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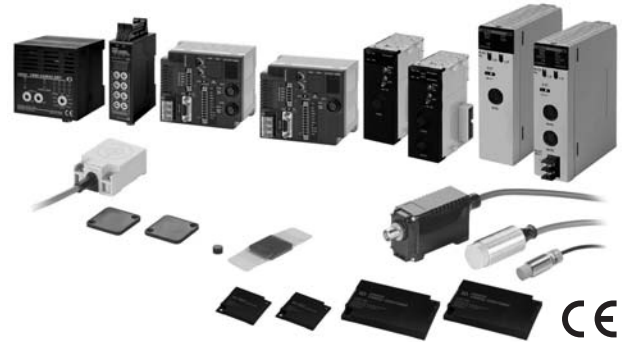


# RFID System V680 Series

CSM\_V680 Series\_DS\_E\_1\_17

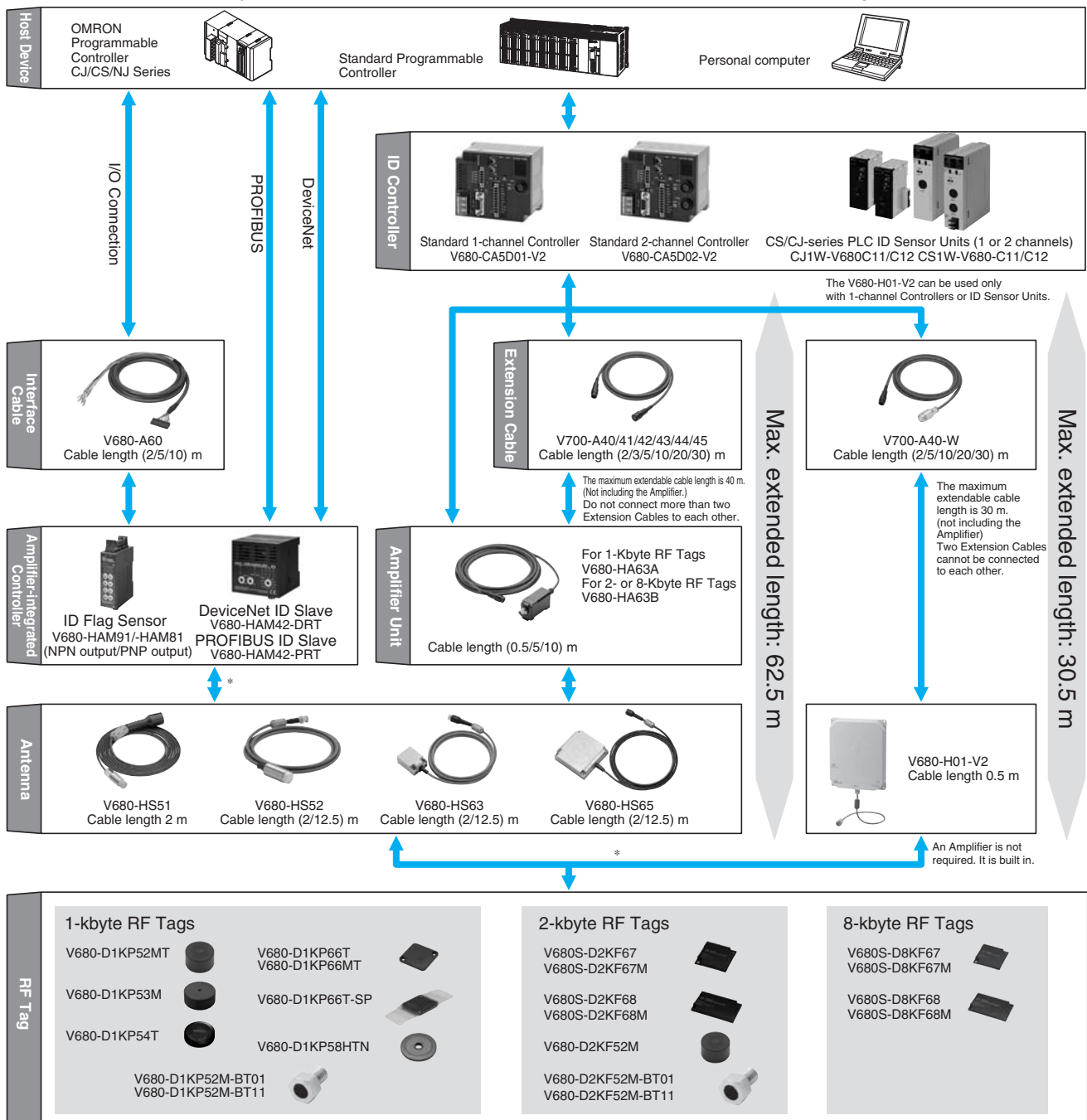
## RFID Systems with ISO/IEC 18000-3 (15693) Compliance

- High-speed communications and highly reliable communications provided with an electromagnetic induction system and unique technology.
- Antennas and RF Tags with excellent environmental resistance.
- Wide line-up of ultra-compact, long-life RF Tags, with capacities from 1 to 8 kbytes.
- Visualizes the communications status for simple analysis of the operating environment.
- Complies with FCC Rules and R&TTE Directive.



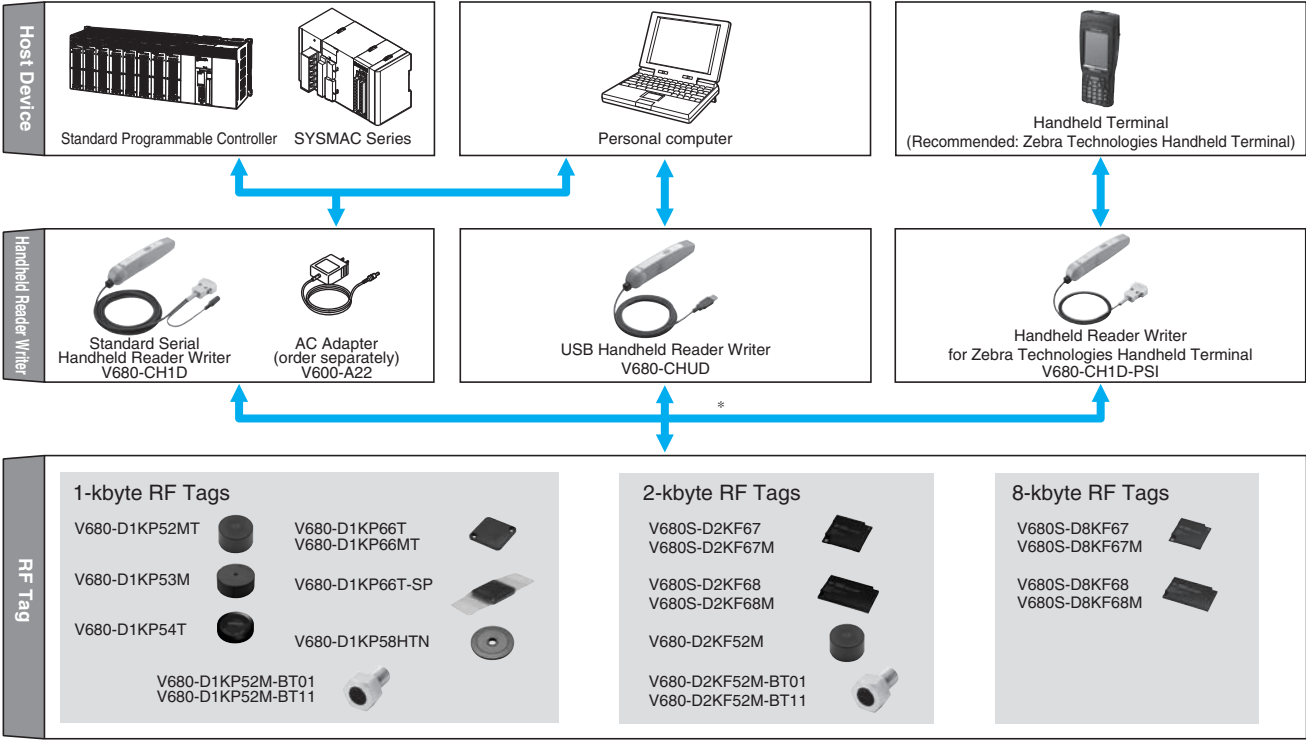
## System Configuration

Connect V680 Antennas and Amplifier Units to a V680-series Controller, and read or write data from or to RF Tags.



\* For information on the combinations that can be used, refer to *Combinations of Amplifier Units, Antennas, and RF Tags* on page 3.

Handheld Type



**Note:** Certificated as type approval of radio in 51 countries including Japan, European countries and the USA . However, some models cannot be used. Contact your OMRON sales representative for details on whether application is supported in other countries. The latest information on the status of certification for radio wave regulations in various countries can be confirmed on the OMRON website.

\* For information on the combinations that can be used, refer to *Combinations of Amplifier Units, Antennas, and RF Tags* on page 3.

