B&PLUS

Issue:2024/5/10

No. T717701De

Simple ID/ 8-bit system
Read System

ID Reader
Z5-AA03N-PU_ _
Z5-AA03P-PU_ _

Manual

B&PLUS

Contents

Safety Considerations

(Please read this before use)

Before using this Processor,read this manual carefully and operate properly, paying attention to the safety aspects.

Notes for designing :

◆ This product constitutes an identification system with an ID tag of the ISO15693 standard
Please do not use the system except for this purposes.

◆ Please design the system to work safely in case of the unit malfunction or , external power supply failure.

◆ power supply / condition of use, design the system not to exceed the specifications of the unit as indicated in the user's guide or manuals

【Precautions】

◆ Use a regulated power supply, e.g. switch-model type.
Do not exceed the specified rated voltage as it may cause overheating or ignition.

◆ "When wiring the processor, follow the chapters containing the wiring diagrams closely, and wire all connections properly.
Incorrectly connected wiring may cause malfunction , unexpected problems."

◆ Please turn off the Remote System before any performances such as mounting, maintenance or breakdown.

◆ Do not disassemble or modify the processor.
Which may cause failure,malfunction, injury or fire.

◆ To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cable.

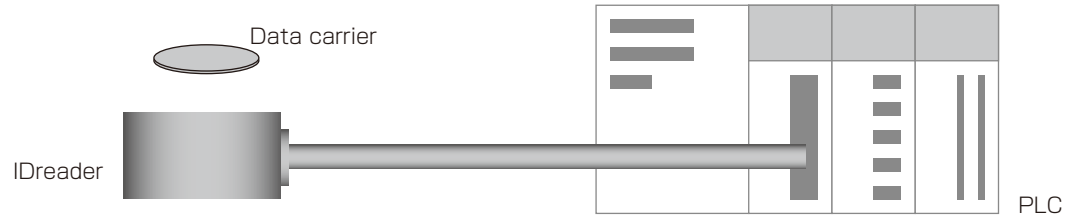
◆ When disposing the product, please treat it as industrial waste.

1. Description

1. 1 Description

8 bit system is a simple identification system communicating 8 bit data.
This Read-Only system needs no particular program to read data, for the Reader reads data of a Datacarrier automatically when the Data carrier come into the reading area of the reader.
Suitable for identification systems of numbering of the palette. Also easily exchanged from contact type such as mechanical flags.
Reader Writer of 8bit system is available to write data into a Datacarrier.
8bits system occupies top 3 bytes (00, 01, 02 addresses) with an ID tag of the ISO15693 conformity as a data region among tag memory.

1. 2 System configuration



- Reader start reading automatically as soon as a Datacarrier comes into its communication area .
- Reader outputs the read data in 8 bits parallel.

Used frequency / 13.56MHz

1. 3 8bit system format

ID data are stored with a format for 8bit systems.
As for first 1 byte (8bit of 00 addresses) is used in the ID data. As for remaining 2 bytes (by 8bit of 01 and 02 addresses) is used for data checks. This is called 8bit system format.
In the case of ID reader, it works to compare the data stored away by 3 addresses mentioned above. After a comparison result output the data of 00 addresses as reading data in the case of plus, turn on the data existence effect output.
In the case of an error of comparison result, LED blinks (low speed) as data check error. The output does not change.

【Example】

	Data bit No.								Writing data	Check data
	7	6	5	4	3	2	1	0		
00H address	0	0	0	0	0	1	0	0	04H	-
01H address	1	1	1	1	1	0	1	1	-	FBH
02H address	1	1	1	1	1	0	1	1	-	FBH

