

## ***Spot Mark Reader (SMR-106)*** **INSTRUCTIONS**

SMR-106 reads 6 bits codes of Address Mark Plate SMG-106 from a distance between 15mm and 35mm. SMR-106 outputs the code magnetized on SMG-106, when SMR-106 comes just over SMG-106 and the data is held till next SMG-106 comes. Clock output (timing signal/ one shot signal; approx. 100ms) will be generated about 10ms after the reading data becomes stable. The output data can be reset by reset signal input.

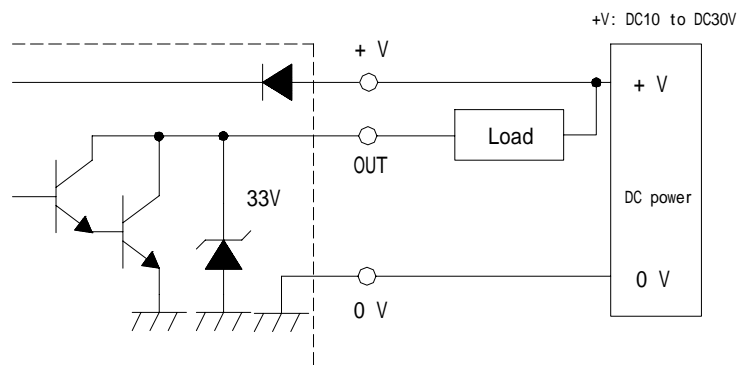
### Specifications

Supply Voltage	DC+10 to 30V ripple 2% max.
Power consumption	50mA max.
Target	Address Mark Plate (SMG-106)
Air gap	15mm to 35mm (Between detecting surface and magnet) * Some fluctuation may happen according to surroundings of SMR-106 and SMG-106
Response speed	2m/s max. (Max. AGV's traveling speed)
Traveling deviation	± 30mm max. (at air gap; 15 ~ 30mm) ± 20mm max. (at air gap; 30 ~ 35mm) * The deviation from the center of SMG-106
Data output	6 bits (parallel) 64 codes NPN transistor / Normally open Latched DC30V max. Sink current 50mA max. (Total 300mA max.) Response; 1ms max. Residual voltage; 2V max. (at sink current 50mA ON)
Clock output (Timing signal)	one shot (approx. 100ms) NPN transistor / Normally open DC30V max. Sink current 50mA max. Response; 1ms max. Residual voltage; 2V max. (at sink current 50mA, ON)

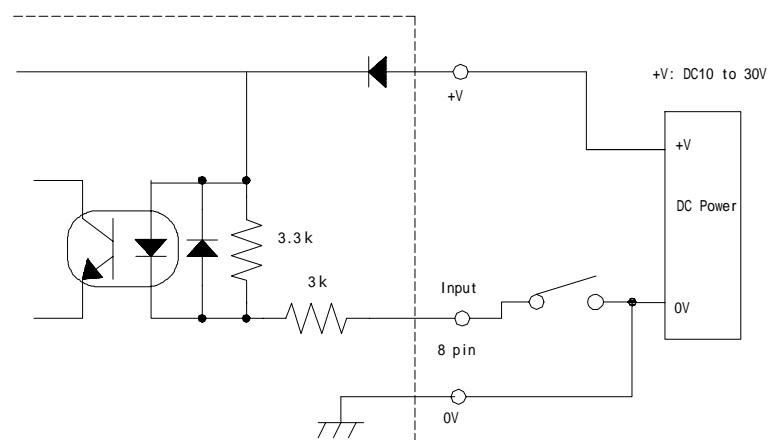
Reset input	Short-circuited to 0V more than 1ms
Operation environment	Temperature; between -10 and +60 Humidity; between 35 and 95%RH (Avoid dew condensation)
Storage environment	Temperature; between -20 and +70 Humidity; between 35 and 95%RH (Avoid dew condensation)
Protection	IP-54 (IEC standard)
Connector	10P flat cord connector with long rock (MIL-compliant)
Case	Aluminum baking finish (black) (202 W x 50H x 17D)
Weight	approx. 200g