## Combinations of Amplifier Units, Antennas, and RF Tags

### 1-kbyte RF Tags

Amplifier Unit	Antenna	EEP-ROM							
		1-kbyte							
		V680-D1KP52MT	V680-D1KP53M	V680-D1KP54T	V680-D1KP66T	V680-D1KP66MT	V680-D1KP66T-SP	V680-D1KP58HTN	V680-D1KP52M-BT□1
V680-HA63A V680-HAM42-DRT V680-HAM□1	V680-HS51	Yes	Yes						Yes
	V680-HS52-□	Yes	Yes	Yes	Yes	Yes	Yes		Yes
	V680-HS63-□	Yes*		Yes	Yes	Yes	Yes		
	V680-HS65-□			Yes	Yes	Yes	Yes	Yes	
V680-HAM42-PRT	V680-HS63-W	Yes*			Yes	Yes	Yes		
	V680-HS65-W				Yes	Yes	Yes		
V680-H01-V2 (Antenna with Built-in Amplifier)					Yes			Yes	
V680-CH□D (Handheld Reader Writer)		Yes	Yes		Yes	Yes	Yes	Yes	

### 2-kbyte RF Tags

Amplifier Unit	Antenna	FRAM					
		2-kbyte					
		V680-D2KF52M	V680-D2KF52M-BT□1	V680S-D2KF67	V680S-D2KF67M	V680S-D2KF68	V680S-D2KF68M
V680-HA63B V680-HAM42-DRT V680-HAM□1	V680-HS51	Yes	Yes				
	V680-HS52-□	Yes	Yes	Yes	Yes		
	V680-HS63-□	Yes*		Yes	Yes	Yes	Yes
	V680-HS65-□			Yes	Yes	Yes	Yes
V680-HAM42-PRT	V680-HS63-W			Yes	Yes	Yes	Yes
	V680-HS65-W			Yes	Yes	Yes	Yes
V680-H01-V2 (Antenna with Built-in Amplifier)				Yes		Yes	
V680-CH□D (Handheld Reader Writer)		Yes		Yes	Yes	Yes	Yes

### 8-kbyte RF Tags

Amplifier Unit	Antenna	FRAM			
		8-kbyte			
		V680S-D8KF67	V680S-D8KF67M	V680S-D8KF68	V680S-D8KF68M
V680-HA63B V680-HAM42-DRT V680-HAM□1	V680-HS51				
	V680-HS52-□	Yes	Yes		
	V680-HS63-□	Yes	Yes	Yes	Yes
	V680-HS65-□	Yes	Yes	Yes	Yes
V680-HAM42-PRT	V680-HS63-W	Yes	Yes	Yes	Yes
	V680-HS65-W	Yes	Yes	Yes	Yes
V680-H01-V2 (Antenna with Built-in Amplifier)		Yes		Yes	
V680-CH□D (Handheld Reader Writer)		Yes	Yes	Yes	Yes

**Note:** For details, refer to the relevant user's manual (Z248, Z249, Z262, Z271, Z272, Z278, Z279, and Z339).

\* When using the V680-D1KP52MT or V680-D2KF52M embedded in metal, use the V680-HS51/-HS52 Antenna.














Communications will not be possible if the V680-HS63 Antenna is used.

Communications will not be possible if the V680-HS65 Antenna is used with the V680-D1KP52MT, V680-D1KP53M, or V680-D2KF52M.

Communication is also possible with RF Tags other than those of the V680 Series as long as they comply with ISO/IEC 18000-3 (ISO/IEC 15693). However, communication with RF Tags other than those of the V680 Series cannot be assured. The user must confirm communication capabilities carefully prior to use.





## Ordering Information

## RF Tag


Type	Memory capacity	Appearance	Size	Metallic compatibility	Model	
Battery-less	1 kbyte		8 dia. × 5 mm	For embedding in metallic or non-metallic surface	V680-D1KP52MT	
			10 dia. × 4.5 mm	For embedding in metallic or non-metallic surface	V680-D1KP53M	
			20 dia. × 2.7 mm	For flush mounting on non-metallic surface	V680-D1KP54T	
			34 × 34 × 3.5 mm	For flush mounting on metallic surface	V680-D1KP66MT	
				For flush mounting on non-metallic surface	V680-D1KP66T	
			95 × 36.5 × 6.5 mm	For flush mounting on non-metallic surface	V680-D1KP66T-SP	
			80 dia. × t10 mm	For flush mounting on non-metallic surface	V680-D1KP58HTN	
		M10 × 12 mm	For mounting as bolts	V680-D1KP52M-BT01 *		
		M8 × 12 mm		V680-D1KP52M-BT11 *		
	2 kbytes	8 kbytes		8 dia. × 5 mm	For embedding in metallic or non-metallic surface	V680-D2KF52M
				40 × 40 × 5 mm	For flush mounting on metallic surface	V680S-D2KF67M
		For flush mounting on non-metallic surface			V680S-D2KF67	
			86 × 54 × 10 mm	For flush mounting on metallic surface	V680S-D2KF68M	
				For flush mounting on nonmetallic surface	V680S-D2KF68	
			M10 × 12 mm	For mounting as bolts	V680-D2KF52M-BT01 *	
			M8 × 12 mm		V680-D2KF52M-BT11 *	
	8 kbytes		40 × 40 × 5 mm	For flush mounting on metallic surface	V680S-D8KF67M	
				For flush mounting on non-metallic surface	V680S-D8KF67	
			86 × 54 × 10 mm	For flush mounting on metallic surface	V680S-D8KF68M	
				For flush mounting on nonmetallic surface	V680S-D8KF68	

\* Place orders in units of boxes (containing 20 units).

## Antenna (Detachable Amplifier Unit Type)



Type	Appearance	Size	Cable length	Model
Cylindrical	Standard cable, waterproof connector 	M22 × 65 mm	2 m	V680-HS52-W 2M
			12.5 m	V680-HS52-W 12.5M
	Flexible cable, nonwaterproof connector		2 m	V680-HS52-R 2M
			12.5 m	V680-HS52-R 12.5M
Standard cable, nonwaterproof connector 	M12 × 35 mm	2 m	V680-HS51 2M	
Square	Standard cable, waterproof connector 	40 × 53 × 23 mm	2 m	V680-HS63-W 2M
			12.5 m	V680-HS63-W 12.5M
	Flexible cable, nonwaterproof connector		2 m	V680-HS63-R 2M
			12.5 m	V680-HS63-R 12.5M
	Standard cable, waterproof connector 		2 m	V680-HS65-W 2M
			12.5 m	V680-HS65-W 12.5M
Flexible cable, nonwaterproof connector		2 m	V680-HS65-R 2M	
	12.5 m	V680-HS65-R 12.5M		

## Antenna with Built-in Amplifier



Type	Appearance	Size	Cable length	Model
Square		250 × 200 × 35 mm	0.5 m *	V680-H01-V2

\* Use an Antenna Cable to connect the Antenna to the Controller.  
The maximum cable length is 30.5 m.



## Amplifier Unit

Type	Appearance	Size	Cable length	Model
For 1-kbyte memory		25 × 40 × 65 mm	0.5 m	V680-HA63A 0.5M
			5 m	V680-HA63A 5M
			10 m	V680-HA63A 10M
For 2-/8-kbyte memory			0.5 m	V680-HA63B 0.5M
			5 m	V680-HA63B 5M
			10 m	V680-HA63B 10M

## ID Controller


Type	No. of connectable Amplifiers	Appearance	Size	Communication interface	Model
DC power supply	Single		105 × 90 × 65 mm	RS232C, RS422/RS485	V680-CA5D01-V2
	Dual				V680-CA5D02-V2

## ID Sensor Units



Type	Appearance	Connected ID System		External power supply	No. of unit numbers used	Current consumption (A)			Model
						5 V	24 V	External	
CJ Special I/O Unit		V680 Series	1 Head	-	1 unit number	0.26	0.13 *	-	CJ1W-V680C11
			2 Heads		2 unit number	0.32	0.26	-	CJ1W-V680C12
Type	Appearance	Connected ID System		External power supply	No. of unit numbers used	Current consumption (A)			Model
						5 V	26 V	External	
CS Special I/O Unit		V680 Series	1 Head	-	1 unit number	0.26	0.13 *	-	CS1W-V680C11
			2 Heads		24 VDC	2 unit number	0.32	-	0.36

\* When connected to the V680-H01: 0.28 A


## Amplifier-integrated Controller (DeviceNet ID Slave/PROFIBUS ID Slave)

Appearance	Size	Network Compatibility	Model
	65 × 65 × 65 mm	DeviceNet	V680-HAM42-DRT
		PROFIBUS	V680-HAM42-PRT

## Amplifier-integrated Controllers (ID Flag Sensors)

Type	Appearance	Size	Model
NPN output		90 × 30 × 65 mm	V680-HAM91
PNP output			V680-HAM81

## Special Interface Cables (for V680-HAM91 and V680-HAM81)


Cable length	Model	Appearance
2 m	V680-A60 2M	
5 m	V680-A60 5M	
10 m	V680-A60 10M	

**Note:** 1. The connectors are not waterproof.

2. The cable length can be extended to a maximum of 10 m.

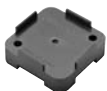



3. Normally two Interface Cables are required for 1 Unit. If you do not need to write to ID Tags, or use the address shift or noise check functions, then one Interface Cable is sufficient.

## Handheld Reader Writers


Name	Appearance	Model
Model with standard serial connector		V680-CH1D
Model with USB connector and 0.8-m cable		V680-CHUD 0.8M
Model with USB connector and 1.9-m cable		V680-CHUD 1.9M
Models for Zebra Technologies Handheld Terminal		V680-CH1D-PSI
AC Adapter (for V680-CH1D)		V600-A22

## Accessories (Order Separately)

### RF Tag Attachment


Type	Appearance	Model
For the V680-D1KP66T		V600-A86
For the V680-D□KF68		V680-A81
To mount the V680-D1KP58HTN		V680-A80
For the V680-D1KP54T		V700-A80

### Amplifier Unit Special Extension Cable (Amplifier Unit to Controller)

Cable length	Appearance	Model
2 m		V700-A40 2M
3 m		V700-A41 3M
5 m		V700-A42 5M
10 m		V700-A43 10M
20 m		V700-A44 20M
30 m		V700-A45 30M

**Note:** The cable can be extended up to 40 m. Up to two extension cables can be used.

### V680-H01 Antenna Special Cable (Antenna to Controller)

Cable length	Appearance	Model
2 m		V700-A40-W 2M
5 m		V700-A40-W 5M
10 m		V700-A40-W 10M
20 m		V700-A40-W 20M
30 m		V700-A40-W 30M

**Note:** The cable can be extended up to 30 m. Only one extension cable can be used.

### RS-232C Communications Connector

Name	Model
Connector Plug	<b>XM3B-0922-111</b>
Connector Hood	<b>XM2S-0911</b>

\* An RS422/RS485 Communications Connector is attached to the Controller.

## ID Map Manager

Type	Model
Japanese version	<b>V680-A-IMMJP-P02 *</b>
English version	<b>V680-A-IMMEG-P02 *</b>
Chinese version	<b>V680-A-IMMCN-P02 *</b>

\* Supported operating system: Windows 7  
For details, consult your OMRON representative.



