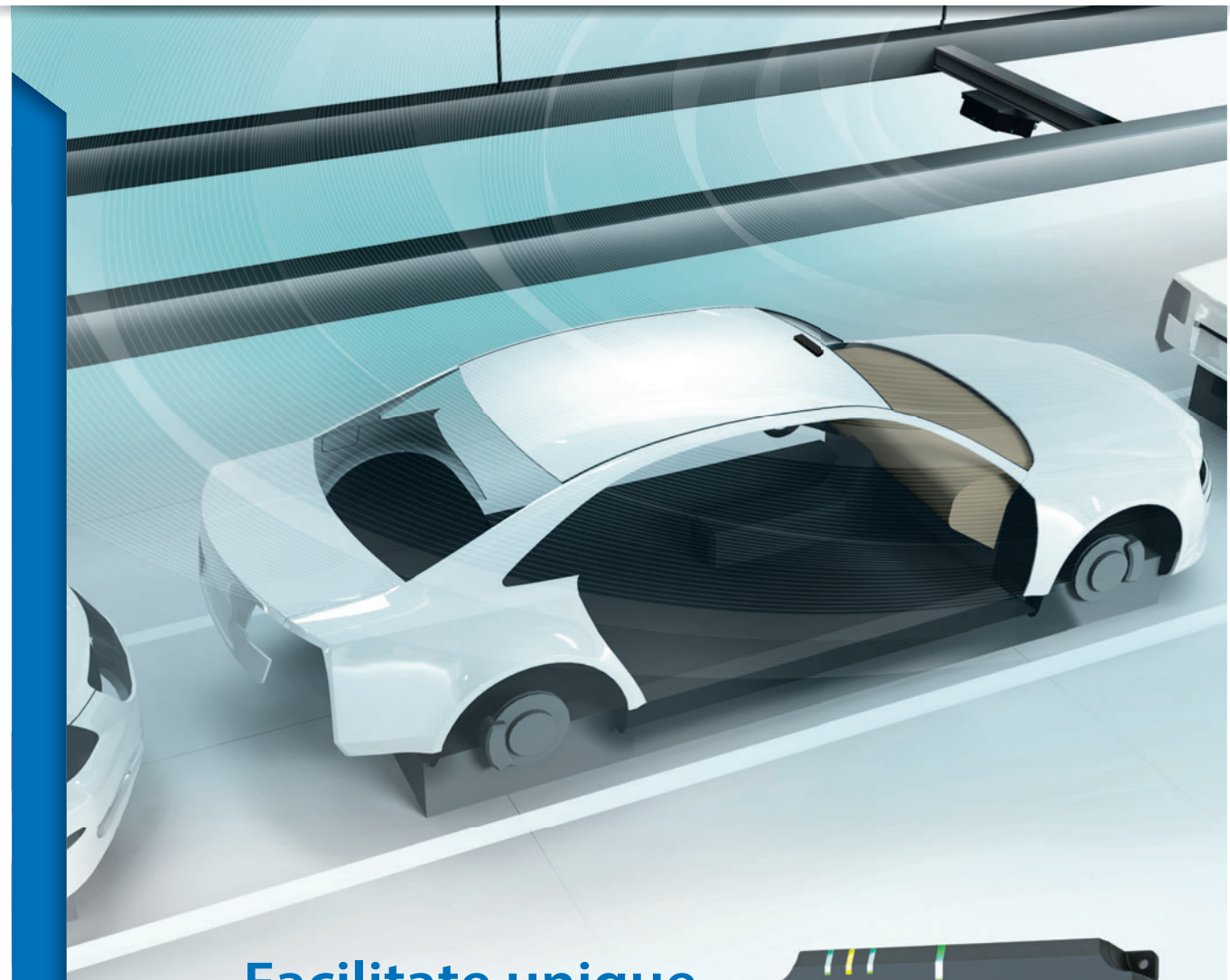
OMRON

UHF RFID System

V780 Series



Facilitate unique identification of large objects

Easy to use long range RFID for unique of large objects like car bodies

UHF RFID System

V780 Series

identification

Increasing high-mix low-volume production and modular production lines

Challenges when introducing RFID	V780 Series	
Install into high-mix production lines	**Reliable RF tag reading from several meters away** Can be used for a production line on which objects with various heights are conveyed	p.4
Quickly install and tune	**Automatic setting adjustment according to environment** Can be installed without RFID expertise	p.5
Make troubleshooting easy	**Visualizing causes from 8,000 logged results** Helps reduce troubleshooting time	p.6

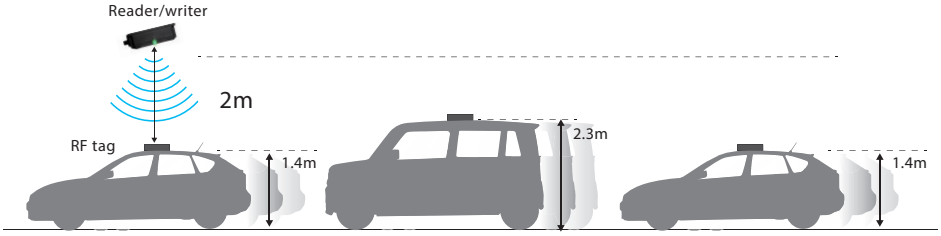
The video shows details of each function http://www.fa.omron.co.jp/v780e

Stable communications even in high-mix production lines

Reliable long distance communications

Stable detection of objects with different heights

The UHF RFID system with a wide communication range can identify the objects in various sizes on a line or the carts which take different routs.

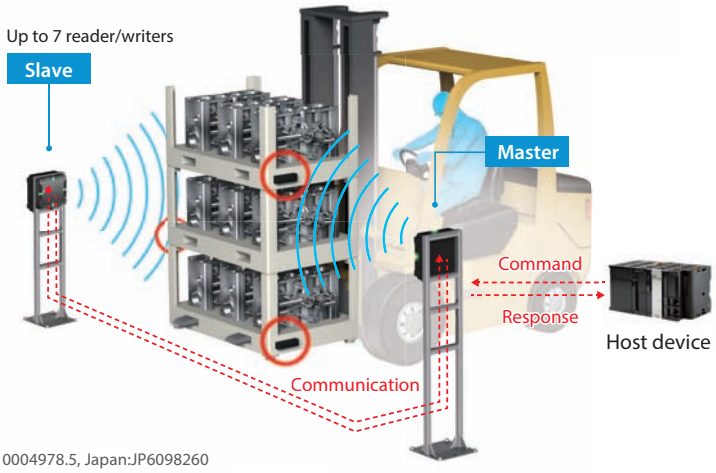


Focus Mode prevents misreads and reads only target tags PATENT PENDING

Even when two or more RF tags exist in the communication range, the reader/writer can read the target tag just in front of it. It reads RF tags in the order in which they are conveyed while ignoring RF tags on pallets around the line.

Multi-Reader/Writer function*1 for high-mix production PATENTED/PATENT PENDING *2

This function enables up to eight reader/writers to communicate as if they are one reader/writer. If you want to inspect all stacked pallets at the same time when they pass through a gate, you can install the reader/writers on both the left and right sides of the gate to read an RF tag placed on either the left or right side of each pallet. The host device sends commands only to the master reader/writer to communicate.



*1.Patent status as of June 2018 US:US9727758, Europe:Pending, China:ZL201410004978.5, Japan:JP6098260

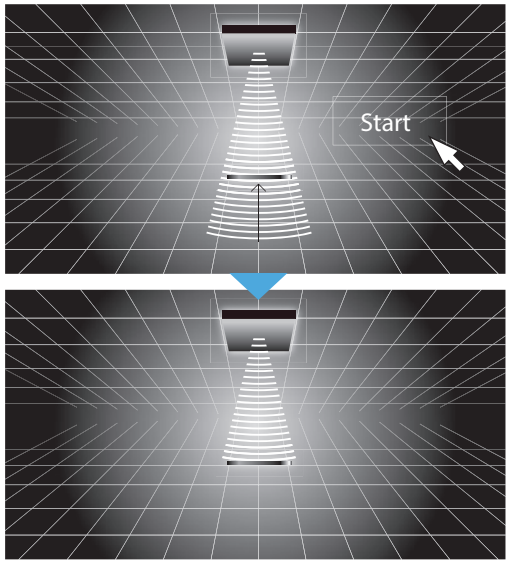
*2.Version 3 or later provides this function.

No RFID expertise required for installation

Automatic setting adjustment according to environment

Automatic transmission power tuning

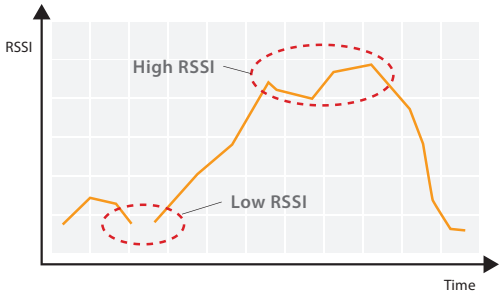
The transmission power required for communications between the reader/writer and RF tags are measured and automatically set to appropriate values. The set power will be large enough to communicate with RF tags and minimize interference with other reader/writers.
This function is useful when multiple reader/writers are installed in one factory. The transmission power can be easily set via the web browser.



Power is tuned to the target RF tag, which reduces installation and adjustment time

Reception Level Monitor shows reception levels over time for installation/adjustment

This function visualizes reception levels, helping adjust installation positions of reader/writers and RF tags and check communication ranges.
When RF tags on two or more objects are read for adjustment, connect your PC with the reader/writer to check a time series graph of the reception levels via the web browser.



LED indicators help you adjust installation positions

In addition to the web browser, the flashing speed of the LED indicators on the reader/writer provides a visual indication of the reception level. This makes it easier to install and adjust a reader/writer or RF tag at a production site.

