0808880

FASTUS
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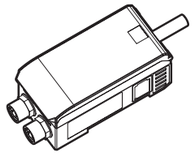
INSTRUCTION MANUAL

Displacement sensor amplifier unit

CDA-DM2



OPTEX FA CO.,LTD.

- Thank you for purchasing the CDA-DM2 displacement sensor amplifier unit.
- Before using this product, please read this manual carefully to ensure proper use.
- Read this manual thoroughly, and then keep this manual at hand so that it can be used whenever necessary.
- The warranty period of this product is one year after delivery. However, any fault attributable to natural disasters or any other similar disasters or modification or repair will be excluded from the scope of the warranty.

Safety Precautions

Safety precautions for ensuring safe operation of this product are displayed as follows with the following symbols.
Precautions listed here describe important information about safety. Make sure to follow them accordingly.

Safety Symbols

⚠WARNING	Indicates that any improper operation or handling may result in moderate or minor injury, and in rare cases, serious injury or death. Also indicates a risk of serious property damage.
⚠CAUTION	Indicates that any improper operation or handling may result in minor injury or property damage.

⚠WARNING

- Do not disassemble, repair, modify, deform under pressure, or attempt to incinerate this product. Doing so may cause injury or fire.
- This product is not explosion-proof and should not be used around flammable or explosive gases or liquids. Doing so may cause ignition resulting in an explosion or fire.
- Do not use air dusters or any spray that uses flammable gas around the product or on the inside of the product. Doing so may cause ignition resulting in an explosion or fire.
- Do not install this product in any of the following locations. Doing so may cause a fire, damage, or a malfunction.
  1. Locations where dust, salt, iron powders, or vapor (steam) is present.
  2. Locations subjected to corrosive gases or flammable gases.
  3. Locations where oil or chemical splashes may occur.
  4. Locations where heavy vibrations or impacts may occur.
  5. Locations where the ambient temperature exceeds the rated range.
  6. Locations subject to rapid temperature changes (or where condensation occurs).
  7. Locations with strong electric or magnetic fields.
  8. Outdoor locations or locations subject to direct light.
- Do not use this product in a non-industrial setting. Doing so may cause induction or radiation interference.
- This product is not intended for use with nuclear power, railways, aviation, vehicles, medical equipment, food-handling equipment, or any application where particular safety measures are required. Absolutely do not use this product for any of these fields.
- This product cannot be used in applications that directly or indirectly detect human bodies for the purpose of ensuring safety. Do not use this product as a detection device for protecting the human body.
- What to do in the event of a malfunction such as smoke being emitted from the product
  If you detect any malfunction including emission of smoke, abnormal smells or sounds, or the body becoming very hot, immediately stop operating the product and turn off the sensor power. Failure to do so may cause a fire. Repairing the product is dangerous and should in no way be performed by the customer. Contact an OPTEX FA sales representative for repairs.

⚠CAUTION

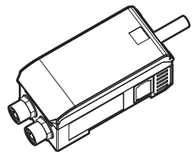
- Make sure to turn the power off before wiring the cable or connecting/disconnecting the connector. Connecting or disconnecting while energized may damage the product or cause electric shock.
- Avoid using the transient state while the power is on (100 ms). Output could become unstable, causing unexpected operation.
- Do not wire with high voltage cables or power lines. Doing so may cause malfunction or damage by induction.
- Do not bend the cable when below the freezing point. This may cause the cable to break.
- Do not drop the product or subject the product to strong impacts. Doing so may damage the product.
- Follow the instructions in this manual or the specified instruction manual when wiring the product or the dedicated controller for the correct wiring method. Incorrect wiring can damage the product or the controller, or cause a malfunction.
- When disconnecting the connector, be careful not to touch the terminals inside the connector, and do not allow foreign objects to enter the connector.
- Install this product as far away as possible from high-voltage equipment, power equipment, equipment that generates large switching surges, inverter motors, welders, or any equipment that can be a source of noise.
- When connecting or disconnecting the cable, make sure to hold it by the connector portion, and do not apply excessive force to the cable.