## Ratings and Performance

### RF Tag (1-kbyte Memory)

Item	Model	V680-D1KP52MT	V680-D1KP54T	V680-D1KP66T	V680-D1KP66MT	V680-D1KP53M	V680-D1KP66T-SP
Memory capacity	1,000 byte (user area)						
Memory type	EEPROM						
Data retention time *1	10 years after writing (85°C max.)						
Write endurance	100,000 times per block (at 25°C)						
Ambient operating temperature (during communication)	-25 to 85°C (with no icing)					-25 to 70°C (with no icing)	
Ambient storage temperature (during data backup)	-40 to 125°C (with no icing) Heat resistance: 1,000 thermal cycles each of 30 minutes at -10°C/150°C, High-temperature storage: 1,000 hours at 150°C *2 200 thermal cycles each of 30 minutes at -10°C/180°C, High-temperature storage: 200 hours at 180°C *3				-40 to 125°C (with no icing)		-40 to 110°C (with no icing)
Ambient operating humidity	35 to 95%						
Degree of protection	IP68 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *4	IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *4	IP68 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *4			IP67	
Vibration resistance	10 to 2,000 Hz, 1.5-mm double amplitude at 150 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y, and Z directions for 15 minutes each						
Shock resistance	500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)						
Appearance	8 dia. × 5 mm	20 dia. × 2.7 mm	34 × 34 × 3.5 mm			10 dia. × 4.5 mm (DIN698373)	95 × 36.5 × 6.5 mm (excluding protrusions)
Materials	Case: PPS resin Filling: Epoxy resin	Molding: PPS resin				Case: PPS resin Filling: Epoxy resin	External resin: PFA Tag body: PPS resin
Weight	Approx. 0.5 g	Approx. 2 g	Approx. 6 g	Approx. 7.5 g	Approx. 1 g	Approx. 20 g	
Metallic compatibility	Yes	No	No	Yes	Yes	No	

**Note:** For details, refer to the User's Manual (Cat. No. Z262).

- \*1. Refer to the User's Manual (Cat. No. Z262) for data retention time for temperatures of 85°C or higher. If the V680 has been stored at 125°C or higher, write the data again even if the data does not need to be changed.
- \*2. 150°C heat resistance: The heat resistance has been checked at 150°C for up to 1,000 hours, and thermal shock has been checked through testing 1,000 thermal cycles each of 30 minutes at -10/150°C. (Test samples: 22, defects: 0)
- \*3. 180°C heat resistance: The heat resistance has been checked at 180°C for up to 200 hours, and thermal shock has been checked through testing 200 thermal cycles each of 30 minutes at -10°C/180°C. (Test samples: 22, defects: 0)
- \*4. Oil resistance has been tested using a specific oil as defined in the OMRON test method.

### RF Tag with 1-kbyte Memory with High-temperature Capability

Item	Model	V680-D1KP58HTN
Memory capacity	1,000 bytes (user area)	
Memory type	EEPROM	
Data Retention	10 years after writing (85°C or less), 0.5 year after writing (85°C to 125°C) Total data retention at high temperatures exceeding 125°C is 10 hours *1	
Write Endurance	100,000 times per block (25°C)	
Ambient operating temperature	-25°C to 85°C (with no icing)	
Ambient storage temperature	-40 to 250°C (with no icing) *2 (Data retention: -40 to 125°C) 1. 2,000 cycles of 30 minutes each between room temperature and 200°C 2. 500 hours at 250°C	
Ambient storage humidity	No restrictions.	
Degree of protection	IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *3	
Vibration resistance	10 to 2,000 Hz, 1.5-mm double amplitude, acceleration: 150 m/s <sup>2</sup> , 10 sweeps each in X, Y, and Z directions for 15 minutes each	
Shock resistance	500 m/s <sup>2</sup> , 3 times each in X, Y, and Z directions (total: 18 times)	
Materials	PPS resin	
Weight	Approx. 70 g	

- \*1 After storing data at high temperatures, rewrite the data even if changes are not required. High temperatures are those exceeding 125°C up to 250°C.
- \*2 Storing RF Tags under high temperatures or under heat cycles will adversely affect the performance of the internal parts and the service life of the RF Tags. The RF Tag were placed in the following high temperatures and then evaluated in-house. It was confirmed that no problems occurred.
  1. 2,000 cycles of 30 minutes each between room temperature and 200°C.
  2. 500 hours at 250°C.
- \*3 Oil resistance has been tested using a specific oil as defined in the OMRON test method.

## RF Tag (2-kbyte Memory)

Item	Model	V680S-D2KF67	V680S-D2KF67M	V680S-D2KF68	V680S-D2KF68M	V680-D2KF52M
Memory capacity		2,000 bytes (user area)				
Memory type		FRAM				
Data retention time *1		10 years after writing at 85°C				10 years after writing (55°C max.)
Write endurance		One trillion writes for each block(85°C or less), Number of accesses *2: One trillion writes				Access frequency per block *2: 10 billion times
Ambient operating temperature		-20 to 85°C (with no icing)				-25 to 85°C (with no icing)
Ambient storage temperature		-40 to 125°C (with no icing)				-40 to 85°C (with no icing)
Ambient operating humidity		35 to 85%				35 to 95%
Degree of protection		IP68 (IEC 60529:2001), Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *3 IPX9K (DIN 40 050)				IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *3
Vibration resistance		10 to 2,000 Hz, 1.5-mm double amplitude at 150 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y, and Z directions for 15 minutes each		No abnormality after application of 10 to 500 Hz, 1.5-mm double amplitude, acceleration: 100 m/s <sup>2</sup> , 10 sweeps each in X, Y, and Z directions for 11 minutes each		10 to 2,000 Hz, 1.5-mm double amplitude at 150 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y, and Z directions for 15 minutes each
Shock resistance		500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (Total:18 times)				
Appearance		40 × 40 × 5 mm		86 × 54 × 10 mm		8 dia. × 5 mm
Materials		Exterior: PPS resin				Case: PPS resin Filling: Epoxy resin
Weight		Approx. 12 g	Approx. 11.5 g	Approx. 44 g	Approx. 46 g	Approx. 0.5 g
Metallic compatibility		No	Yes	No	Yes	Yes

**Note:** For details, refer to the User's Manual (Cat. No. Z248 or Z339).

\*1. Refer to the User's Manual (Cat. No. Z248) for data retention time for temperatures of 55°C or higher.

\*2. The total Read or Write communication frequency is called the access frequency.

\*3. Oil resistance has been tested using a specific oil as defined in the OMRON test method.

## RF Tag with 8-kbyte Memory

Item	Model	V680S-D8KF67	V680S-D8KF67M	V680S-D8KF68	V680S-D32KF68M	
Memory capacity		8,192 bytes (user area)				
Memory type		FRAM				
Data retention time		10 years after writing (85°C or less)				
Write endurance		1 trillion times per block. *1 Access frequency : 1 trillion times:				
Ambient operating temperature		-20 to 85°C (with no icing)				
Ambient storage temperature		-40 to 125°C (with no icing)				
Ambient operating humidity		35 to 85%				
Degree of protection		IP68 (IEC 60529:2001), Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *2 IPX9K (DIN 40 050)				
Vibration resistance		10 to 2,000 Hz, 1.5-mm double amplitude at 150 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y, and Z directions for 15 minutes each		10 to 500 Hz, 1.5-mm double amplitude at 100 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y, and Z directions for 11 minutes each		
Shock resistance		500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)				
Dimensions		40 × 40 × 4.5 mm		86 × 54 × 10 mm		
Materials		Molding: PPS resin				
Weight		Approx. 11.5 g	Approx. 12 g	Approx. 44 g	Approx. 46 g	
Metallic compatibility		No	Yes	No	Yes	

**Note:** For details, refer to the User's Manual (Cat. No. Z339).

\*1. The total Read or Write communication frequency is called the access frequency.

\*2. Oil resistance has been tested using a specific oil as defined in the OMRON test method.

**Bolt RF Tags (1-kbyte Memory)**

Item	Model	V680-D1KP52M-BT01	V680-D1KP52M-BT11
Memory capacity		1,000 bytes (user area)	
Memory type		EEPROM	
Data retention time		10 years after writing (85°C or less), 0.5 years after writing (85 to 125°C) Total data retention at high temperatures exceeding 125°C is 10 hours	
Write endurance		100,000 times per block (at 25°C)	
Ambient operating temperature (during communication)		-25 to 85°C (with no icing)	
Ambient storage temperature (during data backup)		-40 to 125°C (with no icing)	
Ambient operating humidity		35 to 95%	
Degree of protection		IP68 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *	
Vibration resistance		10 to 2,000 Hz, 1.5-mm double amplitude at 150 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y, and Z directions for 15 minutes each	
Shock resistance		500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Materials		Bolt: SUS303, Case (RF Tag): PPS resin, Filling (RF Tag): Epoxy resin	
Weight		Approx. 25 g	Approx. 10 g

\* Oil resistance has been tested using a specific oil as defined in the OMRON test method.

**Bolt RF Tags (2-kbyte Memory)**

Item	Model	V680-D2KF52M-BT01	V680-D2KF52M-BT11
Memory capacity		2,000 bytes (user area)	
Memory type		FRAM	
Data retention time		10 years after writing (55°C or less), 2.9 years after writing (85°C max.)	
Write endurance		10 billion reads/writes per block, Number of accesses *1: 10 billion times	
Ambient operating temperature (during communication)		-25°C to 85°C (with no icing)	
Ambient storage temperature (during data backup)		-40°C to 85°C (with no icing)	
Ambient operating humidity		35 to 95%	
Degree of protection		IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) *2	
Vibration resistance		10 to 2,000 Hz, 1.5-mm double amplitude at 150 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y, and Z directions for 15 minutes each	
Shock resistance		500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Materials		Bolt: SUS303, Case (RF Tag): PPS resin, Filling (RF Tag): Epoxy resin	
Weight		Approx. 25 g	Approx. 10 g

\*1 The number of accesses is the total number of communications for reading or writing.

\*2 Oil resistance has been tested using a specific oil as defined in the OMRON test method.