Check the reception level with the indicators on the reader/writer to find the best installation position of an RF tag

Easy troubleshooting during operation

Visualizing causes from 8,000 logged results

Monitor communication status via the web browser

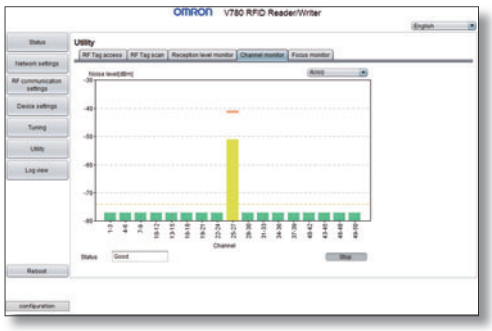
By connecting a PC, you can set parameters and monitor communication status, noise levels, and communication log via the web browser. This facilitates maintenance and troubleshooting.

· RF communications diagnostics log (displayed as a list or graph)

The latest 8,000 communication diagnostic results are listed in a table. When communications are unstable, the probable causes and workarounds are displayed to make troubleshooting easier. Also, a graph shows RSSI levels and noise levels to aid identify the causes of unstable communications. The diagnostic results can be output to CSV files.

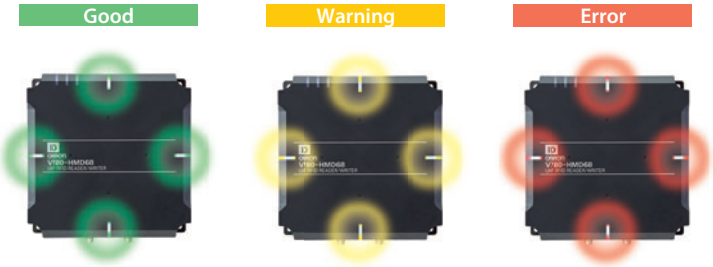
· Channel monitor

Noise levels in the operating environment are displayed to allow you to check radio interference. You can identify noise sources and take measures to stabilize operation.

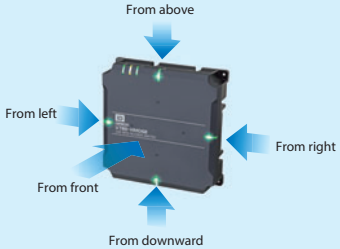


Real-time communication status indication

You can immediately check the communication status with the indicators of the reader/writer. The indicators using high-brightness LED can be easily seen even from a distance.



Communication status can be checked from five directions.



Applications

Automotive body assembly

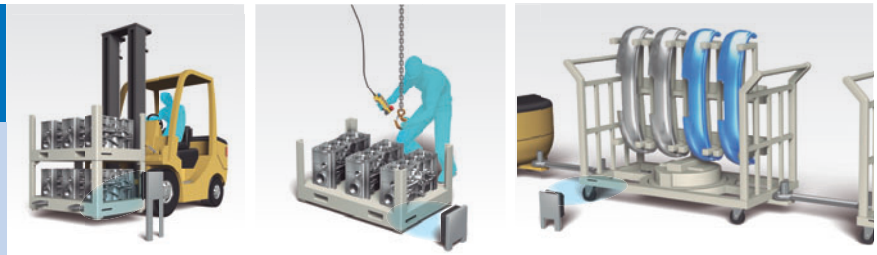
Introduce unique identification of bodies to high-mix production lines

The wide communication range and focus mode enable bodyworks to be reliably detected from several meters away.

Parts transportation

Accurately supply parts even in high-mix production

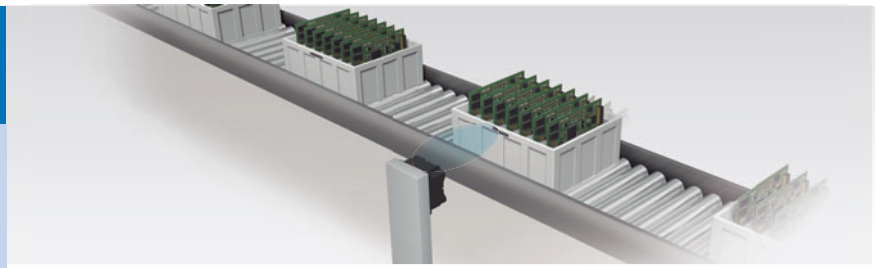
The passing pallets can be detected correctly.
The LED indicators show in real time whether the pallet is detected.



Handling materials in containers

Quickly set up detection of individual containers

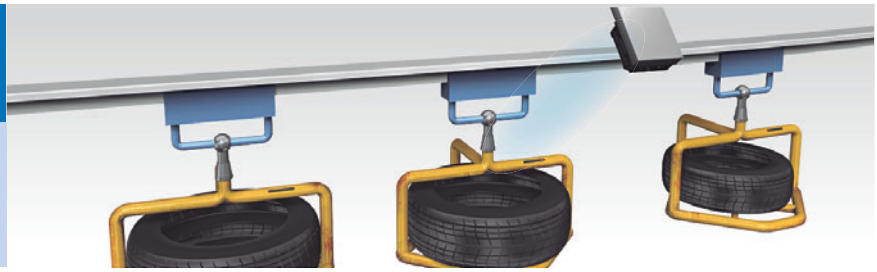
Reception Level Monitor that shows reception levels over time helps installation. No special knowledge required.



Hanging conveyance

Introduce unique identification for high-mix production
Facilitate maintenance work at heights

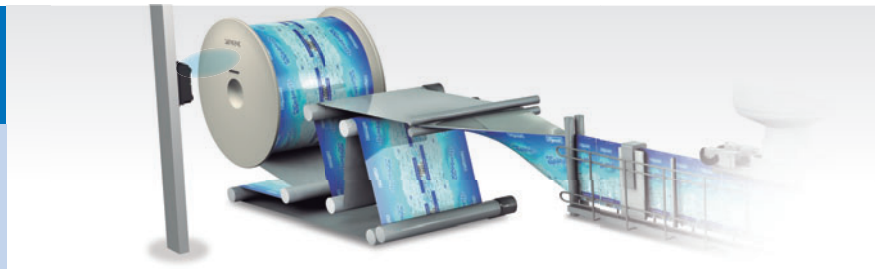
High-brightness LED indicators that provide clear status indication can be seen from a distance.



Paper roll management

Introduce unique identification for high-mix production
Reduce effects of noise from other devices

The causes are visualized from 8,000 logged results. Channel monitor shows noise levels in the web browser to help identify the causes.

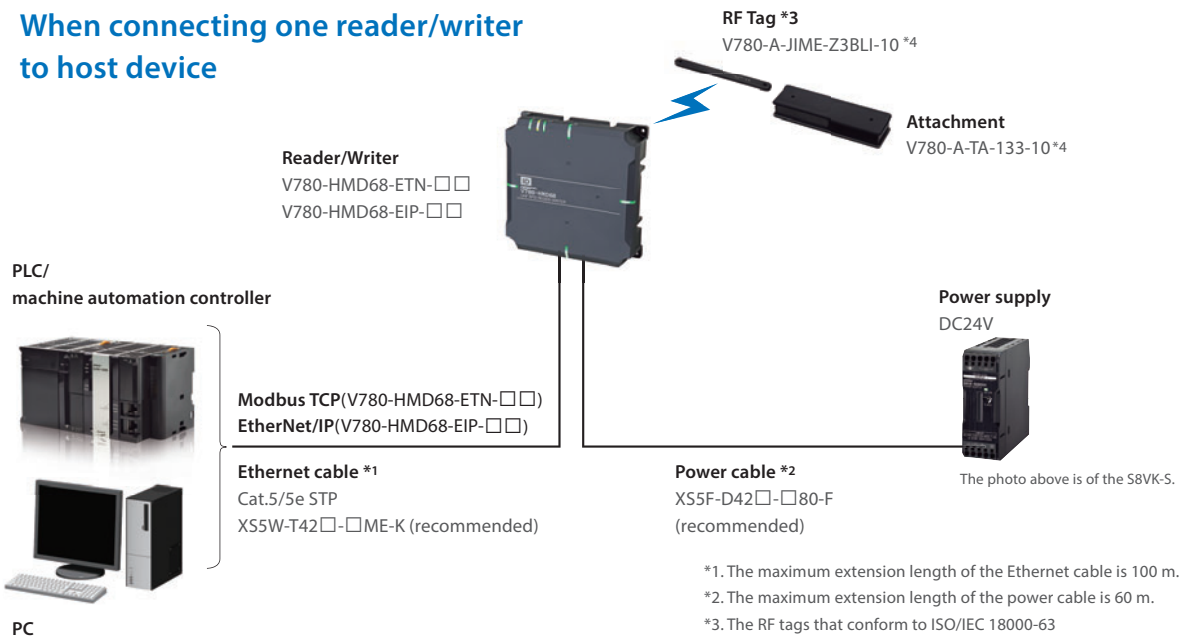


Regulations for UHF wireless (radio regulations) will be complied with

RFID systems as well as mobile phones and TVs must comply with national radio regulations. The V780 Series currently complies with radio regulations in many countries and will comply with them in other countries. For the list of countries where the V780 is available, please contact your Omron representative or visit our website: http://www.ia.omron.com/.

