

CC-Link I/O DATA Structure

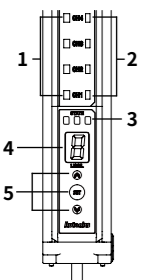
- HIGH: ON, LOW: OFF for bit status.
- Since the above is based on the product of 24 CH, the number of I/O is changeable by product.
- CC-Link I/O data structure consists of the number of CH+ERROR output BIT+ALARM output BIT.

Address	Description	Address	Description
I/O0 [RX00]	CH1 status	I/O16 [RX00]	CH17 status
I/O1 [RX01]	CH2 status	I/O17 [RX01]	CH18 status
I/O2 [RX02]	CH3 status	I/O18 [RX02]	CH19 status
I/O3 [RX03]	CH4 status	I/O19 [RX03]	CH20 status
I/O4 [RX04]	CH5 status	I/O20 [RX04]	CH21 status
I/O5 [RX05]	CH6 status	I/O21 [RX05]	CH22 status
I/O6 [RX06]	CH7 status	I/O22 [RX06]	CH23 status
I/O7 [RX07]	CH8 status	I/O23 [RX07]	CH24 status
I/O8 [RX08]	CH9 status	I/O24 [RX08] ⁽⁰¹⁾	ERROR output BIT
I/O9 [RX09]	CH10 status	I/O25 [RX09] ⁽⁰¹⁾	ALARM output BIT
I/O10 [RX10]	CH11 status		
I/O11 [RX11]	CH12 status		
I/O12 [RX12]	CH13 status		
I/O13 [RX13]	CH14 status		
I/O14 [RX14]	CH15 status		
I/O15 [RX15]	CH16 status		

(01) It operates as a-contact. (0: normal state, 1: error state)

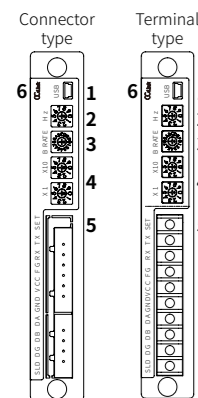
Unit Descriptions

Slave



1	Output indicator (red)
2	Stability indicator (green)
3	Status indicator (green, yellow, red)
4	Status display
5	Mode setting key

Master

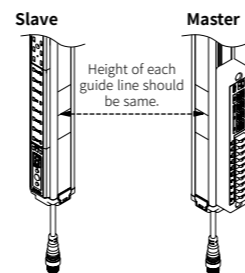


1	USB port: This port is only for firmware upgrade, run mode change, and A/S. Do not use this port for the another purpose, or the product can malfunction.
2	Frequency setting switch (Hz): This switch is for setting mutual interference prevention function.
3	Comm. speed setting switch (B RATE): You can set CC-Link communication speed.
4	Comm. address setting switch: You can set CC-Link address. (×10: 10 ¹ , ×1: 10 ⁰)
5	Output part
6	Comm. status indicator: It displays the communication status through LED.

Installation and Adjustment

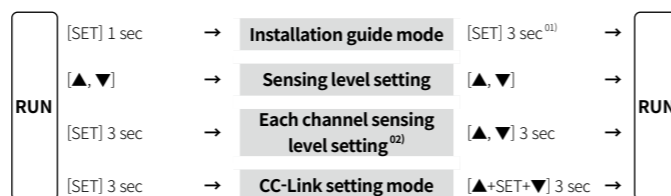
- If optical axis are not coincident, yellow LED of the status indicator flashes at 0.5 sec interval, and output indicator (red, slave) and stable indicator (green, master) light off. Please readjust the position of Master and Slave and execute teaching again.
- Avoid using the unit in the place where the sensor is exposed directly to the fluorescent light with high speed start or high frequency.

- 01) Mount Master and Slave to face each other.
- 02) Place a glass plate at the guide line and adjust sensor height.
- 03) Touch [SET] key of Slave once without a glass plate and it enters installation guide mode. (shorting SET (gray) and GND (blue) has same function.)



- 04) Adjust Master and Slave up/down/right/left, and check the place where output/stability indicators flash (It displays coincidence of optical axis of all CHs.) and status indicator lights ON. Fix them at this place by tightening screws (tightening torque: 0.39 to 0.49 N m).
- 05) Pressing [SET] key for over 3 sec completes teaching and operates the device in RUN mode.

Mode Switching Method

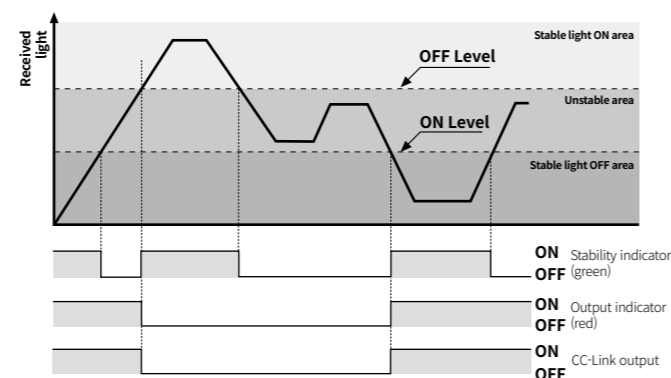


01) Entering to the installation guide mode and pressing [SET] key for 3 seconds starts teaching, and the product returns to the run mode after teaching completed.

