigger input	Conditions	ON when connected to ground
	Voltage	ON voltage: 1.0 V or less / OFF voltage: 2.0 V or more
	Input impedance	Approx. 10 kΩ
Functions		Sensor head settings, control output, calculation, various hold functions, filter function, bank settings, storage function
High speed logging point		Max. 262,144 points
EEPROM overwriting limit		Max. 1,000,000 times for same memory area
5 VDC current consumption		0.5 A or less
Noise tolerance		500 V p-p (simulator), Noise width: 1 μs Fast transient noise 1 kV (IEC 61000-4-4)
Insulation resistance		Min. 10 MΩ (insulation resistance meter)
Environmental resistance	Degree of protection	IP2X
	Ambient temperature	-10 to +55°C (no freezing or condensation)/ When stored: -20 to +70°C
	Ambient humidity	35 to 85% RH / When stored: 35 to 85% RH
	Vibration resistance	10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions
Applicable regulations		EMC directive (2004/108/EC)
Applicable standards		EN 61131-2
Dimensions		98 (H) × 27.4 (W) × 90 (D) [mm]
Weight		Approx. 150 g

● Added CD5-150/-W150 sensor head models can be used with UQ1-01 of Ver. 104 or later. Please inquire when using UQ1-01 of Ver. 103 or earlier.

Control unit
UQ1-02

Can be connected to Mitsubishi Electric PLCs! The industry's first displacement sensor control unit

With three industry firsts, this unit enables high-speed connection of displacement sensors!
Easy connection and set up.

Selection table

Type	Applicable models	Model
Displacement sensor control unit	RS-422 type of the CD33 series	UQ1-02

With three industry firsts, this unit enables high-speed connection of displacement sensors!

Industry first Internal automatic processing

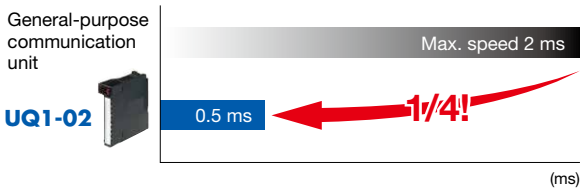
No load on the CPU

The UQ1 obtains measured values from the displacement sensor automatically and updates calculation results and judgment in periods with maximum speed of 500 µs. These processes are performed by the UQ1 unit itself so there is no load on the CPU.

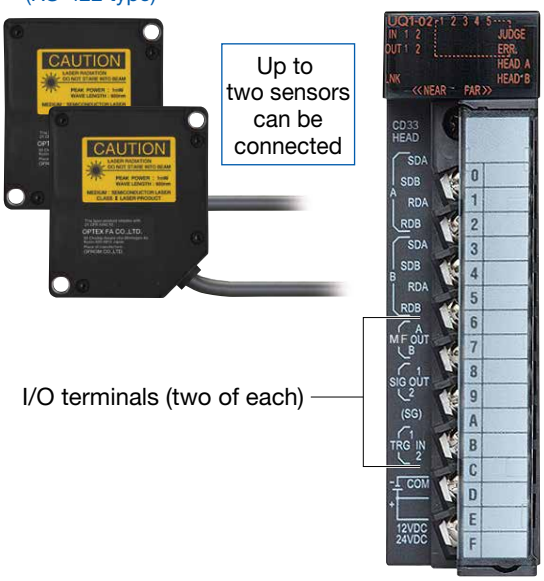
Industry first Equipped with I/O terminal

High-speed response up to 500 µs

By equipping I/O terminals (2 each) to the UQ1, high-speed response times of max. 500 µs have been achieved independent of the CPU scan times.



CD33 series
(RS-422 type)



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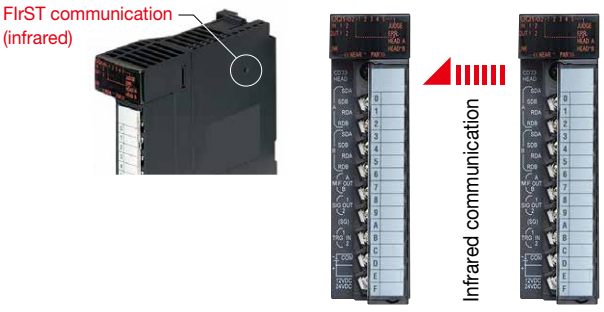

Easy connection and set up.

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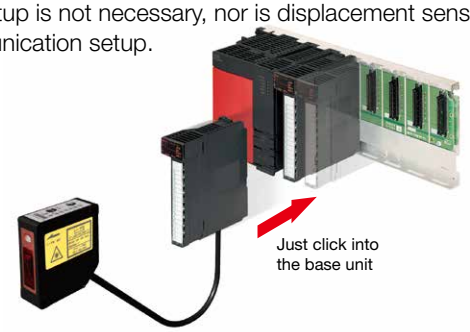

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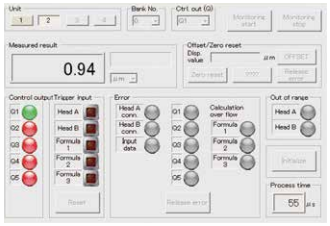
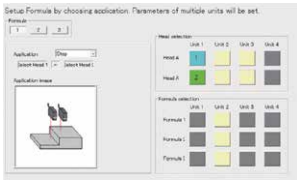
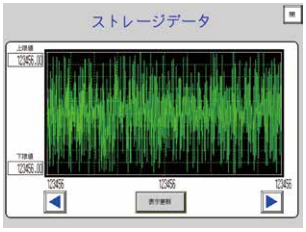


Main menu


Calculation settings

Measurement results



Data storage

Specifications

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Sampling period		Max. 500 μs
Communication method (between adjacent units)		Infrared ray
Terminal block	Usable wire	Core 0.3 to 0.75 mm² (outer diameter 2.8 mm or less)
	Usable solderless terminal	R1.25-3 without sleeve
Protocol (Between UQ1 to CD33)	No. of sensor	Max. 2 sensors
	Protocol	RS-422
	Baud rate	256 kbps
Judgment output	I/O terminals	2 Input / 2 Output
	Mode	NPN open collector output
	Output voltage	12 to 24 VDC (±10%)
	Output current	80 mA (12 to 24 VDC)
	Residual voltage	2 V or less
	Leak current	0.2 mA or less
	Protection	Overcurrent detection circuit
Trigger input	Conditions	ON when connected to ground
	Voltage	ON voltage: 1.0 V or less / OFF voltage: 2.0 V or more
	Input impedance	Approx. 10 kΩ

Functions		Sensor settings, control output, calculation, various hold functions, bank settings, storage function
High speed logging point		Max. 262,144 points
EEPROM overwriting limit		Max. 1,000,000 times for same memory area
5 VDC current consumption		0.5 A or less
Noise tolerance		500 V p-p (simulator), Noise width: 1 μs Fast transient noise 1 kV (IEC 61000-4-4)
Insulation resistance		Min. 10 MΩ (insulation resistance meter)
Environmental resistance	Degree of protection	IP2X
	Ambient temperature	-10 to +55°C (no freezing or condensation)/ When stored: -20 to +70°C
	Ambient humidity	35 to 85% RH / When stored: 35 to 85% RH
	Vibration resistance	10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions
Applicable regulations		EMC directive (2004/108/EC)
Applicable standards		EN 61131-2
Dimensions		98 (H) × 27.4 (W) × 90 (D) [mm]
Weight		Approx. 150 g