System configurations

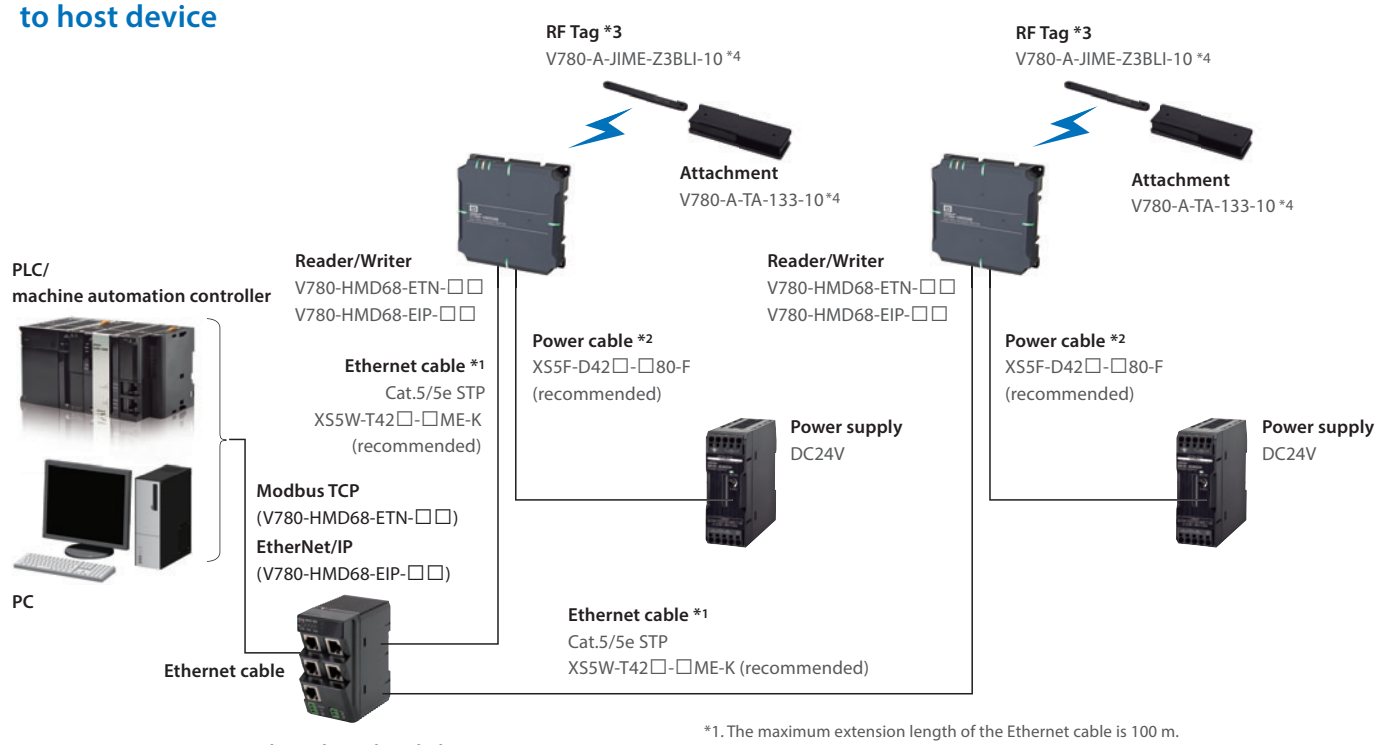
When connecting one reader/writer to host device



The photo above is of the S8VK-S.

*1. The maximum extension length of the Ethernet cable is 100 m.
*2. The maximum extension length of the power cable is 60 m.
*3. The RF tags that conform to ISO/IEC 18000-63 (ISO/IEC 18000-6 Type C) can be used.
*4. Contains 10 RF Tag Attachments per package.

When connecting two or more reader/writers to host device



*1. The maximum extension length of the Ethernet cable is 100 m.
*2. The maximum extension length of the power cable is 60 m.
*3. The RF tags that conform to ISO/IEC 18000-63 (ISO/IEC 18000-6 Type C) can be used.
*4. Contains 10 RF Tag Attachments per package.

Note. The maximum number of reader/writers that can be connected to the Ethernet port depends on the host device. Contact your Omron representative for details.

3 in 1 UHF RFID System: Antenna, Amplifier & Controller

- Conforms to ISO/IEC 18000-63: 2013
- Long range and stable communications
- Reader/writer with integrated antenna
- Communications status visualized by LED indicators
- Ethernet (Modbus TCP, EtherNet/IP™) as a standard feature
- Simple and easy to use

⚠ **Refer to the *Safety Precautions* and *Precautions for Correct Use* in the User's Manual.**

Ordering Information

Reader/Writer

Appearance	Size (mm)	Network	Applicable countries ✻	Model
	250 × 250 × 70	Modbus/TCP base (TCP/IP)	Japan	**V780-HMD68-ETN-JP**
			Korea	**V780-HMD68-ETN-KR**
			China	**V780-HMD68-ETN-CN**
			Taiwan	**V780-HMD68-ETN-TW**
			India	**V780-HMD68-ETN-IN**
			Indonesia	**V780-HMD68-ETN-ID**
			Malaysia	**V780-HMD68-ETN-MY**
			Singapore and Thailand	**V780-HMD68-ETN-SG**
			Under RE direct.	**V780-HMD68-ETN-EU**
			Russia	**V780-HMD68-ETN-RU**
			United States and Canada	**V780-HMD68-ETN-US**
			Mexico	**V780-HMD68-ETN-MX**
		EtherNet/IP	Japan	**V780-HMD68-EIP-JP**
			Korea	**V780-HMD68-EIP-KR**
			China	**V780-HMD68-EIP-CN**
			Taiwan	**V780-HMD68-EIP-TW**
			India	**V780-HMD68-EIP-IN**
			Malaysia	**V780-HMD68-EIP-MY**
			Under RE direct.	**V780-HMD68-EIP-EU**
			Russia	**V780-HMD68-EIP-RU**
			United States and Canada	**V780-HMD68-EIP-US**
			Mexico	**V780-HMD68-EIP-MX**

✻ Contact your Omron representative for details on products for other countries.

RF Tag

Appearance	Memory capacity	Size (mm)	Model
	1 KB	150 × 14 × 6	**V780-A-JIME-Z3BLI-10 ✻**

✻ Contains 10 RF Tags per package.

RF Tag Attachment

Appearance	Material	Size (mm)	Model
	Polycarbonate plastic	180 × 50 × 30	**V780-A-TA-133-10 ✻**

✻ Contains 10 RF Tag Attachments per package.

Note: 1. Use the RF Tag Attachment when mounting on metal surface. Refer to the User's Manual for how to mount.

2. Toppan Forms Co., Ltd. manufactures RF Tags and Attachments. For more information, visit the following website: http://www.toppan-f.co.jp/english/

Cables

Recommended Ethernet Cables (Connection between Host Device and Reader/Writer)

Use STP (shielded twisted-pair) cable of category 5 or higher.

Specifications		Cable length (m) ✻	Model
Wire Gauge and Number of Pairs: AWG22, 2-pair Cable	Cable with Plug on One End and Socket on Other End (M12 Straight/RJ45) 	0.5	**XS5W-T421-BME-K**
		1	**XS5W-T421-CME-K**
		2	**XS5W-T421-DME-K**
		5	**XS5W-T421-GME-K**
		10	**XS5W-T421-JME-K**

✻ 3- and 15-m cables are also available.

Note: For details, refer to the *Industrial Ethernet Connectors Catalog* (Cat. No. G019).
Other cable lengths, robot cables, and extension cables are available. Contact your Omron representative for details.

Recommended Power Cables (Connection between Power Supply and Reader/Writer)

XS5F-D42□-□80-F

Specifications	Cable length (m)	Cable outer diameter (mm)	Straight Connectors	Angled Connectors
			Model	Model
Fire-retardant, Robot Cable	1	6	**XS5F-D421-C80-F**	**XS5F-D422-C80-F**
	2		**XS5F-D421-D80-F**	**XS5F-D422-D80-F**
	3		**XS5F-D421-E80-F**	**XS5F-D422-E80-F**
	5		**XS5F-D421-G80-F**	**XS5F-D422-G80-F**
	10		**XS5F-D421-J80-F**	**XS5F-D422-J80-F**

Note: For details, refer to the XS5 datasheet (http://www.ia.omron.com/).
Other cable lengths and extension cables are available. Contact your Omron representative for details.

Recommended Industrial Switching Hubs

Appearance	Specifications			Model
	Functions	No. of ports	Failure detection	
	Quality of Service (QoS): EtherNet/IP control data priority Failure detection: Broadcast storm and LSI error detection 10/100BASE-TX, Auto-Negotiation	3	No	**W4S1-03B**
		5	No	**W4S1-05B**
		5	Yes	**W4S1-05C**

Ratings and Performance

Reader/Writer

General Specifications

Item	V780-HMD68-ETN-□□	V780-HMD68-EIP-□□
Dimensions	250 × 250 × 70 mm (D × H × W, excluding protruding parts and cables)	
Supply voltage	24 VDC (–15% to +10%) Class2	
Power consumption	10 W max.	
Ambient operating temperature	–10 to 55°C (with no icing)	
Ambient operating humidity	25% to 85% (with no condensation)	
Ambient storage temperature	–25 to 70°C (with no icing)	
Ambient storage humidity	25% to 85% (with no condensation)	
Insulation resistance	20 MΩ min. (at 500 VDC) between cable terminals and case	
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between cable terminals and case	
Vibration resistance	No abnormality after application of 10 to 500 Hz, double amplitude: 1.5 mm, acceleration: 100 m/s^2, 10 sweeps in each of 3 axis directions (up/down, left/right, and forward/backward) for 11 minutes each	
Shock resistance	No abnormality after application of 500 m/s^2, 3 times each in 6 directions (Total: 18 times)	
Degree of protection	IP54 (IEC 60529:2001)	
Materials	Plastic case: PBT Metal case: Die-cast aluminum (ADC12)	
Weight	Approx. 3 kg	
Mounting method	Four M6 bolts	
Host communications interface	Ethernet 10BASE-T/100BASE-TX	
Host communications protocol	Modbus/TCP base	EtherNet/IP
Accessories	Instruction Sheet (1), IP address label (1), Startup Guide (1), Ferrite core (2) ✻**1**, and EU DECLARATION OF CONFORMITY (1) ✻**2**	
Regulations	See *Regulations* on page 11 for the regulations.	

✻**1.** A ferrite core is packaged with Model V780-HMD68-ETN-EU/-IN.
✻**2.** A EU DECLARATION OF CONFORMITY is packaged with Model V780-HMD68-ETN-EU.