**Internal circuit**

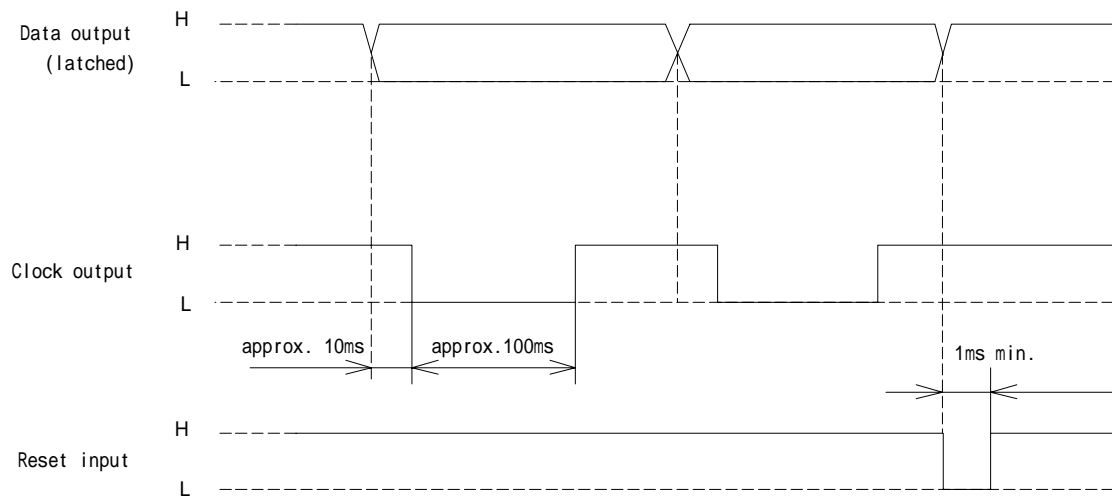
Output Circuit



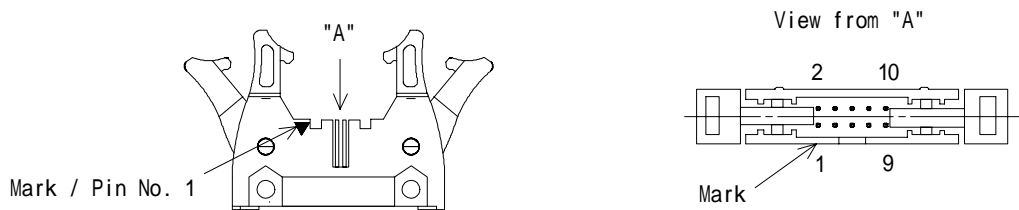
Input circuit



**Output timing chart**



**Wiring**

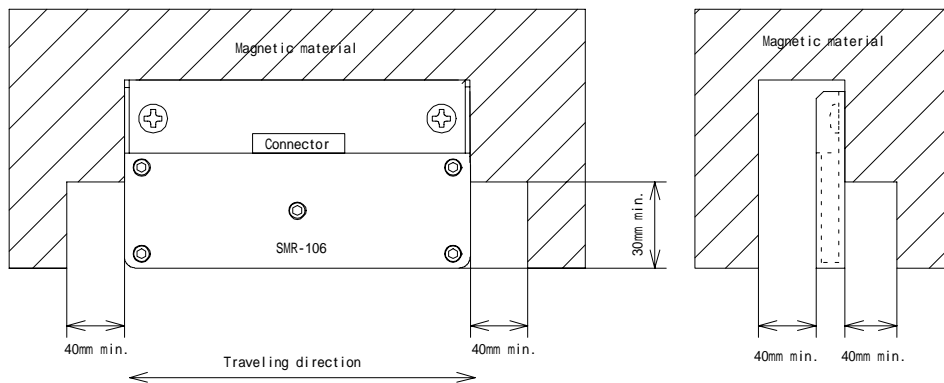


Output connector: MIL-compliant

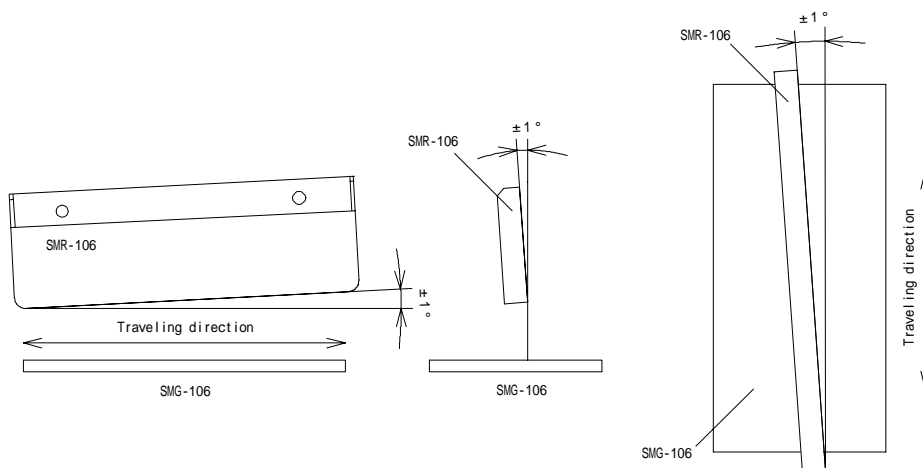
<u>Pin No.</u>	<u>Signal</u>
1	Clock out
2	Data No.0 out
3	Data No.1 out
4	Data No.2 out
5	Data No.3 out