Handling Precautions

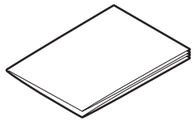
- After carefully considering the intended use, required specifications, and usage conditions, install and use the product within the specified ranges.
- All specifications may be changed without notice.
- When using this product, it is the responsibility of the customer to ensure necessary safety designs in hardware, software, and systems in order to prevent any threat to life, physical health, and property due to product malfunction or failure.
- Do not use this product for the development of weapons of mass destruction, for military use, or for any other military application. Moreover, if this product is to be exported, comply with all applicable export laws and regulations, including the "Foreign Exchange and Foreign Trade Act" and the "Export Administration Regulations," and carry out the necessary procedures pursuant to the provisions therein.
- For more details on conformity to the Restriction of Hazardous Substances Directive for this product, please contact an OPTEX FA sales representative. Before using this product, fully examine the applicable environmental laws and regulations, and operate the product in conformity to such laws and regulations. OPTEX FA does not assume any responsibility for damages or losses occurring as a result of noncompliance with applicable laws and regulations.
- Detection characteristics and digital display values may vary depending on the state of the target object and variations among individual products.

1. Included Accessories

Confirm that the following accessories are included in the box.



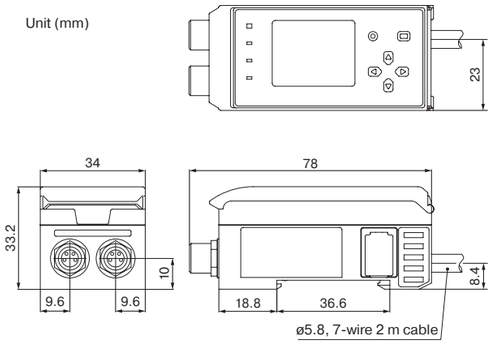
・CDA-DM2



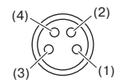
・This instruction manual

2. Dimensions

Unit (mm)



[M8 connector]

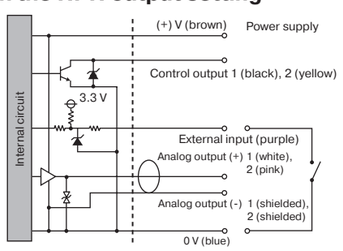


Pin No.	Function
(1)	12 to 24 VDC ±10%
(2)	RS-485 (B)
(3)	0 V
(4)	RS-485 (A)

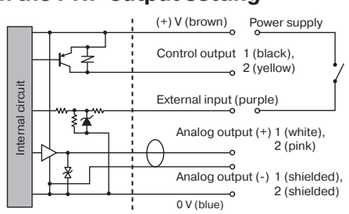
3. I/O Circuit Diagram

The input/output circuits of this unit are as follows.
Use the settings to switch between NPN and PNP outputs.

With the NPN output setting

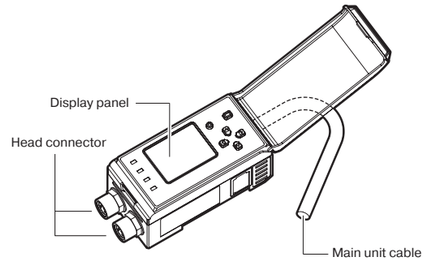


With the PNP output setting

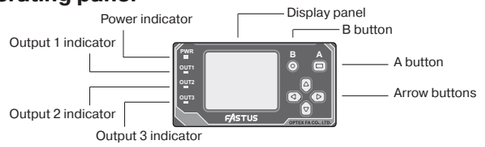


* Use shielded cables for analog output (+) and analog output (-), and wire as a pair up to the analog input device.