## Cylindrical Antenna (Detachable Amplifier Unit Type)

Item	Model	V680-HS51 (Standard Cable, Non-waterproof Connector)	V680-HS52-W (Standard Cable, Waterproof Connector)	V680-HS52-R (Standard Cable, Non-waterproof Connector)
Ambient operating temperature		-10°C to 60°C (with no icing)		
Ambient storage temperature		-25°C to 75°C (with no icing)		
Ambient operating humidity		35% to 95% (with no condensation)		
Insulation resistance		20 MΩ min. (at 500 VDC) between the cable terminals and the case		
Dielectric strength		1,000 VAC (50/60 Hz) for 1 minute between the cable terminals and the case with a current leakage of 5 mA max.		
Degree of protection		IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) (Antenna portion) *2	IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) (Antenna portion) *1	IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) (Antenna portion) *2
Vibration resistance		10 to 2,000 Hz variable vibration, 1.5-mm double amplitude at 150 m/s <sup>2</sup> acceleration, with 10 sweeps in X, Y, and Z directions for 15 minutes each	10 to 500 Hz variable vibration, 1.5-mm double amplitude at 100 m/s <sup>2</sup> acceleration, with 10 sweeps in X, Y, and Z directions for 8 minutes each	
Shock resistance		1,000 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Appearance		M12 × 35 mm	M22 × 65 mm	
Materials		ABS, brass, epoxy resin filling		
Weight		Approx. 55 g (with 2-m cable)	Approx. 850 g (with 12.5-m cable)	

**Note:** For details, refer to the User's Manual (Cat. No. Z248 or Z262).

\*1. The degree of protection for the Connector is IP67/IP65. This OMRON in-house standard confirms resistance to cutting and other oils. It is equivalent to the former JEM1030 standard.

\*2. The Connector is not waterproof. Oil resistance has been tested using a specific oil as defined in the OMRON test method.

## Square Antenna (Detachable Amplifier Unit Type)

Item	Model	V680-HS63-W (Standard Cable, Waterproof Connector)	V680-HS63-R (Flexible Cable, Non-waterproof Connector)
Ambient operating temperature		-10°C to 60°C (with no icing)	
Ambient storage temperature		-25°C to 75°C (with no icing)	
Ambient operating humidity		35% to 95% (with no condensation)	
Insulation resistance		20 MΩ min. (at 500 VDC) between the cable terminals and the case	
Dielectric strength		1,000 VAC (50/60 Hz) for 1 minute between the cable terminals and the case with a current leakage of 5 mA max.	
Degree of protection		IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) (Antenna portion) *1	IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) (Antenna portion) *2
Vibration resistance		10 to 500 Hz variable vibration, 1.5-mm double amplitude at 100 m/s <sup>2</sup> acceleration, with 10 sweeps in X, Y, and Z directions for 11 minutes each	
Shock resistance		500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Appearance		40 × 53 × 23 mm	
Materials		ABS, epoxy resin filling	
Weight		Approx. 850 g (with 12.5-m cable)	

Item	Model	V680-HS65-W (Standard Cable, Waterproof Connector)	V680-HS65-R (Flexible Cable, Non-waterproof Connector)
Ambient operating temperature		-25°C to 70°C (with no icing)	
Ambient storage temperature		-40°C to 85°C (with no icing)	
Ambient operating humidity		35% to 95% (with no condensation)	
Insulation resistance		20 MΩ min. (at 500 VDC) between the cable terminals and the case	
Dielectric strength		1,000 VAC (50/60 Hz) for 1 minute between the cable terminals and the case with a current leakage of 5 mA max.	
Degree of protection		IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) (Antenna portion) *1	IP67 (IEC 60529:2001) Oil resistance equivalent to IP67G (JIS C 0920:2003, Appendix 1) (Antenna portion) *2
Vibration resistance		10 to 500 Hz variable vibration, 1.5-mm double amplitude at 100 m/s <sup>2</sup> acceleration, with 10 sweeps in X, Y, and Z directions for 11 minutes each	
Shock resistance		500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Appearance		100 × 100 × 30 mm	
Materials		ABS, epoxy resin filling	
Weight		Approx. 1,100 g (with 12.5-m cable)	

**Note:** For details, refer to the User's Manual (Cat. No. Z248 or Z262).

\*1. The degree of protection for the Connector is IP67/IP65. Oil resistance has been tested using a specific oil as defined in the OMRON test method.

\*2. The Connector is not waterproof. Oil resistance has been tested using a specific oil as defined in the OMRON test method.

## Square Antenna with Built-in Amplifier

Item	Model	V680-H01-V2
Ambient operating temperature		-10°C to 55°C (with no icing)
Ambient storage temperature		-35°C to 65°C (with no icing)
Ambient operating humidity		35% to 85% (with no condensation)
Insulation resistance		20 MΩ min. (at 100 VDC) between connector terminals and the rear plate
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min between connector terminals and the rear plate
Degree of protection		IP63.(IEC60529); Mounting direction: Communications surface facing up
Vibration resistance		10 to 150 Hz, 0.35-mm single amplitude, acceleration: 50 m/s <sup>2</sup> , 10 sweeps in each of 3 axis directions (up/down, left/right, and forward/backward) for 8 minutes each
Shock resistance		150 m/s <sup>2</sup> , 3 times each in 6 directions (Total: 18 times)
Appearance		200 × 250 × 40 mm
Material		Polycarbonate (PC) resin, ASA resin / Rear Panel: Aluminum
Weight		Approx. 900 g
Cable length		0.5 m (use a relay cable to connect to the Controller up to 30.5 m)

Note: For details, refer to the User's Manual (Cat. No. Z248 or Z262).

## ID Controller

Item	Model	V680-CA5D01-V2	V680-CA5D02-V2
Power supply voltage (Power consumption)		24 VDC (-15% to +10%) 15 W max., 0.8 A max.	
Communications Specifications		RS-232C, RS-422, RS-485	
Input Specifications (Input voltage) RST, TRG1, and TRG2		24 VDC (+10% to -15%, including ripple) (PNP and NPN compatible)	
Output Specifications (Maximum switching capacity) RUN, BUSY/OUT3, ERROR/OUT4, OUT1, and OUT2		24 VDC (+10% to -15%, including ripple) PNP and NPN compatible	
Ambient operating temperature		-10 to 55°C (with no icing)	
Ambient storage temperature		-25 to 65°C (with no icing)	
Ambient operating humidity		25% to 85% (with no condensation)	
Insulation resistance		20 MΩ min. (at 500 VDC) applied as follows: (1) Between power supply terminals and grounded case (2) Between ground and terminals	
Dielectric strength		1,000 VAC (50/60 Hz) for 1 minute (1) Between power supply terminals and grounded case (2) Between ground and terminals	
Degree of protection		Panel mounted (equivalent to IP20)	
Vibration resistance		10 to 150 Hz variable vibration, 0.2-mm double amplitude at 15 m/s <sup>2</sup> acceleration, with 10 sweeps in X, Y, and Z directions for 8 minutes each	
Shock resistance		150 m/s <sup>2</sup>	
Appearance		105 × 90 × 65 mm (not including projections)	
Material		Polycarbonate (PC) resin, ABS resin	
Weight		Approx. 300 g	
Connectable Amplifier Units		1	2

Note: For details, refer to the User's Manual (Cat. No. Z249).

## USB Port

The USB port is used for a simple connection with a personal computer using a USB cable. The port complies with USB 1.1, and the USB cable uses a series A or series mini-B connector. A USB port driver must be separately provided. Consult with your OMRON representative for details. When connected to a host device via USB, the communications will use 1:1 protocol regardless of the setting of DIP switches 3 to 9. The USB port is not used for control purposes. When building a system, be sure to provide an RS-232C port or RS-422/RS-485C port.

## Amplifier Unit

Item	Model	V680-HA63A	V680-HA63B
Ambient operating temperature		-10°C to 55°C (with no icing)	
Ambient storage temperature		-25°C to 65°C (with no icing)	
Ambient operating humidity		35% to 85% (with no condensation)	
Insulation resistance		20 MΩ min. (at 500 VDC) between the cable terminals and the case	
Dielectric strength		1,000 VAC (50/60 Hz) for 1 minute between the cable terminals and the case with a current leakage of 5 mA max.	
Degree of protection		IP40 (IEC60529) *1	IP67/IP65 (IEC60529) *2
Vibration resistance		10 to 500 Hz variable vibration, 1.5-mm double amplitude at 100 m/s <sup>2</sup> acceleration, with 10 sweeps in X, Y, and Z directions for 11 minutes each	
Shock resistance		500 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Appearance		25 × 40 × 65mm (not including projections)	
Material		Polycarbonate (PC) resin	
Weight		Approx. 650 g (with 10-m cable)	
Cable length		5 m, 10 m	
Transmittable RF Tags		1-kbyte memory	2-, 8-kbyte memory

Note: For details, refer to the User's Manual (Cat. No. Z248 or Z262).

\*1. When connected to the V680-HS□□-R or V680-HS52-R.

\*2. When connected to the V680-HS□□-W or V680-HS52-W. (Not including the Connector on the Controller.)

## ID Sensor Units

Item	Model	CJ1W-V680C11	CJ1W-V680C12	CS1W-V680C11	CS1W-V680C12
Current consumption	Internal: 5 V	260 mA	320 mA	260 mA	320 mA
	Internal: 24 V/26 V	130 mA *	260 mA	125 mA *	–
	External: 24 V	–	–	–	360 mA
Ambient operating temperature	0 to 55°C				
Ambient storage temperature	–20°C to 75°C				
Ambient operating humidity	10% to 90% (with no condensation)				
Insulation resistance	20 mΩ min. at 500 VDC				
Dielectric strength	1,000 VAC for 1 minute				
Degree of protection	Mounted in panel (IP30)				
Vibration resistance	10 to 57 Hz variable vibration, 0.075-mm double amplitude and 57 to 150 Hz variable vibration at 9.8 m/s <sup>2</sup> acceleration, with 10 sweeps in X, Y, and Z directions for 8 minutes each				
Shock resistance	147 m/s <sup>2</sup> in X, Y, and Z directions 3 times each				
Appearance	31 × 65 × 90 mm (excluding protrusions)			35 × 130 × 101 mm (excluding protrusions)	

\* When connected to the V680-H01: 280 mA. The V680-H01-V2 can be connected only to a 1-channel ID Sensor Unit. A 2-channel Unit cannot be used.

