OMRON®

Manual Swipe Magnetic Card Reader **3S4YR-HNF**

Peripheral-type, Compact, Manually Operated Card Reader

- Connects to the PC RS-232C port just like any other peripheral
- Sits conveniently next to the PC keyboard
- Easy-to-operate protocol
- Wide range of configurations available
- No external power supply required

Ordering Information

Magnetic tracks supported (R, R/W)											
1	2	3	Center	JISII	IC contact	Interface	Communication (See Note 1,2,3)	Cover	Cable	Color	**Part Number**
R	R	R	—	—	No	RS 232C	Unidirectional	Yes	Yes	Ivory	**3S4YR-HNF1**
R	R	R	—	—	No	RS 232C	Bidirectional	Yes	Yes	Ivory	**3S4YR-HNF1-002**
—	R	—	—	—	No	RS 232C	Unidirectional	Yes	Yes	Ivory	**3S4YR-HNF4**
—	R	—	—	—	No	RS 232C	Bidirectional	Yes	Yes	Ivory	**3S4YR-HNF4-002**
R	R	—	—	—	No	RS 232C	Unidirectional	Yes	Yes	Ivory	**3S4YR-HNF6**
R	R	—	—	—	No	RS 232C	Bidirectional	Yes	Yes	Ivory	**3S4YR-HNF6-002**
—	R	R	—	—	No	RS 232C	Unidirectional	Yes	Yes	Ivory	**3S4YR-HNF7**
—	R	R	—	—	No	RS 232C	Bidirectional	Yes	Yes	Ivory	**3S4YR-HNF7-002**
—	—	—	—	R	No	RS 232C	Bidirectional	Yes	Yes	Ivory	**3S4YR-HNF2-002**
—	—	—	—	R	No	RS 232C	Bidirectional	No	No	Ivory	**3S4YR-HNF2-012**
—	R	—	—	R	No	RS 232C	Unidirectional	Yes	Yes	Ivory	**3S4YR-HNF24**
—	R	—	—	R	No	RS 232C	Bidirectional	Yes	Yes	Ivory	**3S4YR-HNF24-002**
—	R	—	—	R	No	RS 232C	Bidirectional	No	No	Ivory	**3S4YR-HNF24-012**
R	R	—	—	R	No	RS 232C	Bidirectional	Yes	Yes	Ivory	**3S4YR-HNF26-002**
R	R	—	—	R	No	RS 232C	Bidirectional	No	No	Ivory	**3S4YR-HNF26-012**

Note: 1. Communication protocol comes in two types: Unidirectional = response only, and Bidirectional = command/response
2. For information regarding keyboard wedge interface models, contact your Omron representitive.
3. Bidirectional models derive power from the keyboard port, unidirectional models derive power directly from the RS-232 port.

■ TYPICAL APPLICATIONS

- POS Systems
- Credit Card Readers
- ID Card Checkers
- PC Peripherals

Specifications

Part number		HNF
Recommended card type		ISO 7810, 7811-1 to -5, 7812 & 7813
Recording method		F2F
Swipe direction		Reads in either direction
Communication protocol		Unidirectional (response only) or Bidirectional (command/response)
Card feeding speed		100 to 1,000 mm/sec. (200 to 1,000 mm/sec. for 3 track stripe card)
Interface connector		D-sub 9-pin (female) Bidirectional units also have PS/2 connector (mini-din 6-pin)
Mounting location		Indoors; away from rain, sunlight and dust
Power supply		Unidirectional: powered from RS-232C port Bidirectional: powered from keyboard port
Current consumption		Unidirectional, 12 mA dual track, 16 mA triple track
Ambient temperature	Operation	0 to 45°C (32 to 113°F)
	Storage	-15 to 60°C (5 to 140°F)
Ambient humidity	Operation	30 to 85% RH, with no condensation and absolute air humidity of 23 g/m^3 or less
	Storage	20 to 90% RH, with no condensation and absolute air humidity of 40 g/m^3 or less
Vibration endurance		10 to 150 Hz, single vibration width of 0.15 mm or an acceleration of 19.6 m/s^2 (2 G)
Shock endurance		196 m/s^2 (20 G)
Cable length		1500 mm (59.06)
Dimensions		100 L x 38.6 W x 35.2 H mm (3.94 L x 1.52 W x 1.39 H in)
Weight		Approx. 185 g (6.53 oz)
Service life		300,000 passes minimum

I/O Information

■ INTERFACE CONNECTOR

D-Sub 9-pin (female). Bidirectional uses 6-pin mini-din (male and female)

■ INTERFACE METHOD

Conforms to EIA RS-232C

Transmission speed: 9600 bps

Communication method: Half-duplex

Synchronizing method: Start-stop synchronization

Data bit length: 8 bits

Error detection: Even parity

Stop bit: 1 bit

■ PIN ASSIGNMENT

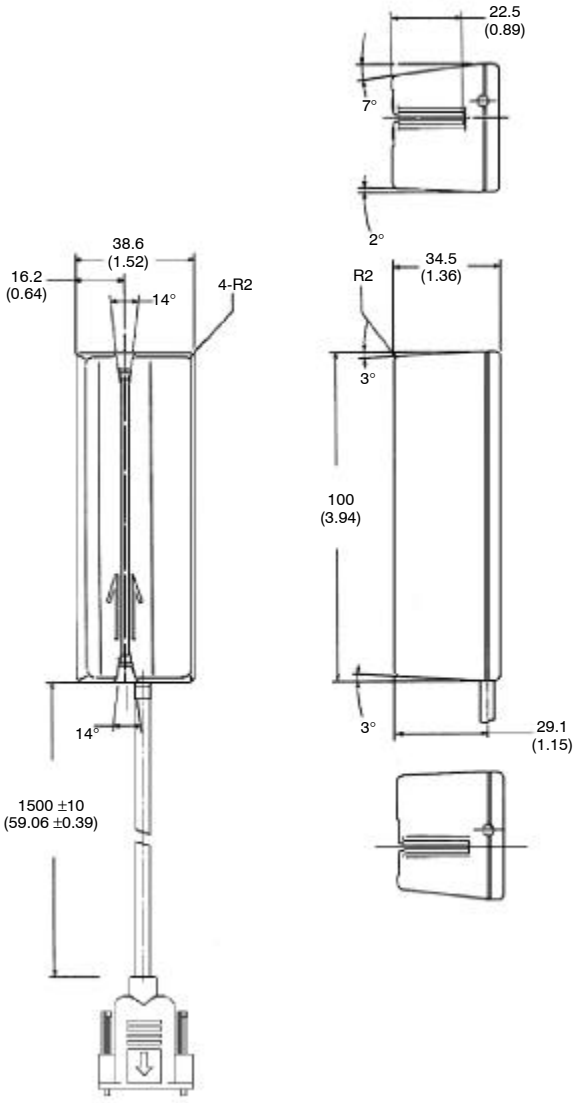
(View from PC side)

Pin number	Signal	Description	Input/output
1	CF (DCD)	Loop-back of RTS	Input
2	BB (RXD)	Card data	Input
3	BA (TXD)	Command data (bidirectional models)	Output
4	CD (DTR)	Always ON at PC side	Output
5	AB (SG)	Signal ground	—
6	CC (DSR)	Data Set Ready	Input
7	CA (RTS)	Request to send	Output
8	CB (CTS)	Loop-back of RTS	Input
9	CE (RI)	Open	Input
Frame	AA (FG)	Frame ground	—

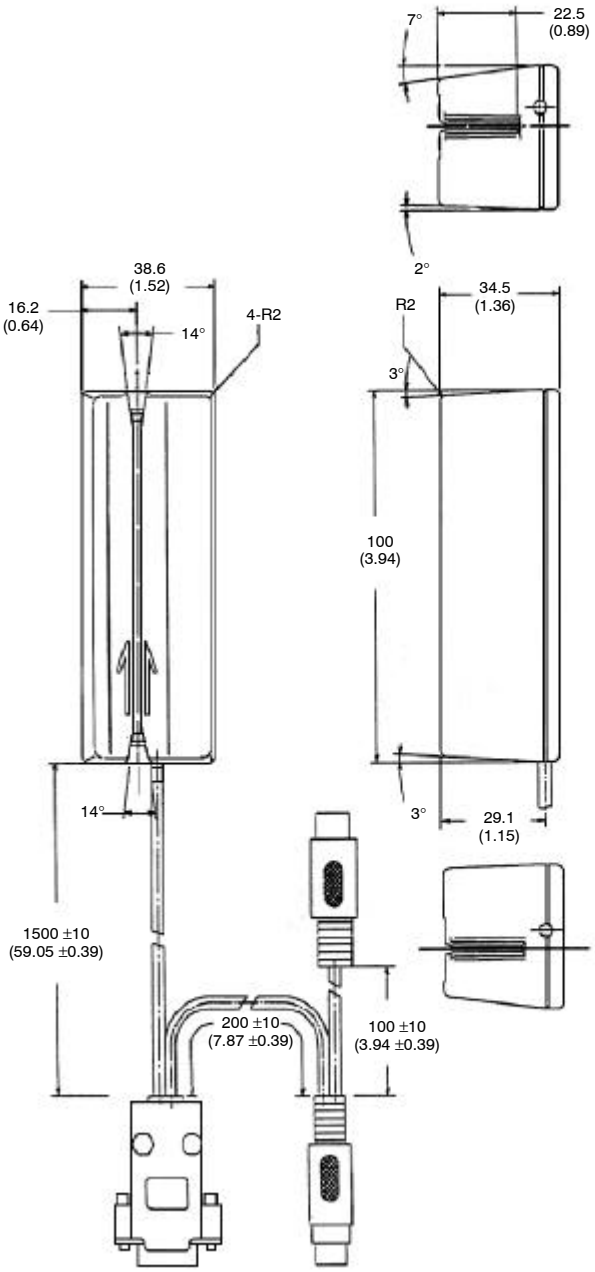
Dimensions

Unit: mm (inch)

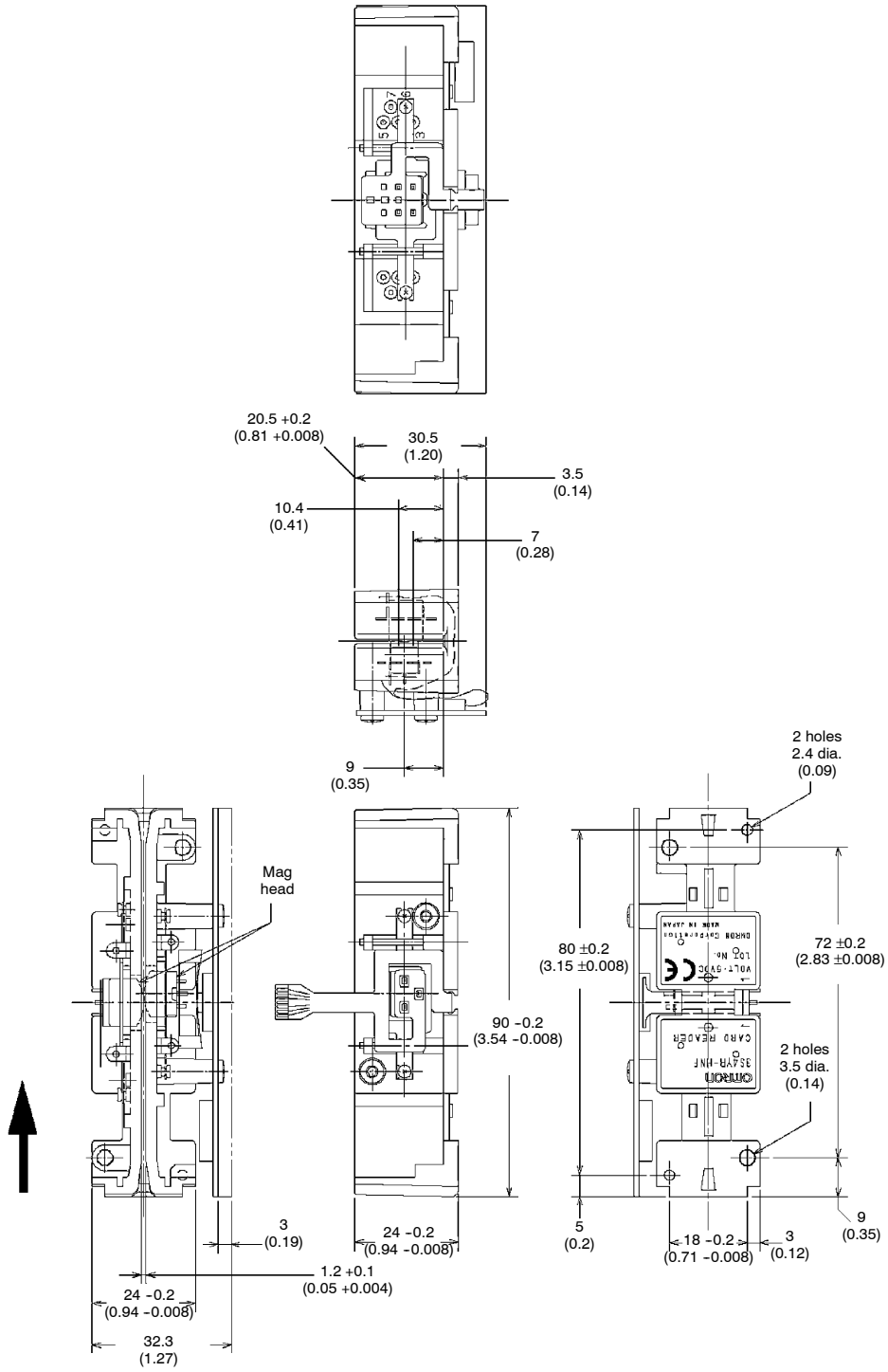
HNF-□



HNF-□-002


7°
22.5
(0.89)
2°
38.6
(1.52)
16.2
(0.64)
14°
4-R2
R2
34.5
(1.36)
3°
100
(3.94)
14°
3°
29.1
(1.15)
1500 ±10
(59.05 ±0.39)
200 ±10
(7.87 ±0.39)
100 ±10
(3.94 ±0.39)

HNF-□-012


20.5 +0.2
(0.81 +0.008)
30.5
(1.20)
3.5
(0.14)
10.4
(0.41)
7
(0.28)
9
(0.35)
2 holes
2.4 dia.
(0.09)
Mag
head
90 -0.2
(3.54 -0.008)
80 ±0.2
(3.15 ±0.008)
72 ±0.2
(2.83 ±0.008)
2 holes
3.5 dia.
(0.14)
3
(0.19)
24 -0.2
(0.94 -0.008)
1.2 +0.1
(0.05 +0.004)
24 -0.2
(0.94 -0.008)
32.3
(1.27)
5
(0.2)
18 -0.2
(0.71 -0.008)
3
(0.12)
9
(0.35)

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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OMRON ELECTRONICS, INC.
One East Commerce Drive
Schaumburg, IL 60173
1-800-55-OMRON

OMRON CANADA, INC.
885 Milner Avenue
Scarborough, Ontario M1B 5V8
416-286-6465

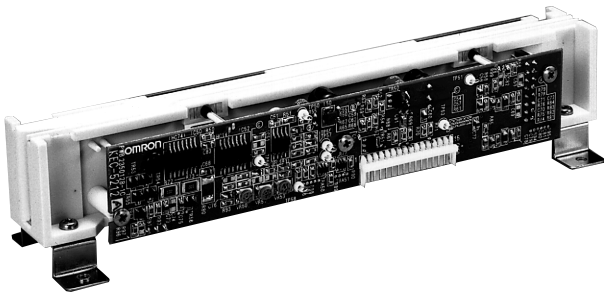
Cat. No. GC CR3 7/00 Specifications subject to change without notice. Printed in U.S.A.

OMRON®

Manual Swipe Card Reader/Writer | 3S4YR-HNW

Low Profile Magnetic Card Reader/Writer for Economical Design

- Reads/writes in accordance with ISO standards
- Reads/writes tracks 1 or 3; read only track 2
- Encode and verify data in one swipe
- TTL-compatible interface



Ordering Information

Magnetic Tracks Supported (R, R/W)					IC Contact	Interface	Cover	Cable	Color	Part Number
1	2	3	Center	JIS II						
R/W	R	—	—	—	No	TTL	No	No	Ivory	**3S4YR-HNW3R4-01**
—	R	R/W	—	—	No	TTL	No	No	Ivory	**3S4YR-HNW5R4-01**

■ TYPICAL APPLICATIONS

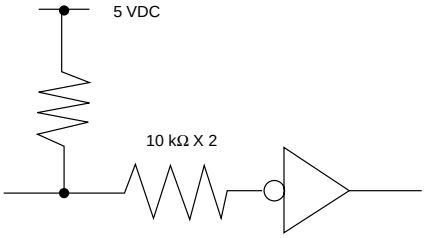
- Access Control
- Proprietary Cards
- ID Card Checkers
- Electronic Locks

Specifications

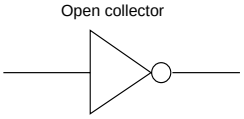
Part number		3S4YR-HNW
Recommended card type	Magnetic card	ISO 7810-7813
Recording method		FM decoding (F2F)
Card feeding speed	Read	10 to 120 cm/sec (4 to 47 in/sec)
	Write	10 to 80 cm/sec (4 to 32 in/sec)
Service life of magnetic head		300,000 passes min.
Operating power supply		5 VDC ± 5%
Current consumption	Read	25 mA max.
	Write	500 mA max.
Mounting location		Indoors
Ambient temperature	Operation	-5° to 55°C (23° to 131°F) without condensation
	Storage	-20° to 65°C (-4° to 149°F)
Ambient humidity	Operation	10% to 90% RH without condensation
	Storage	10% to 95% RH without condensation
Vibration		10 to 150 Hz, 0.15 mm single amplitude, for 30 minutes in each of X, Y, and Z directions
Shock		200 m/sec^2 (20 G) in each of X, Y, and Z directions
Dimensions		185L x 48W x 40H mm (7.28L x 1.89W x 1.57H in)
Weight		130 g (4.6 oz)

Engineering Data

■ INPUT CIRCUIT DIAGRAM



■ OUTPUT CIRCUIT DIAGRAM



■ I/O INFORMATION

3S4YR-HNW

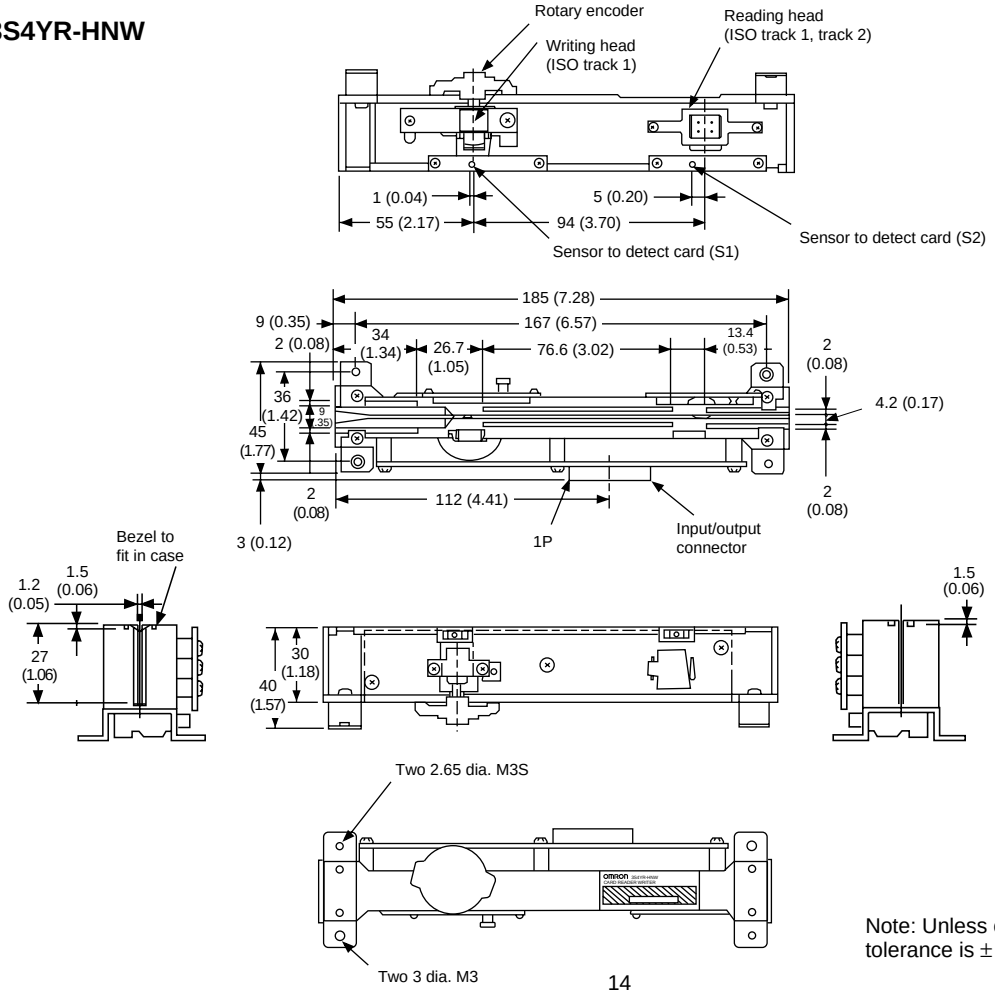
15-pin Japan AMP connector part number 1-173979-5.

Pin #	Signal	Input/Output	Description
1	$\overline{\text{CLS}}$	Output	Card load
2	$\overline{\text{RCP1}}$	Output	Read clock, track 1 or 3
3	$\overline{\text{RDP1}}$	Output	Read data, track 1 or 3
4	$\overline{\text{RCP2}}$	Output	Read clock, track 2
5	$\overline{\text{RDP2}}$	Output	Read data, track 2
6	$\overline{\text{WCP}}$	Input	Write clock pulse
7	$\overline{\text{WSC}}$	Input	Write STX code
8	$\overline{\text{S1}}$	Output	Card sensor write
9	$\overline{\text{S2}}$	Output	Card sensor read
10	$\overline{\text{WMD}}$	Input	Write mode
11	$\overline{\text{WDT}}$	Input	Write data
12	5VDC	—	—
13	5VDC	—	—
14	0V	—	—
15	0V	—	—

Dimensions

Unit: mm (inch)

■ 3S4YR-HNW



Note: Unless otherwise specified, tolerance is ± 0.3.

NOTE: DIMENSIONS ARE SHOWN IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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One East Commerce Drive
Schaumburg, IL 60173
1-800-55-OMRON

OMRON CANADA, INC.
885 Milner Avenue
Scarborough, Ontario M1B 5V8
416-286-6465

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OMRON®

Manual Swipe Magnetic Card Reader | 3S4YR-HSR

Economical, Manually Operated Card Reader

- Compact, rugged design
- Wide operating temperature range
- Stable operation with card swipe speed within a range of 10 to 150 cm/second
- Choose enclosed or open housing to match application
- Single and double track configurations
- TTL-compatible interface (clock & data)

Ordering Information

Magnetic Tracks Supported (R, R/W)										
1	2	3	Center	JIS II	IC Contact	Interface	Cover	Cable	Color	**Part Number**
R	—	—	—	—	No	TTL	Yes	Yes	Black	**3S4YR-HSR3**
R	—	—	—	—	No	TTL	No	Yes	Black	**3S4YR-HSR3-01**
—	R	—	—	—	No	TTL	Yes	Yes	Black	**3S4YR-HSR4**
—	R	—	—	—	No	TTL	No	Yes	Black	**3S4YR-HSR4-01**
—	—	R	—	—	No	TTL	Yes	Yes	Black	**3S4YR-HSR5**
—	—	R	—	—	No	TTL	No	Yes	Black	**3S4YR-HSR5-01**
R	R	—	—	—	No	TTL	Yes	Yes	Black	**3S4YR-HSR6**
R	R	—	—	—	No	TTL	No	Yes	Black	**3S4YR-HSR6-001**
—	R	R	—	—	No	TTL	Yes	Yes	Black	**3S4YR-HSR7**
—	R	R	—	—	No	TTL	No	Yes	Black	**3S4YR-HSR7-001**

■ TYPICAL APPLICATIONS

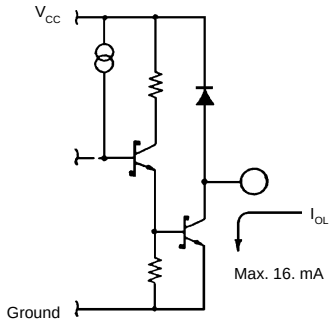
- Remote Terminals for Computers
- Credit Card Readers
- ID Card Checkers
- Electronic Locks
- Automatic Gate Machines
- Point-of-Sale Systems (POS)

Specifications

Part number		3S4YR-HSR
Recommended card type		ISO 7810, 7811/1-5, 7812, 7813
Recording method		FM decoding (F2F)
Card feeding speed		10 to 150 cm/sec (4 to 59 in/sec)
Service life	Single track	300,000 passes min.
	Double track	600,000 passes min.
Operating power supply		5 VDC ± 10%
Current consumption	Single track	25 mA
	Double track	50 mA
Mounting location		Anywhere not directly subject to water or sunlight
Ambient temperature	Operation	-10° to 55°C (14° to 131°F) without condensation
	Storage	-30° to 70°C (-22° to 158°F)
Ambient humidity	Operation	10% to 95% RH without condensation
	Storage	10% to 95% RH
Vibration		10 to 55 Hz, 2 mm double amplitude, for 30 minutes in X, Y, and Z directions
Shock		300 m/sec^2 (30 G) in each of X, Y, and Z directions
Dimensions	With cover	100L x 32.5W x 32H mm (3.94L x 1.28W x 1.26H in)
	Without cover	100L x 27W x 29.5H mm (3.94L x 1.06W x 1.16H in)
Weight		Approx. 90 g (3.2 oz) enclosed; 60 g (2.1 oz) open

Engineering Data

■ OUTPUT CIRCUIT DIAGRAM



Output signal levels:

Output high current

V_{CC} = 5.5 V

I_{OH} = 200 μA max.