Regulations

Model	Regulations
V780-HMD68-ETN-JP V780-HMD68-EIP-JP	Premises Radio Station (920-MHz-band Moving Object Differentiation Wireless Facilities), ARIB STD-T106
V780-HMD68-ETN-KR V780-HMD68-EIP-KR	무선설비규칙
V780-HMD68-ETN-CN V780-HMD68-EIP-CN	Ministry of Information Industry No. 205 (2007)
V780-HMD68-ETN-TW V780-HMD68-EIP-TW	NCC LP0002 4.8 RFID
V780-HMD68-ETN-IN V780-HMD68-EIP-IN	the G.S.R.36 (E)
V780-HMD68-ETN-ID	PERDIRJEN POSTEL Nomor: 221/DIRJEN/2007
V780-HMD68-ETN-MY V780-HMD68-EIP-MY	MCMC MTSFB TC T007:2014
V780-HMD68-ETN-SG	Singapore: IMDA TS SRD2 Thailand: NTC TS 1010-2550 (RFID 920-925 MHz)
V780-HMD68-ETN-EU V780-HMD68-EIP-EU	2014/53EU (RE Directive)
V780-HMD68-ETN-RU V780-HMD68-EIP-RU	к решению ГКРЧ от 07.05.2007 № 07-20-03-001
V780-HMD68-ETN-US V780-HMD68-EIP-US	FCC 15.247 (United states) ISED RSS-247 (Canada)
V780-HMD68-ETN-MX V780-HMD68-EIP-MX	IFT-008 NYCE NOM-208

Tag Communications Specifications
V780-HMD68-ETN-JP/V780-HMD68-EIP-JP

Item	V780-HMD68-ETN-JP/V780-HMD68-EIP-JP
Applicable countries	Japan
Maximum Radiated Power	4 W e.i.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 20 kbps (Standard Mode) ✻
Used frequencies (Described at the center frequency of each channel)	3 channels (916.8/918.0/919.2 MHz) License station
Channel interval	200 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-KR/V780-HMD68-EIP-KR

Item	V780-HMD68-ETN-KR/V780-HMD68-EIP-KR
Applicable countries	Korea
Maximum Radiated Power	4 W e.i.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	6 channels (917.3/917.9/918.5/919.1/919.7/920.3 MHz) FHSS
Channel interval	200 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-CN/V780-HMD68-EIP-CN

Item	V780-HMD68-ETN-CN/V780-HMD68-EIP-CN
Applicable countries	China
Maximum Radiated power	2 W e.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 20 kbps (Standard Mode) ✻
Used frequencies	16 channels (920.625 to 924.375 MHz) FHSS
Channel interval	250 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-TW/V780-HMD68-EIP-TW

Item	V780-HMD68-ETN-TW/V780-HMD68-EIP-TW
Applicable countries	Taiwan
Maximum Radiated power	4 W e.i.r.p (indoor use only)
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	10 channels (922.75 to 927.25 MHz) FHSS
Channel interval	500 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-IN/V780-HMD68-EIP-IN

Item	V780-HMD68-ETN-IN/V780-HMD68-EIP-IN
Applicable countries	India
Maximum Radiated Power	2 W e.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	3 channels (865.7/866.3/866.9 MHz) FHSS
Channel interval	200 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-ID

Item	V780-HMD68-ETN-ID
Applicable countries	Indonesia
Maximum Radiated power	2 W e.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	4 channels (923.25/923.75/924.25/924.75 MHz) FHSS
Channel interval	500 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-MY/V780-HMD68-EIP-MY

Item	V780-HMD68-ETN-MY/V780-HMD68-EIP-MY
Applicable countries	Malaysia
Maximum Radiated power	2 W e.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	8 channels (919.25 to 922.75 MHz) FHSS
Channel interval	500 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-SG

Item	V780-HMD68-ETN-SG
Applicable countries	Singapore and Thailand
Maximum Radiated Power	2 W e.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	8 channels (920.75 to 924.25 MHz) FHSS
Channel interval	500 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-EU/V780-HMD68-EIP-EU

Item	V780-HMD68-ETN-EU/V780-HMD68-EIP-EU
Applicable countries	Under RE direct
Maximum Radiated Power	2 W e.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	4 channels (865.7/866.3/866.9/867.5 MHz) FHSS
Channel interval	200 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-RU/V780-HMD68-EIP-RU

Item	V780-HMD68-ETN-RU/V780-HMD68-EIP-RU
Applicable countries	Russia
Maximum Radiated Power	2 W e.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	3 channels (866.3/866.9/867.5 MHz) FHSS
Channel interval	200 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-US/V780-HMD68-EIP-US

Item	V780-HMD68-ETN-US/V780-HMD68-EIP-US
Applicable countries	United States and Canada
Maximum Radiated Power	4 W e.i.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	50 channels (902.75 to 927.25 MHz) FHSS
Channel interval	500 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

V780-HMD68-ETN-MX/V780-HMD68-EIP-MX

Item	V780-HMD68-ETN-MX/V780-HMD68-EIP-MX
Applicable countries	Mexico
Maximum Radiated Power	4 W e.i.r.p
Output power	15 to 27 dBm (Switchable in 1-dB increments.)
RSSI detection range	Signal level: -35 to -61 dBm Noise level: -35 to -70 dBm (at end of antenna cable)
Transmission speed from Reader/ Writer to RF Tag	40 kbps (fixed)
Transmission speed from RF Tag to Reader/Writer	• 80 kbps (High-speed Mode) ✻ • 31.25 kbps (Standard Mode) ✻
Used frequencies	50 channels (902.75 to 927.25 MHz) FHSS
Channel interval	500 kHz
Communications method with RF Tags	Miller-modulated subcarrier
Tag communications protocol	ISO/IEC 18000-63: 2013 (EPCglobal Class-1 Generation-2)
Polarization characteristic	RHCP
Multiaccess communications	Up to 64 RF Tags can be read.

✻ The default setting is for Automatic Mode. The Reader/Writer will automatically change to High-speed Mode or Standard Mode depending on the interference waves.

Recommended Power Supply (24 VDC)

Item	Condition
Supply voltage	24 VDC -15% to +10%
Output current	500 mA min.
Safety standard	SELV (Safety Extra Low Voltage)

RF Tag (Recommended)

Item Model	V780-A-JIME-Z3BLI-10 (made by Toppan Forms Co., Ltd.)
Dimensions	150 × 14 × 6 mm (W × H × D)
IC chip, memory	Monza X 8K UII(EPC): 128 bits User memory: 8,192 bits
Write life / Data retention	10,000 writes / 10 years
	100,000 writes / 1 year
Operating temperature	-20 to 65°C
Operating humidity	5% to 95%
Storage temperature	-30 to 70°C
Storage humidity	5% to 95%
Material	Polycarbonate plastic
Weight	Tag: Approx. 15 g
Degree of protection	IP68 (IEC 60529: 2001)

RF Tag Attachment (Recommended)

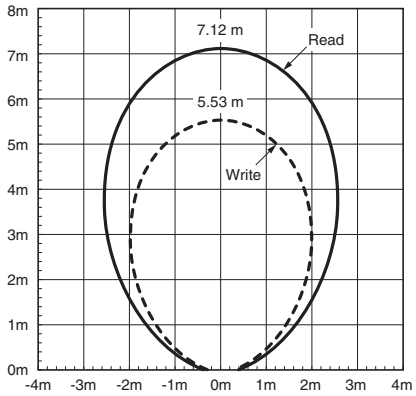
Item Model	V780-A-TA-133 (made by Toppan Forms Co., Ltd.)
Dimensions	180 × 50 × 30 mm (W × H × D)
Operating temperature	-20 to 65°C
Operating humidity	5% to 95%
Storage temperature	-30 to 70°C
Storage humidity	5% to 95%
Material	Polycarbonate plastic
Weight	Approx. 128 g

Characteristic Data V780-HMD68-ETN-JP/V780-HMD68-EIP-JP (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



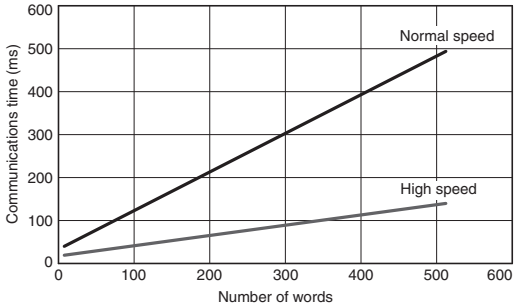
RF Tag Communications Times

The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

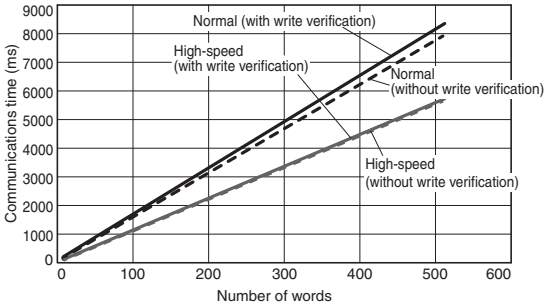
RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	15 ms
Normal speed	27 ms

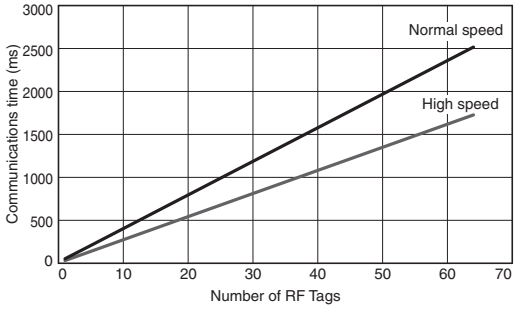
DATA READ (Single-access)



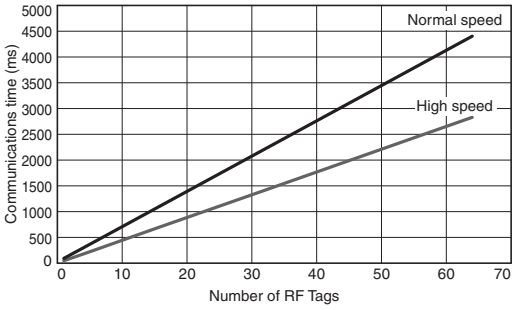
DATA WRITE (Single-access)



ID READ (Multi-access)
During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)
Reading 32 Words of Data from the User Area

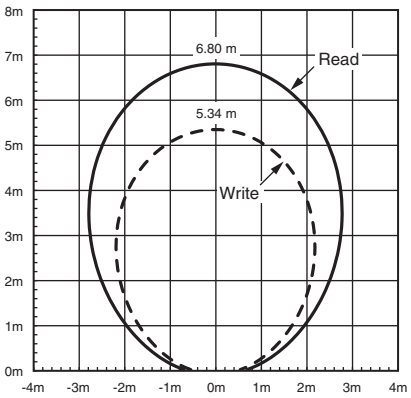


Characteristic Data V780-HMD68-ETN-KR/V780-HMD68-EIP-KR (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