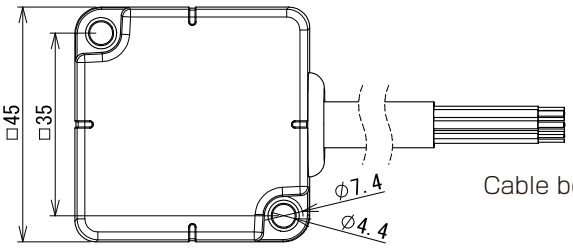
2. Specifications

■ Specification

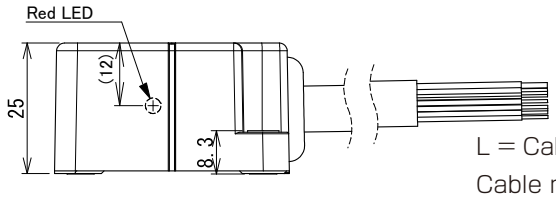
Type code	Z5-AA03N-PU_ _	Z5-AA03P-PU_ _
Output specification	NPN output	PNP output
Power supply	24V DC+10/-20% (incl. ripple)	
Current consumption	max.70mA	
Operating temperature	0 ～ +50℃	
Ambient operating humidity	35...90%RH	
Protection class	IP 67	
Vibration rating	10 ～ 55Hz,amplitude 1.5mm,to each axis X-Y-Z for 2 hrs.	
Shock rating	50G, 3 times to each axis X-Y-Z,total 18 times	
Mounting on steel	Yes (Non-flush mount)	
Housing material	PBT (GF30%)	
compatible standards	CE	
Cable	PUR、ϕ 7.7、2X0.5mm^2 + 9X0.18mm^2	
Weight	60g+ Cable75 g/ m	
Wireless Telegraphy Act	This machine has a built-in high frequency use facilities which acquired type designation · Z5-AA03N-PU_ _···AC-17190 · Z5-AA03N-PU_ _···AC-17191	

■ dimensional outline drawing

Z5-AA03N-PU_ _
Z5-AA03P-PU_ _



Cable bend radius : 50 mm



L = Cable length is (Standard : 2m)
Cable maximum 25m

■ LED status

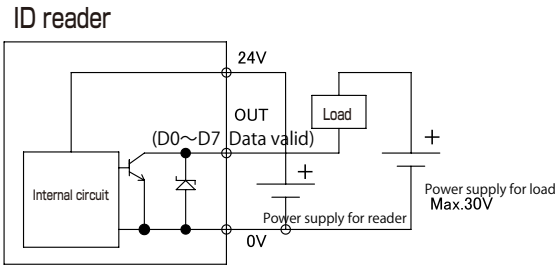
Condition	Color	LED or the condition of the output	meaning
ON	Red	Even if an ID tag deviates from the communication domain during lighting, it maintains lighting for 0.5-0.7 seconds	The condition of being able to read the data from an ID tag and outputting the data.
OFF		Output is completely off.	ID tag is deviated from the communication domain.
Blinking (Quickly)		Short-circuit protection operates in 50ms of blinking interval.	Condition of the short circulation.
Blinking (slowly)		In 0.5s of blinking interval, output is completely off.	Condition of the Data check error

■ Output specification

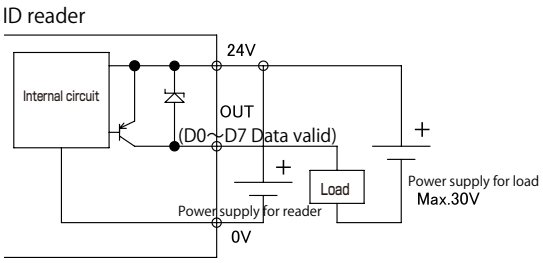
Load voltage	30 V DC (max.)
Load current	50mA (MAX) / 1output
Residual voltage	≦ 1.5V
Leakage current	≦ 0.08mA

■ Output equivalent circuit

NPN type Z5-AA03N-PU_ _



Type PNP : Z5-AA03P-PU_ _



■ Output signal

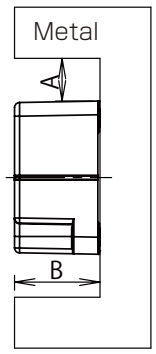
Signals	I/O	Cable color	Contents
Power supply 24V	In	White	Connect (+) side of the 24V DC Power supply
Power supply 0 V	In	Pale Blue	Connect (-) side of the DC24V Power supply
Read Data D0	Out	Brown	Output data read from Bit address [0]
Read Data D1	Out	Red	Output data read from Bit address [1]
Read Data D2	Out	Orange	Output data read from Bit address [2]
Read Data D3	Out	Yellow	Output data read from Bit address [3]
Read Data D4	Out	Green	Output data read from Bit address [4]
Read Data D5	Out	Blue	Output data read from Bit address [5]
Read Data D6	Out	Violet	Output data read from Bit address [6]
Read Data D7	Out	Gray	Output data read from Bit address [7]
Data valid DV	Out	Black	Output signal that indicates the read data is valid