6	Data No.4 out
7	Data No.5 out
8	Reset input +
9	DC +V
10	0V

**Mounting**

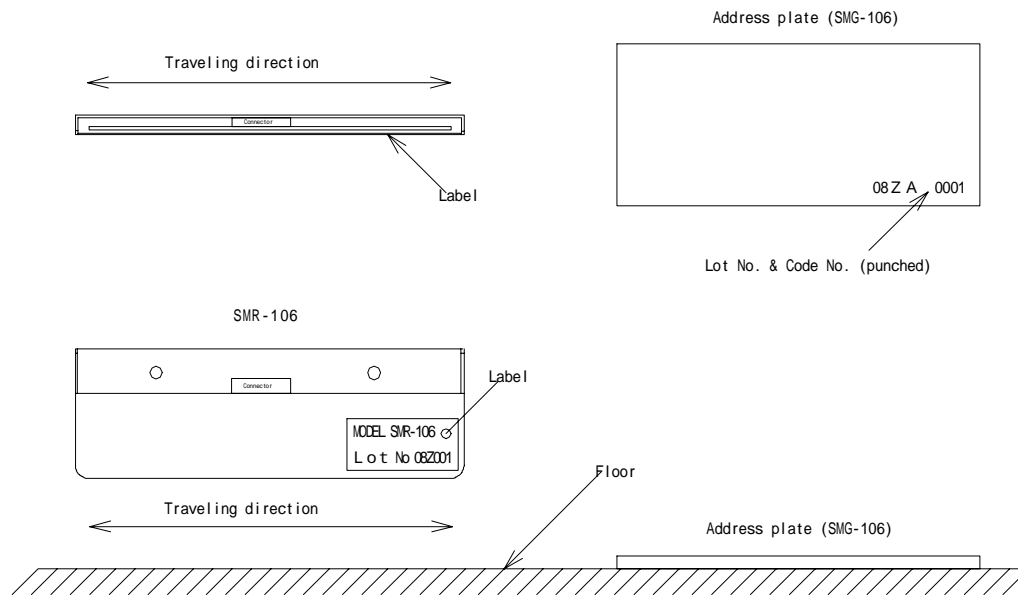
SMR-106 should be mounted on non-magnetic material such as stainless steel, aluminum, brass. Even non-magnetic stainless steel may have characteristic of magnetism when it is bent or shaving processed. In case of mounting it on ferrous material, following space is required around SMR-106.