Output sink current

V_{OL} = 0.4 V

I_{OL} = 16 mA max.

■ I/O INFORMATION

Single Track Connector

5-pin JAE connector part number IL-5S-S3L-N. Shipped with JAE angle pin header, part number IL-5P-S3FP2-N attached.

Pin #	Signal	Input/Output	Description
1	$\overline{\text{RDP}}$	Output	Read data
2	$\overline{\text{RCP}}$	Output	Read clock
3	$\overline{\text{CLS}}$	Output	Card load
4	DC5	—	+5 VDC
5	GND	—	Ground

Double Track Connector

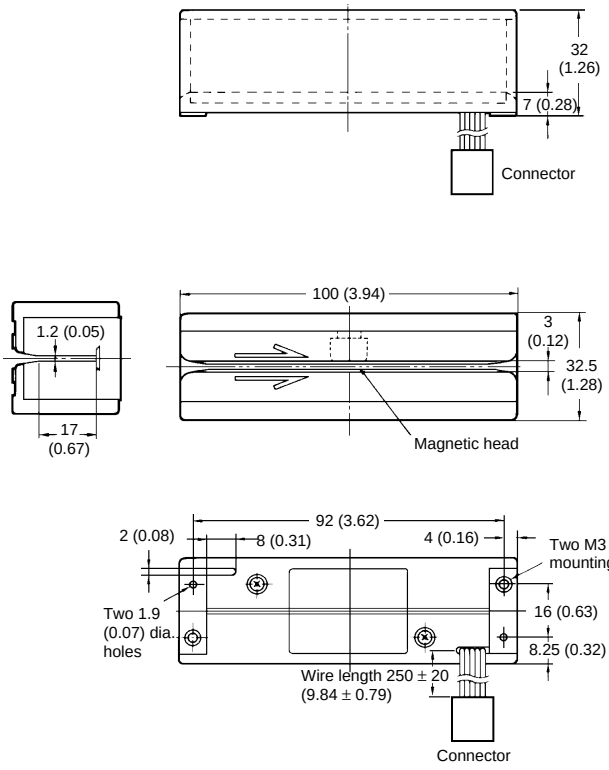
9-pin JAE connector part number IL-9S-S3L-N. Shipped with JAE angle pin header, part number IL-9P-S3FP2-N attached.

Pin #	Signal	Input/Output	Description
1	$\overline{\text{RDP1}}$	Output	Read data, track 1 or 3
2	$\overline{\text{RCP1}}$	Output	Read clock, track 1 or 3
3	$\overline{\text{CLS1}}$	Output	Card load, track 1 or 3
4	$\overline{\text{RDP2}}$	Output	Read data, track 2
5	$\overline{\text{RCP2}}$	Output	Read clock, track 2
6	$\overline{\text{CLS2}}$	Output	Card load, track 2
7	—	—	Not used, no connection
8	DC5	—	+5 VDC
9	GND	—	Ground

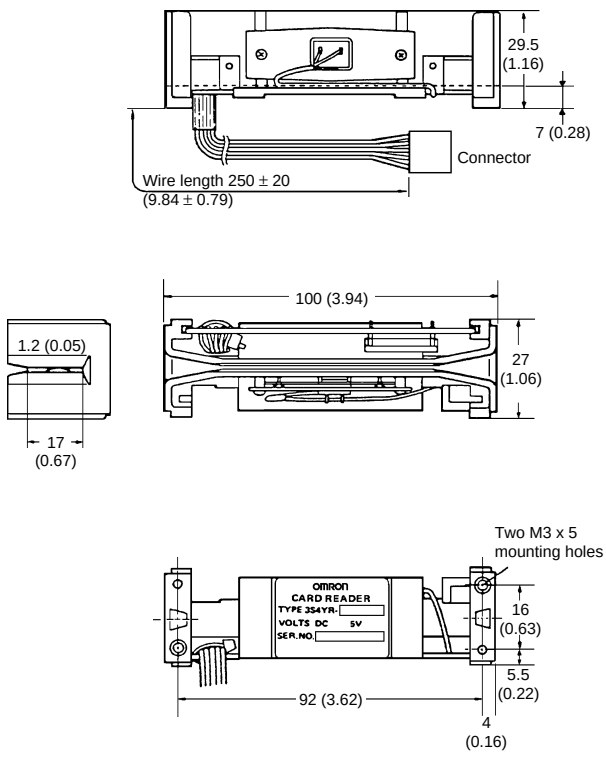
Dimensions

Unit: mm (inch)

■ 3S4YR-HSR ENCLOSED MODELS



■ 3S4YR-HSR OPEN MODELS



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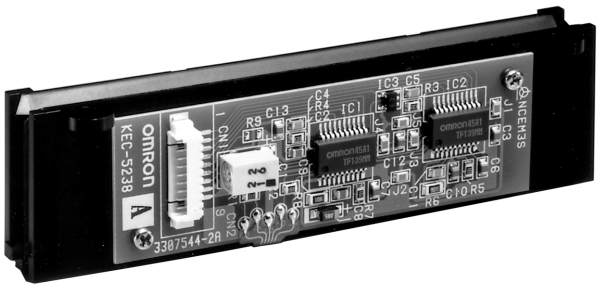
Manual Swipe Magnetic Card Reader | 3S4YR-HZR

Low Power, Ultra-Compact, Manually Operated Card Reader

- Ideal for embedded keyboards
- Lightweight and ultra-compact
- Low power through use of CMOS technology
- Current save mode
- Stable operation with card swipe speeds from 10 to 120 cm/second
- TTL-compatible interface (clock & data)



Ordering Information

Magnetic Tracks Supported (R, R/W)					IC Contact	Interface	Cover	Cable	Color	Part Number
1	2	3	Center	JIS II						
R	R	—	—	—	No	TTL	No	No	Black	**3S4YR-HZR6-01**
—	R	R	—	—	No	TTL	No	No	Black	**3S4YR-HZR7-01**

■ ACCESSORIES

Description	Part Number
HZR1 cable harness	**CABLE KTI-628**
HZR6/7 cable harness	**CABLE KTI-240**

■ TYPICAL APPLICATIONS

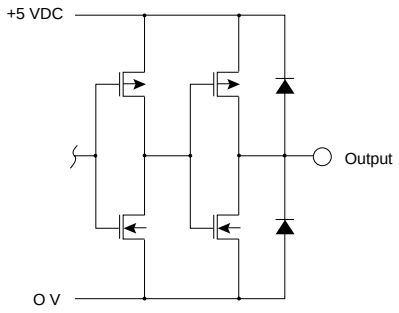
- Custom Keyboards
- Hand-held Terminals
- Point-of-Sale Systems (POS)

Specifications

Part number		3S4YR-HZR
Recommended card type		ISO 7810, 7811/1-5, 7812, 7813
Recording method		FM decoding (F2F)
Card feeding speed		10 to 120 cm/sec (4 to 47 in/sec)
Service life		300,000 passes min.
Operating power supply		5 VDC ± 10%
Current consumption	Operation	6.0 mA typ., 10 mA max.
	Current save mode	2.0 mA typ., 3 mA max.
Mounting location		Anywhere not directly subject to water or sunlight.
Ambient temperature	Operation	-10° to 55°C (14° to 131°F)
	Storage	-30° to 70°C (-22° to 158°F)
Ambient humidity	Operation	10% to 95% RH without condensation
	Storage	10% to 95% RH
Vibration		10 to 55 Hz, 2 mm double amplitude, for 30 minutes in X, Y, and Z directions.
Shock		300 m/sec^2 (30 G) in each of X, Y, and Z directions
Dimensions		25.2L x 98.2W x 23.3H mm (0.99L x 3.87W x 0.92H in)
Weight		Approx. 26 g (0.92 oz)

Engineering Data

■ OUTPUT CIRCUIT DIAGRAM



Output signal levels:

V_{OL} = 0.4 V at 4 mA

V_{OH} = 3.5 V at 1 mA

■ I/O INFORMATION

Double Track Connector

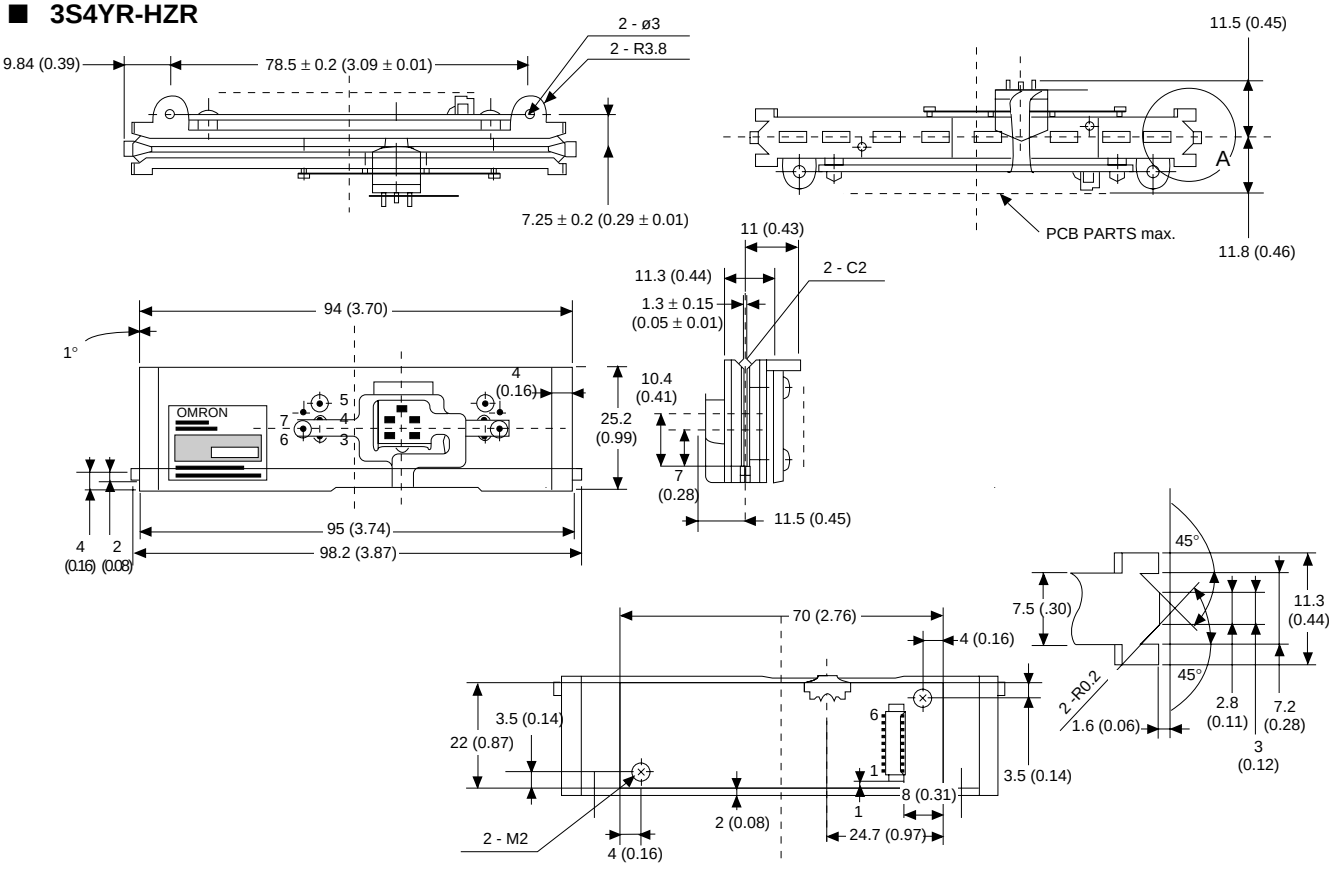
9-pin Molex connector part number 53261-0990.
Applicable Molex socket housing part number 51021-0900.

HZR6-01, HZR7-01			
Pin #	Signal	Input/Output	Description
1	$\overline{\text{RCP1}}$ (track 1 or 3)	Output	Read clock, track 1
2	$\overline{\text{RDP1}}$ (track 1 or 3)	Output	Read data, track 1
3	$\overline{\text{CLS}}$	Output	Card load
4	$\overline{\text{RCP2}}$ (track 2)	Output	Read clock, track 2
5	$\overline{\text{RDP2}}$ (track 2)	Output	Read data, track 2
6	$\overline{\text{CSV}}$	Input	Current save
7	+5VDC	—	5 VDC
8	0V	—	—
9	+5VDC	—	5 VDC

Dimensions

Unit: mm (inch)

■ 3S4YR-HZR



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Motor Driven Card Reader | 3S4YR-MCR

Versatile Reader/Writer Reliably Handles Read Function for Magnetic Cards or Read/Write Function for IC Cards

- Compact size and light weight allow easy installation in any terminal
- Single and triple track capability
- Heavy-duty construction for secure environments
- High speed card transport
- Shutter available to prevent insertion of foreign objects and improper cards

Ordering Information

Magnetic Tracks Supported (R, R/W)					IC Contact	Interface	Built-in Shutter	Cover/ Cable	Card Ejection	Color	Part Number
1	2	3	Center	JIS II							
R	R	R	—	—	No	TTL	No	No	Front/Rear	Black	**3S4YR-MCR1-N-02**
R	R	R	—	—	No	TTL	Yes	No	Front/Rear	Black	**3S4YR-MCR1D-N-02**
—	R	—	—	—	No	TTL	No	No	Front/Rear	Black	**3S4YR-MCR4-N-02**
—	R	—	—	—	No	TTL	Yes	No	Front/Rear	Black	**3S4YR-MCR4D-N-02**
—	—	—	—	—	ISO 7816/CP8*	TTL	Yes	No	Front	Black	**3S4YR-MCR0XD**
—	—	—	—	—	ISO 7816/CP8**	TTL	No	No	Front/Rear	Black	**3S4YR-MCR0XCB**
—	—	—	—	—	ISO 7816/CP8**	TTL	Yes	No	Front/Rear	Black	**3S4YR-MCR0XDB**

Note: Consult the *IC Card Basics* section of this catalog for IC contact descriptions.

* Friction IC contact
** Landing IC contact

■ ACCESSORIES

Description	Part Number
Shutter for MCR (Prevents tampering and incorrect card insertion)	**SHUTTER FOR MCR**

■ TYPICAL APPLICATIONS

- ID Card Checkers
- Access Control
- Automatic Gate Machines
- EFT
- POS
- Vending Machines
- Kiosks

Specifications

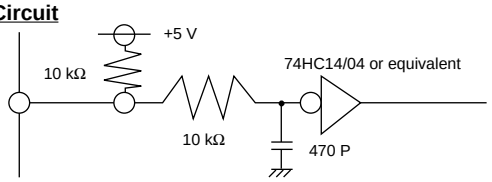
Part number		3S4YR-MCR				
Recommended card type	Magnetic card	ISO 7810, 7811/1-5, 7812, 7813				
	IC Card	ISO 7816/1-2				
Recording method		FM decoding (F2F)				
Card feeding speed		40 cm/sec (15.7 in/sec)				
Motor type		DC motor				
Service life (See note)	Magnetic head	1,000,000 passes				
	IC contact	300,000 times with rear ejection; 100,000 times without rear ejection				
	Transport roller	1,000,000 passes or 5 years				
	Drive belt	1,000,000 passes or 5 years				
	Entire unit	1,000,000 passes (excluding the above mentioned parts)				
Operating power supply		24 VDC ± 10%				
Max. current consumption	MCR❑	-N-02	D-N-02	XD	XCB	XDB
	Waiting	25 mA	30 mA	10 mA	20 mA	25 mA
	Operating	350 mA	550 mA	350 mA	500 mA	700 mA
	Start-up, reverse	2A	2A	2A	2A	2A
Mounting location		Indoors — away from wind, rain, and sunlight				
Ambient temperature	Operation	-5° to 55°C (23° to 131°F)				
	Storage	-25° to 70°C (-13° to 158°F)				
Ambient humidity	Operation	45% to 85% RH without condensation				
	Storage	20% to 90% RH				
Vibration (when not in use)		Single amplitude: 0.75 mm Max acceleration: 100 mm/sec^2; 10 to 150 Hz for 30 minutes in X, Y, and Z directions				
Shock (when not in use)		300 m/sec^2 (30 G) three times in each of X, Y, and Z directions				
Dimensions	MCR❑	-N-02	D-N-02	XD	XCB	XDB
	Length	122 mm (4.80 in)	147 mm (5.79 in)	147 mm (5.79 in)	122 mm (4.80 in)	147 mm (5.79 in)
	Width	90 mm (3.54 in)	90 mm (3.54 in)	105 mm (4.13 in)	90 mm (3.54 in)	105 mm (4.13 in)
	Height	62 mm (2.44 in)	62 mm (2.44 in)	62 mm (2.44 in)	95 mm (3.74 in)	95 mm (3.74 in)
Weight	MCR❑	-N	D-N	XD	XCB	XDB
		550 g (19.4 oz)	750g (26.5 oz)	800 g (28.2 oz)	900 g (31.7 oz)	1,100 g (38.8 oz)

Note: One pass denotes one-way travel of card feed.

Engineering Data

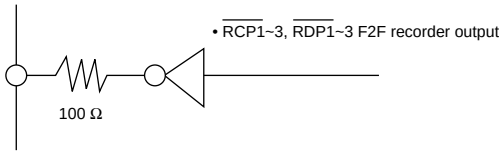
■ OUTPUT CIRCUIT DIAGRAM

Input Circuit



I/F Board

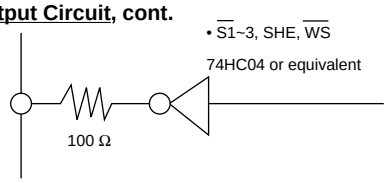
Output Circuit



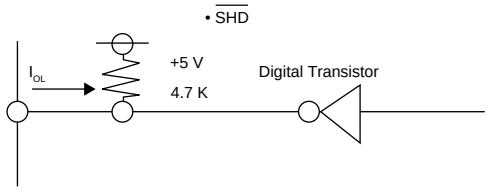
I/F Board

I_{OH} = -1 mA MAX (V_{OH} = 3.5 V MIN)
I_{OL} = 4 mA MAX (V_{OL} = 0.4 V MAX)

Output Circuit, cont.



I/F Board



I/F Board

I_{OL} = 10 mA MAX (V_{OL} = 0.4 V MAX)

■ I/O INFORMATION

3S4YR-MCRN 1/1D/3/3D/4/4D/5/5D-02

Card reader side: Hirose Electric HIF3BA-26PA-2, 54DS (male)
Cable side: Connector socket conforming to MIL-C-83503 (female); Berg 66900-266 or 65846-002; 3M 3399-6500SC+3448-3926J (connector + strain relief, cable-side connector is not included).

Pin #	Signal	Input/Output	Description
1	24V	—	24 VDC
2	24V	—	24 VDC
3	POV	—	0 VDC
4	POV	—	0 VDC
5	MFS	Input	Motor forward signal
6	MRS	Input	Motor reverse signal
7	S1	Output	Card location sensor 1
8	S2	Output	Card location sensor 2
9	S3	Output	Card location sensor 3
10	—	—	—
11	RDP1	Output	Read data, track 1
12	RCP1	Output	Read clock, track 1
13	RDP2*	Output	Read data, track 2
14	RCP2*	Output	Read clock, track 2
15	RDP3*	Output	Read data, track 3
16	RCP3*	Output	Read data, track 3
17	—	—	—
18	—	—	—
19	—	—	—
20	—	—	—
21	WS**	Output	Card width switch
22	SHD**	Output	Sense head detector
23	SO**	Input	Shutter open/close
24	SHE**	Output	Shutter echo switch
25	—	—	—
26	0 VDC	—	0 VDC (GND)

3S4YR-MCR0X CB/D/DB

Card reader side: Hirose Electric HIF3BA-26PA-2, 54DS (male)
Cable side: Connector socket conforming to MIL-C-83503 (female); Berg 66900-226 or 65846-002; 3M 3399-6500SC+3448+3026J (connector + strain relief, cable-side connector is not included).

Pin #	Signal	Input/Output	Description
1	24V	—	24 VDC
2	24V	—	24 VDC
3	POV	—	0 VDC
4	POV	—	0 VDC
5	MFS	Input	Motor forward signal
6	MRS	Input	Motor reverse signal
7	S1	Output	Card location sensor 1
8	S2	Output	Card location sensor 2
9	S3	Output	Card location sensor 3
10	IVCC	◆	IC card VCC
11	IRST	◆	IC card RESET
12	ICIO	◆	IC card IN/OUT
13	IGND	◆	IC card GND
14	ICLX	◆	IC card PROGRAM
15	IVVP	◆	IC card CLOCK
16	IRS1	◆	IC card RESERVE 1
17	IRS2	◆	IC card RESERVE 2
18	IECO***	Output	IC card contact press echo
19	IECS***	Output	Stopper release sensor echo (rear ejection only)
20	ISO1***	Input	IC card contact press
21	WS**	Output	Card width switch
22	SHD**	Output	Sense head detector
23	SO**	Input	Shutter open/close
24	SHE**	Output	Shutter echo switch
25	ISO2***	Input	IC card stopper release (rear ejection only)
26	0 VDC	—	0 VDC (GND)

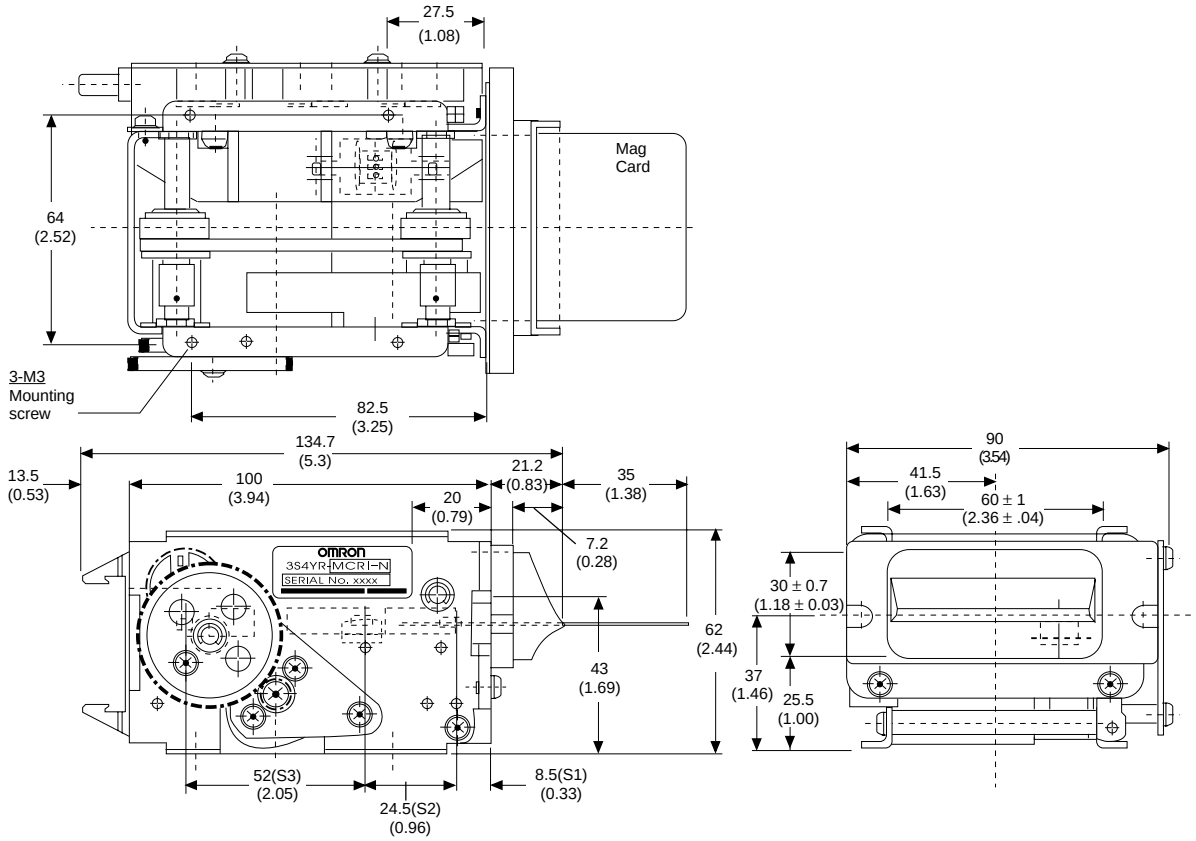
* Signals applicable for the MCR1-N and MCR1D-N only.
** Signals applicable when shutter is attached.
*** Signals applicable for rear ejection models only.