3. Installation and Wiring

■ Installation

[Installation of Reader]

Please attach it with M4 screw.
(Fastening torque : 1.5 Nm)

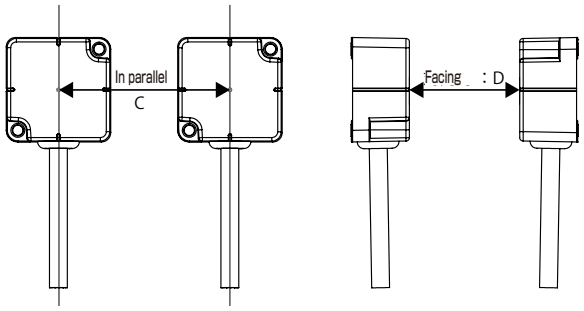


The cirtain clear zone is required around the active surface to avoid influence of surrounding metal.
* Only one can be contact with metal .

	A	B
Z5-AA03N-PU_ _ Z5-AA03P-PU_ _	20mm	25mm

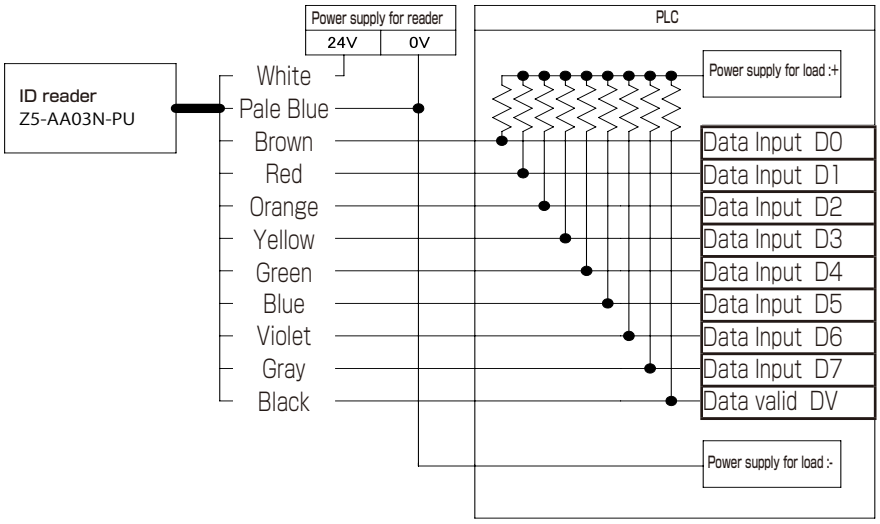
[Mutual interference]

The following distances must be maintained between the individual Reader to avoid mutual interference.

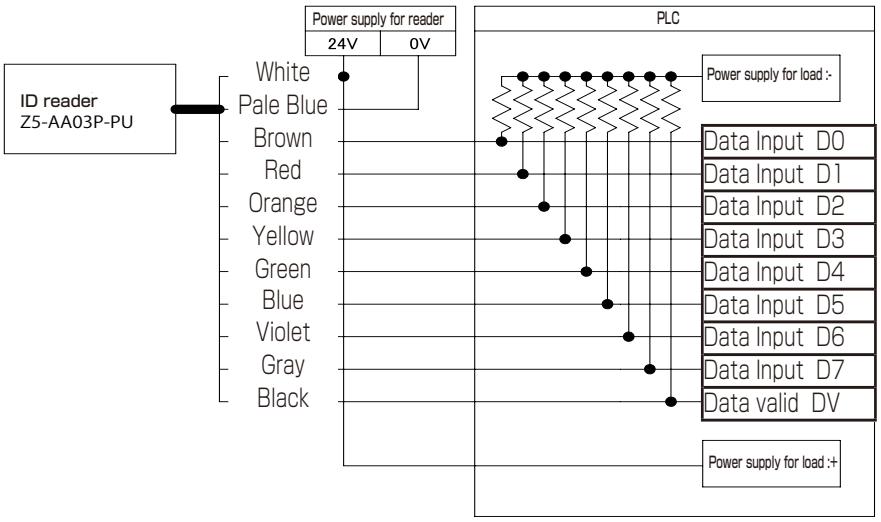


C Parallel	60mm
D: Face to face	200mm

■ Wiring
NPN type



■ Wiring
[PNP type]