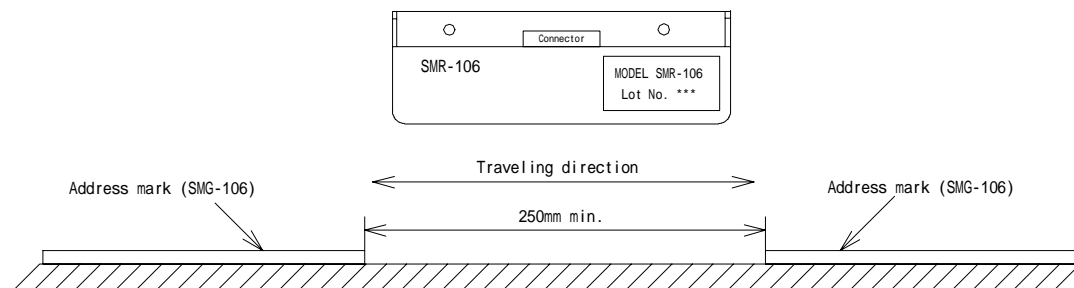
**Correlation between SMR-106 and SMG-106**



Traveling direction



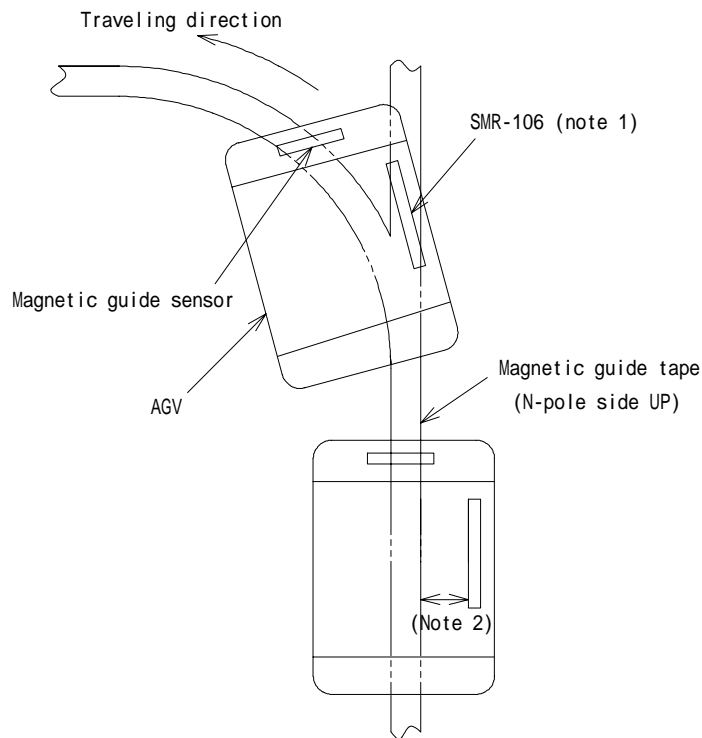
Minimum required space between each SMG-106



Data reading area

Cord of SMG-106 is red and data and clock signal are generated when SMR-106 is right above SMG-106. But the point is fluctuated according to code number about  $\pm 10\text{mm}$ . Therefore the clock signal can't be used as a stop instruction signal to AGV if AGV requires a precise positioning.