◆ = Direct IC Contact

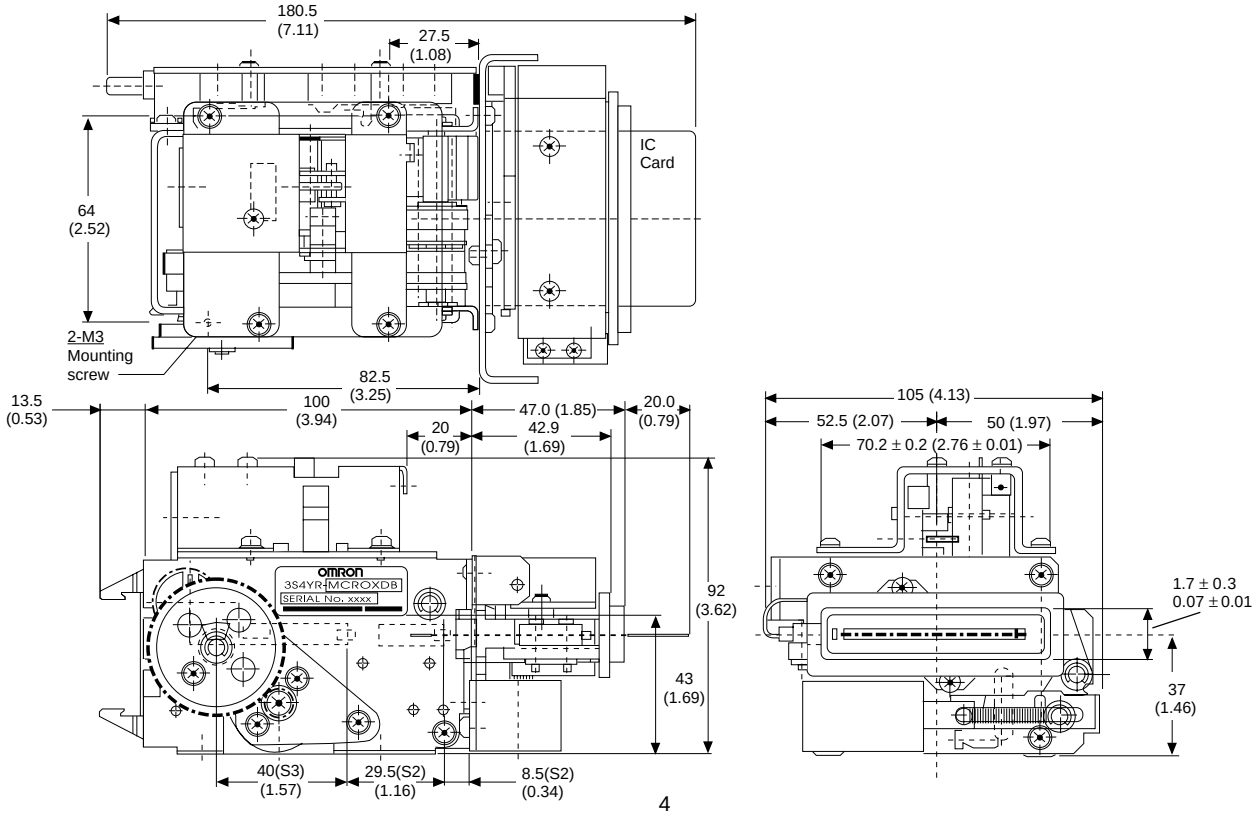
Dimensions

Unit: mm (inch)

■ 3S4YR-MCRN-02



■ 3S4YR-MCR0XDB (Landing IC Contact)



NOTE: DIMENSIONS ARE SHOWN IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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OMRON ELECTRONICS, INC.
One East Commerce Drive
Schaumburg, IL 60173
1-800-55-OMRON

OMRON CANADA, INC.
885 Milner Avenue
Scarborough, Ontario M1B 5V8
416-286-6465

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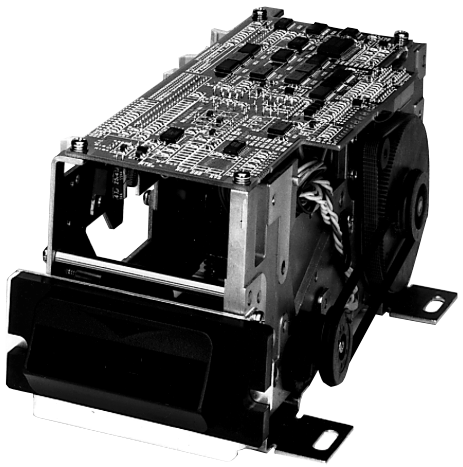
OMRON®

Motor Driven Card Reader/Writer | 3S4YR-MKW

Versatile Hybrid Reader/Writer Handles Both Magnetic and IC Cards

- Durable 4-wheel, 2-belt drive with roller accommodates discrepancies in card thickness to accept warped or bent cards
- Metal blade shutter prevents tampering
- Compact size and light weight allow easy installation in any terminal
- Two integrated chip station positions available
- Adjustable to card thicknesses of 0.20 mm, 0.40 mm, and 0.76 mm (PET, paper, or PVC cards)
- HiCo write capability available
- Watermark capability available



Ordering Information

Magnetic Tracks Supported (R, R/W)											
1	2	3	Center	JIS II	IC Contact	Interface	Shutter	Cover	Cable	Color	**Part Number**
R/W	R/W	R/W	—	—	ISO 7816	TTL	Yes	No	No	Black	**3S4YR-MKW1JD**
R/W	R/W	R/W	—	—	ISO 7816/CP8	TTL	Yes	No	No	Black	**3S4YR-MKW1XD**
R/W	R/W	R/W	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW1PC**
R/W	R/W	R/W	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW1PCH**
R/W	R/W	R/W	—	—	Option	TTL	Yes	No	No	Black	**3S4YR-MKW1PD**
R/W	—	—	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW3PC**
—	R/W	—	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW4PC**
—	R/W	—	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW4PCH**
—	R/W	—	—	—	Option	TTL	Yes	No	No	Black	**3S4YR-MKW4PD**
—	—	R/W	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW5PC**
R/W	R/W	—	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW6PC**
—	R/W	R/W	—	—	Option	TTL	Option	No	No	Black	**3S4YR-MKW7PC**

Note: Only the MKW1PCH and MKW4PCH are capable of writing HiCo cards. All models can read HiCo cards.

■ TYPICAL APPLICATIONS

- Cash Dispensers
- Automatic Teller Machines (ATM)
- POS Terminals
- Credit Card Checkers
- ID Card Checkers
- Electronic Lock Systems
- Medical Patient Systems
- Health Control Systems

■ ACCESSORIES

Description	Part Number
IC Contact, chip on the front, lower position	**IC CONTACT J** (See note 1)
IC Contact, chip on the front, upper and lower positions	**IC CONTACT X** (See note 1)
Shutter for MKW1PC, MKW1PCH, MKFW1PC	**SHUTTER MKD1**
Shutter for MKW3PC	**SHUTTER MK3**
Shutter for MKW4PC, MKW4PCH	**SHUTTER MK4**
Shutter for MKW5PC	**SHUTTER MK5**
Shutter for MKW6PC	**SHUTTER MK6**
Shutter for MKW7PC	**SHUTTER MK7**
MM Sensor Holder (MM sensor itself must be purchased from the manufacturer.)	**MM HOLDER**
Watermark Reader Head. Cannot be used to write track 1.	**WATERMARK HEAD** (See note 2)
Watermark Circuit Board. Cannot be used to write track 1.	**WATERMARK PCB** (See note 2)

Note 1: Consult your Omron sales representative for IC contact accessories. Special configurations can be supplied.
2: Watermark Reader Head and Watermark Circuit Board must be ordered together.

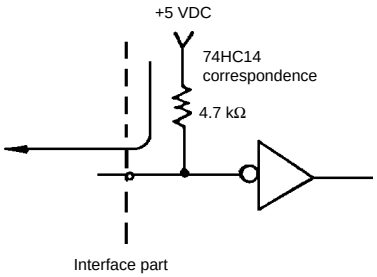
Specifications

Part number		3S4YR-MKW
Recommended card type	Magnetic card	ISO 7810-7813
	IC card	ISO 7816/1, 2
Recording method		FM decoding (F2F)
Card feeding speed		20 cm/sec ± 10% (7.87 in/sec)
Motor type		DC motor
Service life (See note)		1,200,000 passes min.
Operating power supply	Amplifier	24 VDC ± 10%
	Motor	24 VDC ± 10%
	Control logic	5 VDC ± 5%
Current consumption	Amplifier	260 mA max.
	Motor	1.7 A max.
	Control logic	330 mA max.
Mounting location		Anywhere not directly subject to water or rain
Mounting orientation		Stripe top or stripe bottom
Ambient temperature	Operation	-5° to 55°C (23° to 131°F)
	Storage	-25° to 70°C (-13° to 158°F)
Ambient humidity	Operation	45% to 85% RH without condensation
	Storage	30% to 90% RH
Vibration		10 to 55 Hz, 2 mm double amplitude, for 30 minutes in X, Y, and Z directions
Shock		300 m/sec^2 (30 G) in each of X, Y, and Z directions
Dimensions	With shutter	247L x 106W x 92H mm (9.72L x 4.17W x 3.62H in)
	Without shutter	222L x 98W x 92H mm (8.74L x 3.86W x 3.62H in)
Weight		Approx. 1.9 kg (4.2 lbs) when fully equipped

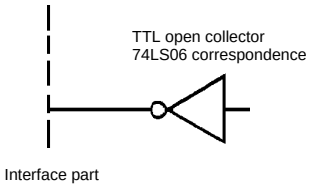
Note: One pass denotes one round trip.

Engineering Data

■ INPUT CIRCUIT DIAGRAM



■ OUTPUT CIRCUIT DIAGRAM



■ I/O INFORMATION

3S4YR-MKW
Connector of Magnetic Card (CN1 Signal)

3M 3433-5302JL. Mate: 3M 3425-6550EL.

Pin #	Signal	Input/Output	Pin #	Signal	Input/Output
1	+5 VDC	—	26	$\overline{S1}$	Output
2	+5 VDC	—	27	$\overline{S2}$	Output
3	0 V	—	28	$\overline{S3}$	Output
4	0 V	—	29	$\overline{S4}$	Output
5	P24V	—	30	$\overline{STW}$	Output
6	P24V	—	31	$\overline{RCP1}$	Output
7	P0V	—	32	$\overline{RDP1}$	Output
8	P0V	—	33	$\overline{RCP2}$	Output
9	$\overline{MFW}$	Input	34	$\overline{RDP2}$	Output
10	$\overline{MRV}$	Input	35	$\overline{RCP3}$	Output
11	$\overline{SOL1}$	Input	36	$\overline{RDP3}$	Output
12	—	—	37	$\overline{RCP4}$	Output
13	—	—	38	$\overline{RDP4}$	Output
14	—	—	39	$\overline{WCP1}$	Output
15	—	—	40	$\overline{WCP2}$	Output
16	—	—	41	$\overline{WDT1}$	Input
17	$\overline{WEN}$	Input	42	$\overline{CNT1}$	Input
18	—	—	43	$\overline{WDT2}$	Input
19	$\overline{RCPS}$	—	44	$\overline{CNT2}$	Input
20	$\overline{RDP5}$	—	45	$\overline{WDT3}$	Input
21	$\overline{SHD1}$	Output	46	$\overline{CNT3}$	Input
22	$\overline{WDV}$	Output	47	$\overline{WDT4}$	Input
23	$\overline{SHE}$	Output	48	$\overline{CNT4}$	Input
24	$\overline{WID}$	Output	49	+24 VDC	—
25	$\overline{S0}$	Output	50	+24 VDC	—

3S4YR-MKW
Connector of IC Card (CN2 Signal)

3M 3408-5302JL. Mate: 3M 3452-6516EL.

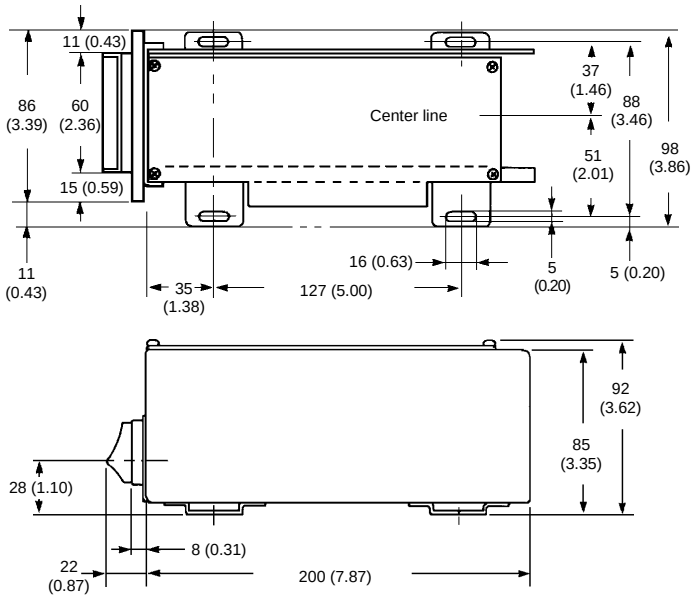
Pin #	Signal	Input/Output	Pin #	Signal	Input/Outut
1	IVCC	◆	9	IRS1	◆
2	IRST	◆	10	IRS2	◆
3	ICIO	◆	11	$\overline{IECO}$	Input
4	IGND	◆	12	—	—
5	—	—	13	$\overline{IMSL}$	Input
6	ICKL	◆	14	$\overline{ISOL}$	Input
7	IVCC	◆	15	+5 VDC	—
8	IVPP	◆	16	0 V	—

◆ = Direct IC Contact

Dimensions

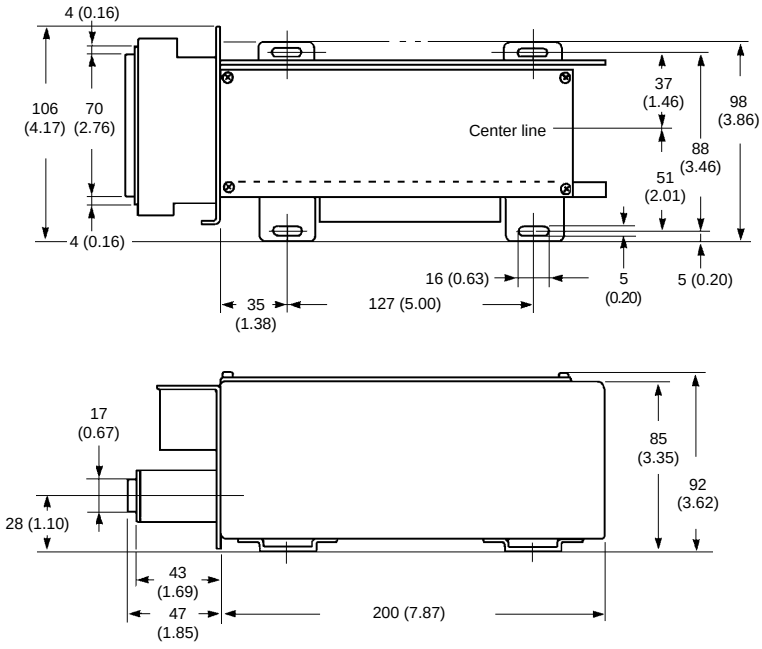
Unit: mm (inch)

■ 3S4YR-MKW WITHOUT SHUTTER



Stripe down shown. Can be mounted with stripe up.

■ 3S4YR-MKW WITH SHUTTER



Stripe down shown. Can be mounted with stripe up.

Note: Unless otherwise specified, tolerance is ±0.3.

NOTE: DIMENSIONS ARE SHOWN IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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OMRON ELECTRONICS, INC.
One East Commerce Drive
Schaumburg, IL 60173
1-800-55-OMRON

OMRON CANADA, INC.
885 Milner Avenue
Scarborough, Ontario M1B 5V8
416-286-6465

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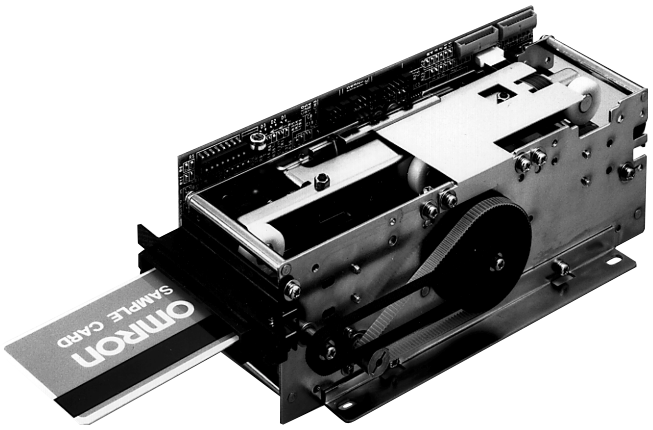
OMRON®

Motor Driven Card Reader/Writer

3S4YR-MM❑, MZ❑

Reliable Reader/Writer Handles Magnetic Cards

- Single, triple, or center track read/write capability
- Compact size and light weight ease installation in any terminal
- User-selectable bit recording densities of 75 bpi, 105 bpi, 150 bpi, and 210 bpi
- HiCo write capability available
- Adjustable to card thicknesses of 0.20 mm, 0.40 mm, or 0.76 mm (PET, paper, or PVC cards)
- RS-232C or TTL-compatible interface



Ordering Information

Magnetic Tracks Supported (R, R/W)					IC						
1	2	3	Center	JIS II	Contact	Voltage	Interface	Cover	Cable	Color	**Part Number** (See note 1)
R/W	R/W	R/W	—	—	No	24	TTL	No	No	Black	**3S4YR-MMW1**
R/W	R/W	R/W	—	—	No	12	TTL	No	No	Black	**3S4YR-MMW1-101**
R/W	—	—	—	—	No	24	TTL	No	No	Black	**3S4YR-MMW3**
R/W	—	—	—	—	No	12	TTL	No	No	Black	**3S4YR-MMW3-101**
—	R/W	—	—	—	No	24	TTL	No	No	Black	**3S4YR-MMW4**
—	R/W	—	—	—	No	12	TTL	No	No	Black	**3S4YR-MMW4-101**
—	R/W	—	—	—	No	24	TTL	No	No	Black	**3S4YR-MMW4HT** (See notes 2 & 3)
—	—	R/W	—	—	No	24	TTL	No	No	Black	**3S4YR-MMW5**
—	R/W	—	—	—	No	24	RS-232C	No	No	Black	**3S4YR-MMF4**
—	R/W	—	—	—	No	24	TTL	No	No	Black	**3S4YR-MMF4-HT2** (See note 2)
—	—	—	R/W	—	No	24	TTL	No	No	Black	**3S4YR-MZW9T**
—	—	—	R/W	—	No	24	TTL	No	No	Black	**3S4YR-MZW9HT** (See notes 2 & 3)
—	—	—	R/W	—	No	24	RS-232C	No	No	Black	**3S4YR-MZF9T4** (See note 3)
—	—	—	R/W	—	No	24	TTL	No	No	Black	**3S4YR-MZW99T** (See note 4)

Note 1: Contact your Omron representative for other configurations.

2: Models capable of writing HiCo cards. All models can read HiCo cards.

3: Configured at factory for thin cards (0.40 mm).

4: Dual head allows insertion of card in any orientation.

■ TYPICAL APPLICATIONS

- Access Control
- ID Card Checkers
- Public Transportation Systems
- Closed Systems
- Electronic Lock Systems
- Parking Systems
- Vending Machines
- Automatic gate machines
- Customer loyalty schemes
- Ticket machines

■ ACCESSORIES

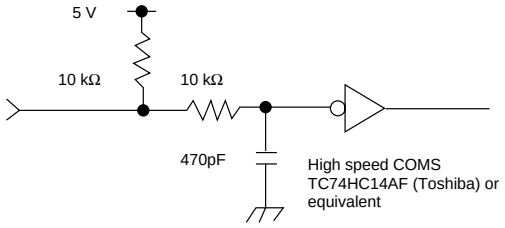
Description	**Part Number**
Shutter for MMW	**SHUTTER MMW**

Specifications

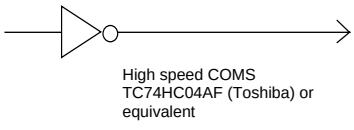
Part number		3S4YR-MMW, MMF, MZW
Recommended card type	Magnetic card	ISO 7810-7813, JIS X6301/6302 for center stripe
Recording method		FM decoding (F2F)
Recording density		User selectable 75 DPI, 105 DPI, 150 DPI, or 210 BPI
Card feeding speed		30 cm/sec ± 10% (11.8 in/sec)
Service life		500,000 passes
Operating power supply		24 VDC ± 10% or 12 VDC ± 10% (depending on mode)
Current consumption		1.5 A max.
Motor type		DC motor
Mounting location		Indoors
Ambient temperature	Operation	0° to 45°C (32° to 113°F)
	Storage	-15° to 60°C (5° to 140°F)
Ambient humidity	Operation	30% to 85% RH without condensation
	Storage	20% to 90% RH without condensation
Vibration		10 to 150 Hz, 0.15 mm, for 8 minutes in X, Y, and Z directions
Shock		200 m/sec^2 (20 G) in each of X, Y, and Z directions
Dimensions		211L x 90W x 65H mm (8.31L x 3.54W x 2.56H in)
Weight		Approx. 850 g (1.87 lbs) when fully equipped

Engineering Data

■ INPUT CIRCUIT DIAGRAM



■ OUTPUT CIRCUIT DIAGRAM



■ I/O INFORMATION

3S4YR-MMW1
(TTL) Interface Connector

MMW1 connectors (34 pin)
Hirose HIF3BA-34PA-2.54DS (male) for card reader side.
Hirose HIF3BA-34D-2.54R (female) for the cable side.

Pin #	Signal	Input/Output	Pin #	Signal	Input/Output
1	+24 V	—	18	MRS	Input
2	+24 V	—	19	$\overline{S1}$	Output
3	+24 V	—	20	$\overline{S2}$	Output
4	+24 V	—	21	$\overline{S3}$	Output
5	0 V	—	22	$\overline{S4}$	Output
6	0 V	—	23	$\overline{RCP2}$	Output
7	0 V	—	24	$\overline{RCP3}$	Output
8	0 V	—	25	$\overline{RDP2}$	Output
9	$\overline{RCP}$	Output	26	$\overline{RDP3}$	Output
10	$\overline{RDT}$	Output	27	$\overline{WDT2}$	Input
11	$\overline{WCP}$	Output	28	$\overline{WDT3}$	Input
12	$\overline{FGP}$	Output	29	$\overline{WCP2}$	Output
13	$\overline{WDT}$	Input	30	—	—
14	$\overline{CONT}$	Input	31	—	—
15	$\overline{CONT2}$	Input	32	—	—
16	$\overline{CONT3}$	Input	33	—	—
17	$\overline{MFS}$	Input	34	—	—

3S4YR-MMW3,4,5
(TTL) Interface Connector

MMW other connectors (26 pin)
Hirose HIF3BA-26PA-2.54DS (male) for card reader side.
Hirose HIF3BA-26D-2.54R (female) for the cable side.

