CMA-1101 Series

CONTROLLER

Non-contact

Long-term stability

Digital output

Facilitated in handling

High accuracy

Realized 10bit in 100mm stroke

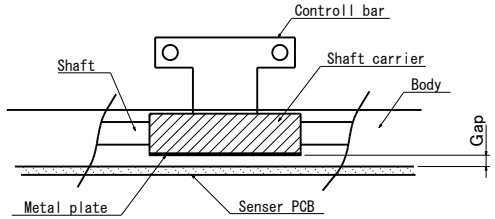
Model number

CMA-1101 - M8V

Product type
CMA-1101: 100mm

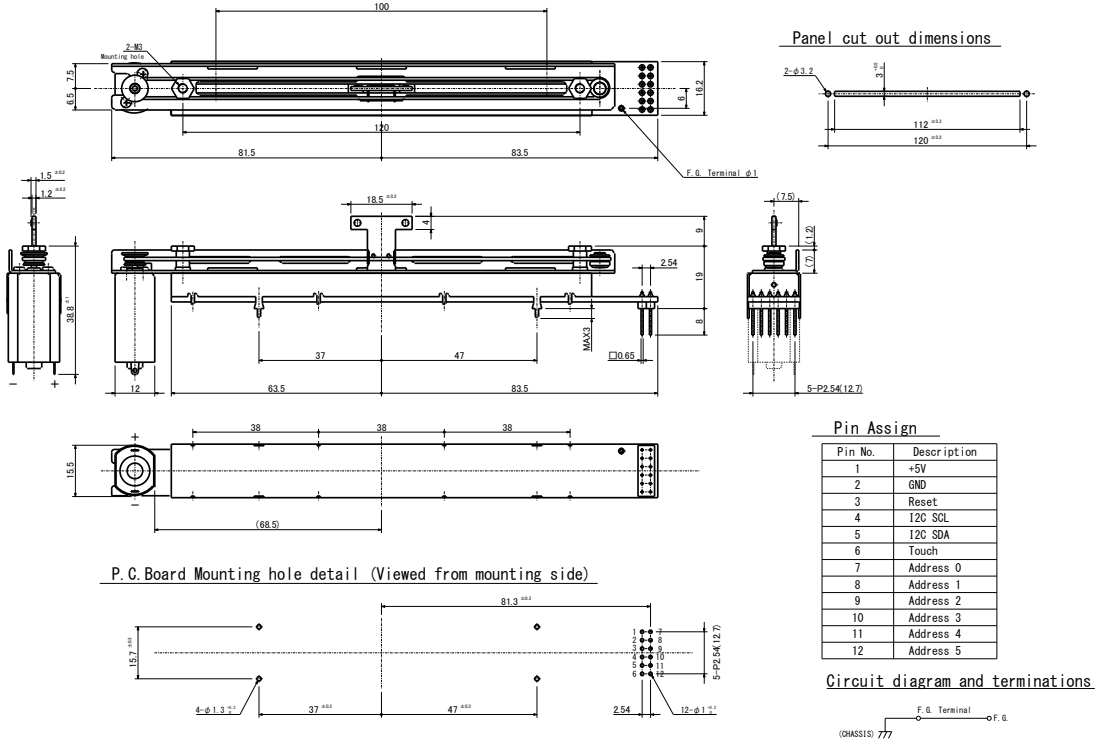
DC-motor
M8V: 8V DC motor
(MABUCHI)

Structure



Simple structure of a sensor board and the metal plate which do not touch it each other.

Dimensions



Pin No.	Description
1	+5V
2	GND
3	Reset
4	I2C SCL
5	I2C SDA
6	Touch
7	Address 0
8	Address 1
9	Address 2
10	Address 3
11	Address 4
12	Address 5

Electrical specifications

	CMA-1101
Sensor system	Electrostatic capacitance type sensor
Output value	Incremental type
Communication system	I^2C Slave
Operating voltage	5V: ±0.25V
Max. operating current	4mA Max. (Motor drive electricity is excluded.)
Resolution	10bit (0~1023)
Output Law	1bit = 100mm/1024 (Linear)
Bit error	±3bit
Voltage proof	1 Min. at AC100V
Insulation resistance	50Mohm or more at DC100V

Mechanical specifications

	CMA-1101
Stroke length	100mm±0.5mm
Operating force	0.1~0.3N
Strength of Nut-Attached	100Ncm
Attached Parts	M3 screw (Length: Panel thickness + 3~4mm)
Stopper strength	30N
Push-pull strength	30N

General specifications

	CMA-1101
Temp.range	-10 to +70 deg C (Operating), -15 to +75 deg C (Storage)
Relative humidity	90%RH (No condensation)

Note

* Non-waterproof.
* Solder heat resistance: 350deg C max, 5sec max, 2 times. (Manual soldering only)
* Do not give severe shocks.
* Move to one end in Control-bar on the occasion of knob wearing, and can break into it slowly.