When to install with Magnetic guide sensor



(Note 1)

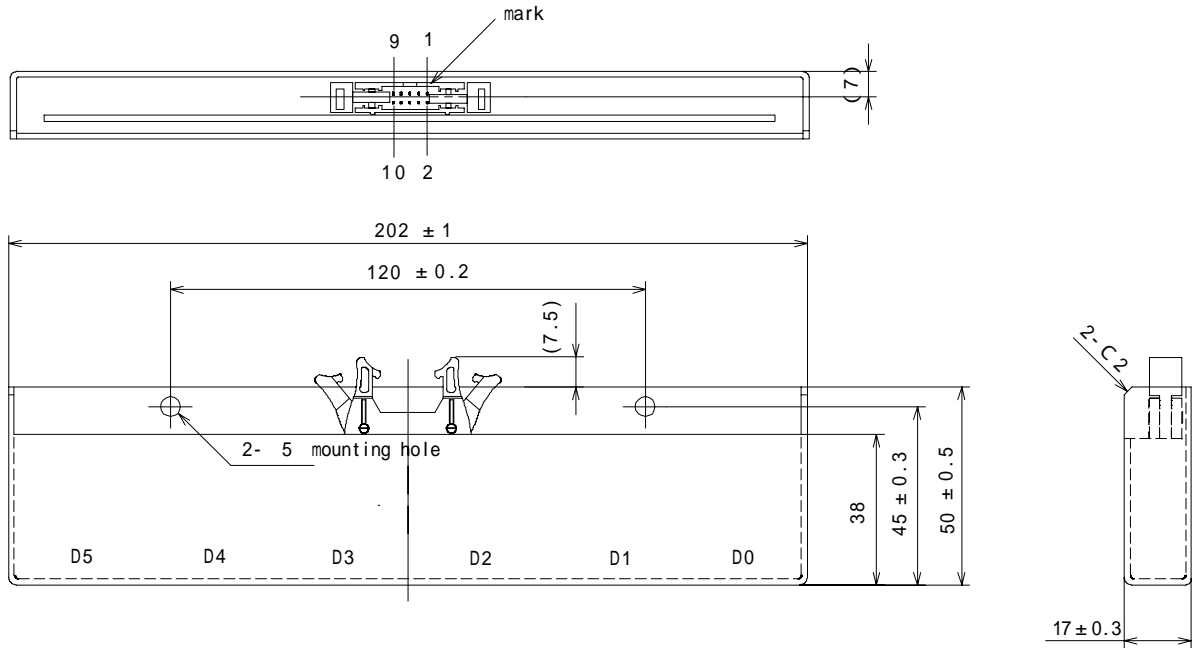
Please be careful that at branches when SMR-106 comes just over on the whole area of guide tape, SMR-106 may read the guide tape as SMG-106 mark plate.

(Note 2)