Pin #	Signal	Input/Output	Pin #	Signal	Input/Output
1	24 V	—	14	$\overline{CONT}$	Input
2	24 V	—	15	—	—
3	24 V	—	16	—	—
4	24 V	—	17	$\overline{MFS}$	Input
5	0 V	—	18	$\overline{MRS}$	Input
6	0 V	—	19	$\overline{SI}$	Output
7	0 V	—	20	—	—
8	0 V	—	21	$\overline{S3}$	Output
9	$\overline{RCP}$	Output	22	$\overline{S4}$	Output
10	$\overline{RDT}$	Output	23	—	—
11	$\overline{WCP}$	Output	24	—	—
12	$\overline{FGP}$	Output	25	—	—
13	$\overline{WDT}$	Input	26	—	—

3S4YR-MMF4
RS-232C Interface Connector

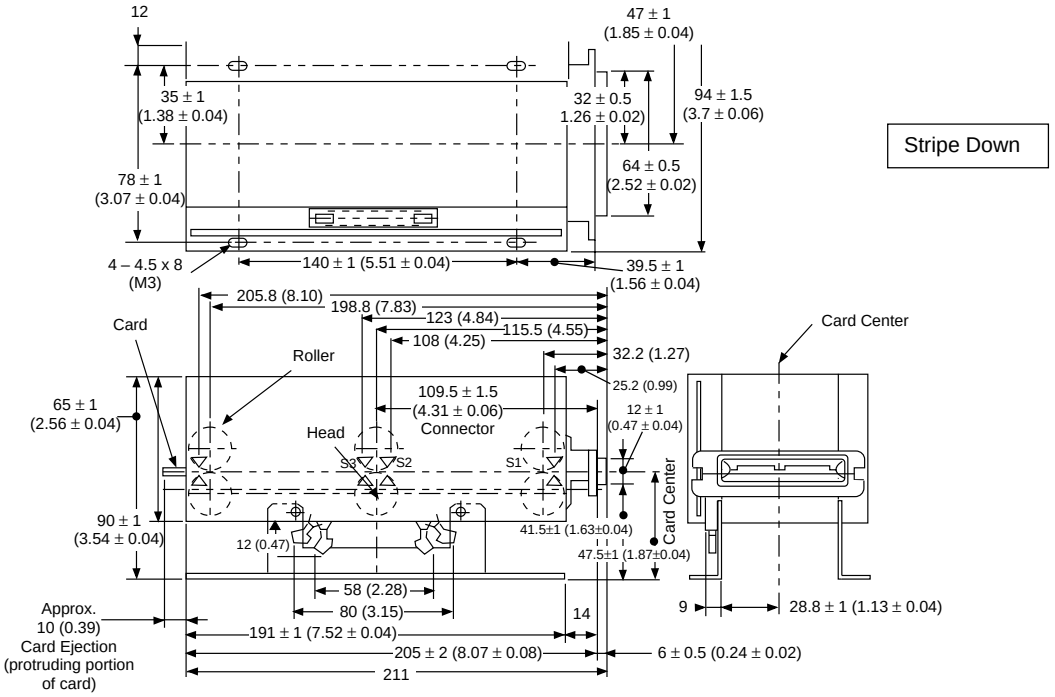
MMF4 connectors (34 pin)
3M 3431-6002LCSC for card reader/writer side.
3M 3414-6500SC or 3M 3448-3034J for the cable side.

Pin #	Signal	Input/Output	Pin #	Signal	Input/Output
1	FG	—	18	SG	Input
2	FG	—	19	DSR	Input
3	POV	—	20	CTS	Input
4	POV	—	21	RXD	Input
5	POV	—	22	DTR	Output
6	+ 24 V	—	23	RTS	Output
7	+24 V	—	24	TXD	Output
8	+24 V	—	25	—	—
9	0 V	—	26	—	—
10	0 V	—	27	BZ	Output
11	+5 V	—	28	+24 V	—
12	+5 V	—	29	+5 V	—
13	—	—	30	0 V	—
14	—	—	31	LED3	Output
15	FG	—	32	LED2	Output
16	FG	—	33	LED1	Output
17	SG	—	34	+5 V	—

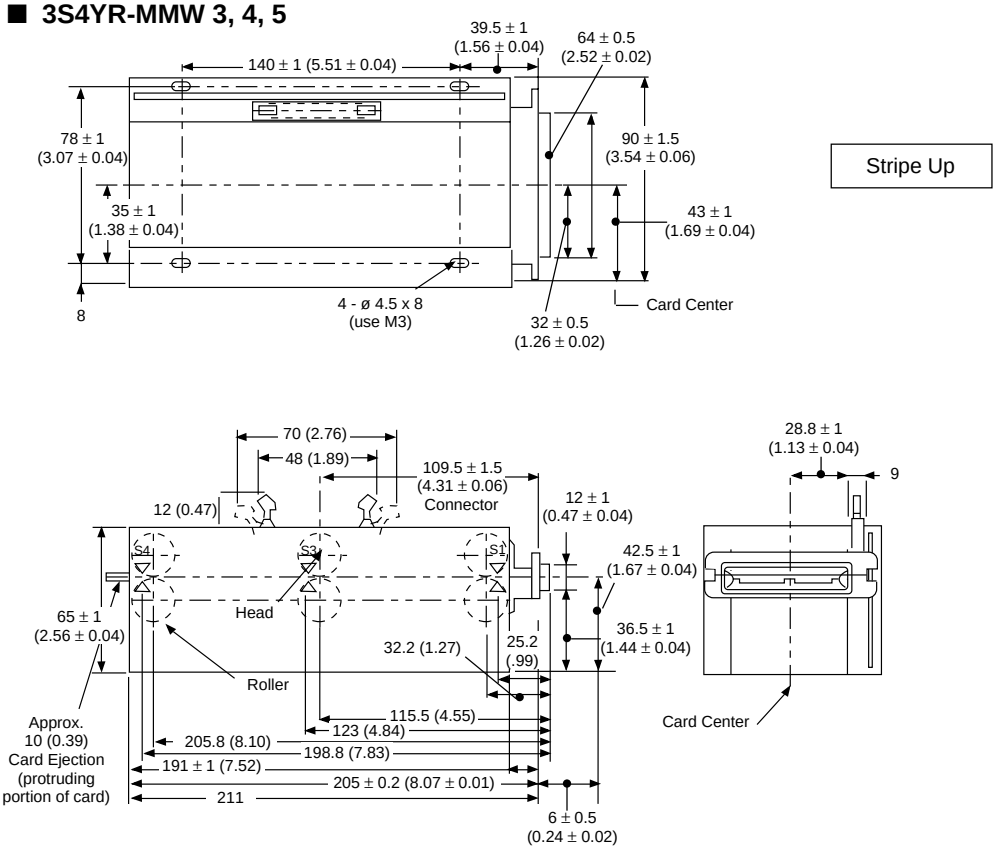
Dimensions

Unit: mm (inch)

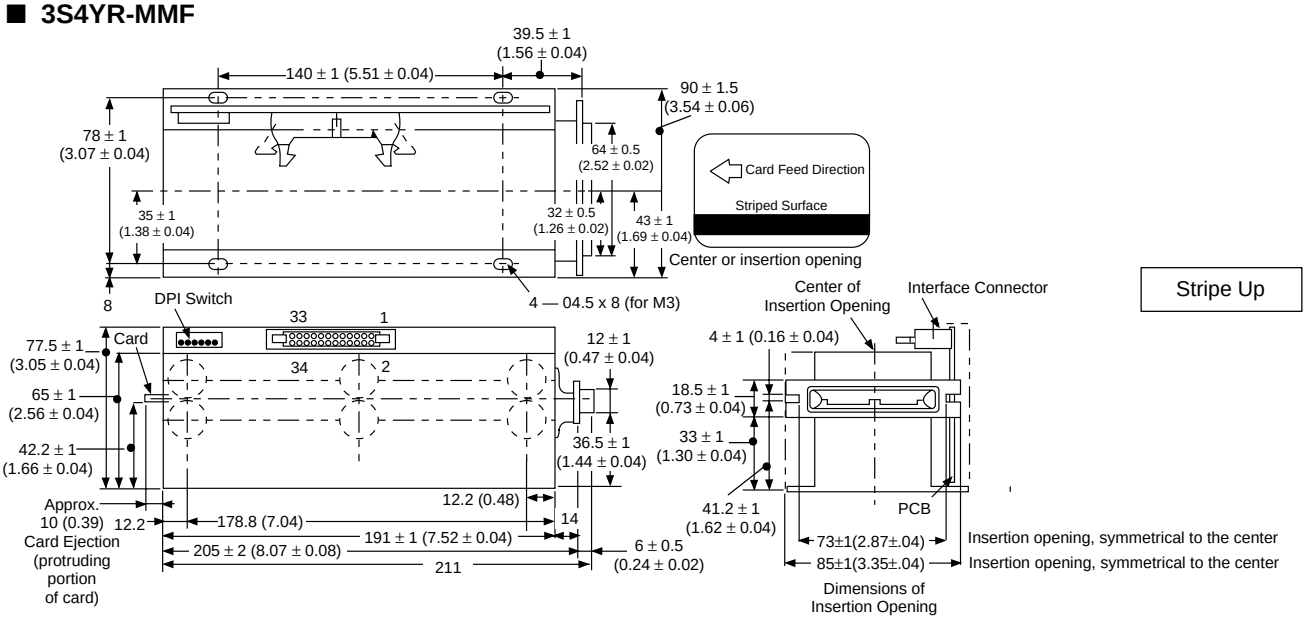
■ 3S4YR-MMW1



■ 3S4YR-MMW 3, 4, 5



■ 3S4YR-MMF


39.5 ± 1
(1.56 ± 0.04)
140 ± 1 (5.51 ± 0.04)
90 ± 1.5
(3.54 ± 0.06)
78 ± 1
(3.07 ± 0.04)
64 ± 0.5
(2.52 ± 0.02)
35 ± 1
(1.38 ± 0.04)
32 ± 0.5
(1.26 ± 0.02)
43 ± 1
(1.69 ± 0.04)
Card Feed Direction
Striped Surface
Center or insertion opening
8
DPI Switch
4 — 04.5 x 8 (for M3)
33
1
34
2
Card
77.5 ± 1
(3.05 ± 0.04)
65 ± 1
(2.56 ± 0.04)
42.2 ± 1
(1.66 ± 0.04)
12 ± 1
(0.47 ± 0.04)
36.5 ± 1
(1.44 ± 0.04)
12.2 (0.48)
Approx.
10 (0.39)
Card Ejection
(protruding
portion
of card)
12.2
178.8 (7.04)
191 ± 1 (7.52 ± 0.04)
205 ± 2 (8.07 ± 0.08)
211
14
6 ± 0.5
(0.24 ± 0.02)
Center of
Insertion Opening
Interface Connector
4 ± 1 (0.16 ± 0.04)
18.5 ± 1
(0.73 ± 0.04)
33 ± 1
(1.30 ± 0.04)
41.2 ± 1
(1.62 ± 0.04)
PCB
73±1(2.87±.04)
85±1(3.35±.04)
Insertion opening, symmetrical to the center
Insertion opening, symmetrical to the center
Dimensions of
Insertion Opening
Stripe Up

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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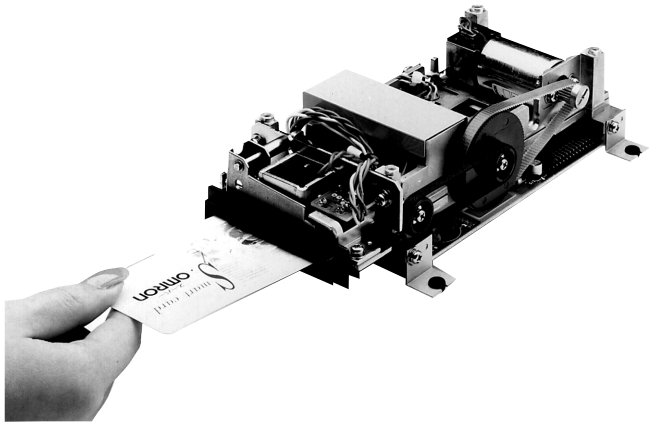
OMRON®

Motor Driven Pre-Paid Card Reader/Writer | 3S4YR-MPW

Reliable Reader/Writer Handles Pre-Paid Stored Value Magnetic Cards



- Single track HiCo read/write capability
- Accepts PET or paper cards
- Reads and punches holes for visual confirmation of current value (PET only)
- Highly reliable and durable, with punch unit in die-cast chassis
- Configured for front or rear ejection
- Non-ISO standard encoding

Ordering Information

Magnetic Tracks Supported (R, R/W)					IC Contact	Interface	Built-in Shutter	Card Ejection	Punch Function	Cover	Cable	Color	**Part Number**
1	2	3	Center	JIS II									
Non-ISO security track				—	No	TTL	No	Front	Yes	No	No	Black	**3S4YR-MPW9**
Non-ISO security track				—	No	TTL	No	Front/Rear	Yes	No	No	Black	**3S4YR-MPW9B**

Note 1: Punch diameter of the above card readers is 1.2 ± 0.3 mm.
2: Contact your Omron representative for other configurations.

■ TYPICAL APPLICATIONS

- Pre-Paid Card Systems
- Phone Cards
- Public Transportation
- Car Parking Systems
- Car Wash Systems
- Entertainment Centers
- Vending

■ ACCESSORIES

Description	**Part Number**
Shutter for MPW	**SHUTTER MPW**

Specifications

Part number		3S4YR-MPW
Recommended card type		PET card: 85.8L x 53.9W mm (3.38L x 2.12W in); thickness: 0.2 mm Paper card: 85.6L x 53.8W mm (3.37L x 2.12W in); thickness: 0.2 mm to 0.3 mm High-coercivity card
Recording method		FM decoding (F2F)
Card feeding speed		35 cm/sec (14 in/sec)
Recording density		210 BPI (72 characters max.)
Motor type		DC motor
Service life (See note)	Punch unit	200,000 times
	Entire unit	500,000 passes (excluding the above mentioned parts)
Operating power supply		24 VDC ± 10%
Current consumption		3 A max.
Mounting location		Indoors away from wind, rain, and sunlight
Ambient temperature	Operation	0° to 50°C (32° to 122°F)
	Storage	-15° to 60°C (5° to 140°F)
Ambient humidity	Operation	35% to 80% RH without condensation
	Storage	20% to 90% RH
Vibration	Operation	1.5 G in X, Y, and Z directions, respectively, for 8 minutes each
	Storage	2.0 G in X, Y, and Z directions, respectively, for 8 minutes each
Shock	Storage	20 G in X, Y, and Z directions, respectively, for 3 times each
Dimensions		195L x 82W x 50H mm (7.68L x 3.23W x 1.97H in)
Weight		About 0.8 kg (1.76 lbs)

Note: One pass denotes one round trip

Engineering Data

■ I/O INFORMATION

3S4YR-MPW Interface Connector

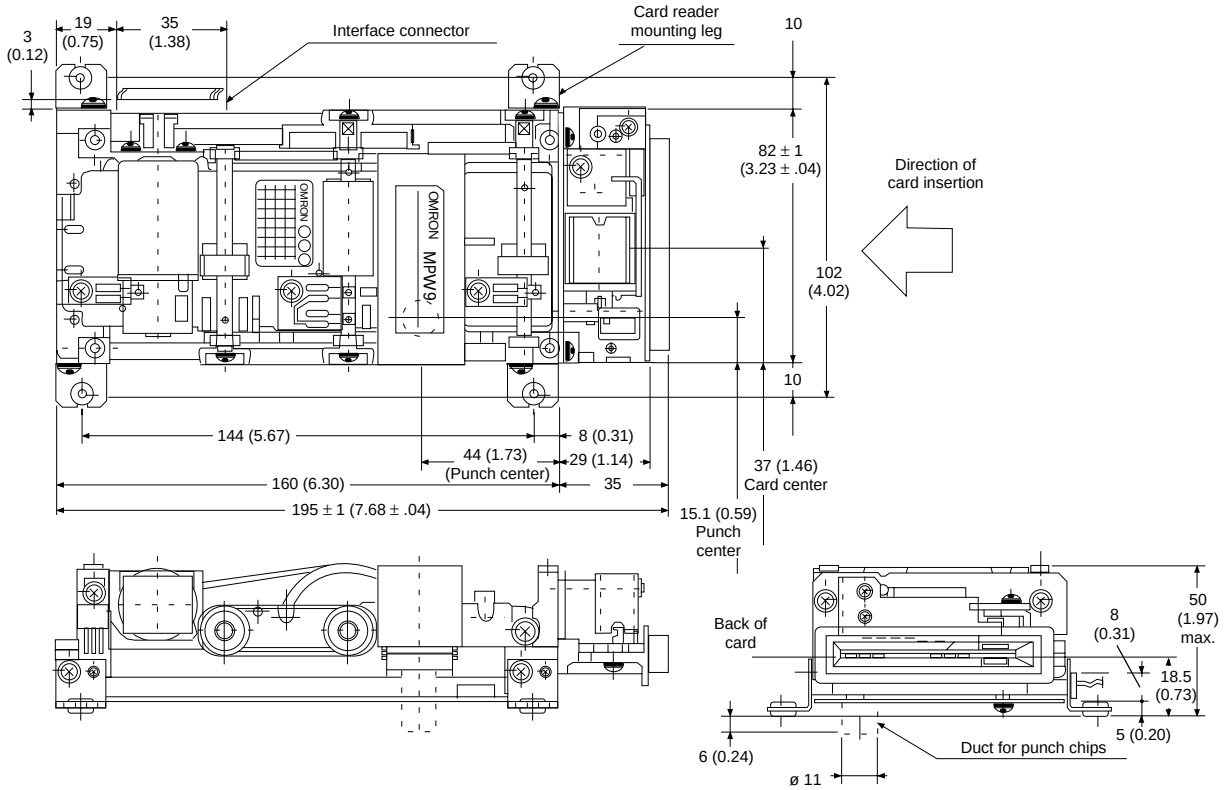
MPW connector (26-pin)
JAE PS-26PLB-D4LT1-FL1 for card reader/writer side.
JAE PS-26SLA-D4C2 for the cable side.

Pin #	Signal	Input/Output	Pin #	Signal	Input/Output
1	FG	—	14	$\overline{\text{SS4}}$	Output
2	FG	—	15	$\overline{\text{SSH}}$	Output
3	+24 V	—	16	NC	—
4	+24 V	—	17	$\overline{\text{MSWPE}}$	Input
5	+24 V	—	18	WDT	Input
6	PG	—	19	$\overline{\text{I/O ON}}$	Input
7	PG	—	20	$\overline{\text{SHUTT}}$	Input
8	PG	—	21	$\overline{\text{MSPCO}}$	Input
9	$\overline{\text{RCP1}}$	Output	22	$\overline{\text{PUNCH}}$	Input
10	$\overline{\text{RDD1}}$	Output	23	$\overline{\text{MREVE}}$	Input
11	$\overline{\text{SS1}}$	Output	24	$\overline{\text{MFORW}}$	Input
12	$\overline{\text{SS2}}$	Output	25	MOCLK	Output
13	$\overline{\text{SS3}}$	Output	26	MOCP	Output

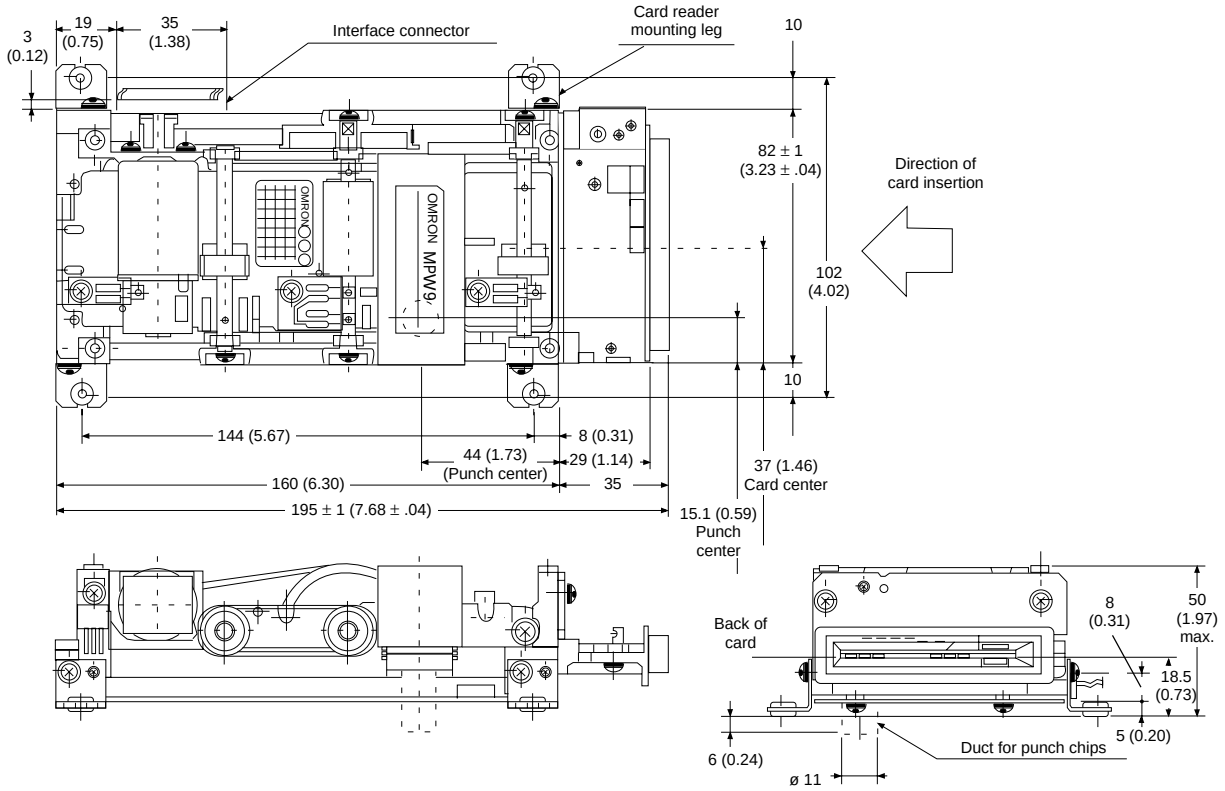
Dimensions

Unit: mm (inch)

■ 3S4YR-MPW with shutter



■ 3S4YR-MPW without shutter



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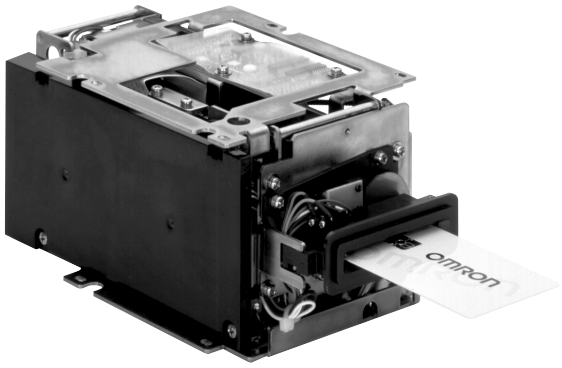
OMRON®

Motor Driven Card Reader/Writer

3S4YR-MVF/MVS

Reliably Handles Read/Write Functions for both Magnetic and IC Cards



- Downloadable firmware for specification updates, customer requirements, firmware updates, new smart card support
- Powerful all-roller card feeding system easily handles warped and/or wet cards
- Highly reliable reading/writing of all three tracks using new pick-up encoder technology
- Fully-integrated RS-232C eliminates the need for IC adapter boards
- User-friendly interface with multifunction commands and support for T=0 and T=1, EMV
- Compact size and light weight for easy installation
- Locking shutter for fraud prevention

Ordering Information

Magnetic Tracks Supported (R, R/W)					IC	Interface	Built-in	Card			
1	2	3	Center	JIS II	Contact	(see note 3)	Shutter	Ejection	Color	Notes	**Part Number** (see note 2)
R/W	R/W	R/W	—	—	No	RS-232	Yes	Front/Rear	Black	—	**3S4YR-MVFW1D-052**
R/W	R/W	R/W	—	—	ISO 7816	RS-232	Yes	Front/Rear	Black	—	**3S4YR-MVFW1JD-051L**
R/W	R/W	R/W	—	—	ISO 7816	RS-232	Yes	Front/Rear	Black	Memory card support (see note1)	**3S4YR-MVFW1JD-M51L**
R/W	R/W	R/W	—	—	ISO 7816	RS-232	Yes	Front/Rear	Black	HiCo	**3S4YR-MVFW1JDH-074**
R/W	R/W	R/W	—	—	No	RS-232	Yes	Front/Rear	Black	—	**3S4YR-MVS1D (MVFW1D-052 Core)**
R/W	R/W	R/W	—	—	ISO 7816	RS-232	Yes	Front/Rear	Black	Housing	**3S4YR-MVS1JD (MVFW1JD-051L Core)**

Note 1: Inquire regarding specific memory card support.

2: Models with support for SAM modules are available. Please contact Omron for details.

3: Please contact Omron for details concerning USB interface availability.