## Functional Specifications of ID Sensor Units

Item	Model	CJ1W-V680C11	CJ1W-V680C12	CS1W-V680C11	CS1W-V680C12
Communications control protocol	Special protocol for CS, CJ and NJ PLCs				
Number of Antenna connections	1	2	1	2	
Commands	Supported commands: Read, Write, Bit Set/Bit Clear, Mask Bit Write, Calculation Write, Data Fill, Data Check, Number of Writes Control, Copy (CJ1W-V680C12 and CS1W-V680C12 only), Read with Error Correction/Write with Error Correction, UID Read, and Noise Measurement. The following communications options are supported: Single trigger, Single auto, Repeat auto, FIFO trigger, FIFO repeat *, Multi-access trigger, and Multi-access repeat *				
Data transfer quantity	2,048 bytes max. (160 bytes/scan)				
Diagnostic function	(1) CPU watchdog timer (2) Communications error detection with RF Tag (3) Antenna power supply error				
Monitoring/testing functions	Tag communications can be tested in Test Mode. Status is displayed by LED indicators.				
Number of allocated words	10 words	20 words	10 words	20 words	

**Note:** For details, refer to the User's Manual (Cat. No. Z271).

\* Cannot be used for communications with the V680-D1KP□□.

**Amplifier-integrated Controller (DeviceNet ID Slave/PROFIBUS ID Slave)**

Item	Model	V680-HAM42-DRT	V680-HAM42-PRT
Network compatibility		DeviceNet	PROFIBUS DP-V0
Connectable Antennas		One channel (V680-HS□□)	
Rated voltage		24 VDC (−15% to 10%) including 10% ripple (p-p)	
Power consumption		4 W max. (Current consumption of 200 mA max. at power supply voltage of 24 VDC)	
Ambient operating temperature		−10 to 55°C (with no icing)	
Ambient storage temperature		−25 to 65°C (with no icing)	
Ambient operating humidity		25% to 85% (with no condensation; ambient operating temperature is 40°C max. at humidity of 85%)	
Insulation resistance		20 MΩ min. (at 500 VDC) between all terminals excluding the ground terminal and the case	
Dielectric strength		1,000 VAC (50/60 Hz) for 1 minute between all terminals excluding the ground terminal and the case	
Vibration resistance		10 to 150 Hz, 0.2-mm double amplitude at 15 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y and Z directions for 8 minutes each	
Shock resistance		150 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Appearance		65 × 65 × 65 mm (excluding protrusions)	
Degree of protection		IEC 60529, IP20	
Materials		Polycarbonate (PC) resin, ABS resin	
Weight		Approx. 150 g	
Mounting		DIN Track	

**Note: 1.** For details, refer to the *User's Manual* (Cat. No. Z278).

**2.** The number of words allocated in the master depends on the Access Mode.

**Amplifier-integrated Controllers (ID Flag Sensors)**

Item	Model	V680-HAM91	V680-HAM81
Rated voltage		24 VDC (−15% to +10%) including 10% ripple (p-p)	
Power consumption		3.5 W (24 VDC, 150 mA max. except external I/O line current)	
Input specifications		Transistor output Short-circuit current: 3 mA (typical) (for short-circuit between IN terminal and 0 V), OFF voltage: 15 to 30 VDC, ON voltage: 0 to 5 VDC, Input impedance: 8.2 kΩ, Applied voltage: 30 VDC max.	
Output specifications		NPN open-collector output 30 VDC, 20 mA max., Residual voltage: 2 V max.	PNP open-collector output 30 VDC, 20 mA max., Residual voltage: 2 V max.
Ambient operating temperature		−10 to 55°C (with no icing)	
Ambient storage temperature		−25 to 65°C (with no icing)	
Ambient operating humidity		25% to 85% (with no condensation; ambient operating temperature is 40°C max. at humidity of 85%)	
Insulation resistance		20 MΩ min. (at 500 VDC) between all terminals excluding the FG terminal and the case	
Dielectric strength		1,000 VAC (50/60 Hz) applied for 1 minute between all terminals excluding the FG terminal and the case	
Vibration resistance		10 to 150 Hz, 0.2-mm double amplitude at 15 m/s <sup>2</sup> acceleration with 10 sweeps in X, Y and Z directions for 8 minutes each	
Shock resistance		150 m/s <sup>2</sup> in X, Y, and Z directions 3 times each (18 times in total)	
Appearance		90 × 30 × 65 mm (excluding protrusions)	
Degree of protection		IEC 60529, IP40	
Materials		Polycarbonate (PC) resin, ABS resin	
Weight		Approx. 130 g	
Mounting		DIN Track	

**Note: 1.** For details, refer to the *User's Manual* (Cat. No. Z279).

**2.** The connectors are not water resistant. If there is a possibility that water will be splashed onto the ID Sensor Unit, mount it inside of a control box. Also, be sure to use the V680 as a set with the V680-A60 Interface Cable (sold separately).

## Handheld Reader Writers

Item	Model	V680-CHUD 0.8M	V680-CHUD 1.9M	V680-CH1D	V680-CH1D-PSI
Power supply voltage		5 VDC $\pm$ 5% (at the connector section of the product)			
Current consumption		500 mA max. (for a power supply voltage of 5.0 V)			
Communications specifications		USB (Series A plug) Ver.1.1		RS-232C (D-SUB 9-pin) compatible with IBM PC/AT)	RS-232C (D-SUB 9-pin)
Ambient operating temperature during communication		0 to +40°C			
Ambient storage temperature		-25 to +65°C			
Ambient operating humidity during communication		35% to 85% (with no condensation)			
Insulation resistance		50 M $\Omega$ min. (at 500 VDC) between connector and case			
Dielectric strength		1,000 VAC, 50/60 Hz for 1 min (leakage current: 1 mA max.) between connectors and case			
Degree of protection		IEC 60529: IP63 *			
Vibration resistance		Destruction: 10 to 150 Hz variable vibration, 0.2-mm double amplitude and 15 m/s <sup>2</sup> acceleration with 10 sweeps for 8 min each in 6 directions			
Shock resistance		Destruction: 150 m/s <sup>2</sup> , 3 times each in X, Y, and Z directions			
Weight		Approx. 110 g (including connector and cable)	Approx. 140 g (including connector and cable)	Approx. 170 g (including connector and cable)	Approx. 120 g (including connector and cable)
Cable length		0.8 m	1.9 m	2.5 m	0.8 m

Note: Refer to the User's Manual (Cat. No. Z272) for details.

Contact your OMRON sales representative for details on drivers for Windows.

\* This does not include the connector section. The main unit is not resistant to chemical or oils.



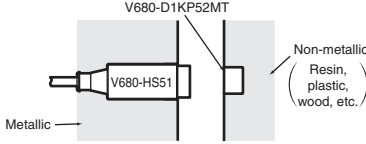

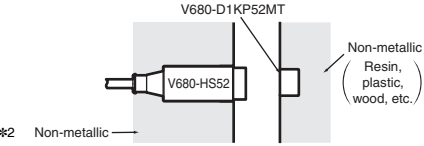

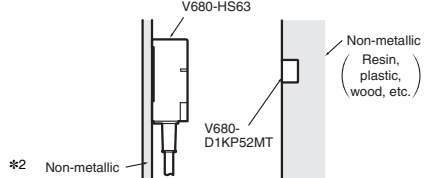


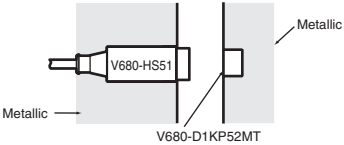

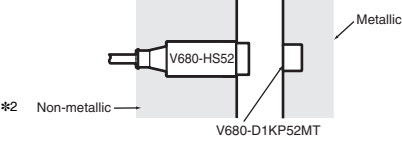


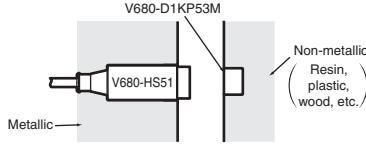

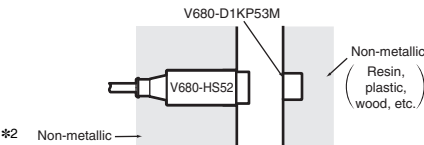


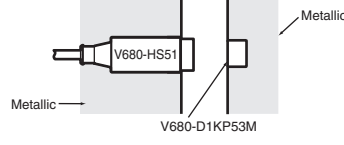

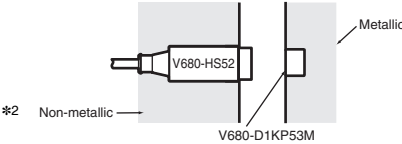
## AC Adapter (for V680-CH1D)

Item	Model	V600-A22
Input voltage		100 to 120 VAC at 50/60 Hz
Input current		AC: 300 mA (at load current of 2.0 A)
Output voltage		DC5V $\pm$ 0.25V
Ambient operating temperature		0 to +40°C
Ambient storage temperature		-20 to +85°C (with no icing)
Ambient operating humidity		5% to 95% (with no condensation)
Insulation resistance		100 M $\Omega$ min. (at 500 VDC) between input terminals and output terminals
Dielectric strength		2,000 V for 1 minute between input terminals and output terminals with a current leakage of 10 mA max.
Weight		Approx. 70 g
Applicable standards		UL