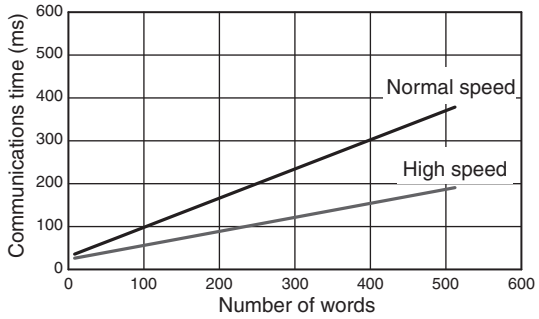
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

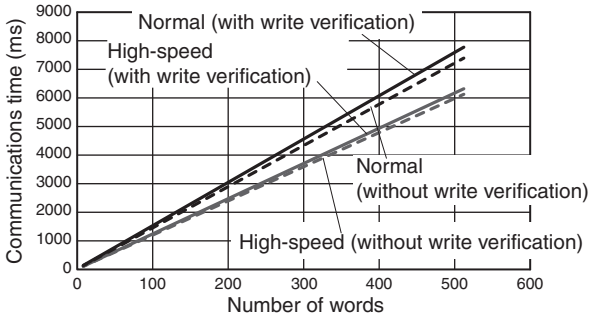
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

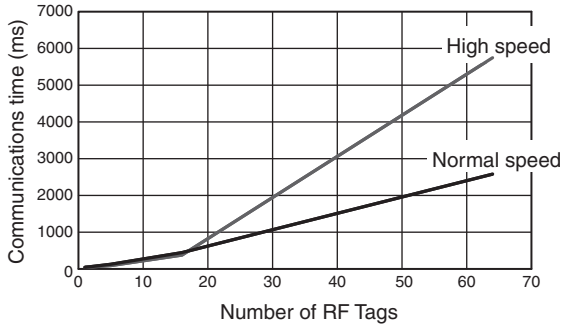


DATA WRITE (Single-access)



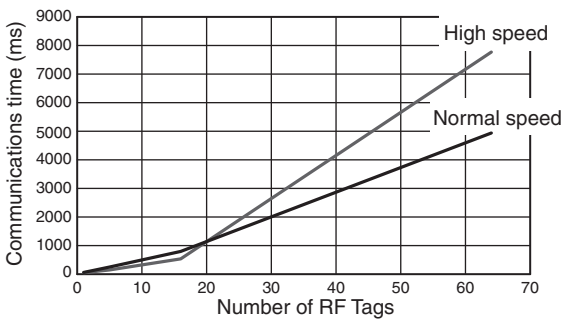
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

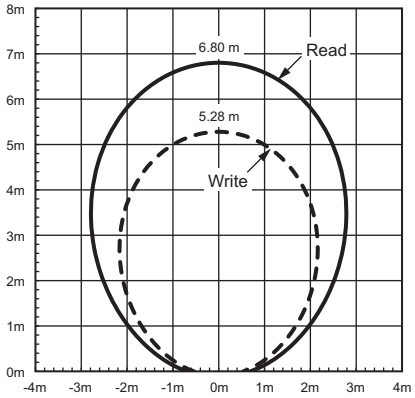


Characteristic Data V780-HMD68-ETN-CN/V780-HMD68-EIP-CN (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

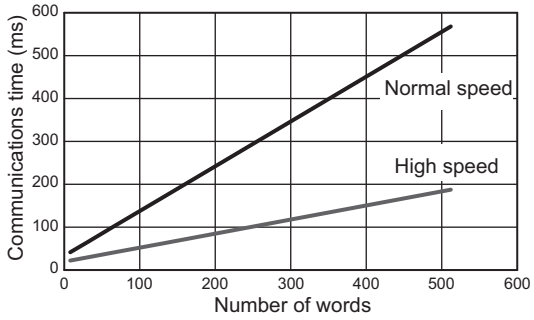
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

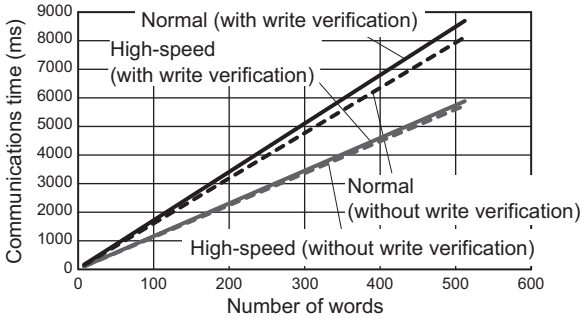
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	17 ms
Normal speed	29 ms

DATA READ (Single-access)

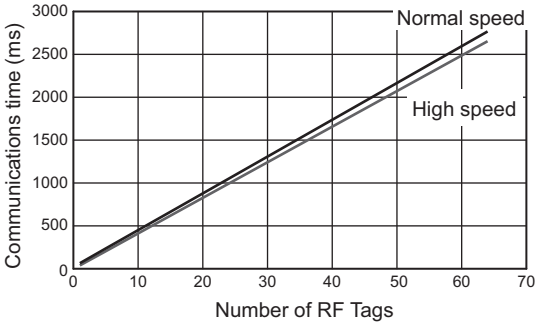


DATA WRITE (Single-access)



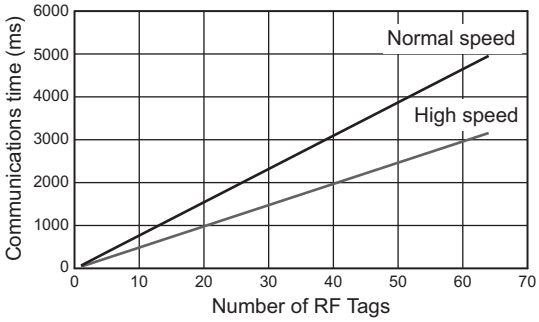
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

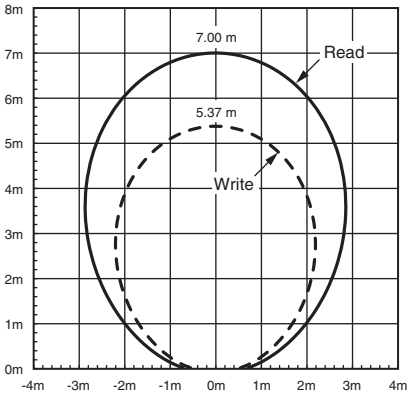


Characteristic Data V780-HMD68-ETN-TW/V780-HMD68-EIP-TW (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

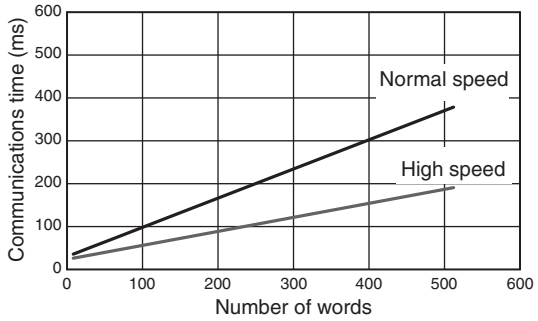
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

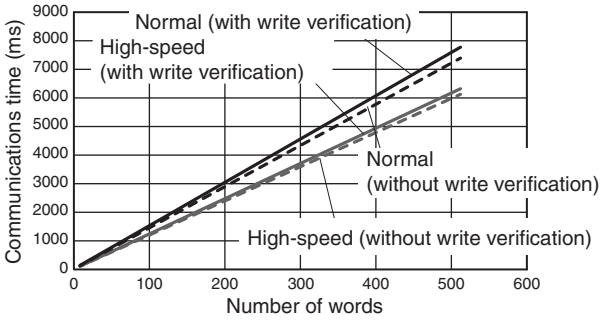
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

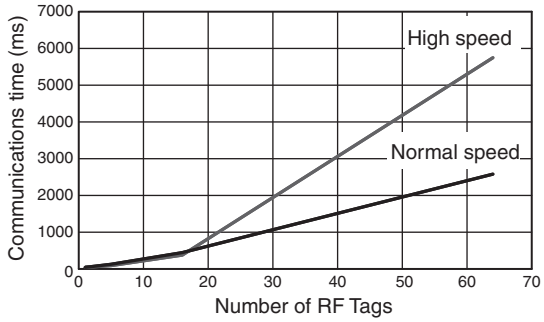


DATA WRITE (Single-access)



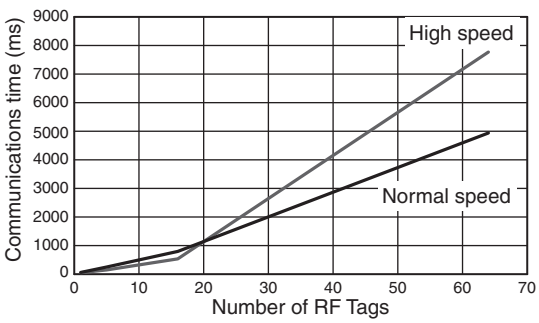
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

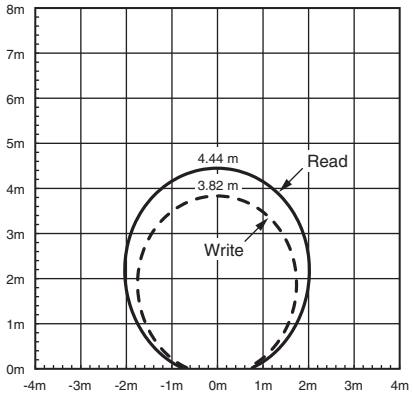


Characteristic Data V780-HMD68-ETN-IN/V780-HMD68-EIP-IN (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