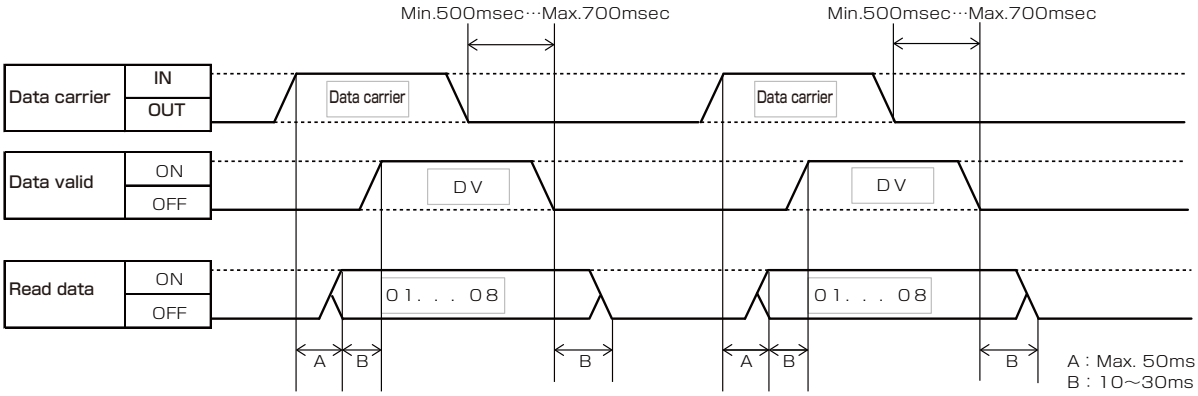
Note

● At the time of cable extension, in the power supply line (white, the sky)please use cables more than 0.5mm2 and the signal line (brown - black), more than 0.5mm2.

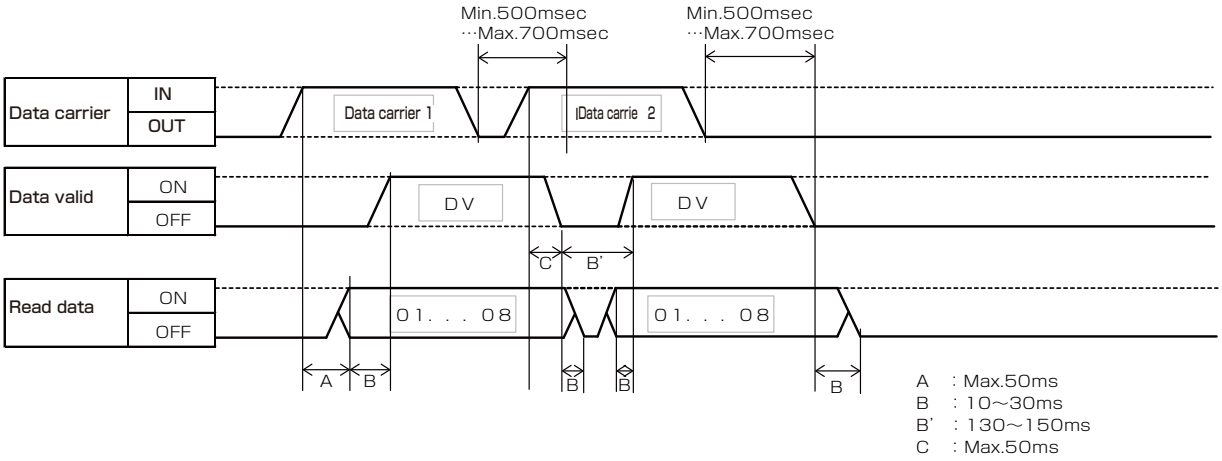
4. Communication with the External Unit

■ Data Reading

【Timing chart 1】



[Timing chart 2]
During an output data maintenance period of ID tag ① , ID tag ① and different ID tag ② are both in the communication domain.