■ TYPICAL APPLICATIONS

- Cash Dispensers
- Automatic Teller Machines (ATM)
- POS Terminals
- Credit Card Checkers
- ID Card Checkers
- Electronic Lock System
- Medical Patient System
- Health Control System
- Teller Terminal
- Front desk card encoders

Specifications

Part number		3S4YR-MVF	3S4YR-MVS
Recommended card type	Magnetic card	ISO 7810, 7811/1-5, 7812, 7813. Please inquire if using high-coercivity cards.	
	IC card (see Note 1)	ISO 7816/1-4 (T=0 and/or T=1)	
Recording method		FM decoding (F2F)	
Card feeding speed		20 cm/sec (8 in/sec) in normal operation; 5 cm/sec (2 in/sec) IC card handling	
Location of magnetic stripe		Installation	At bottom
Motor type		DC motor	
Service life (see note 2)	Entire unit	1,500,000 passes or 5 years, whichever comes first	
	IC contact	300,000 times	
Operating power supply		24 VDC ± 10%	100 VAC to 240 VAC (± 10%)
Current consumption		2.0 A or less when motor revolution starts; 500 mA in standby mode	
Mounting location		Indoors — away from wind, rain, and sunlight	
Ambient temperature	Operation	5° to 55°C (41° to 131°F)	0° to 40° C (32° to 104°F)
	Storage	-25° to 55°C (-13° to 131°F)	-25° to 55° C (-13° to 131°F)
Ambient humidity	Operation	5% to 85% RH, no condensation	35% to 85% RH, no condensation (see note 3)
	Storage	5% to 90% RH, no condensation	5% to 90% RH, no condensation (see note 3)
Vibration		10 to 150 Hz and single vibration width of 0.15 mm or an acceleration of 2 G (19.6 m/sec^2), whichever is smaller	
Shock		20 G in six directions (up and down, left and right, forward and back, 3 times in each direction)	
Dimensions (with shutter)		210L x 124W x 90H mm (8.27L x 4.88W x 3.54H in)	271L x 130W x 154H mm (10.67L x 5.12W x 6.06H in)
Weight		Approx. 2 kg (4.41 lbs)	Approx. 4.5 kg (9.92 lbs.) without attachment

Note 1: Please request confirmation on specific IC card compatibility, including EMV (Europay / Mastercard / Visa) and memory cards.
2: One pass denotes one round trip.
3: Absolute air humidity in operation is 23 g/m^3 or less. In storage, absolute air humidity is 40 g/m^3 or less.

Engineering Data

■ I/O INFORMATION

RS-232C Interface automatically recognizes data transmission speeds of 1200, 2400, 4800, 9600, and 19200 baud.

3S4YR-MVFW1JD RS-232C Interface

Card reader side:
JAE 9-pin D-Sub socket, DELC-J9SAF-10L9.

Pin #	Signal	Input/Output	Description
1	NC	—	Not connected
2	RXD	Input	Receive data
3	TXD	Output	Transmit data
4	DTR	Output	Data terminal ready
5	GND	—	Ground
6	NC	—	Not connected
7	NC	—	Not connected
8	CTS	Input	Clear to send
9	NC	—	Not connected

3S4YR-MVFW1JD Power Interface

Card reader side:
Molex 4 node, 2.54 mm pitch in serial 5046-04A.

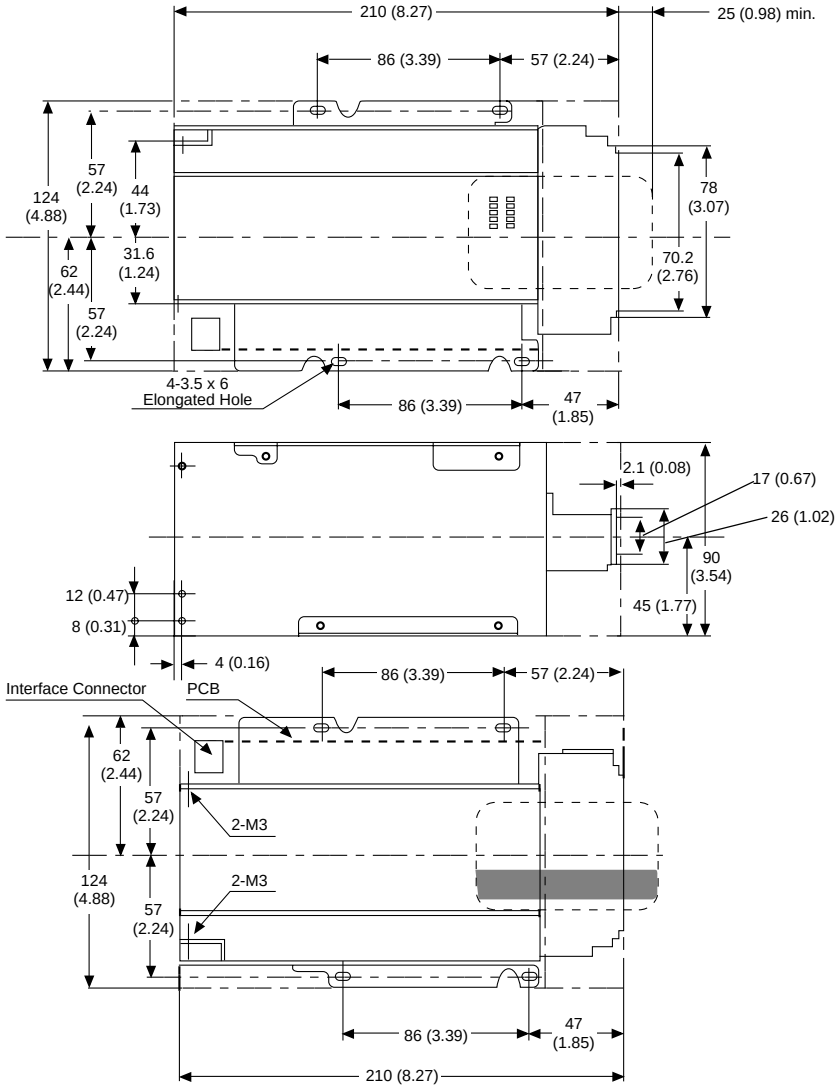
Pin #	Signal	Input/Output	Description
1	+24V	—	Power supply
2	GND	—	Power ground
3	XGND	—	Secondary power ground
4	X24V	—	Secondary supply

Dimensions

Unit: mm (inch)

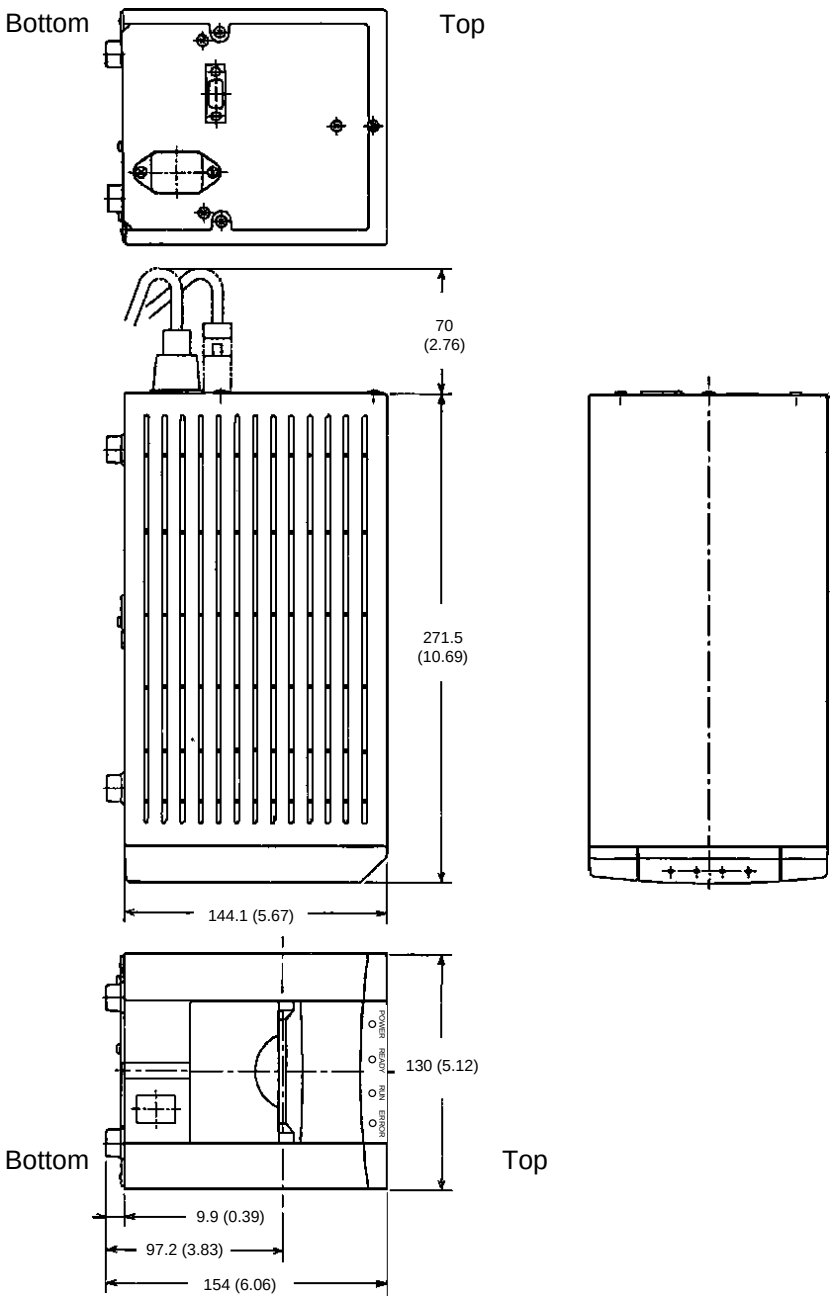
■ 3S4YR-MVF with shutter

(Also available without shutter.)



■ 3S4YR-MVS

Unit: mm (inch)



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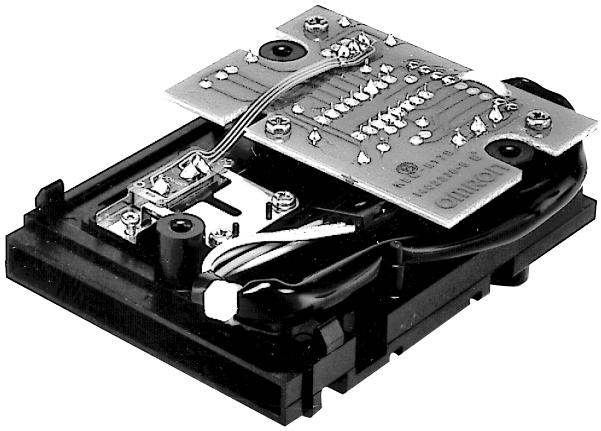
OMRON®

Manual Insert Magnetic Card Reader | 3S4YR-SBR

Compact, Highly Reliable Insert Reader Reads 62% of Magnetic Track

- Effective strip length of 46.6 mm max.
- Microswitches incorporated for card detection
- Slim package
- Wide operating temperature range
- Housing compatible with SCR type for easy conversion to IC card
- TTL-compatible interface (clock & data)



Ordering Information

Magnetic Tracks Supported (R, R/W)										
1	2	3	Center	JIS II	IC contact	Interface	Cable	Cover	Color	**Part Number**
R	—	—	—	—	No	TTL	No	No	Black	**3S4YR-SBR3-20**
—	R	—	—	—	No	TTL	No	No	Black	**3S4YR-SBR4-20**
—	—	R	—	—	No	TTL	No	No	Black	**3S4YR-SBR5-20**
R	R	—	—	—	No	TTL	No	No	Black	**3S4YR-SBR6-20**
—	R	R	—	—	No	TTL	No	No	Black	**3S4YR-SBR7-20**

■ TYPICAL APPLICATIONS

- Access Control
- Time and Attendance
- ID Card Checkers
- Electronic Locks
- Remote Terminals for Computers
- Telephones
- Vending
- Gaming Machines

Specifications

Part number		3S4YR-SBR
Recommended card type	Magnetic card	ISO 7810, 7811/1-5, 7812, 7813
Recording method		FM decoding (F2F)
Card feeding speed		10 to 100 cm/sec (4 to 39 in/sec)
Service life/magnetic head	Single track	300,000 passes min.
	Double track	300,000 passes min.
Operating power supply		5 VDC ± 10%
Current consumption	Single track	25 mA max.
	Double track	50 mA max.

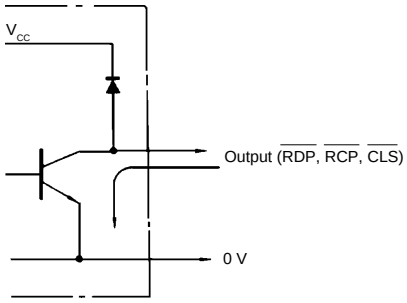
Specifications continued on next page

Specifications, continued

Mounting location		Anywhere not directly subject to water drops or sunlight.
Ambient temperature	Operation	-10° to 55°C (14° to 131°F)
	Storage	-20° to 70°C (-4° to 158°F)
Ambient humidity	Operation	10% to 95% RH without condensation
	Storage	10% to 95% RH
Vibration		10 to 55 Hz, 2 mm double amplitude, for 30 minutes in each of X, Y, and Z directions.
Shock		300 m/sec^2 (30 G) in each of X, Y, and Z directions
Dimensions		87L x 60W x 21.5H mm (3.43L x 2.36W x 0.85H in)
Weight		Approx. 50 g (1.8 oz)

Engineering Data

■ OUTPUT CIRCUIT DIAGRAM



Output signal levels
V_{OL} = 0.4 V at 16 mA
V_{CC} = 5.5 at 2 mA

■ I/O INFORMATION

3S4YR-SBR 3,4,5-20 Connector

10-pin JAE single-pin header part number IL-10P-S3FP2-1.
Connector JAE part number IL-10S-S3L-N.

Pin #	Signal	Input/Output	Description
1	NC	—	Not connected
2	$\overline{RDP}$	Output	Read data
3	$\overline{RCP}$	Output	Read clock
4	$\overline{CLS}$	Output	Card load
5	SW1-COM	Output	Card detection for rear
6	SW1-NO	Input	Card detection for rear
7	SW2-COM	Output	Card detection for front
8	SW2-NO	Input	Card detection for front
9	5 VDC	—	V_{cc}
10	0 V	—	Ground

3S4YR-SBR 6,7-20 Connector

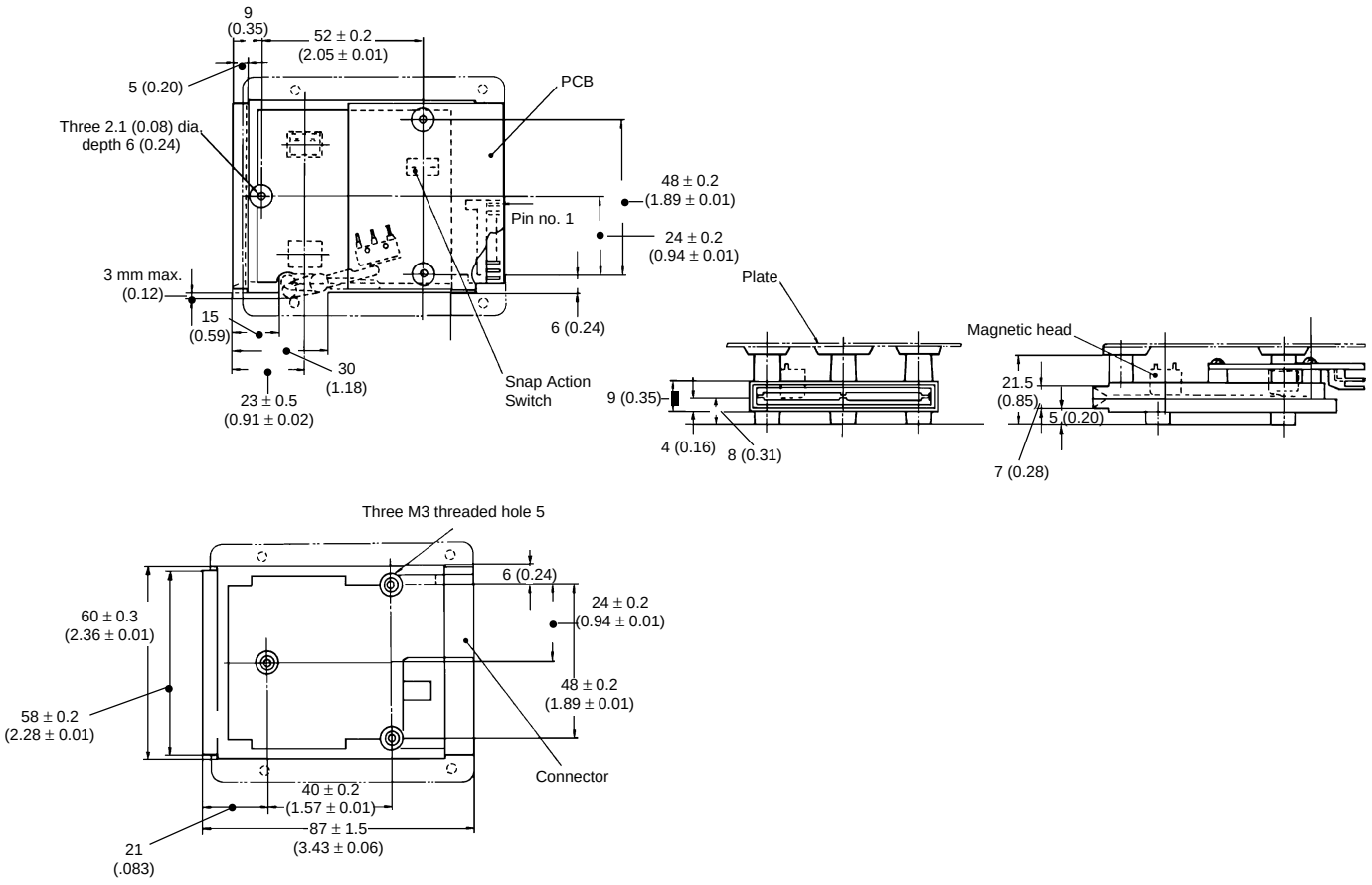
12-pin JAE angle pin header part number IL-12P-S3FP2-1.
Connector JAE part number IL-12S-S3L-N.

Pin #	Signal	Input/Output	Description
1	$\overline{RDP1}$	Output	Read data, track 1 or 3
2	$\overline{RCP1}$	Output	Read clock, track 1 or 3
3	$\overline{CLS1}$	Output	Card load, track 1 or 3
4	$\overline{RDP2}$	Output	Read data, track 2
5	$\overline{RCP2}$	Output	Read clock, track 2
6	$\overline{CLS2}$	Output	Card load, track 2
7	SW1-COM	Output	Card detection for rear
8	SW1-NO	Input	Card detection for rear
9	SW2-COM	Output	Card detection for front
10	SW2-NO	Input	Card detection for front
11	5 VDC	—	V_{cc}
12	0 V	—	Ground

Dimensions

Unit: mm (inch)

■ 3S4YR-SBR



Note: Unless otherwise indicated, tolerance is ±0.3.

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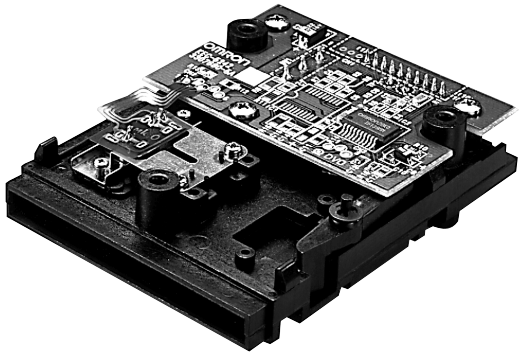
Manual Insert Magnetic Card Reader | 3S4YR-SBRN

Compact, Highly Reliable Insert Reader Reads 62% of Magnetic Track

- Effective strip length of 46.6 mm max.
- Microswitches incorporated for card detection
- Wide operating temperature range
- Low power CMOS technology
- Current save mode
- Housing compatible with SCR type for easy conversion to IC cards
- TTL-compatible interface (clock & data)



Ordering Information

Magnetic Tracks Supported (R, R/W)										
1	2	3	Center	JIS II	IC Contact	Interface	Cable	Cover	Color	**Part Number**
R	—	—	—	—	No	TTL	No	No	Black	**3S4YR-SBR3N-50**
—	R	—	—	—	No	TTL	No	No	Black	**3S4YR-SBR4N-50**
—	—	R	—	—	No	TTL	No	No	Black	**3S4YR-SBR5N-50**

Note: Consult the *IC Card Basics* section of this catalog for IC contact descriptions.

■ TYPICAL APPLICATIONS

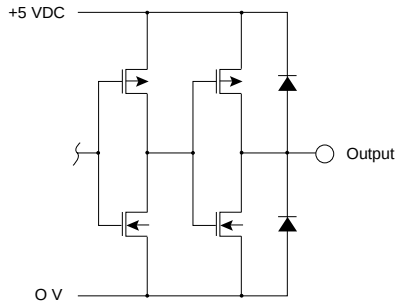
- Access Control
- Time and Attendance
- Remote Terminals for Computers
- Telephones
- Electronic Locks
- Vending
- ID Card Checkers
- Gaming Machines

Specifications

Part number		3S4YR-SBRN
Recommended card type	Magnetic head	ISO 7810, 7811/1-5, 7812, 7813. Please inquire if using high-coercivity cards.
Card feeding speed		10 to 100 cm/sec (4 to 39 in/sec)
Service life	Magnetic head	300,000 passes (one round trip)
	PCB	50,000 hours
Operating power supply		5 VDC ± 10%
Current consumption	Operation	5 mA max., 3 mA mean
	Standby	1.5 mA max., 1 mA mean
Mounting location		Indoors away from wind, rain and sunlight.
Ambient temperature	Operation	-10° to 55°C (14° to 131°F)
	Storage	-30° to 70°C (-22° to 158°F)
Ambient humidity	Operation	10% to 95% RH without condensation
	Storage	10% to 95% RH without condensation
Vibration		10 to 55 Hz, 2 mm double amplitude, for 30 minutes in X, Y, and Z directions.
Shock	Storage	300 m/sec^2 (30 G) three times in each of X, Y, and Z directions for a total of 18 times.
Dimensions		78L x 60W x 21.5H mm (3.07L x 2.36W x 0.85H in)
Weight		50 g (1.8 oz)

Engineering Data

■ OUTPUT CIRCUIT DIAGRAM



Output signal levels:

V_{OL} = 0.4 V at 4 mA

V_{OH} = 3.5 V at 1 mA

■ I/O INFORMATION

3S4YR-SBR4N-50

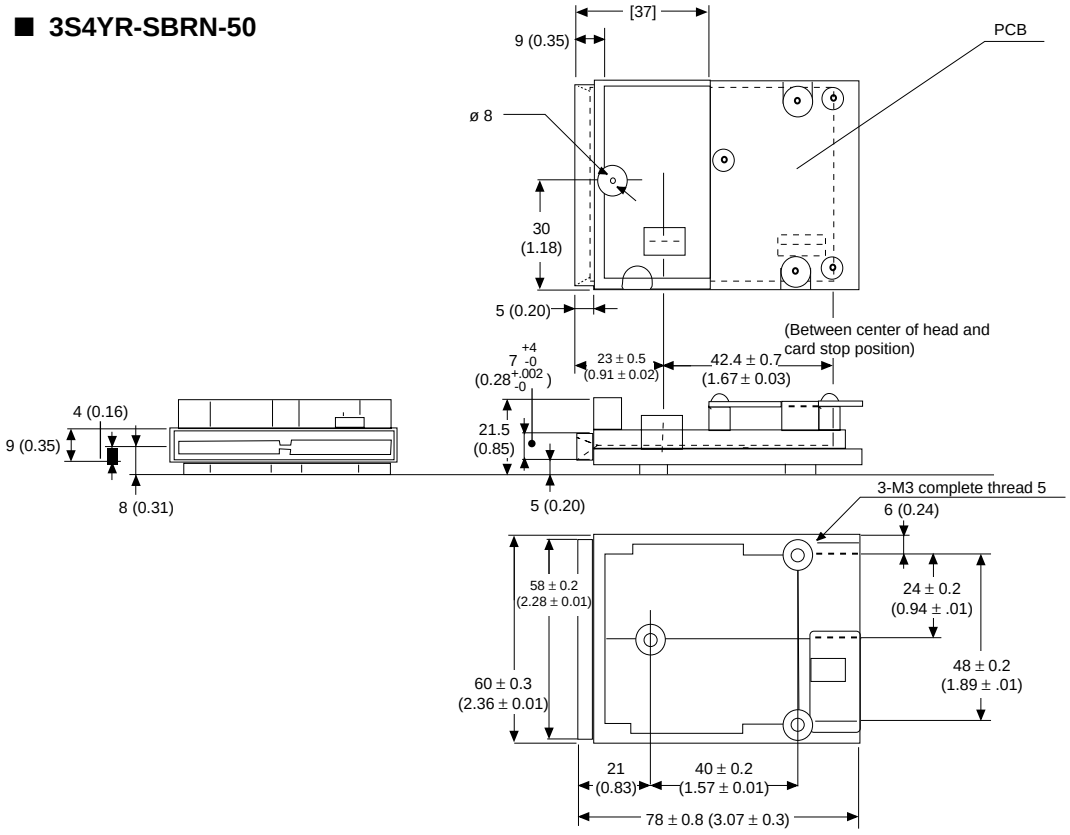
10-pin JAE single-pin header part number IL-10P-S3FP2-1.
Connector JAE part number IL-10S-S3L-N.