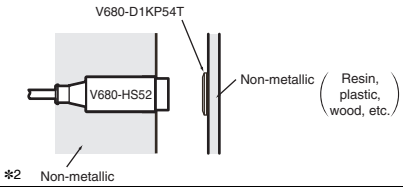

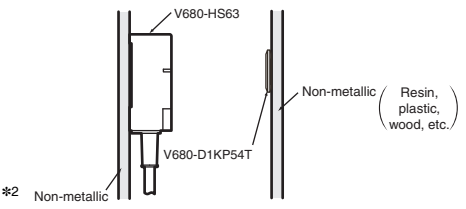

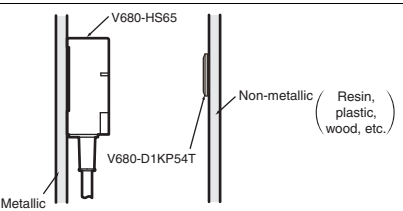


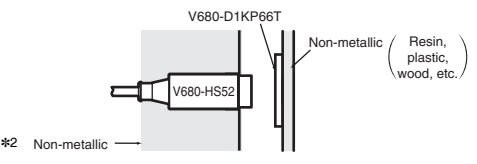

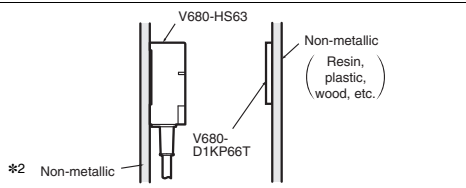

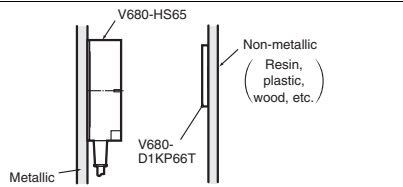

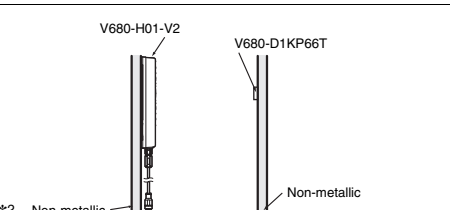
## Communication Specifications

### ID Controllers (V680-CA5D01-V2/V680-CA5D02-V2) RF Tag (1-kbyte Memory) Communication

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
<b>V680-D1KP52MT</b>  	<b>V680-HS51</b>  	Read distance	0.5 to 6.5 (axis offset ±2)	
		Write distance	0.5 to 6.0 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0 to 9.0 (axis offset ±2)	
		Write distance	0 to 8.5 (axis offset ±2)	
	<b>V680-HS63</b>  	Read distance	0 to 12.0 (axis offset ±2)	
		Write distance	0 to 9.5 (axis offset ±2)	
<b>V680-D1KP52MT</b> (embedded in metallic surface: steel)  	<b>V680-HS51</b>  	Read distance	0.5 to 3.5 *1 (axis offset ±2)	
		Write distance	0.5 to 3.0 *1 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0 to 4.5 *1 (axis offset ±2)	
		Write distance	0 to 4.0 *1 (axis offset ±2)	
<b>V680-D1KP53M</b>  	<b>V680-HS51</b>  	Read distance	0.5 to 6.5 (axis offset ±2)	
		Write distance	0.5 to 6.0 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0 to 9.0 (axis offset ±2)	
		Write distance	0 to 8.5 (axis offset ±2)	
<b>V680-D1KP53M</b> (embedded in metallic surface : steel)  	<b>V680-HS51</b>  	Read distance	0.5 to 3.5 *1 (axis offset ±2)	
		Write distance	0.5 to 3.0 *1 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0 to 4.5 *1 (axis offset ±2)	
		Write distance	0 to 4.0 *1 (axis offset ±2)	

\*1. When using the V680-D1KP52MT/-D1KP53M embedded in metal, use the V680-HS51/-HS52 Antenna. Communications will not be possible with a V680-HS63 Antenna.


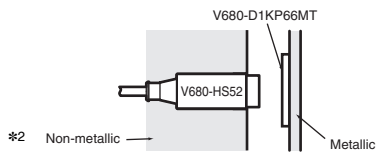




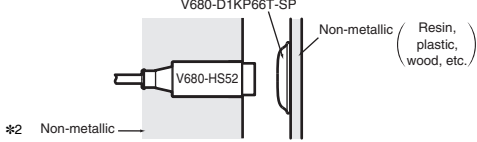



\*2. The Antenna can be mounted in metal, but the communications distance will decrease compared to mounting in nonmetal. Confirm performance using the actual devices before actual operation.

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
<b>V680-D1KP54T</b>  	<b>V680-HS52</b> 	Read distance	0 to 17.0 *1 (axis offset ±2)	
		Write distance	0 to 15.0 *1 (axis offset ±2)	
	<b>V680-HS63</b> 	Read distance	0 to 24.0 *1 (axis offset ±10)	
		Write distance	0 to 20.0 *1 (axis offset ±10)	
	<b>V680-HS65</b> 	Read distance	0 to 33.0 *1 (axis offset ±10)	
		Write distance	0 to 28.0 *1 (axis offset ±10)	
<b>V680-D1KP66T</b>  	<b>V680-HS52</b> 	Read distance	0 to 17.0 *1 (axis offset ±2)	
		Write distance	0 to 17.0 *1 (axis offset ±2)	
	<b>V680-HS63</b> 	Read distance	0 to 30.0 *1 (axis offset ±10)	
		Write distance	0 to 25.0 *1 (axis offset ±10)	
	<b>V680-HS65</b> 	Read distance	0 to 47.0 *1 (axis offset ±10)	
		Write distance	0 to 42.0 *1 (axis offset ±10)	
	<b>V680-H01-V2</b> 	Read distance	0 to 100.0 *1 (axis offset ±2)	
		Write distance	0 to 100.0 *1 (axis offset ±2)	

**Note:** When mounting the V680-HS65, be sure to attach the Mounting Brackets at the base of the Antenna. The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm). For details, refer to the User's Manual (Cat. No. Z248 or Z262).

\*1. The communication range may be reduced if the V680-D1KP66T/-D1KP54T is mounted onto a metallic surface. Refer to the User's Manual (Cat. No. Z262) for details.



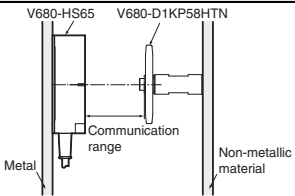

\*2. The Antenna can be mounted in metal, but the communication range will decrease compared to mounting in nonmetal. Confirm performance using the actual devices before actual operation.

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
<b>V680-D1KP66MT</b> (flush-mounted on metallic surface: steel)	<b>V680-HS52</b> 	Read distance	0 to 16.0 (axis offset ±2)	
		Write distance	0 to 14.0 (axis offset ±2)	
		<b>V680-HS63</b> 	Read distance	0 to 25.0 (axis offset ±10)
		Write distance	0 to 20.0 (axis offset ±10)	
		<b>V680-HS65</b> 	Read distance	0 to 25.0 (axis offset ±10)
	Write distance	0 to 20.0 (axis offset ±10)		
<b>V680-D1KP66T-SP</b>	<b>V680-HS52</b> 	Read distance	0 to 15.0 *1 (axis offset ±2)	
		Write distance	0 to 15.0 *1 (axis offset ±2)	
		<b>V680-HS63</b> 	Read distance	0 to 25.0 *1 (axis offset ±10)
		Write distance	0 to 20.0 *1 (axis offset ±10)	
		<b>V680-HS65</b> 	Read distance	0 to 42.0 *1 (axis offset ±10)
	Write distance	0 to 37.0 *1 (axis offset ±10)		



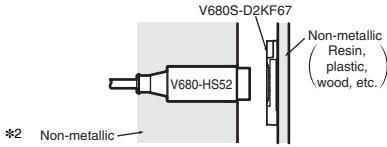

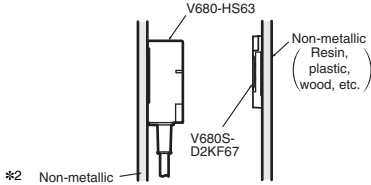

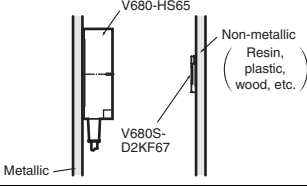

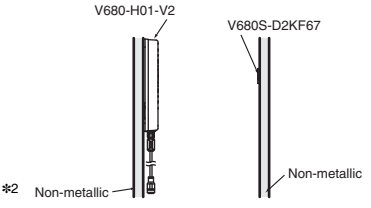


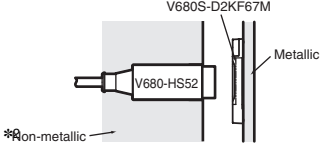

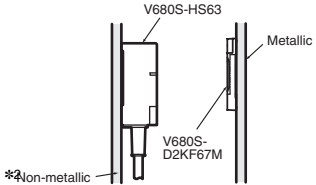

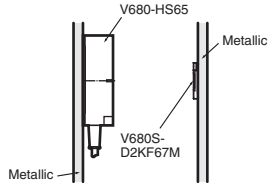
**Note:** When mounting the V680-HS65, be sure to attach the Mounting Brackets at the base of the Antenna. The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm). For details, refer to the User's Manual (Cat. No. Z248 or Z262).

\*1. The communication range may be reduced if the V680-D1KP66T-SP is mounted onto a metallic surface. Refer to the User's Manual (Cat. No. Z262) for details.  
 \*2. The Antenna can be mounted in metal, but the communications distance will decrease compared to mounting in nonmetal. Confirm performance using the actual devices before actual operation.