4. Part Names



Operating panel



Indicators

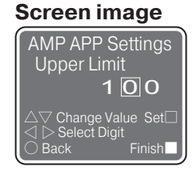
Name	Color	Indication
Power supply	Green/Red	Green: Power on Red: Head communication error Flashing: In power-saving mode
Output 1 indicator	Orange	Lit: Output 1 ON Not lit: Output 1 OFF
Output 2 indicator	Orange	Lit: Output 2 ON Not lit: Output 2 OFF
Output 3 indicator	Orange	Lit: Output 3 ON Not lit: Output 3 OFF

5. Basic Operations

Button types and operations

Button shape	Name	On-screen display	Function
▭	A button	□	Quick press (less than 2 sec.): "Set"
		■	Long press (2 sec. or more): "Finish"
○	B button	○	"Cancel"
△ ▽	Up/down buttons	△▽	Select item; Increase/decrease value
◁ ▷	Left/right buttons	◁▷	Select menu

Screen image



* The language selection screen is displayed when the power is turned on for the first time. Use △/▽ to select the desired language, and press □ (A button) to confirm the selection.
* The language can be changed at any time from the "Expert Mode" menu.

6. Functions

Power-save display

If no button operation is detected for 10 minutes, the settings and measurement displays will turn off.
During this period, the PWR LED (power indicator) will flash every second.
Pressing any button will return the display to normal. Return operation is also possible when the keys are locked.

External input

Functions such as offset execution can be assigned to external inputs.
Assigned functions will work simultaneously on the Ch 1 and Ch 2 heads.

High-accuracy analog output

The CDA-DM2 is equipped with two 16-bit resolution analog output circuits.
The voltage and current for each analog output can be independently switched as desired, and output values can be specified as measurement values or calculation results for each channel as desired.
For details, see the CDA series user's manual.

Key lock/unlock

Press and hold ○ (B button) for at least 2 seconds on the measurement screen or calculation results display screen to lock the keys.
While the keys are locked, "Key Locked" is displayed at the bottom of the measurement screen.
Press and hold ○ (B button) again for at least 2 seconds to unlock the keys.

7. Connectable Devices

Compatible sensor heads

- TD1 series through-beam edge sensor
- CD22 series compact laser displacement sensor (RS-485 communication type)
- CDX series ultra high-accuracy laser displacement sensor

* For connection details, see the instruction manual for the specific sensor head.

Communication units

- UC1 series communication unit
- CDA-S displacement sensor amplifier unit (slave unit)

* For connection details, see the instruction manual for the specific unit.

8. Specifications

Model		CDA-DM2 (Master unit)
Mounting method		DIN rail mounting
Sensor head	Max. number of connections	2 units
	Connector	M8, 4-pin
	Protocol	RS485-compliant (max. length of extension cable: 10 m)
Display	Measurement value/ setting	128 × 96 dot matrix display; Japanese/English (selectable)
	Indicators	Power: Green, Output: Orange
I/O	External input	1 input (enabled for Ch 1 and Ch 2)
	Control output	2 outputs, PNP/NPN selectable; Open collector; 24 VDC / 100 mA or less; Residual voltage: 1.8 V or less
	Analog output	2 outputs, voltage/current selectable Current: 4 to 20 mA (Max. load: 300 Ω) Voltage: 0 to 10 V (Output impedance: 100 Ω)
Ratings	Supply voltage	12 to 24 VDC ±10%
	Current consumption	120 mA or less (at 12 V) *1
Environmental resistance	Protection circuit	Reverse connection protection,overcurrent protection
	Degree of protection	IEC standard, IP50
	Ambient temperature/ humidity	−20 to +50°C / 35 to 85% RH (no freezing or condensation)
	Storage temperature/ humidity	−20 to +60°C / 35 to 85% RH (no freezing or condensation)
	Vibration resistance	10 to 55 Hz; double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions
	Shock resistance	500 m/s² (approx. 50 G); 3 times in each of the X, Y, and Z directions
Material		PC
Weight		170 g

*1:Does not include current supplied to any connected sensor head or slave unit.

- Support for the China RoHS directive

For details on the support for the China RoHS directive, see the following website.
https://www.optex-fa.jp/rohs_cn/