Pin #	Signal	Input/Output	Description
1	NC	—	Not connected
2	$\overline{RDP}$	Output	Read data
3	$\overline{RCP}$	Output	Read clock
4	$\overline{CLS}$	Output	Card load
5	SW1-COM	Output	Card detection for rear
6	SW1-NO	Input	Card detection for rear
7	SW2-COM	Output	Card detection for front
8	SW2-NO	Input	Card detection for front
9	5 VDC	—	V_{cc}
10	0 V	—	Ground

Dimensions

Unit: mm (inch)

■ 3S4YR-SBRN-50



NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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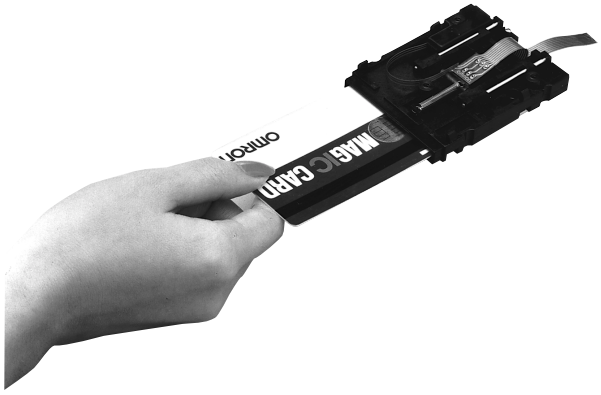
OMRON®

Manual Insert IC Card Connector | 3S4YR-SCR

Economical, Manual Insert IC Card Connector

- Slim profile for compact design
- ISO 7816 chip location
- Housing compatible with Omron's SBR type for easy upgrade to IC cards
- Wide operating temperature range



Ordering Information

Magnetic Tracks Supported (R, R/W)					IC Contact	Interface	Cover	Cable	Color	Part Number
1	2	3	Center	JIS II						
—	—	—	—	—	ISO 7816	Contact	No	FPC	Black	**3S4YR-SCR0J**
—	—	—	—	—	ISO 7816	Contact	No	FPC	Black	**3S4YR-SCR0J-002**

Note: Consult the IC Card Basics section of this catalog for IC contact descriptions.

■ TYPICAL APPLICATIONS

- ID Control
- Access Control
- Time and Attendance Control
- Telecommunications
- Vending Machines
- Electronic Purse Systems
- Data Capturing
- Pre-Paid Systems

Specifications

Part number		3S4YR-SCR
Recommended card type	IC Card	ISO 7816
Contact resistance		500 mΩ max. between contact springs; 1 Ω max. between two FPC terminal tips
Card inserting force		1 kg max.
Card extracting force		Approx. 100 g to 500 g
Card feeding speed		100 cm/sec (39 in/sec) max.
Service life		300,000 passes min.
Load voltage	Card set switch	30 VDC max.
Current carrying capacity	Card set switch	1 mA to 10 mA
Mounting location		Indoors
Ambient temperature	Operation	-25° to 75°C (-13° to 167°F)
	Storage	-40° to 85°C (-40° to 185°F)
Ambient humidity	Operation	10% to 95% RH without condensation
	Storage	10% to 95% RH
Vibration		30 to 200 Hz (3 G) for 25 minutes in each of X, Y and Z directions
Shock		400 m/sec^2 (40 G) in each of X, Y and Z directions
Dimensions		78L x 60W x 13.5H mm (3.07L x 2.36W x 0.53H in)
Weight		Approx. 40 g (1.42 oz)

Engineering Data

■ I/O INFORMATION

3S4YR-SCR FPC Interface Cable

Recommended Molex connectors part numbers 52103-1017, 52030-1010 and 52043-1010.

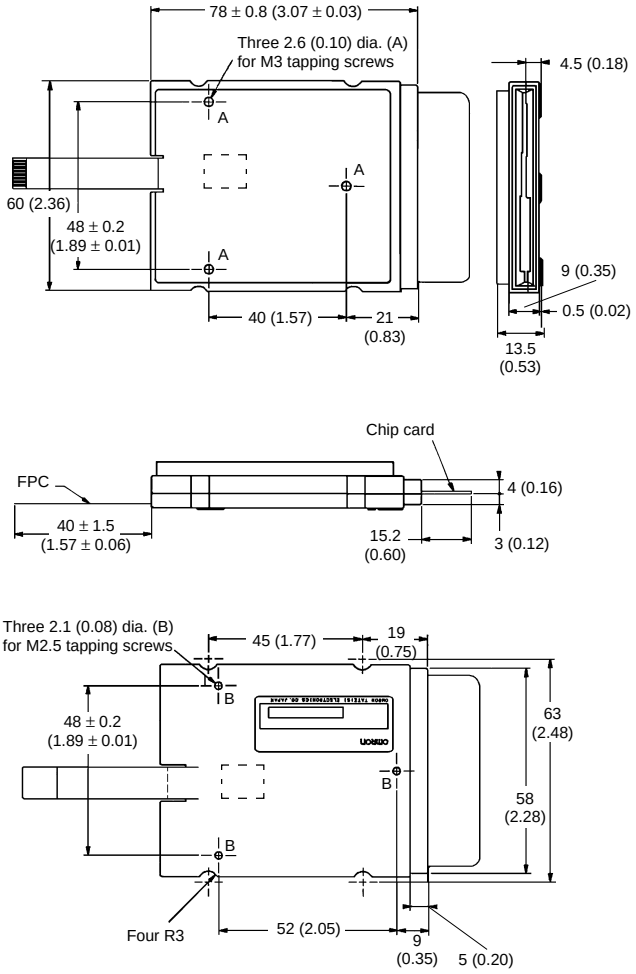
Pin #	Signal	Input/Output	Description
1	SWC	Input	Card detection signal
2	SWA	Output	Card detection signal
3	V_{cc} (C1)	◆	Circuit supply voltage
4	GND (C5)	◆	Zero voltage
5	RST (C2)	◆	Reset signal
6	VPP (C6)	◆	Programming voltage
7	CLK (C3)	◆	Clock signal
8	I/O (C7)	◆	Data input/output
9	RFU	◆	Reserved for future use
10	RFU	◆	Reserved for future use

◆ = Direct IC Contact

Dimensions

Unit: mm (inch)

■ 3S4YR-SCR



Note: Unless otherwise noted, tolerance is ±0.3 mm.

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OMRON®

Insert Magnetic/IC Card Reader | 3S4YR-SGR

Compact Insert Reader with Magnetic and IC Card Interface

- Ideally suited for applications using hybrid magnetic stripe and IC cards
- Landing-style IC contact supports both ISO and CP8 chip contact locations
- Red and green LEDs for operation status indication
- Solenoid-controlled IC card release mechanism
- Configurations available to read on card push or pull
- TTL-compatible interface

Ordering Information

Magnetic Tracks Supported (R, R/W)												
1	2	3	Center	JIS II	IC Contact	Interface	Mag Read Direction	Solenoid	Cover	Cable	Color	**Part Number**
—	—	—	—	—	ISO 7816	TTL	—	Yes	No	No	Black	**3S4YR-SGR0J**
R	R	R	—	—	ISO 7816	TTL	Push	Yes	No	No	Black	**3S4YR-SGR1J**
R	R	R	—	—	ISO 7816, CP8	TTL	Push	Yes	No	No	Black	**3S4YR-SGR1X**
R	R	R	—	—	—	TTL	Push/pull	No	No	No	Black	**3S4YR-SGR1N**
—	R	—	—	—	ISO 7816	TTL	Push	Yes	No	No	Black	**3S4YR-SGR4J**
—	R	—	—	—	—	TTL	Push/pull	No	No	No	Black	**3S4YR-SGR4N**
R	R	—	—	—	ISO 7816	TTL	Push	Yes	No	No	Black	**3S4YR-SGR6J**
R	R	—	—	—	—	TTL	Push/pull	No	No	No	Black	**3S4YR-SGR6N**
—	R	R	—	—	ISO 7816	TTL	Push	Yes	No	No	Black	**3S4YR-SGR7J**
—	R	R	—	—	—	TTL	Push/pull	No	No	No	Black	**3S4YR-SGR7N**

Note: Consult the *IC Card Basics* section of this catalog for IC contact descriptions.

■ TYPICAL APPLICATIONS

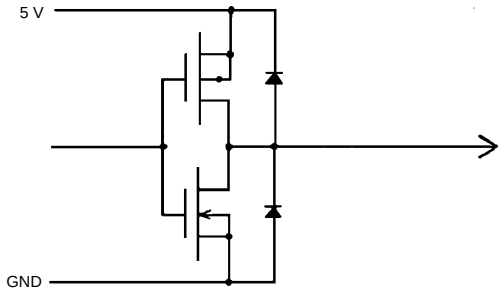
- Remote Terminals for Computers
- Credit Card Readers
- ID Card Checkers
- Electronic Locks
- Automatic Gate Machines
- POS Terminals
- ATMs
- Gas Pump Control
- Vending Machines
- Pre-Paid Systems
- Kiosks

Specifications

Part number		3S4YR-SGR (except 0J)	3S4YR-SGR0J
Recommended card type	Magnetic card	ISO 7810 - 7813	
	IC card	ISO 7816/1-2	
Service life	Mag head	300,000 passes (preliminary)	
	IC contact	500,000 passes (preliminary)	
Operating power supply		5 VDC ± 5%	
Card feed speed		100 to 800 mm/sec.	
Current consumption		2.5 A max. (during solenoid release), 100 mA typ.	
Mounting location		Indoors — away from wind, rain, sunlight, and dust	
Ambient temperature		0° to 45°C (32° to 113°F)	
Ambient humidity	Operation	30% to 85% RH without condensation and frost formation	
Vibration		10-150 Hz, single vibration width of 0.15 mm or on acceleration of 2 G (19.6 m/s^2), whichever is smaller	
Shock		20 G (196 m/s^2) in X, Y, and Z directions, respectively	
Dimensions		126L x 76W x 30H mm (4.96L x 2.99W x 1.18H in)	126L x 76W x 25H mm (4.96L x 2.99W x 0.98H in)
Weight		Approx. 100 g (3.5 oz)	

Engineering Data

■ I/O INFORMATION



Output signal levels

V_{OL} = 0.4 V at 5 mA

V_{OH} = 2.8 at 0.1 mA

■ I/O INFORMATION

3S4YR-SGR

7626-5002SC (3M:26 pin), MIL-C-83503A conformed.

Pin #	Signal	Input/Output	Description
1	$\overline{\text{RDT1}}$	Output	Read data, track 1
2	$\overline{\text{RCL1}}$	Output	Read clock, track 1
3	$\overline{\text{RDT2}}$	Output	Read data, track 2
4	$\overline{\text{RCL2}}$	Output	Read clock, track 2
5	$\overline{\text{RDT3}}$	Output	Read data, track 3
6	$\overline{\text{RCL3}}$	Output	Read clock, track 3
7	$\overline{\text{P1}}$	Output	Card detection
8	$\overline{\text{P2}}$	Output	Card insertion completed
9	$\overline{\text{SLN}}$	Input	Solenoid ON
10	$\overline{\text{LED 1}}$	Input	LED1 (Red) ON
11	$\overline{\text{LED 2}}$	Input	LED 2 (Green) ON
12	$\overline{\text{CLS}}$	Output	Magnetic card loading
13	IGND	◆	IC contact C5

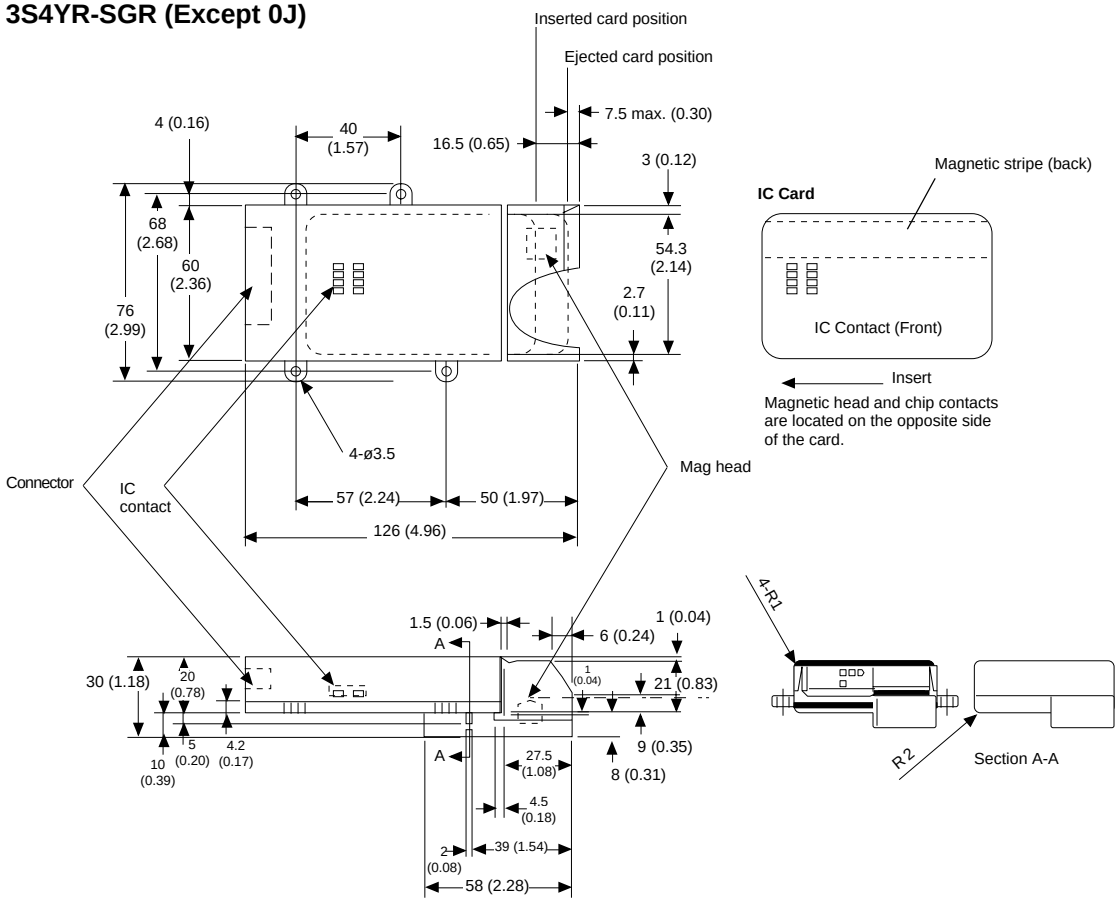
Pin #	Signal	Input/Output	Description
14	IVCC	◆	IC contact C1
15	IVPP	◆	IC contact C6
16	IRST	◆	IC contact C2
17	IDATA	◆	IC contact C7
18	ICLK	◆	IC contact C3
19	IRFV2	◆	IC contact C8
20	IRFV1	◆	IC contact C4
21	5VS	—	Power for solenoid
22	5VS	—	Power for solenoid
23	5V	—	Power for logic
24	0V	—	Ground
25	0V	—	Ground
26	0V	—	Ground

◆ = Direct IC Contact

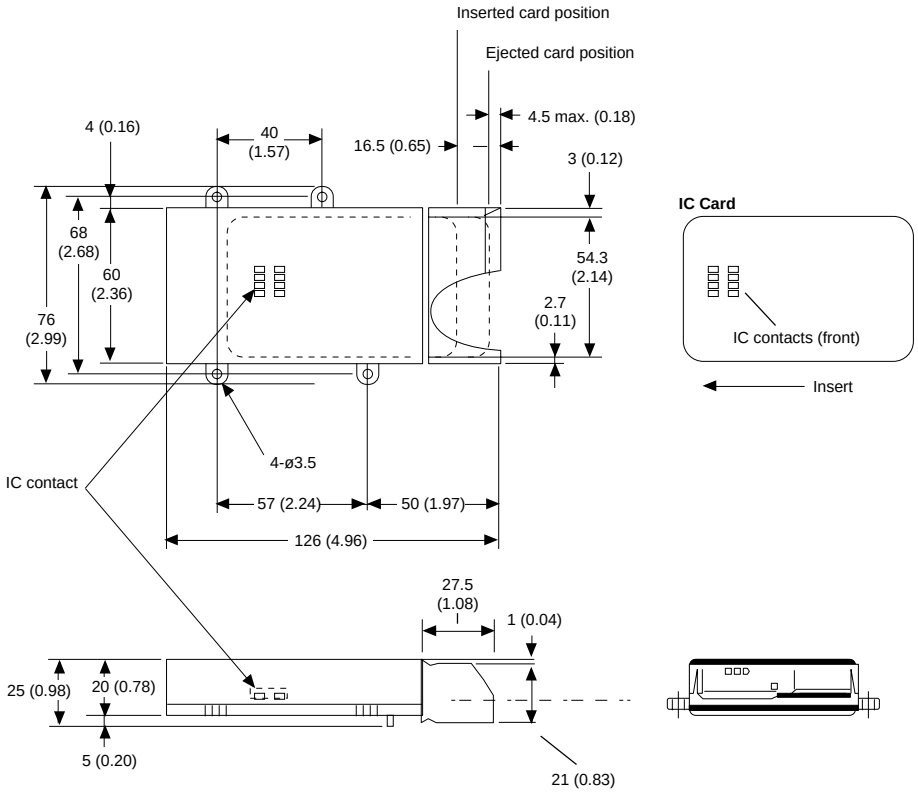
Dimensions

Unit: mm (inch)

■ 3S4YR-SGR (Except 0J)



■ 3S4YR-SGR0J



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OMRON®

Manual Insert IC Card Connector | 3S4YR-SHR

Ultra-Compact, Low-Cost Manual Insert IC Card Connector

- Very small profile for applications with limited space
- Lifts IC card onto contacts to reduce wear on the card
- Supports both ISO and CP8 chip contact locations
- Designed for direct mounting to PCB

Ordering Information

Magnetic Tracks Supported (R, R/W)										
1	2	3	Center	JIS II	IC Contact	Interface	Cover	Cable	Color	**Part Number**
—	—	—	—	—	ISO	Contact	No	No	Black	**3S4YR-SHR0J**
—	—	—	—	—	ISO, CP8	Contact	No	No	Black	**3S4YR-SHR0X**

Note: Consult the *IC Card Basics* section of this catalog for IC contact descriptions.

■ TYPICAL APPLICATIONS

- Pre-Paid Card Systems
- IC Credit Card Readers
- Time and Attendance Control
- Access Control
- Telecommunications
- Vending Machines
- ID Control
- Data Capturing

Specifications

Part number		3S4YR-SHR
Recommended card type	IC Card	ISO 7816/1-2
Contact resistance		500 mΩ max. between two terminals, using short-circuit card
Card inserting force		10 N max.
Card extracting force		1-5 N
Card insertion direction		push-type detection switch
Service life		300,000 passes min.
Load voltage	Card set switch	30 VDC max.
Current carrying capacity	Card set switch	0.1 A
Mounting location		Indoors

Specifications continued on next page

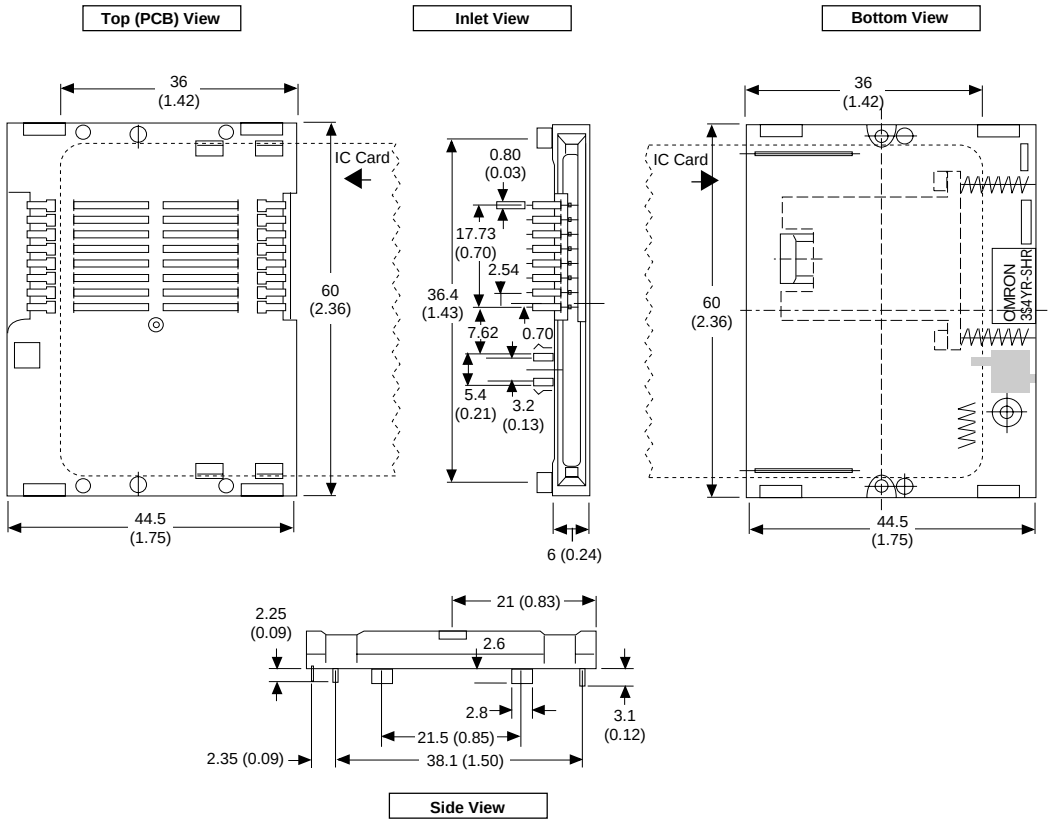
Specifications, continued

Ambient temperature	Operation	-25° to 75°C (-13° to 167°F)
	Storage	-40° to 85°C (-40° to 185°F)
Ambient humidity	Operation	10% to 95% RH without condensation
	Storage	10% to 95% RH without condensation
Vibration	Operation	10 to 150 Hz, half amplitude 0.15 mm (2 G max.)
Shock	Storage	196 m/s² (20 G)
Dimensions		60L x 44.5W x 6H mm (2.36L x 1.75W x 0.24H in)
Weight		50 g max. (1.76 oz)

Dimensions

Unit: mm (inch)

■ **3S4YR-SHR0X**



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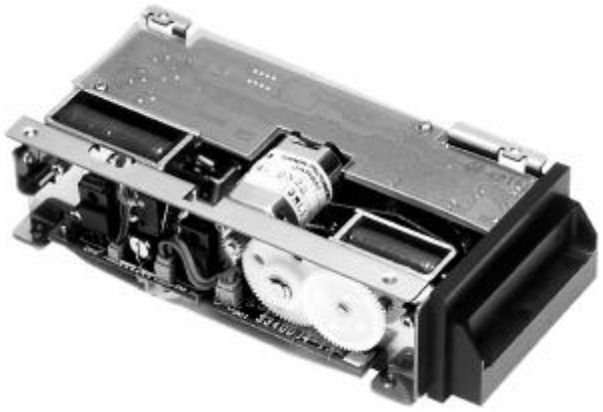
OMRON®

Motor Driven Card Reader/Writer — V2AF

Compact Hybrid Reader Handles Both Magnetic and IC Cards



- Highly compact motorized reader
- Reads single or triple track magnetic stripe
- Reads/writes both memory and smart cards
- Single-port RS-232C interface with user friendly command protocol for easy integration
- Downloadable firmware for specification updates, custom requirements, firmware updates, new smart card support
- Pin shutter prevents incorrect card insertion