02) When the status display is Δ , select channel to change using [▲, ▼] key and press key. When number of channel is flashing, set sensing level using [▲, ▼] key.

Operation Timing Chart

Light ON mode



• In Dark ON mode, the waveforms are reversed.

Operation Indicator

☀	ON	●	OFF	⦿	Flashing at 0.5 sec interval
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[Slave] CH indicator

Item	Output (red)	Stability (green)	Item	Output (red)	Stability (green)
Stable light ON	●	☀	Stable light OFF	⦿	⦿
Unstable light ON	●	●	Unstable light OFF	⦿	●
Teaching error	⦿	⦿			

[Slave] Status indicator

Item	CH indicator ⁽⁰¹⁾	Status display	Operation indicator			CC-Link output ⁽⁰²⁾
			Green	Yellow	Red	
Normal operation	-	Sensing level	☀	●	●	-
Teaching error	Flashing (error channel)	-	●	⦿	●	Outputting H at relevant CH, N+1
Malfunction of synchronous line (communication error)	Flashing (all LED)	Δ to 9 or C	⦿	⦿	⦿	Outputting H at N+1, Outputting H or L at N+2
Emitter damage	Flashing at 0.25 sec interval (LED of the CH)	n	⦿	●	⦿	Outputting H at 1 to N+1
Installation guide mode	Coinciding all CHs optical axis	Flashing (all CHs)	☀	●	●	Outputting H at all CHs
	Optical axis coinciding CH	Flashing (LED of the CH)	n	●	●	
Teaching	Optical axis not coinciding CH	OFF (LED of the CH)	●	⦿	●	Outputting H at all CHs
	Coinciding all CHs optical axis	ON (all CHs)	☀	●	⦿	
	Optical axis coinciding CH	ON (LED of the CH)	Δ	●	⦿	
Optical axis misalignment alarm	—	-	⦿	☀	⦿	Outputting H at N+2
	Individual optical axis controlling mode	Flashing (relevant CH)	Δ to 9	●	☀	-
CC-Link setting change	No. of occupied station	Flashing (CH 1)	5	●	☀	all CHs, Outputting N+1
	Version	Flashing (CH 2)	C	●	☀	

01) Except normal operation, stability indicator (green) stands for the master and output indicator (red) stands for the slave.

02) N stands for all channel.

[Master] Communication status indicator

Item	Comm. status indicator
Connected status	Simultaneous ON (green, red)
Pre connection status	ON (green)
Error	ON (red)

Functions

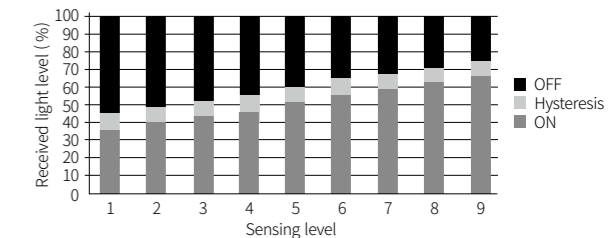
Installation guide mode

This function displays whether the sensing target is in the stable position of the guide line when installing the product through the output indicator. Entering installation guide mode and pressing [SET] key starts teaching. When teaching, this function detects channels with unstable received light level and adjust received light level of all channels to the same level.

Sensing level setting

This function sets sensitivity by dividing received light into 9 levels for stable sensing. Use this function when some of the channels shows low sensing level due to the bent glass plate or diffused reflection. Factory default is level 5.

- You can change sensing level of each channel separately in the each channel sensing level setting mode.
- When using the sensing level setting function after setting each channel sensing level using the each channel sensing level setting mode, sensing level settings of each channel are reset.



Mutual interference prevention (transmitted light frequency change)

When you install more than two products, there is a risk of mutual interference. Change the frequency to prevent this interference. Set the using the setting switch of the emitter / receiver.

Mark	FREQ.	Mark	FREQ.
0	A	3	D
1	B	4~9	Not used
2	C		

Optical axis misalignment alarm (low light intensity alarm)

Emitted light level can be reduced due to warped product or long-term usage. When nothing is detected during operation, this function checks received light level and outputs alarm at 'OFF level + \approx 3 %' of received light level. Emitted light level is returned to the normal level with teaching.

Emitter damage alarm

Outputs alarm when emitter is damaged due to the long-term usage of emitter elements or strong impact to the product.

Self-diagnosis

Mapping sensor is able to self-diagnose periodically in normal operation.

If error occurs, status indicator displays in which part error occurs.

- Malfunction of synchronous line
: If there is malfunction of synchronous line, it displays error and outputs signal.

Troubleshooting

Malfunction	Cause	Troubleshooting
Non-operation	Power supply	Supply the rated power.
	Cable cut, disconnection	Check the wiring.
Non-operation in sometimes	Sensor cover pollution by dirt	Remove dirt by soft brush or cloth and set sensitivity again.
	Connector connection failure	Check the connection area of connector.
Output is ON without a target	Initial sensitivity setting goes wrong	Remove the cause and set sensitivity again.
	There is a strong electric wave or noise generator.	Put away motor, electric generator, or high voltage line.