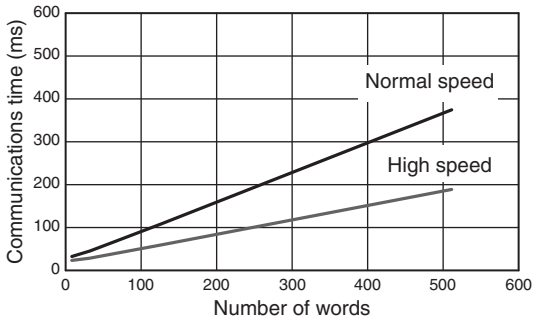
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

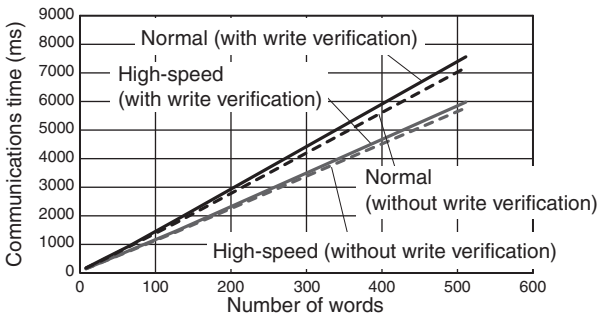
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

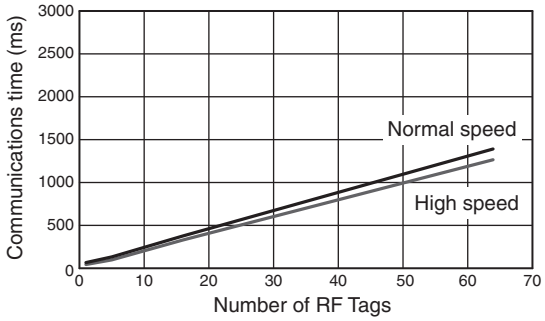


DATA WRITE (Single-access)



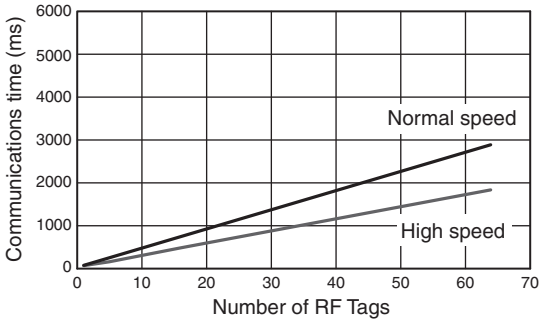
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

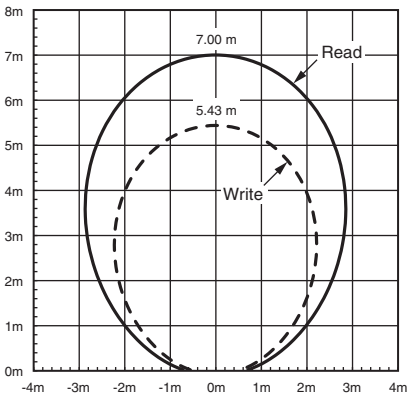


Characteristic Data V780-HMD68-ETN-ID (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

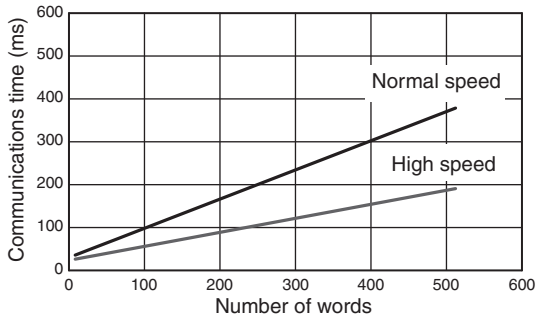
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

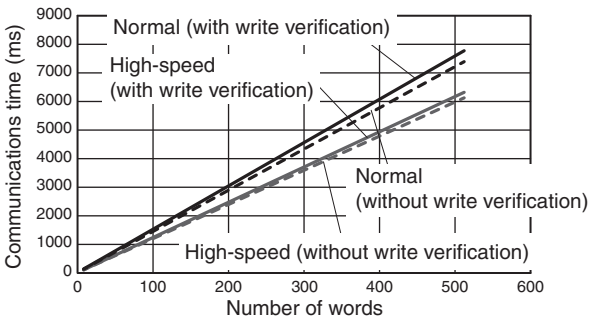
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

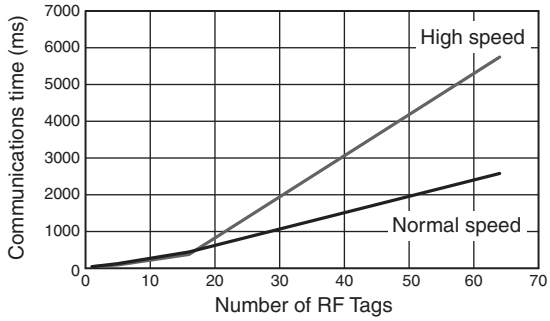


DATA WRITE (Single-access)



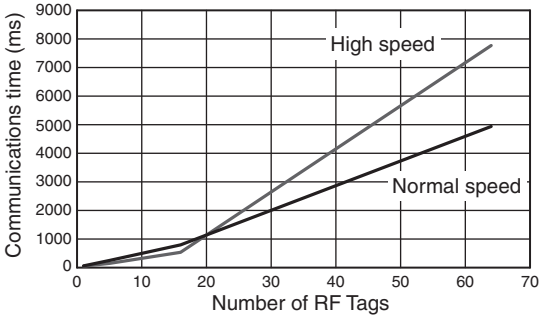
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

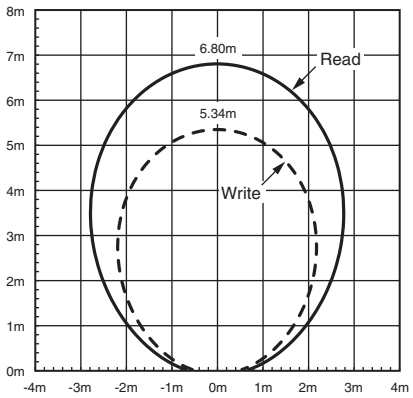


Characteristic Data V780-HMD68-ETN-MY/V780-HMD68-EIP-MY (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

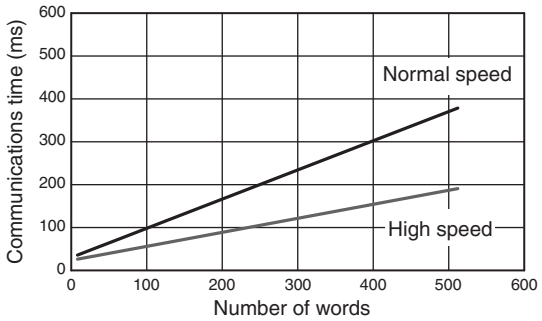
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

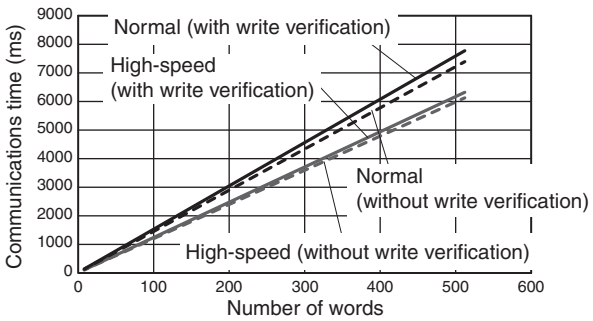
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

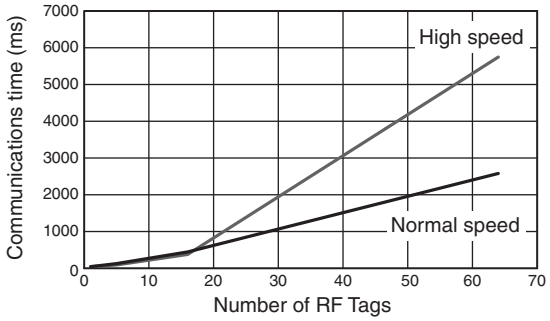


DATA WRITE (Single-access)



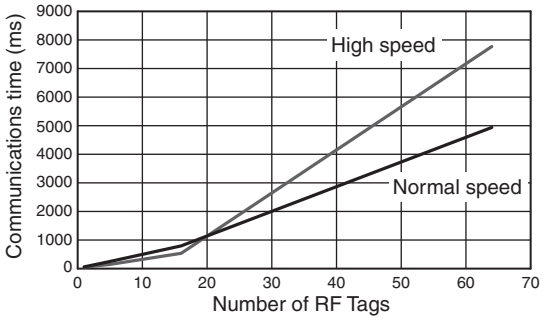
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

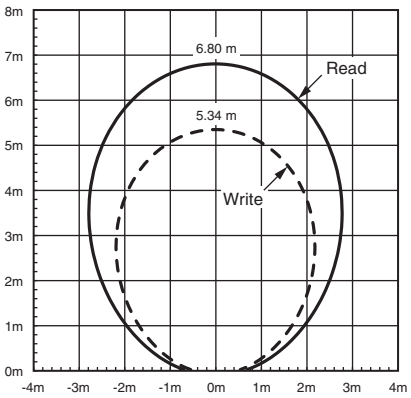


Characteristic Data V780-HMD68-ETN-SG (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

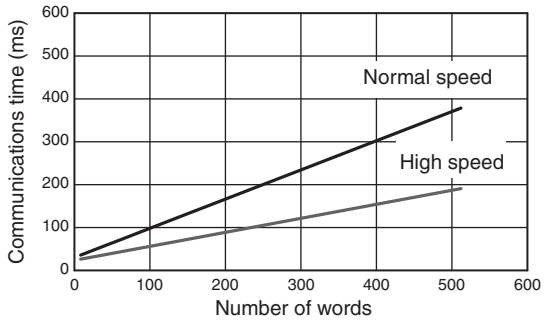
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

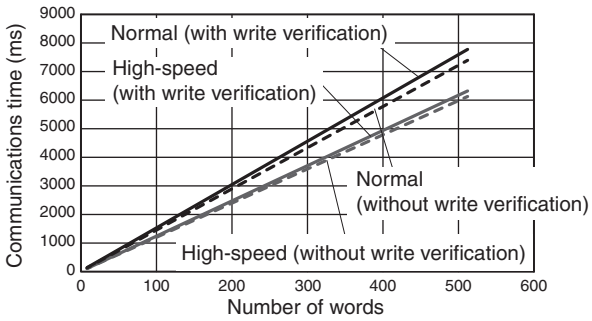
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