### High-temperature RF Tag (1-kbyte Memory) Communication



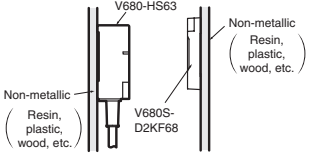

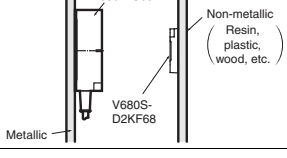

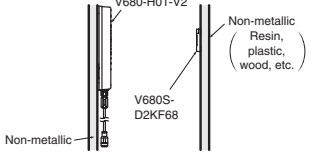


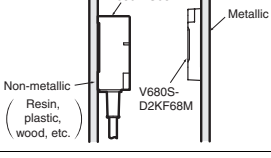

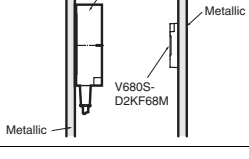


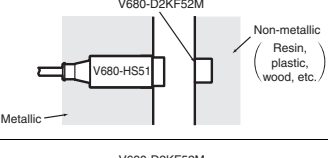

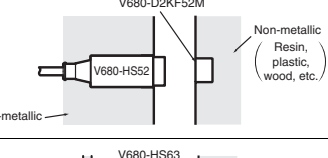

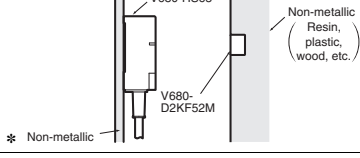


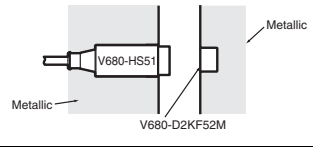

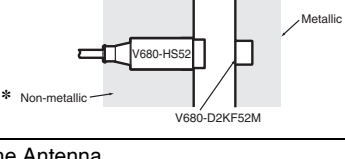
Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
<b>V680-D1KP58HTN</b> 	<b>V680-HS65</b> 	Read distance	0 to 55 (axis offset ±10)	
		Write distance	0 to 55 (axis offset ±10)	
		<b>V680-H01-V2</b> 	Read distance	0 to 150.0 (axis offset ±10)
	Write distance	0 to 150.0 (axis offset ±10)		

## RF Tag (2-kbyte Memory) Communication

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
<b>V680S-D2KF67</b>  	<b>V680-HS52</b>  	Read distance	0 to 17.0 *1 (axis offset ±2)	
		Write distance	0 to 17.0 *1 (axis offset ±2)	
	<b>V680-HS63</b>  	Read distance	7.0 to 30.0 *1 (axis offset ±10)	
		Write distance	7.0 to 30.0 *1 (axis offset ±10)	
<b>V680-HS65</b>  	Read distance	0 to 42.0 *1 (axis offset ±10)		
	Write distance	0 to 42.0 *1 (axis offset ±10)		
<b>V680-H01-V2</b>  	Read distance	0 to 100.0 *1 (axis offset ±10)		
	Write distance	0 to 100.0 *1 (axis offset ±10)		
<b>V680S-D2KF67M</b> (flush-mounted on metallic surface: steel)  	<b>V680-HS52</b>  	Read distance	0 to 16.0 (axis offset ±2)	
		Write distance	0 to 16.0 (axis offset ±2)	
	<b>V680-HS63</b>  	Read distance	6.0 to 25.0 (axis offset ±10)	
		Write distance	6.0 to 25.0 (axis offset ±10)	
	<b>V680-HS65</b>  	Read distance	0 to 25.0 (axis offset ±10)	
		Write distance	0 to 25.0 (axis offset ±10)	

**Note:** When mounting the V680-HS65, be sure to attach the Mounting Brackets at the base of the Antenna.  
 The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm).  
 For details, refer to the User's Manual (Cat. No. Z248 or Z262).



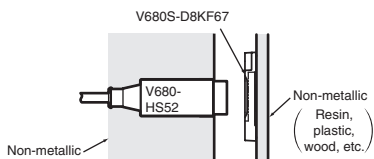

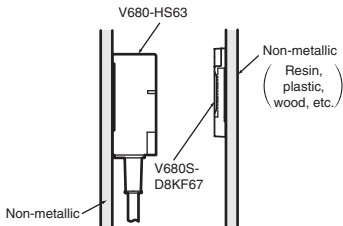

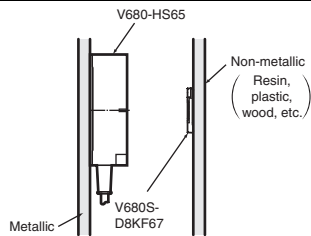

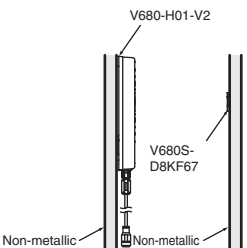


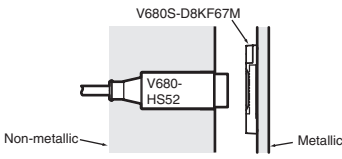

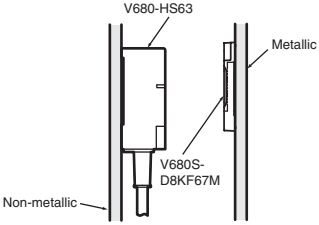

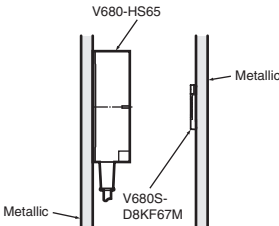
- \*1. The communication range may be reduced if the V680S-D2KF67 is mounted onto a metallic surface. Refer to the User's Manual (Cat. No. Z248) for details.
- \*2. The Antenna can be mounted in metal, but the communications distance will decrease compared to mounting in nonmetal. Confirm performance using the actual devices before actual operation.

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
	<b>V680-HS63</b> 	Read distance	0 to 45.0 (axis offset $\pm 10$ )	
		Write distance	0 to 45.0 (axis offset $\pm 10$ )	
	<b>V680-HS65</b> 	Read distance	0 to 75.0 (axis offset $\pm 10$ )	
		Write distance	0 to 75.0 (axis offset $\pm 10$ )	
	<b>V680-H01-V2</b> 	Read distance	0 to 150.0 (axis offset $\pm 10$ )	
		Write distance	0 to 150.0 (axis offset $\pm 10$ )	
	<b>V680-HS63</b> 	Read distance	0 to 35.0 (axis offset $\pm 10$ )	
		Write distance	0 to 35.0 (axis offset $\pm 10$ )	
	<b>V680-HS65</b> 	Read distance	0 to 55.0 (axis offset $\pm 10$ )	
		Write distance	0 to 55.0 (axis offset $\pm 10$ )	
	<b>V680-HS51</b> 	Read distance	0.5 to 5.5 (axis offset $\pm 2$ )	
		Write distance	0.5 to 5.5 (axis offset $\pm 2$ )	
	<b>V680-HS52</b> 	Read distance	0 to 8.0 (axis offset $\pm 2$ )	
		Write distance	0 to 8.0 (axis offset $\pm 2$ )	
	<b>V680-HS63</b> 	Read distance	0 to 9.5 (axis offset $\pm 2$ )	
		Write distance	0 to 9.5 (axis offset $\pm 2$ )	
	<b>V680-HS51</b> 	Read distance	0 to 3.5 (axis offset $\pm 2$ )	
		Write distance	0 to 3.5 (axis offset $\pm 2$ )	
	<b>V680-HS52</b> 	Read distance	0 to 3.0 (axis offset $\pm 2$ )	
		Write distance	0 to 3.0 (axis offset $\pm 2$ )	


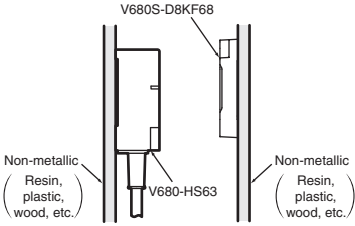




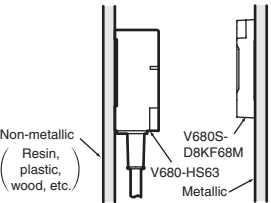

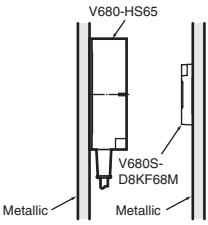
**Note:** When mounting the V680-HS63, be sure to attach the Mounting Brackets at the base of the Antenna. The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm). For details, refer to the User's Manual (Cat. No. Z248 or Z262).

\* The Antenna can be mounted in metal, but the communications distance will decrease compared to mounting in nonmetal. Confirm performance using the actual devices before actual operation.

## RF Tag (8-kbyte Memory) Communication



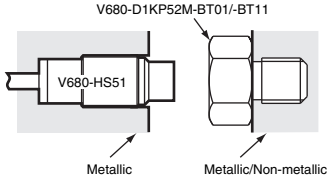


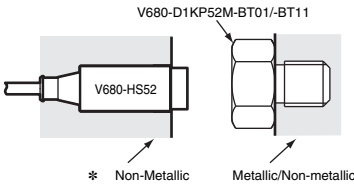


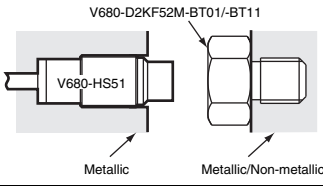

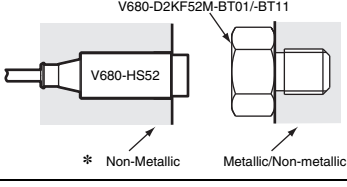
Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Reader Writer			
	<b>V680-HS52</b> 	Read distance	0 to 17.0 (axis offset ±2)	
		Write distance	0 to 17.0 (axis offset ±2)	
	<b>V680-HS63</b> 	Read distance	7.0 to 30.0 (axis offset ±10)	
		Write distance	7.0 to 30.0 (axis offset ±10)	
	<b>V680-HS65</b> 	Read distance	0 to 42.0 (axis offset ±10)	
	Write distance	0 to 42.0 (axis offset ±10)		
	<b>V680-H01-V2</b> 	Read distance	0 to 100.0 (axis offset ±10)	
	Write distance	0 to 100.0 (axis offset ±10)		
	<b>V680-HS52</b> 	Read distance	0 to 16.0 (axis offset ±2)	
		Write distance	0 to 16.0 (axis offset ±2)	
	<b>V680-HS63</b> 	Read distance	6.0 to 25.0 (axis offset ±10)	
		Write distance	6.0 to 25.0 (axis offset ±10)	
	<b>V680-HS65</b> 	Read distance	0 to 25.0 (axis offset ±10)	
		Write distance	0 to 25.0 (axis offset ±10)	

**Note:** When mounting the V680-HS65, be sure to attach the Mounting Brackets at the base of the Antenna.  
 The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm).  
 For details, refer to the User's Manual (Cat. No. Z248 or Z262).