Ordering Information

Magnetic tracks supported (R, R/W)					Item							
1	2	3	Center	JISII	IC contact	Interface	Built-in shutter	Card ejection	Cable	Cover	Color	**Part Number**
R	R	R	—	—	None	RS-232C	No	Front	No	No	Black	**V2AF-01**
—	R	—	—	—	None	RS-232C	No	Front	No	No	Black	**V2AF-04**
—	—	—	—	—	ISO 7816	RS-232C	Yes	Front	No	No	Black	**V2AF-00JP**
R	R	R	—	—	ISO 7816	RS-232C	Yes	Front	No	No	Black	**V2AF-01JP**
—	R	—	—	—	ISO 7816	RS-232C	Yes	Front	No	No	Black	**V2AF-04JP**

■ TYPICAL APPLICATIONS

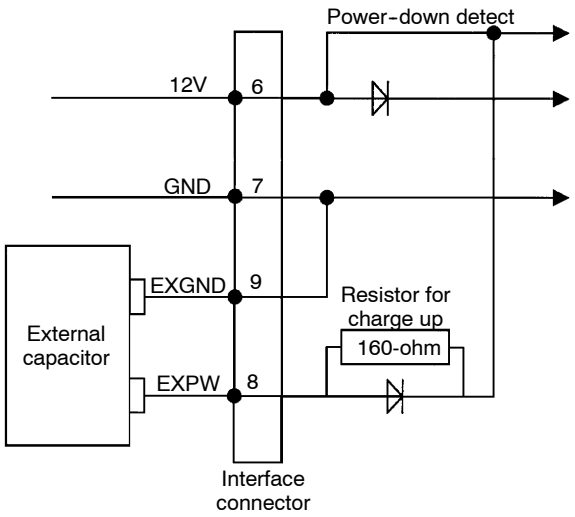
- Kiosks
- Vending Systems
- POS
- Ticketing Machines
- Access Control
- Electronic Money Reload Terminals
- Customer Loyalty

Specifications

Part number		V2AF
Recommended card type	Magnetic card	ISO 7810-7813
	IC (memory) card	Siemens SLE4418/28/32/42, others on request
	IC (smart) card	ISO 7816/1-3 (T=0, T=1), 3.5795 MHz and EMV 3.1.1
Magnetic reading method		FM Decoding (F2F)
Communication		RS232-C, 38400 bps max
Program downloading		512K bytes flash memory on board
Card feeding speed		25 cm/sec ±20% (normal operation)
Motor type		DC motor
Pin shutter		Normally open, automatically closed by solenoid
Service life	Card reader	600,000 passes (forward and reverse) or five years, whichever comes first
	IC contact	300,000
	Flash memory	100,000 download cycles minimum
Operating power supply	Primary	12V DC ±10% Can be connected through interface connector or power receptacle on reader
	Secondary	External capacitor (not supplied) for power failure shutdown
Current consumption	Maximum	2.0 A as IC card is pressed by solenoid
	Normal operation	1.0 A or less (read)
	Standby	500 mA or less
Mounting location		Anywhere not directly subject to water or rain
Mounting orientation		Stripe top or bottom
Ambient temperature	Operation	+5 to +50°C (+41 to +122°F)
	Storage	-20 to +70°C (-4 to +158°F)
Ambient humidity	Operation	5 to 85% RH, with no condensation and absolute air humidity of 23g/m^3 or less
	Storage	5 to 85% RH, with no condensation and absolute air humidity of 40g/m^3 or less
Vibration		10 to 150Hz and single vibration width of 0.1mm or an acceleration of 15m/s^2 (whichever is smallest)
Shock		150m/s^2 three times in six directions
Dimensions		145 L x 70 W x 36 H mm (5.71 L x2.76 W x 1.42 H)
Weight		Approx. 400g

Engineering Data

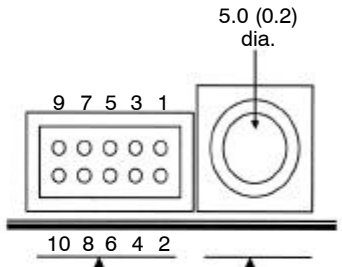
■ POWER SUPPLY CIRCUIT DIAGRAM



■ I/O INFORMATION

Primary interface coupler HIF3FC-10PA-2.54DS
(2.54mm pitch HIROSE) or equivalent

Pin #	Signal	Input/output	Function
1	TXD	Output	Transmit data
2	RXD	Input	Receive data
3	DTR	Output	Data Terminal Ready
4	CTS	Input	Clear to Send
5	SG	Input	0V
6	12V	Input	Power
7	GND	Input	GND
8	EXPW	Input	External capacitor
9	EXGND	Input	External capacitor GND
10	FG	Input	FG

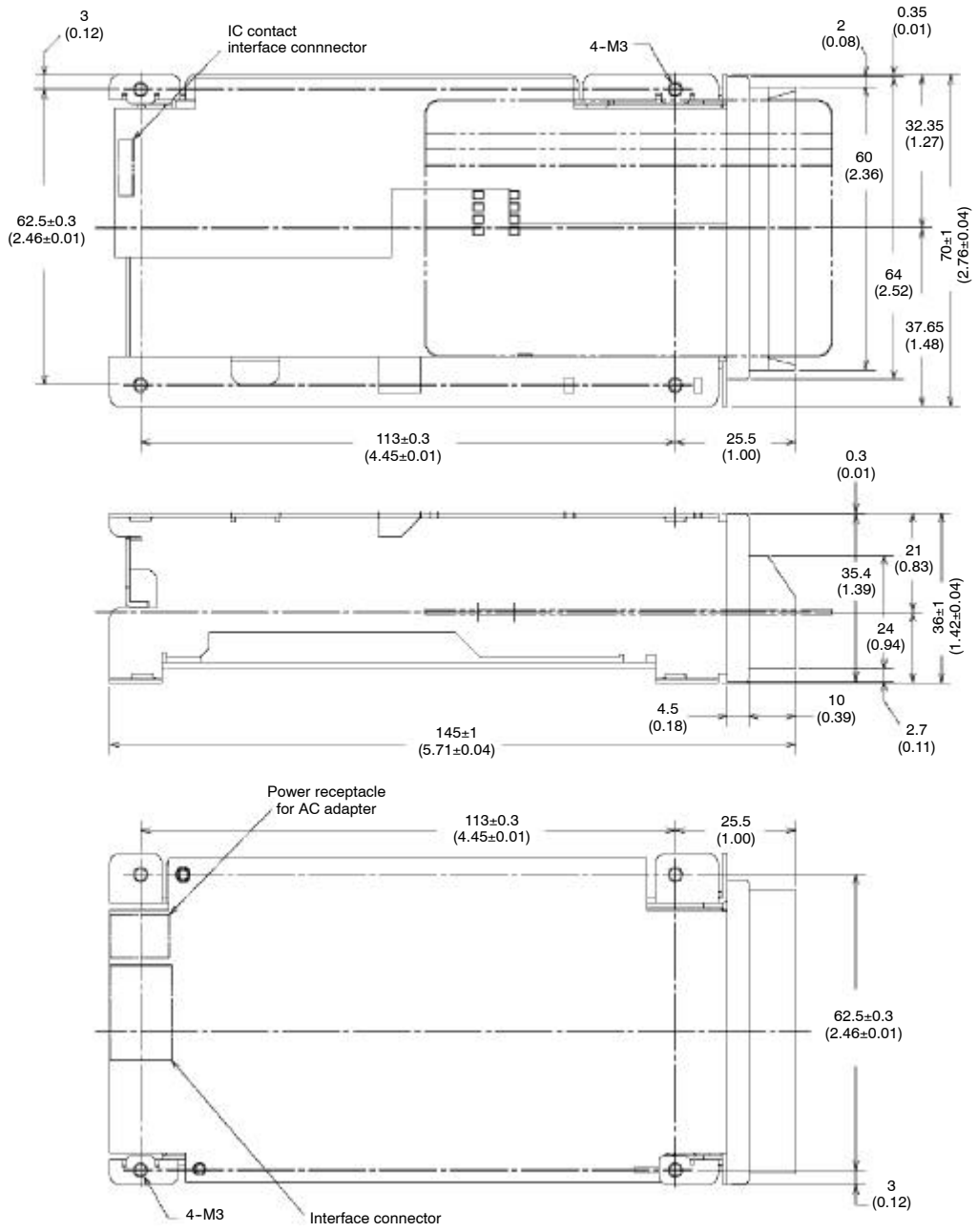


Power receptacle (AC adaptor connector)
LGP-3831-0200 (EIAJ standard RC-5310A)

Pin #	Signal	Function
1	N/C	
2	12C	Power
3	GND	GND
4	N/C	

Dimensions

Unit: mm (inch)



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OMRON®

Manual Swipe Magnetic Card Reader | V3A

Low Cost, Ultra-Compact, Manual Swipe Reader

- Low power C-MOS technology
- Multiple configurations
- TTL-compatible interface (clock & data)
- Available with or without cover

Ordering Information

Magnetic Tracks Supported (R, R/W)										
1	2	3	Center	JIS II	IC Contact	Interface	Cover	Cable	Color	**Part Number**
R	R	R	—	—	No	TTL	Yes	No	Ivory	**V3A-1K**
R	R	R	—	—	No	TTL	No	No	Ivory	**V3A-1**
R	—	—	—	—	No	TTL	Yes	No	Ivory	**V3A-3K**
R	—	—	—	—	No	TTL	No	No	Ivory	**V3A-3**
—	R	—	—	—	No	TTL	Yes	No	Ivory	**V3A-4K**
—	R	—	—	—	No	TTL	No	No	Ivory	**V3A-4**
—	—	R	—	—	No	TTL	Yes	No	Ivory	**V3A-5K**
—	—	R	—	—	No	TTL	No	No	Ivory	**V3A-5**
R	R	—	—	—	No	TTL	Yes	No	Ivory	**V3A-6K**
R	R	—	—	—	No	TTL	No	No	Ivory	**V3A-6**
—	R	R	—	—	No	TTL	Yes	No	Ivory	**V3A-7K**
—	R	R	—	—	No	TTL	No	No	Ivory	**V3A-7**
R	R	R	—	—	No	TTL	Yes	No	Black	**V3A-1KB**
R	R	R	—	—	No	TTL	No	No	Black	**V3A-1B**
—	R	—	—	—	No	TTL	Yes	No	Black	**V3A-4KB**
—	R	—	—	—	No	TTL	No	No	Black	**V3A-4B**
R	R	—	—	—	No	TTL	Yes	No	Black	**V3A-6KB**
R	R	—	—	—	No	TTL	No	No	Black	**V3A-6B**
—	R	R	—	—	No	TTL	Yes	No	Black	**V3A-7KB**
—	R	R	—	—	No	TTL	No	No	Black	**V3A-7B**

Note: Cable harness is included with all V3B models. It is optional for V3A.

■ ACCESSORIES

Item		**Part Number**
Cable harnesses	V3A-1	**V3A/B-1 CN Harness**
	V3A-3, 4, 5	**V3A-4 CN Harness**
	V3A-6, 7	**V3A/B-6/7 CN Harness**

■ TYPICAL APPLICATIONS

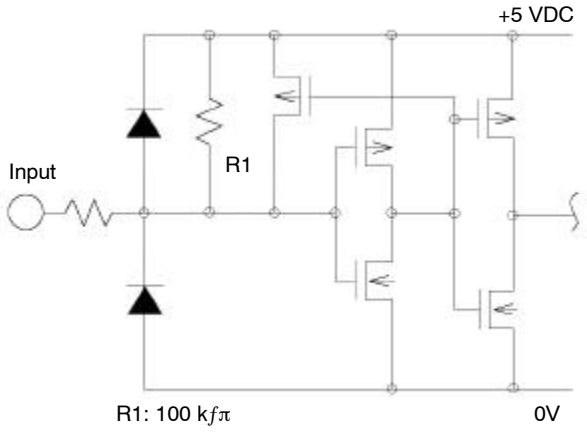
- Point-of Sale (POS) systems
- ID card checkers
- Club membership
- Access management
- Remote terminals for computers

Specifications

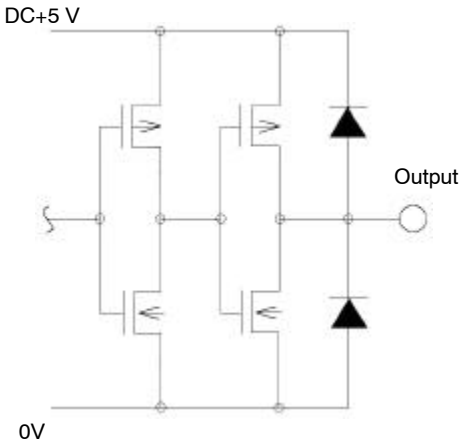
Part Number		V3A-□□
Recommended card type	Magnetic card	ISO 7810, 7811/1-6
Recording method		FM decoding (F2F)
Card feeding speed		10 to 120 cm/second (10 to 100 cm/sec triple track)
Service life of magnetic head		300,000 passes
Operating power supply		+5 VDC ±10%
Current consumption	Single track	3 mA typical, 5 mA maximum
	Dual track	6 mA typical, 10 mA maximum
	Triple track	9 mA typical, 15 mA maximum
Mounting location		Indoors—away from direct sunlight or wet, humid environment
Ambient temperature	Operation	-10° to 55°C (14°F to 131°F)
	Storage	-30° to 70°C (-22°F to 158°F)
Ambient humidity	Operation	30% to 85% RH
	Storage	20% to 90% RH
Vibration		10 to 150 Hz, single vibration width of 0.15 mm
Shock		Peak acceleration 19.6 m/sec^2
Dimensions	With cover	90 W x 26.5 H x 28 D mm (3.54 W x 1.04 H x 1.10 D in)
	Without cover	90 W x 24 H x 24 D mm (3.54 W x 0.94 H x 0.94 D in)
Weight		Approx. 45g with cover (30g without cover)

Engineering Data

■ INPUT CIRCUIT DIAGRAM



■ OUTPUT CIRCUIT DIAGRAM



■ I/O INFORMATION

Single Track Connector

9-pin Molex connector part number 53261-0990. Applicable Molex socket housing part number 51021-0900.

Pin #	Signal	Input/Output	Description
1	0 V	—	—
2	+5 VDC	—	—
3	$\overline{\text{CSV}}$	Input	Current save
4	$\overline{\text{CLS}}$	Output	Card loaded
5	$\overline{\text{RCP}}$	Output	Read clock
6	$\overline{\text{RDP}}$	Output	Read data
7	Not used	—	—
8	Not used	—	—
9	Not used	—	—

Double Track Connector

9-pin Molex connector part number 53261-0990. Applicable Molex socket housing part number 51021-0900.

Pin #	Signal	Input/Output	Description
1	0 V	—	—
2	+5 VDC	—	—
3	$\overline{\text{CSV}}$	Input	Current save
4	$\overline{\text{CLS2}}$	Output	Card loaded 2
5	$\overline{\text{RCP2}}$	Output	Read clock 2
6	$\overline{\text{RDP2}}$	Output	Read data 2
7	$\overline{\text{CLS1/3}}$	Output	Card loaded 1/3
8	$\overline{\text{RCP1/3}}$	Output	Read clock 1/3
9	$\overline{\text{RDP1/3}}$	Output	Read data 1/3

Triple Track Connector

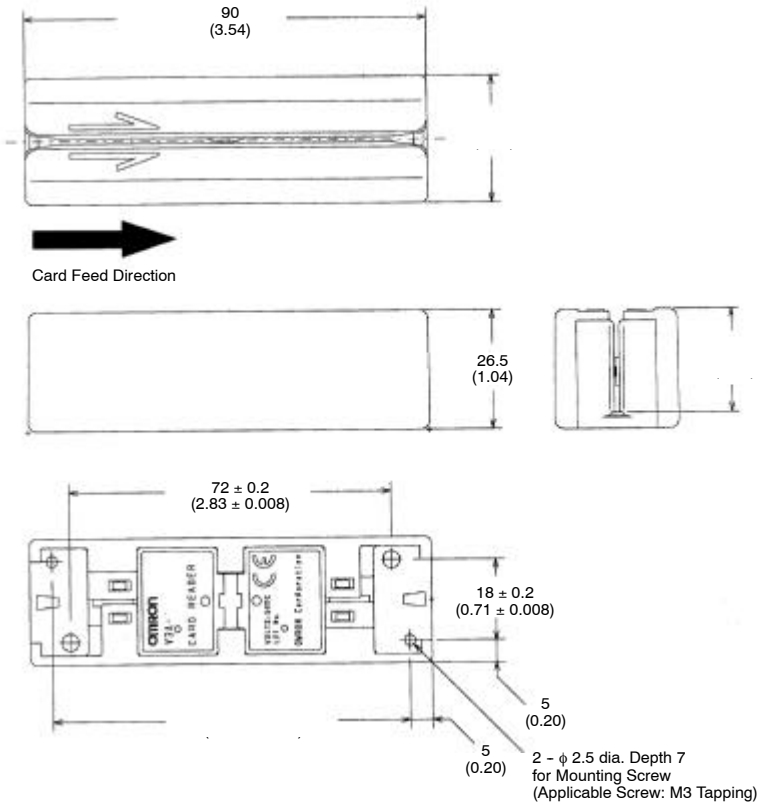
12-pin Molex connector part number 53048-1210. Applicable Molex socket housing part number 51021-1200.

Pin #	Signal	Input/Output	Description
1	0V	—	—
2	+5 VDC	—	—
3	$\overline{\text{CSV}}$	Input	Current save
4	$\overline{\text{CLS3}}$	Output	Card loaded 3
5	$\overline{\text{RCP3}}$	Output	Read clock 3
6	$\overline{\text{RDP3}}$	Output	Read data 3
7	$\overline{\text{CLS2}}$	Output	Card loaded 2
8	$\overline{\text{RCP2}}$	Output	Read clock 2
9	$\overline{\text{RDP2}}$	Output	Read data 2
10	$\overline{\text{CLS1}}$	Output	Card loaded 1
11	$\overline{\text{RCP1}}$	Output	Read clock 1
12	$\overline{\text{RDP1}}$	Output	Read data 1

Dimensions

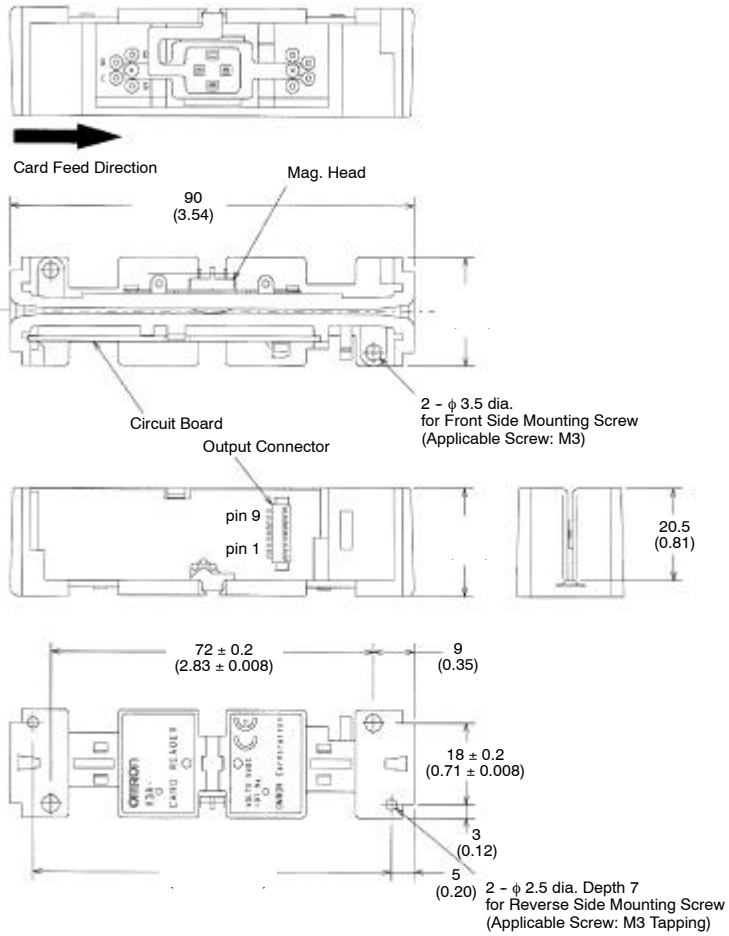
Unit: mm (inch)

■ V3A-4K



Note: Tolerances ±0.3mm unless specified

■ V3A-4



Note: Tolerances ±0.3mm unless specified

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OMRON®

Manual Swipe Magnetic Card Reader | V3B

Low Cost, Compact, Manual Swipe Reader

- Low power C-MOS technology
- Multiple configurations
- Same size as the Omron HSR series
- TTL-compatible interface (clock & data)
- Available with or without cover

Ordering Information

Magnetic Tracks Supported (R, R/W)										
1	2	3	Center	JIS II	IC Contact	Interface	Cover	Cable	Color	**Part Number**
R	R	R	—	—	No	TTL	Yes	Yes	Black	**V3B-1K**
R	R	R	—	—	No	TTL	No	Yes	Black	**V3B-1**
R	—	—	—	—	No	TTL	Yes	Yes	Black	**V3B-3K**
R	—	—	—	—	No	TTL	No	Yes	Black	**V3B-3**
—	R	—	—	—	No	TTL	Yes	Yes	Black	**V3B-4K**
—	R	—	—	—	No	TTL	No	Yes	Black	**V3B-4**
—	—	R	—	—	No	TTL	Yes	Yes	Black	**V3B-5K**
—	—	R	—	—	No	TTL	No	Yes	Black	**V3B-5**
R	R	—	—	—	No	TTL	Yes	Yes	Black	**V3B-6K**
R	R	—	—	—	No	TTL	No	Yes	Black	**V3B-6**
—	R	R	—	—	No	TTL	Yes	Yes	Black	**V3B-7K**
—	R	R	—	—	No	TTL	No	Yes	Black	**V3B-7**

Note: Cable harness is included with all V3B models. It is optional for V3A.

■ TYPICAL APPLICATIONS

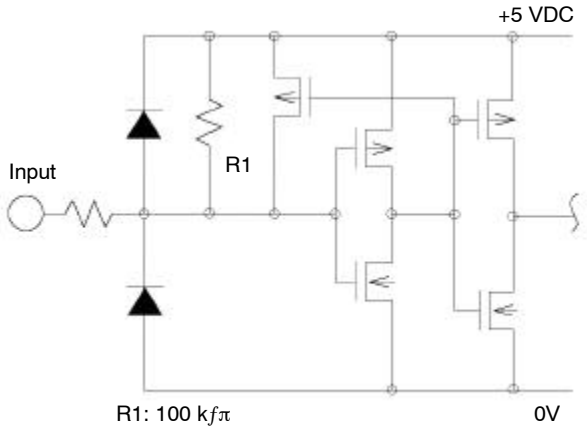
- Point-of Sale (POS) systems
- ID card checkers
- Club membership
- Access management
- Remote terminals for computers

Specifications

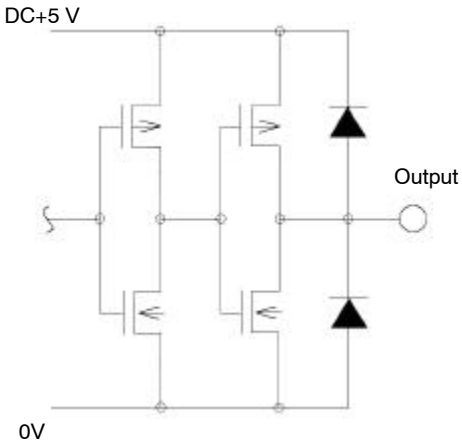
Part number		V3B-□□
Recommended card type		ISO 7810, 7811/1-6
Recording method		FM decoding (F2F)
Card feeding speed		10 to 120 cm/second (10 to 100 cm/sec triple track)
Service life of magnetic head		300,000 passes
Operating power supply		+5 VDC ±10%
Current consumption	Single track	3 mA typical, 5 mA maximum
	Dual track	6 mA typical, 10 mA maximum
	Triple track	9 mA typical, 15 mA maximum
Mounting location		Indoors—away from direct sunlight or wet, humid environment
Ambient temperature	Operation	−10° to 55°C (14°F to 131°F)
	Storage	−30° to 70°C (−22°F to 158°F)
Ambient humidity	Operation	30% to 85% RH without condensation
	Storage	20% to 90% RH
Vibration		10 to 150 Hz, single vibration, width of 0.15 mm
Shock		Peak acceleration 19.6 m/sec^2
Dimensions	With cover	100 W x 32 H x 32.5 D mm (3.94 W x 1.26 H x 1.28 D in)
	Without cover	100 W x 29.5 H x 27 D mm (3.94 W x 1.16 H x 1.06 D in)
Weight		Approx. 82 g with cover (52 g without cover)

Engineering Data

■ INPUT CIRCUIT DIAGRAM



■ OUTPUT CIRCUIT DIAGRAM



■ I/O INFORMATION

Single Track Connector Harness

5-pin Molex connector part number 51102-0500.