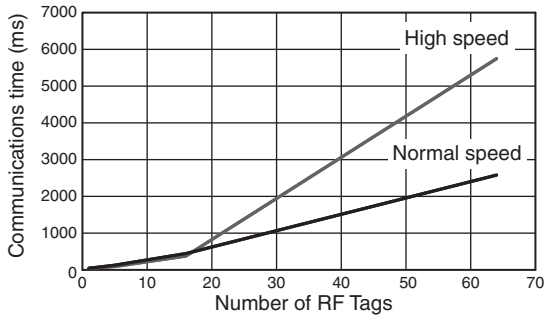


DATA WRITE (Single-access)



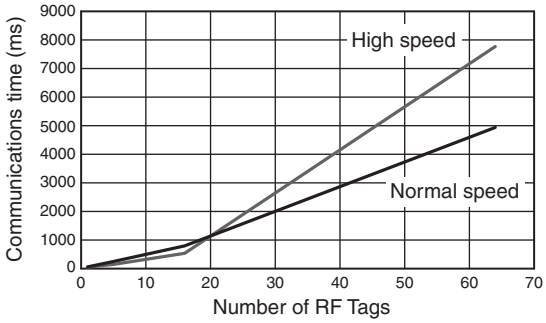
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

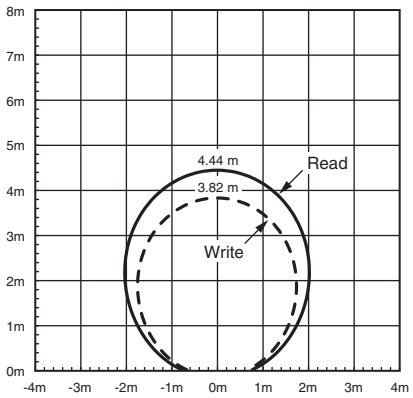


Characteristic Data V780-HMD68-ETN-EU/V780-HMD68-EIP-EU (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

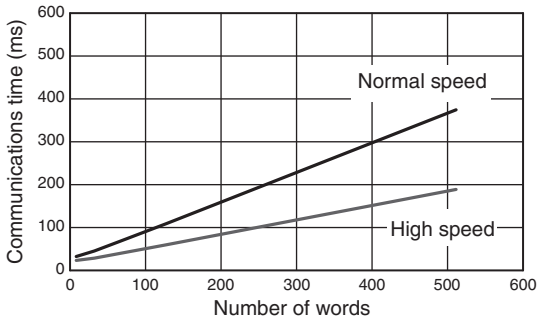
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

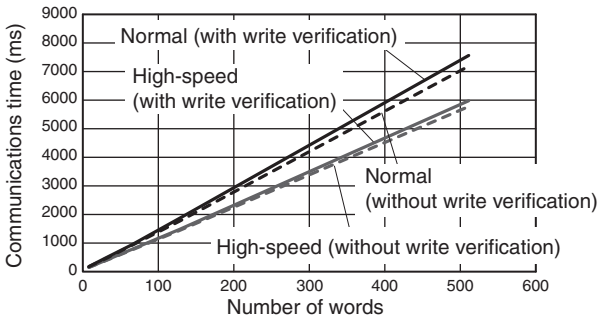
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

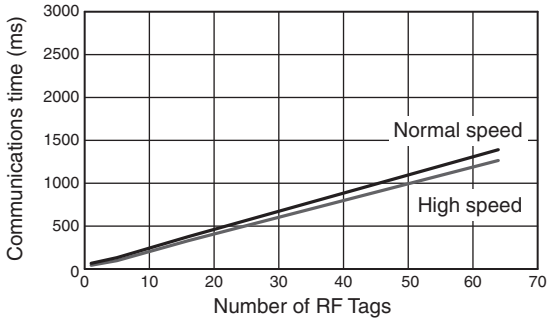


DATA WRITE (Single-access)



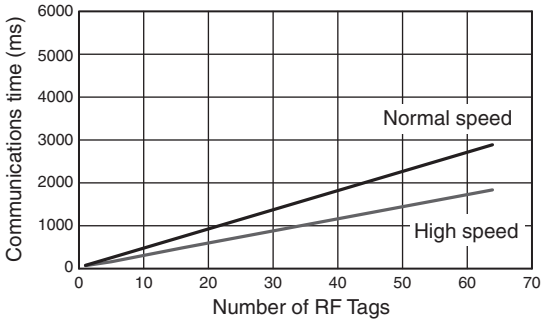
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area

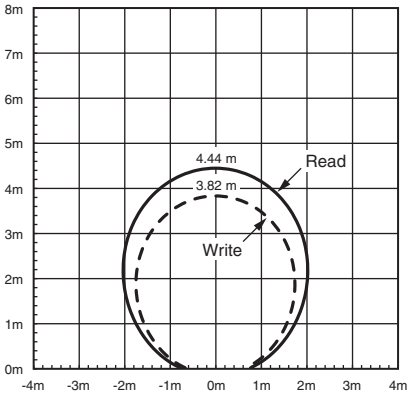


Characteristic Data V780-HMD68-ETN-RU/V780-HMD68-EIP-RU (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Times

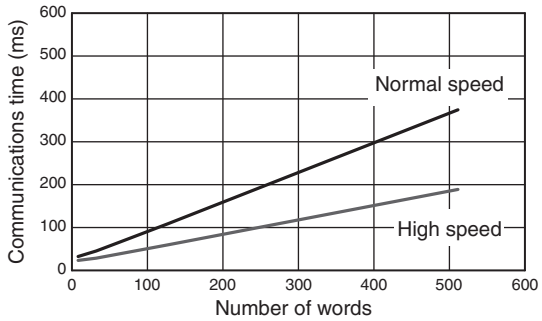
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

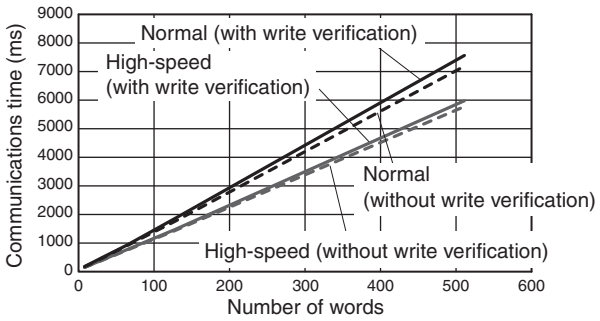
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

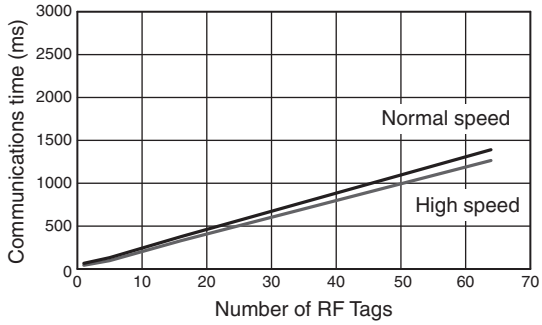


DATA WRITE (Single-access)



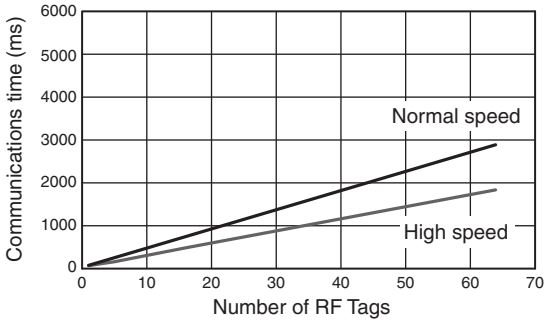
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area



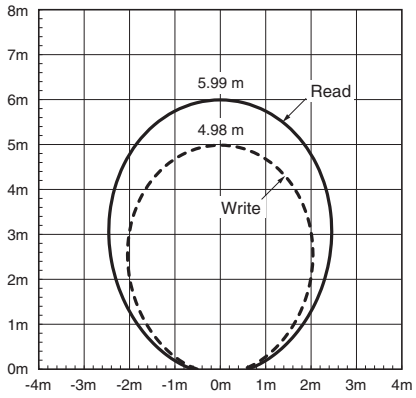
Characteristic Data V780-HMD68-ETN-US/V780-HMD68-EIP-US (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)

Transmission power: 27dBm



RF Tag Communication Times

The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

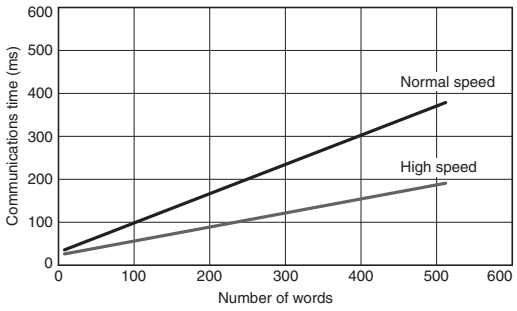
RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)

ID READ (Single-access)

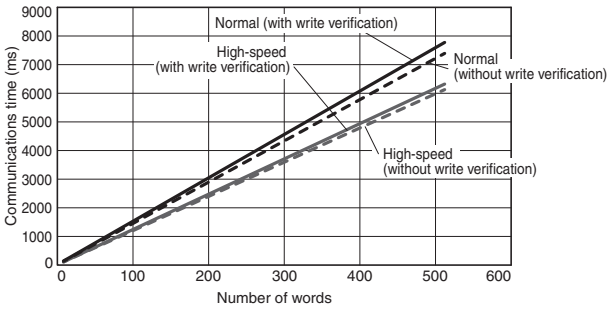
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)



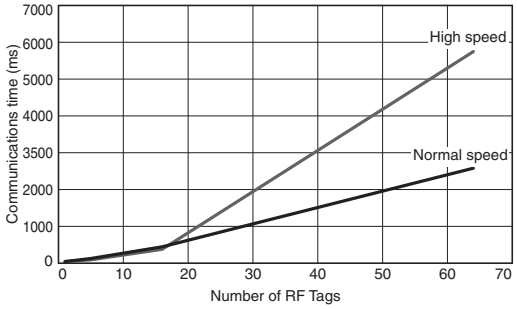
DATA WRITE (Single-access)



Note: Refer to the V780 Series User's Manual for details.