[Procedure for Communication]

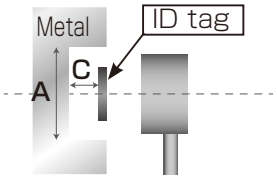
(1)Reader reads the data of the Datacarrier automatically as soon as the Data carrere comes into the communication area of the reader and set the read data.

(2)The host computer should start reading from D0 to D7 of Reader after checking the data valid signal turns ON.

≪ Note ≫

- When plural ID tags are in data exist in a communication domain, the data existence effect (DV) sometime might not turn ON.
- When data check error occurs, as for the data existence effect (DV), the reading data will not be output. In this condition,LED of data valid (DV) would be blinking (slow).

6. Available ID tag and reading distance



· Between tag and surrounded A, certain distance is necessary. (Refer to following)
"Metal mounting" means directly mounted on the metal. It states as (C : 0mm)
Non metal mounting" means the metal and back of the ID tag has guaranteed to have constant distance(C).
· Communications distance, all the values of the axis gap become the reference level.

Type code : Z1-CB16-112
Size : ϕ 16 x 0.76 mm

		Non-metallic area(A : 56mm)	
Mounting		Metal mounting(C:0mm)	Non metal mounting(C:20mm)
Communication distance (mm)		impossible	0...20
Center offset (mm)	Destance 0mm	—	± 11
	4mm	—	± 11
	8mm	—	± 11
	12mm	—	± 12
	16mm	—	± 11
	20mm	—	± 7

Type code : Z1-CB27-112
Size : ϕ 27 x 0.76 mm

		Non-metallic area(A : 70mm)	
Mounting		Metal mounting(C:0mm)	Non metal mounting(C:20mm)
Communication distance (mm)		impossible	0...20
Center offset (mm)	Destance 0mm	—	± 11
	4mm	—	± 11
	8mm	—	± 11
	12mm	—	± 11
	16mm	—	± 9
	20mm	—	± 3

Type code : Z1-CB45-112
Size : ϕ 45 x 0.76 mm

		Non-metallic area(A : 85mm)	
Mounting		Metal mounting(C:0mm)	Non metal mounting(C:20mm)
Communication distance (mm)		impossible	0...25
Center offset (mm)	Destance 0mm	—	± 15
	5mm	—	± 15
	10mm	—	± 15
	15mm	—	± 13
	20mm	—	± 11
	25mm	—	± 7

Type code : Z1-BB10-112
Size : ϕ 10 x 0.76 mm

		Non-metallic area(A : 50mm)	
Mounting		Metal mounting(C:0mm)	Non metal mounting(C:20 mm)
Communication distance (mm)		0...4	0...6
Center offset (mm)	Destance 0mm	± 5	± 5
	2mm	± 4	± 5
	4mm	± 3	± 4
	6mm	—	± 3

Type code : Z1-AA04-02K
Size : 30 × 30 × 6 mm

		Non-metallic area (A : 70mm)	
Mounting		Metal mounting (C: 0mm)	Non metal mounting (C: 20mm)
Communication distance(mm)		0...12	0...16
Center offset (mm)	Distance 0mm	± 7	± 9
	4mm	± 8	± 10
	8mm	± 8	± 10
	12mm	± 0	± 9
	16mm	—	± 0

Type code : Z1-B011-128
Size : ϕ 50 x 8.3 mm

		Non-metallic area (A : 70mm)			
Mouting		Metal mounting (C: 0mm)		Non metal mounting (C: 20mm)	
Offset direction		Horizontal	Vertical	Horizontal	Vertical
Communication distance (mm)		0～12		0～22	
Center offset (mm)	Destance 0mm	±17	±9	±19	±11
	4mm	±15	±8	±19	±12
	8mm	±10	±6	±18	±12
	10mm	±6	±4	±17	±12
	12mm	±0	±0	±16	±12
	16mm	—	—	±13	±9
	20mm	—	—	±6	±4
	22mm	—	—	±0	±0

Z1-B011-128 has different offset depending on the moving direction of Data carrier.
When it' s installed as described below, up and down movement means vertical direction, left and right movement means lateral direction.