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Reader Writer			
V680S-D8KF68	V680-HS63 	Read distance	0 to 45.0 (axis offset ±10)	
	Write distance	0 to 45.0 (axis offset ±10)		
		V680-HS65 	Read distance	0 to 75.0 (axis offset ±10)
Write distance		0 to 75.0 (axis offset ±10)		
		V680-H01-V2	Read distance	0 to 150.0 (axis offset ±10)
	Write distance	0 to 150.0 (axis offset ±10)		
V680S-D8KF68M	V680-HS63 	Read distance	0 to 35.0 (axis offset ±10)	
		Write distance	0 to 35.0 (axis offset ±10)	
	V680-HS65 	Read distance	0 to 55.0 (axis offset ±10)	
		Write distance	0 to 55.0 (axis offset ±10)	

**Note:** When mounting the V680-HS65, be sure to attach the Mounting Brackets at the base of the Antenna.  
 The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm).  
 For details, refer to the User's Manual (Cat. No. Z248 or Z262).



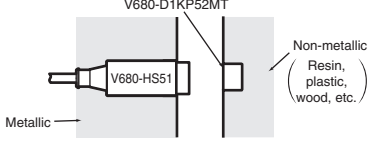

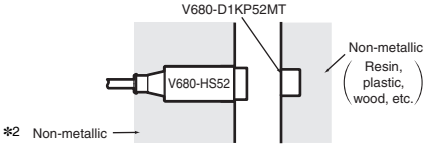

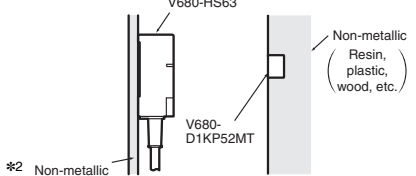


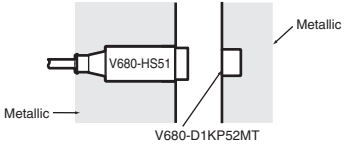

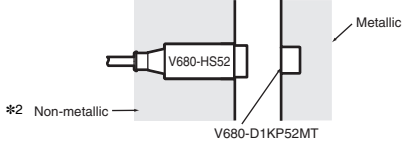


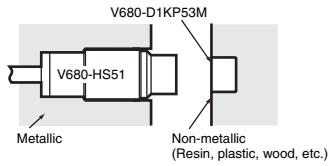

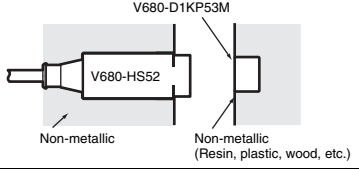


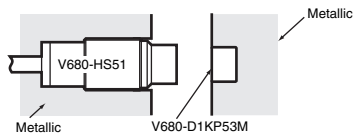

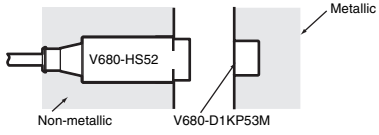
## Bolt RF Tag (1-kbyte or 2-kbyte Memory) Communication



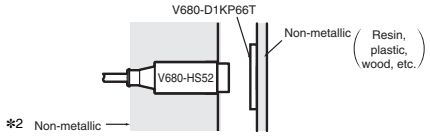

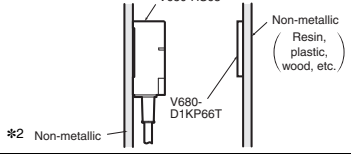

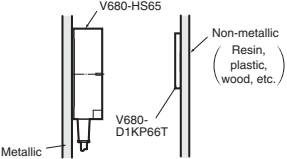
Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
<b>V680-D1KP52M-BT01/-BT11</b>  	<b>V680-HS51</b>  	Read distance	0.5 to 2.5 (axis offset ±2)	
			Write distance	
	<b>V680-HS52</b>  	Read distance	0.5 to 3.0 (axis offset ±2)	
			Write distance	
<b>V680-D2KF52M-BT01/-BT11</b>  	<b>V680-HS51</b>  	Read distance	0.5 to 2.5 (axis offset ±2)	
			Write distance	
	<b>V680-HS52</b>  	Read distance	0.5 to 2.0 (axis offset ±2)	
		Write distance	0.5 to 2.0 (axis offset ±2)	

\* Mounting can be performed in metal, but the communications distance will decrease compared to mounting in nonmetal. Confirm performance using the actual devices before actual operation.





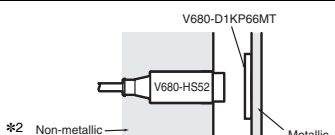

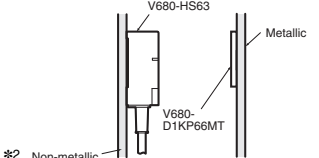

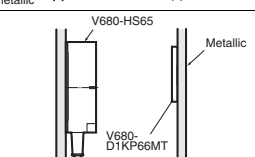


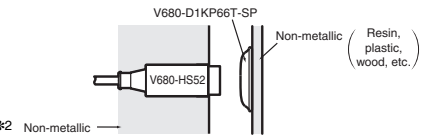

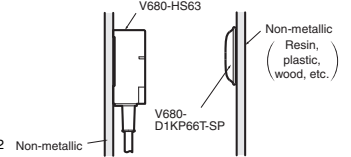

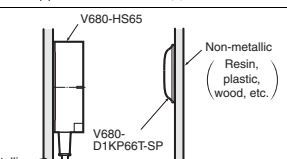
**DeviceNet ID Slave (V680-HAM42-DRT)  
 PROFIBUS ID Slave (V680-HAM42-PRT)  
 ID Flag Sensors (V680-HAM91/-HAM81)  
 RF Tag (1-kbyte Memory) Communication**

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions
RF Tag	Antenna			
<b>V680-D1KP52MT</b>  	<b>V680-HS51</b>  	Read distance	0.5 to 6.5 (axis offset ±2)	
		Write distance	0.5 to 6.0 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0.5 to 9.0 (axis offset ±2)	
		Write distance	0.5 to 8.5 (axis offset ±2)	
	<b>V680-HS63</b>  	Read distance	0.5 to 12.0 (axis offset ±2)	
		Write distance	0.5 to 9.5 (axis offset ±2)	
<b>V680-D1KP52MT</b> (embedded in metallic surface: steel)  	<b>V680-HS51</b>  	Read distance	0.5 to 3.5 (axis offset ±2)	
		Write distance	0.5 to 3.0 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0.5 to 4.5 (axis offset ±2)	
		Write distance	0.5 to 4.0 (axis offset ±2)	
<b>V680-D1KP53M</b>  	<b>V680-HS51</b>  	Read distance	0.5 to 6.5 (axis offset ±2)	
		Write distance	0.5 to 6.0 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0.5 to 9.0 (axis offset ±2)	
		Write distance	0.5 to 8.5 (axis offset ±2)	
<b>V680-D1KP53M</b> (embedded in metallic surface : steel)  	<b>V680-HS51</b>  	Read distance	0.5 to 3.5 (axis offset ±2)	
		Write distance	0.5 to 3.0 (axis offset ±2)	
	<b>V680-HS52</b>  	Read distance	0.5 to 4.5 (axis offset ±2)	
		Write distance	0.5 to 4.0 (axis offset ±2)	

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions		
RF Tag	Antenna					
<b>V680-D1KP66T</b>  	<b>V680-HS52</b> 	Read distance	1.0 to 17.0 *1 (axis offset ±2)			
		Write distance	1.0 to 17.0 *1 (axis offset ±2)			
	<b>V680-HS63</b> 	Read distance	5.0 to 30.0 *1 (axis offset ±10)			
		Write distance	5.0 to 25.0 *1 (axis offset ±10)			
	<b>V680-HS65</b> 	Read distance	5.0 to 47.0 *1 (axis offset ±10)			
		Write distance	5.0 to 42.0 *1 (axis offset ±10)			

**Note:** When mounting the V680-HS65, be sure to attach the Mounting Brackets at the base of the Antenna.  
 The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm).  
 For details, refer to the User's Manual (Cat. No. Z278 or Z279).

\*1. The communication range may be reduced if the V680-D1KP66T is mounted onto a metallic surface. Refer to the User's Manual (Cat. No. Z278 or Z279) for details.  
 \*2. The Antenna can be mounted in metal, but the communications distance will decrease compared to mounting in nonmetal.

Recommended combination		Function	Communication range (unit: mm)	RF Tag and Antenna mounting conditions		
RF Tag	Antenna					
<b>V680-D1KP66MT</b> (flush-mounted on metallic surface: steel)  	<b>V680-HS52</b> 	Read distance	1.0 to 16.0 (axis offset ±2)			
		Write distance	1.0 to 14.0 (axis offset ±2)			
	<b>V680-HS63</b> 	Read distance	5.0 to 25.0 (axis offset ±2)			
		Write distance	5.0 to 20.0 (axis offset ±2)			
	<b>V680-HS65</b> 	Read distance	5.0 to 25.0 (axis offset ±10)			
		Write distance	5.0 to 20.0 (axis offset ±10)			
	<b>V680-D1KP66T-SP</b>  	<b>V680-HS52</b> 	Read distance	1.0 to 15.0 *1 (axis offset ±2)		
			Write distance	1.0 to 15.0 *1 (axis offset ±2)		
		<b>V680-HS63</b> 	Read distance	5.0 to 25.0 *1 (axis offset ±10)		
Write distance			5.0 to 20.0 *1 (axis offset ±10)			
<b>V680-HS65</b> 		Read distance	5.0 to 42.0 *1 (axis offset ±10)			
		Write distance	5.0 to 37.0 *1 (axis offset ±10)			

**Note:** When mounting the V680-HS65, be sure to attach the Mounting Brackets at the base of the Antenna.  
 The enclosed Mounting Brackets do not need to be used, however, if the mounting brackets on the Antenna are metal plates and their dimensions are larger than the dimensions of the Antenna (100 × 100 mm).  
 For details, refer to the User's Manual (Cat. No. Z278 or Z279).

\*1. The communication range may be reduced if the V680-D1KP66T-SP is mounted onto a metallic surface. Refer to the User's Manual (Cat. No. Z278 or Z279) for details.  
 \*2. The Antenna can be mounted in metal, but the communications distance will decrease compared to mounting in nonmetal.  
 Confirm performance using the actual devices before actual operation.