The products and their specifications are subject to change without notice.

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I²C specifications

	CMA-1101
I²C Clock	400kbps / 100kbps / 50kbps
Slave address	0~63
General call address	Not Supported
Transfer data	MSB First
Response time	1ms or lee (I²C Clock: 400kbps)

I²C Communication behavior

	S	Slave Address							R/W	A	Data Byte								A	Data Byte								A	P
Master	S	0	SA5	SA4	SA3	SA2	SA1	SA0	1	1									0								1	P
CMA-1101										0	0	0	0	0	0	D9	D8	1	D7	D6	D5	D4	D3	D2	D1	D0	1	
I²C Bus	S	0	SA5	SA4	SA3	SA2	SA1	SA0	1	0	0	0	0	0	0	D9	D8	0	D7	D6	D5	D4	D3	D2	D1	D0	1	P

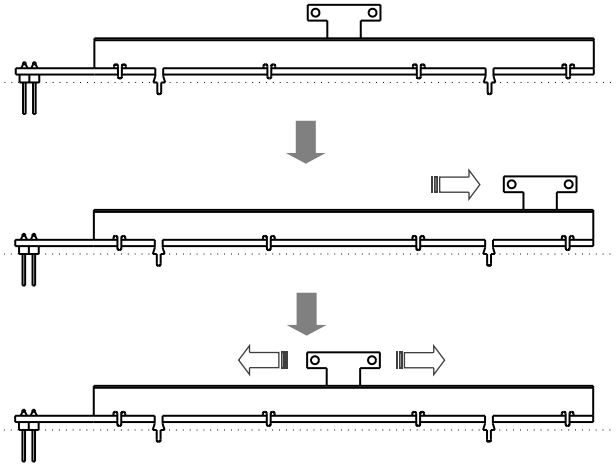
S = Start condition P = Stop condition A = Acknowledge SA = Slave address D = Output data bits

How to use

1. Power ON
   Output data 0
   Touch Stop

2. Reset
   Output data 0
   Touch Start

3. Operation start
   Output data 0~1023
   Touch On or Off



1. At the time of power on, output data are 0, regardless of the position of the control bar. In addition, please keep a finger off the knob.

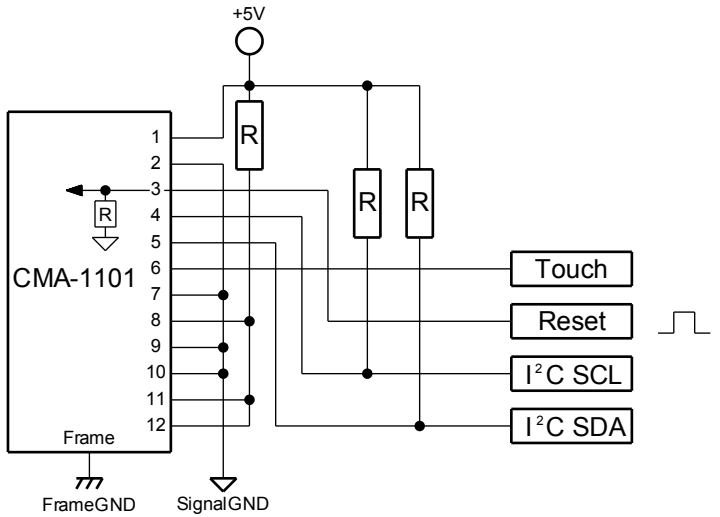
2. Resets works when the control bar is moved to the edge of the direction of the figure. A touch signal becomes effective at the same time.

3. After reset, position data in proportion to the movement of the control bar are output. A touch signal is output by touching the knob with a finger.

* In power-off, the most recent position data are not retained.

Circuit example

I²C Slave address 50 [decimal]



Connect the frameGND with the frame, otherwise with the F.G. through-hole.

Pin Assign

Pin No.	Description
1	Operating voltage DC+5V
2	Ground connection
3	Active high external reset with internal pull down
4	I2C SCL
5	I2C SDA
6	Touch (On: High Off: Low)
7	I2C Slave address bit0
8	I2C Slave address bit1
9	I2C Slave address bit2
10	I2C Slave address bit3
11	I2C Slave address bit4
12	I2C Slave address bit5

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