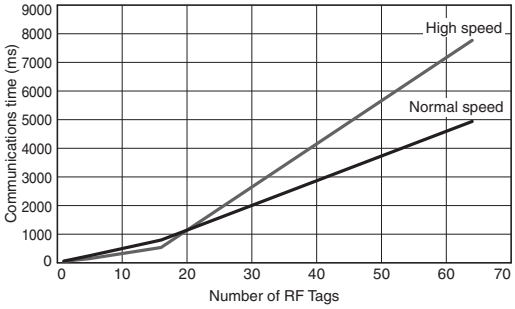
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area



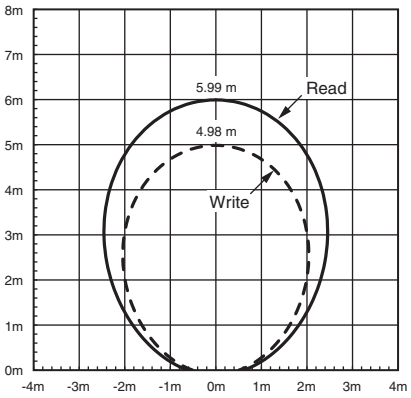
Note: 1. If you set the RF communications speed to high speed, there will generally be a higher rate of collisions in communications with RF Tags than for the normal speed. Therefore, if there are too many RF Tags, the high speed may actually result in longer communications times.
2. Refer to the V780 Series User's Manual for details.

Characteristic Data V780-HMD68-ETN-MX/V780-HMD68-EIP-MX (for Reference Only)

Communications range

The communications range differs depending on the radio regulations of each country. Moreover, the communications range may change under the influence of the ambient environment, type of RF Tags, and the items on which RF Tags are mounted. Sufficiently verify the communications range in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
(Back Surface: Metal, with Attachment, V780-A-TA-133-10)



RF Tag Communication Time

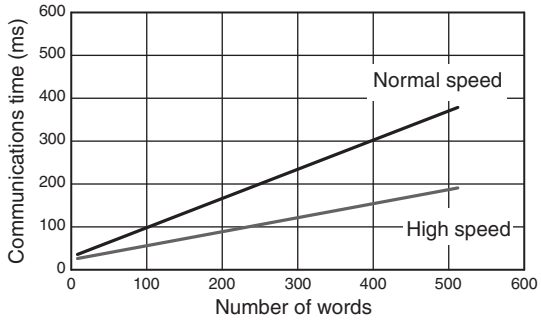
The communications time differs depending on the radio regulations of each country, or the settings of the RF communications command and RF communications speed. In actual usage, the communications time may change under the influence of the installation environment, system conditions, type of RF Tags, and other factors. Perform sufficient testing in advance.

RF Tag : V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd.)
ID READ (Single-access)

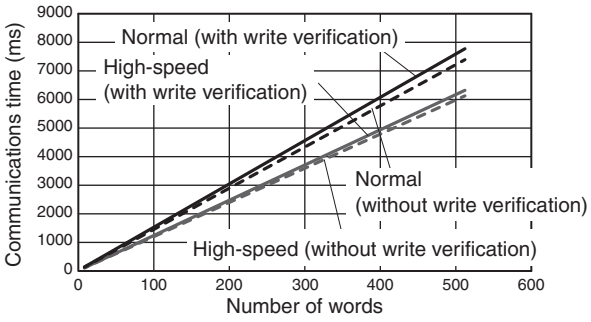
During 6-word (96bit) data readout from the UII (EPC) area

RF communications speed	Communications time
High speed	21 ms
Normal speed	27 ms

DATA READ (Single-access)

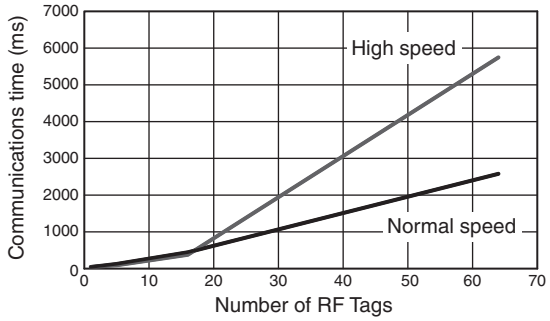


DATA WRITE (Single-access)



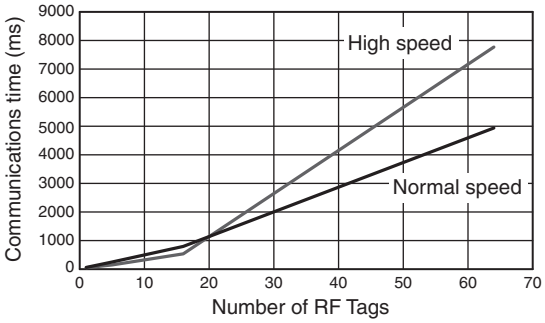
ID READ (Multi-access)

During 6-word (96bit) data readout from the UII (EPC) area



DATA READ (Multi-access)

Reading 32 Words of Data from the User Area



V780 Series

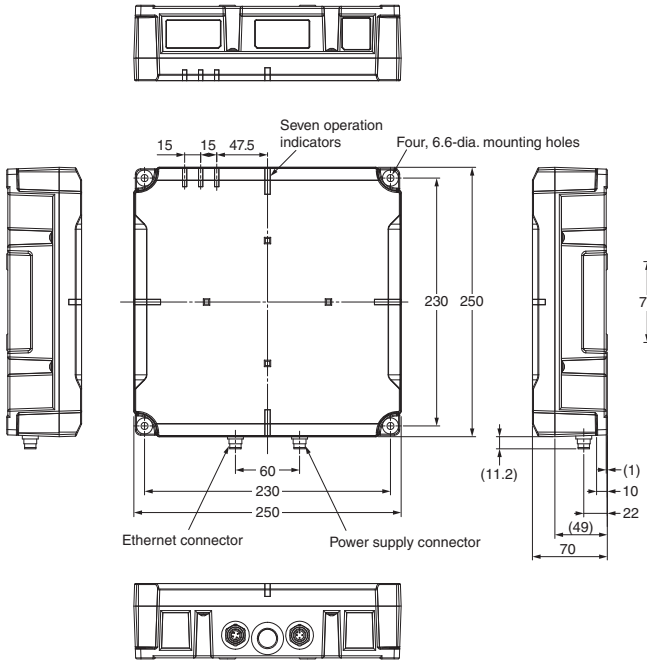
Dimensions

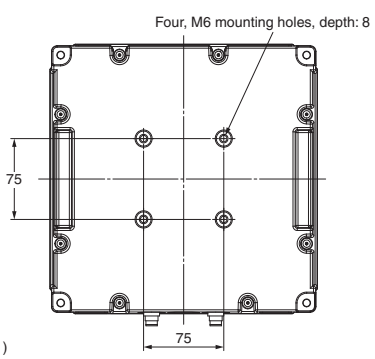
(Unit: mm)

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

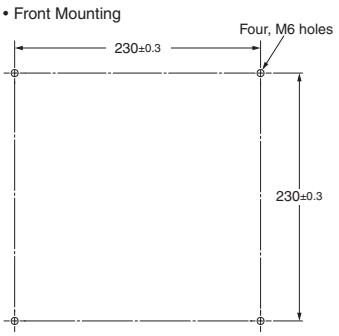
Reader/Writer

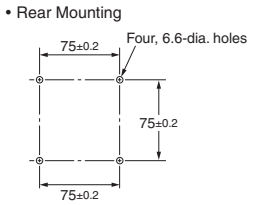
V780-HMD68-ETN-□□/V780-HMD68-EIP-□□





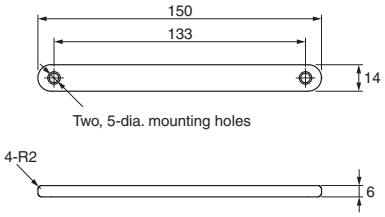
Mounting Hole Dimensions



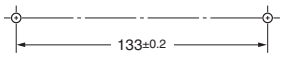


RF Tag

V780-A-JIME-Z3BLI-10 (Toppan Forms Co., Ltd. Model Number: JIME-Z3BLI)



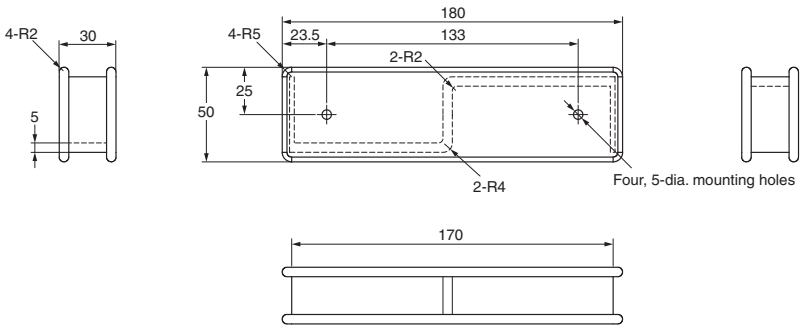
Mounting Hole Dimensions



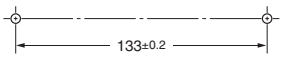
Case material	Polycarbonate plastic

RF Tag Attachment

V780-A-TA-133-10 (Toppan Forms Co., Ltd. Model Number: TA-133)



Mounting Hole Dimensions



Material	Polycarbonate plastic

Related Manuals

Cat. No.	Name
Z389-E1	UHF RFID System V780-series Reader/Writer User's Manual (V780-HMD68-ETN-□□)
Z402-E1	UHF RFID System V780-series Reader/Writer User's Manual (V780-HMD68-EIP-□□)

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Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

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Note: Do not use this document to operate the Unit.

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