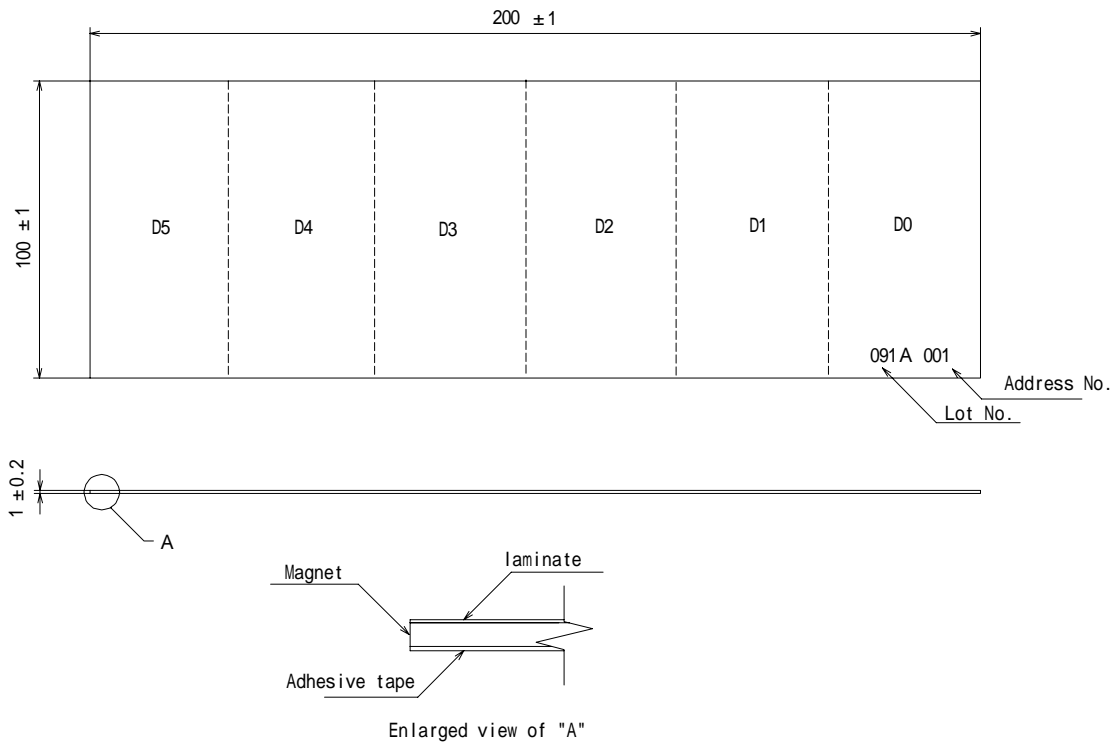
SMR-106 should be installed on AGV where it can keep more than 150mm distance from a magnetic guide tape.

External dimensions

SMR-106



SMG-106 Address Mark Magnet



Example of Code Number (Magnetized pattern)

Code No. 001

S	S	S	S	S	N
					08ZA 0001

Code No. 021

S	N	S	N	S	N
					08ZA 0021

Code No. 063

N	N	N	N	N	N
					08ZA0063

**Notice**

Environment

- Don't use or keep in a place filled with chemicals and salt, flammable gas, corrosion gas, steam, fine particles or vicinity of heater or direct sunlight.
- Don't use neither under vibrating conditions nor outdoors, since the housing is not water-proof.
- Don't install in vicinity of high voltage apparatus or high powered machineries.
- The distance between SMR-106 and SMG-106 should be within the instructed range. Otherwise SMR-106 may misread the data on SMG-106.

Power supply and wiring

- Don't supply exceeding voltage to the designated value or AC, since it may result the cause of trouble.
- Don't make wiring work while power is supplied, since it may result the



cause of trouble or receiving an electric shock.

- If there are occurrences of power surges, absorb the surges by connecting a surge absorber between power supply lines.
- Don't wire in parallel with high voltage or power lines, since it may result the cause of trouble by receiving inductive voltage.
- More than 0.5s is required to stabilize signals after power is supplied to SMR-106.

#### Others

- Don't disassemble, repair nor modify.
- Dispose as industrial waste in accordance with local environmental regulations.
- SMR-106 is designed to read an absolute address plate SMG-106. SMR-106 should not be used for other applications. Usage of an unauthorized application may result breakage of sensors, AGVs, facilities or an accident causing personal injury or death.

#### Warranty and service

##### 1. Warranty period and warranty span

Goods are warranted (exchange or repair) return to factory basis against defects in workmanship and material for a period of one year from a date of delivery.

The damage caused by following reasons is out of the warranty.

- (1) Inappropriate installation and usage.
- (2) Abnormal effect from peripheral equipment.
- (3) Alternation or repair without us.
- (4) Force majeure.



The Induced damage is out of the warranty.

2. Scope of service

Prices on the price list are not including following fees. Consult us for the fees.

- (1) Adjustment, instruction and presence at installation.
- (2) Maintenance and repair.
- (3) Technical advice and training.

\* Specifications are subject to change without notice. \*

		承認	作成
図番	SMR-106-07A-ENO		
作成日	June 22, 2010		