Pin #	Signal	Input/Output	Description
1	$\overline{\text{RDP}}$	Output	Read data
2	$\overline{\text{RCP}}$	Output	Read clock
3	$\overline{\text{CLS}}$	Output	Card loaded
4	+5 VDC	—	—
5	0 VDC	—	—

Double Track Connector Harness

9-pin Molex connector part number 51102-0900.

Pin #	Signal	Input/Output	Description
1	$\overline{\text{RDP1}}$	Output	Read data 1/3
2	$\overline{\text{RCP1}}$	Output	Read clock 1/3
3	$\overline{\text{CLS}}$1	Output	Card loaded 1/3
4	$\overline{\text{RDP2}}$	Output	Read data 2
5	$\overline{\text{RCP2}}$	Output	Read clock 2
6	$\overline{\text{CLS2}}$	Output	Card loaded 2
7	$\overline{\text{CSV}}$	Input	Current save
8	5V	—	—
9	0V	—	—

Triple Track Connector Harness

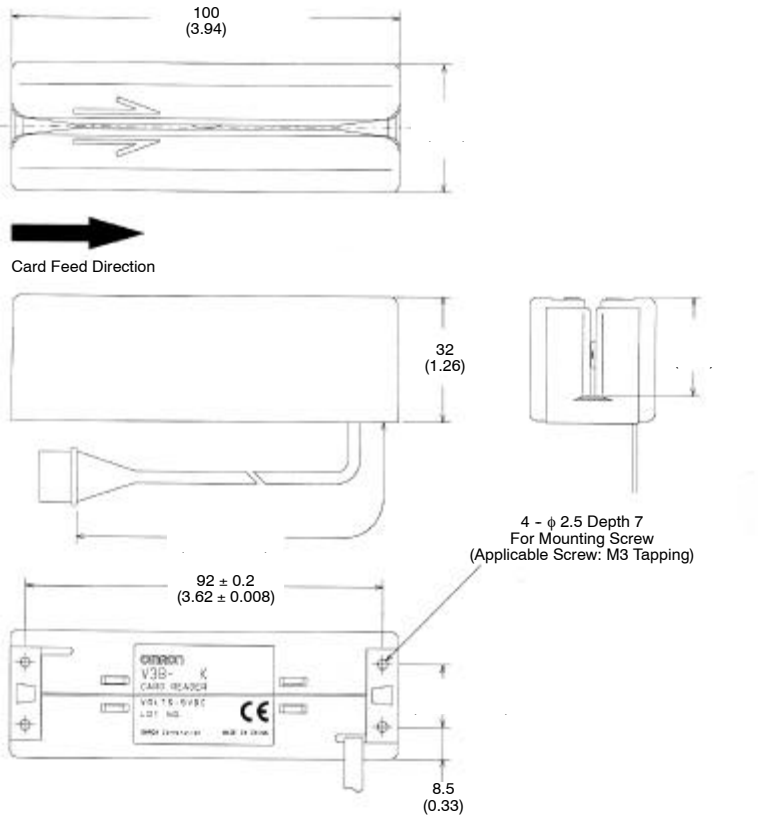
12-pin Molex connector part number 51102-1200.

Pin #	Signal	Input/Output	Description
1	$\overline{\text{RDP1}}$	Output	Read data 1
2	$\overline{\text{RCP1}}$	Output	Read clock 1
3	$\overline{\text{CLS1}}$	Output	Card loaded 1
4	$\overline{\text{RDP2}}$	Output	Read data 2
5	$\overline{\text{RCP2}}$	Output	Read clock 2
6	$\overline{\text{CLS2}}$	Output	Card loaded 2
7	$\overline{\text{RDP3}}$	Output	Read data 3
8	$\overline{\text{RCP3}}$	Output	Read clock 3
9	$\overline{\text{CLS3}}$	Output	Card loaded 3
10	$\overline{\text{CSV}}$	Input	Current save
11	5V	—	—
12	0V	—	—

Dimensions

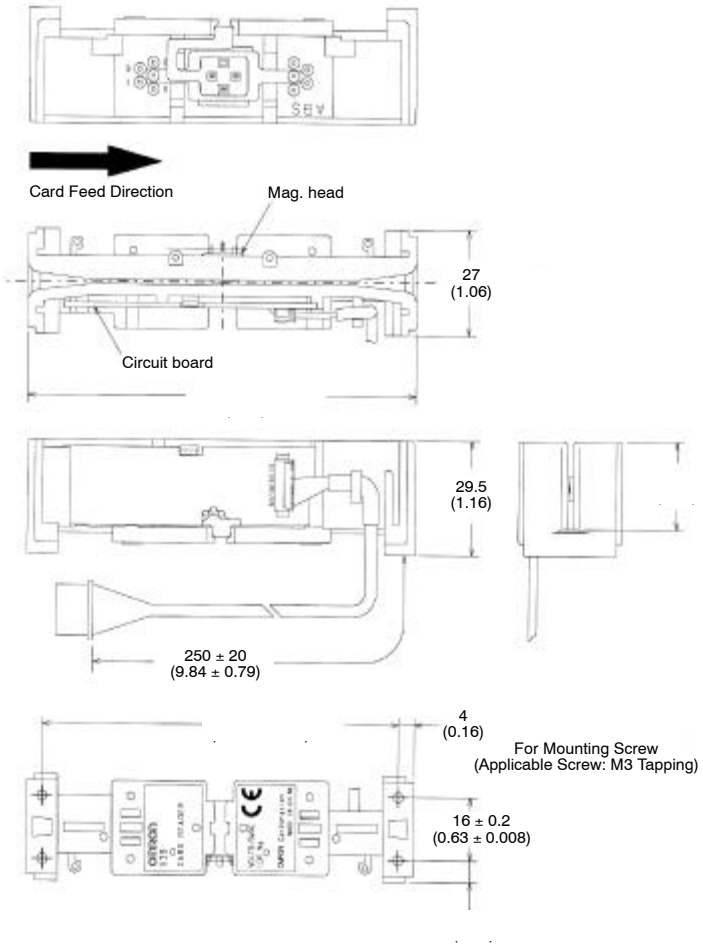
Unit: mm (inch)

■ V3B-□K



Note: Tolerances ±0.3mm unless specified

■ V3B-□



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OMRON®

Manual Swipe Magnetic Card Reader | V3TU

Compact Magnetic Swipe Card Reader With USB Interface

- Connects to PC via USB cable
- Reads up to 3 tracks simultaneously
- No external power supply required
- Software-selectable keyboard emulation or program modes

Ordering Information

Magnetic tracks supported (R, R/W)										
1	2	3	Center	JISII	IC contact	Interface (See note)	Cover	Cable	Color	**Part Number**
R	R	R	—	—	No	USB	Yes	Yes	Ivory	**V3TU-1**
—	R	—	—	—	No	USB	Yes	Yes	Ivory	**V3TU-4**
R	R	—	—	—	No	USB	Yes	Yes	Ivory	**V3TU-6**
—	R	R	—	—	No	USB	Yes	Yes	Ivory	**V3TU-7**

Note: If keyboard wedge interface is required, contact your local Omron representative.

■ TYPICAL APPLICATIONS

- Point-of-Sale (POS) Systems
- Credit Card Readers
- ID Card Checkers
- PC Peripherals

Specifications

Part number		V3TU
Recommended Magnetic card type		ISO 7810, 7811-1 to -5, 7812 & 7813
Recording method		F2F
Swipe direction		Single direction
Communication protocol		USB protocol revision 1.0
Card feeding speed		100 to 1,000 mm/sec. (3.93 to 39.4 in/sec.)
Interface connector		USB series B (female)
Mounting location		Indoors; away from rain, sunlight and dust
Power supply		USB cable
Current consumption		Operating: 100 mA (max.), Standby: 500 μA (max.)
Ambient temperature	Operation	0° to 40°C (32° to 104°F)
	Storage	−15° to 60°C (5° to 140°F)
Ambient humidity	Operation	30 to 80% RH, with no condensation and absolute air humidity of 23 g/m^3 or less
	Storage	20 to 90% RH, with no condensation and absolute air humidity of 40 g/m^3 or less
Vibration endurance		10 to 150 Hz/minute with 2.0 mm (0.08 in) X,Y,Z each direction for 15 min.
Shock endurance		196 m/s^2 (20 G)
Cable length		2m (6.56 ft)
Dimensions		120 L x 58.3 W x 39.5 H mm (4.72 L x 2.30 W x 1.56 H in)
Weight		Approx. 200 g (6.53 oz)
Service life		300,000 passes minimum

I/O Information

■ INTERFACE CONNECTOR

USB series B (female)

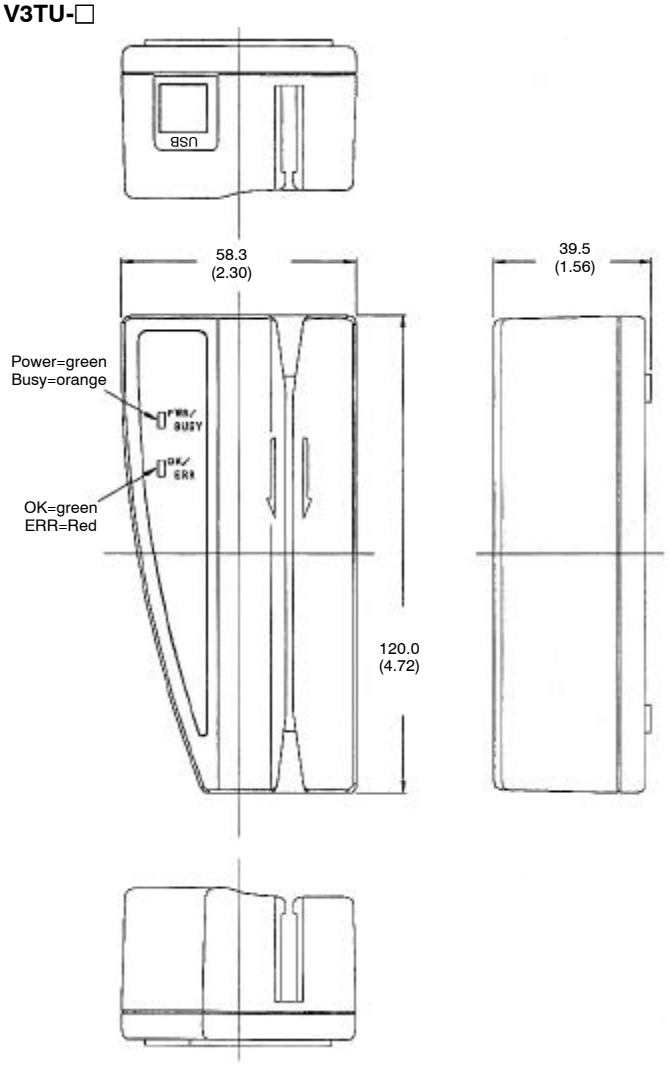
■ INTERFACE METHOD

USB protocol Revision 1.0

Dimensions

Unit: mm (inch)

V3TU-□



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OMRON

Manual Hybrid Card Reader

V4AF

Compact Manual Magnetic Stripe and IC Card Reader with RS-232C Interface

- Ideal for applications using magnetic and/or smart cards
- Supports transmission protocols T=0 and T=1; also supports EMV
- Landing contact method ensures longer contact service life
- Card lock mechanism protects data while communicating with a smart card (V4AF-0J and V4AF-1J only)
- Two LEDs indicate application status

Ordering Information

Magnetic Tracks Supported (R, R/W)										
1	2	3	Center	JIS II	IC Contact	Interface	Card Lock	Cable	Color	**Part Number**
—	—	—	—	—	ISO 7816	RS-232C	Yes	No	Black	**V4AF-0J-01V**
R	R	R	—	—	ISO 7816	RS-232C	Yes	No	Black	**V4AF-1J-01V**
R	R	R	—	—	—	RS-232C	No	No	Black	**V4AF-1N**

■ TYPICAL APPLICATIONS

- Electronic purse
- Vending machines
- ATMs
- POS terminals
- Access control
- Customer loyalty
- Kiosks

Specifications

Recommended card type	Magnetic card	ISO7810, 7811-1 to -5
	IC card	7816/1–4
Data transmission		1200, 2400, 4800, 9600, 19200, 38400 bps (automatically set)
Data mode		Asynchronous mode
Operating power supply		5 VDC ± 5%
Current consumption		1.34 A max. (card lock solenoid consumes 1.2 A max. when card is released; V4AF-1N is 100 mA max.)
Mounting location		Indoors away from rain, wind, sunlight and dust
Ambient temperature	Operation	0° to 45°C (32° to 113°F)
	Storage	–15° to 60°C (5° to 140°F)
Ambient humidity	Operation	30% to 85% RH (without condensation)
	Storage	20% to 90% RH (without condensation)
Durable vibration		10 to 150 Hz, single vibration width 0.15 mm or acceleration of 2 G (19.6 ms^2), whichever is smaller
Dimensions		76 (W) x 126 (D) x 34 (H) mm (V4AF-1J-01V)
Weight		Approx. 120 g
Service life	Magnetic head	300,000 times min.
	IC contact	500,000 times min.
	Solenoid	300,000 times min.
Interface connector		7610-5002SC (3M)

Engineering Data

■ I/O INFORMATION

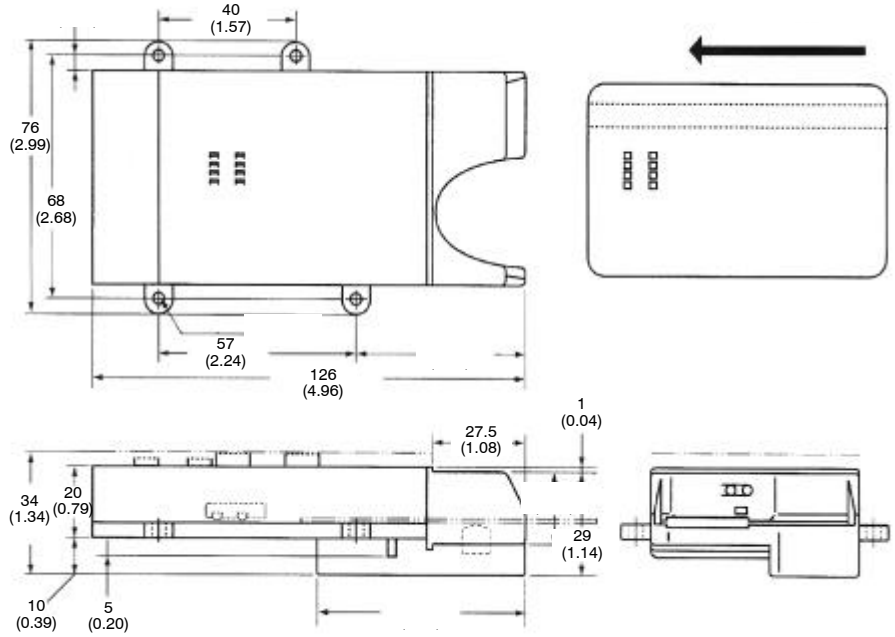
7610-5002SC (3M) interface cable pin location

Pin No.	Signal
1	TXD
2	RXD
3	DTR
4	CTS
5	0V
6	+5V
7	+5V
8	+5V
9	0V
10	0V

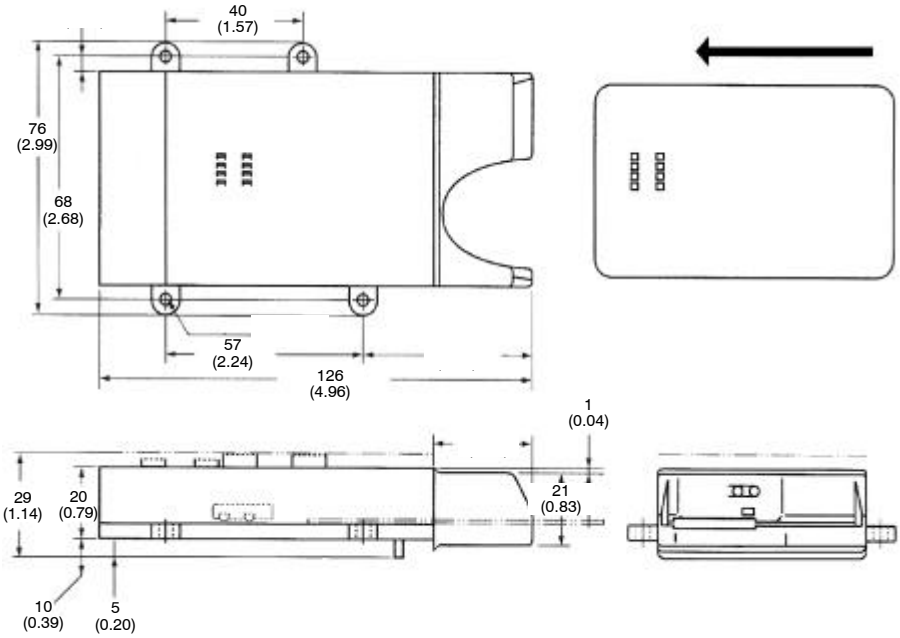
Dimensions

Unit: mm (inch)

■ V4AF-1J-01V, V4AF-1N



■ V4AF-0J-01V



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OMRON

Desktop Hybrid Card Reader

V4BF

Compact Manual Magnetic Stripe and IC Card Reader with RS-232C Interface and Housing

- Ideal for applications using magnetic and/or smart cards
- Supports transmission protocols T=0 and T=1; also supports EMV
- Landing contact method ensures longer contact service life
- Card lock mechanism protects data while communicating with a smart card (V4BF-0J and V4BF-1J only)
- Two LEDs indicate application status

Ordering Information

Magnetic Tracks Supported (R, R/W)											
1	2	3	Center	JIS II	IC Contact	Interface	Card Lock	Cable	Cover	Color	**Part Number**
—	—	—	—	—	ISO 7816	RS-232C	Yes	Option	Yes	Ivory	**V4BF-0J-03V**
R	R	R	—	—	ISO 7816	RS-232C	Yes	Option	Yes	Ivory	**V4BF-1J-03V**
R	R	R	—	—	—	RS-232C	No	Option	Yes	Ivory	**V4BF-1N**

■ ACCESSORIES

Item	**Part Number**
Cable	**V4BF/DF Cable**

■ TYPICAL APPLICATIONS

- Electronic purse
- Vending machines
- ATMs
- POS terminals
- Access control
- Customer loyalty

Specifications

Recommended card type	Magnetic card	ISO7810, 7811-1 to -5
	IC card	ISO7816/1-4
Data transmission		1200, 2400, 4800, 9600, 19200, 38400 bps (automatically set)
Data mode		Asynchronous mode
Operating power supply		12 VDC ± 10%
Current consumption		1.34 A max. (card lock solenoid consumes 1.2 A max. when card is released; V4BF-1N is 100 mA max.)
Interface connector		Hirose TM11R-5C-88 (RJ 45)
Mounting location		Indoors away from rain, wind, sunlight and dust
Ambient temperature	Operation	0° to 45°C (32° to 113°F)
	Storage	-15° to 60°C (5° to 140°F)
Ambient humidity	Operation	30% to 85% RH (without condensation)
	Storage	20% to 90% RH (without condensation)
Durable vibration		10 to 150 Hz, single vibration width 0.15 mm or acceleration of 2 G (19.6 ms^2), whichever is smaller
Dimensions		88 (W) x 158.5 (D) x 83 (H) mm
Weight		Approx. 300 g
Service life	Magnetic head	300,000 times min.
	IC contact	500,000 times min.
	Solenoid	300,000 times min.

Engineering Data

■ I/O INFORMATION

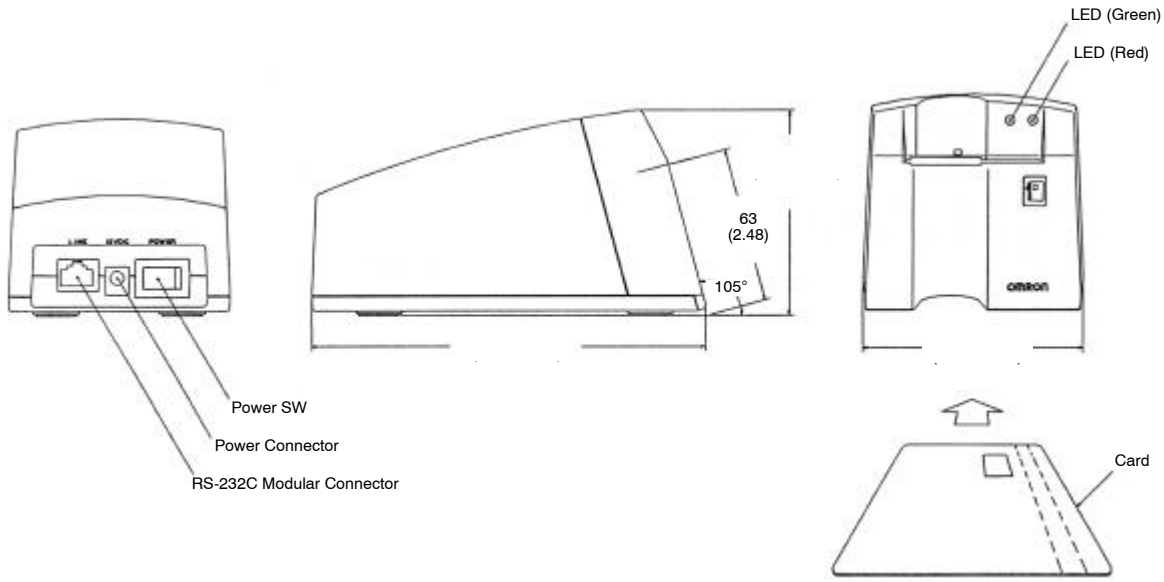
RS-232C interface cable pin location

PC side (D-SUB 9P)		C/R side (RJ-45 8P)	
Pin No.	Signal	Pin No.	Signal
1	—	—	—
2	RxD	8	TxD
3	TxD	7	RxD
4	—	—	—
5	0V	4	0V
6	DSR	6	DTR
7	RTS	5	CTS
8	CTS	—	—
9	—	—	—
Cover	0V	1, 2	0V

Dimensions

Unit: mm (inch)

■ V4BF



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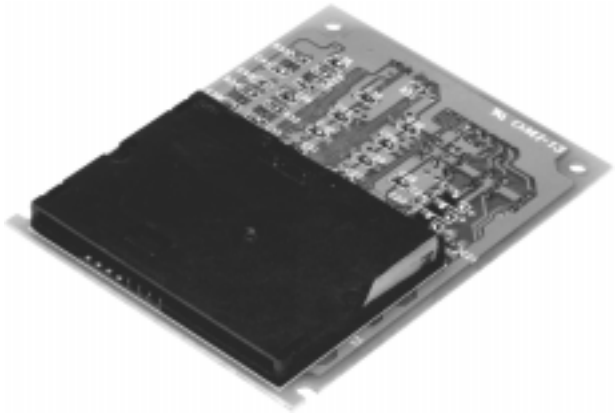
OMRON

Manual Smart Card Reader/Writer

V4CF

Compact Manual Insertion Smart Card Reader With RS-232C Interface



- Lightweight with a small profile
- Lifts smart card onto contacts to reduce wear on the card's contacts
- Data is protected even if the card is inadvertently removed from the reader while active
- Supports transmission protocols T=0 and T=1; also supports EMV

Ordering Information

Magnetic Tracks Supported (R, R/W)								
1	2	3	Center	JIS II	ICC (ISO 7816)	Card Lock	Color	**Part Number**
—	—	—	—	—	R/W	No	N/A	**V4CF-0J-01V**

■ TYPICAL APPLICATIONS

- Electronic purse
- Vending machines
- Game machines
- Access control
- Pay TV
- Time and attendance control
- Public payphones

Specifications

Recommended card type		ISO7816/1–4
Operating power supply		5 VDC ±5% (including ripple)
Data transmission		1200, 2400, 4800, 9600, 19200, 38400 bps
Data mode		Asynchronous mode
Current consumption		100 mA max.
Interface connector		7610-5002SC (3M)
Mounting location		Indoors away from rain, wind, sunlight and dust
Ambient temperature	Operation	0° to 45°C (32° to 113°F)
	Storage	-15° to 60°C (5° to 140°F)
Ambient humidity	Operation	30% to 85% RH
	Storage	20% to 90% RH
Durable vibration		10 to 150Hz, half amplitude 0.15 mm (2 G max.)
Durable shock		20 G
Dimensions		70 (W) x 90 (D) x 17 (H) mm
Weight		Approx. 70 g
Service life	IC contact	300,000 times min.

Engineering Data

■ I/O INFORMATION

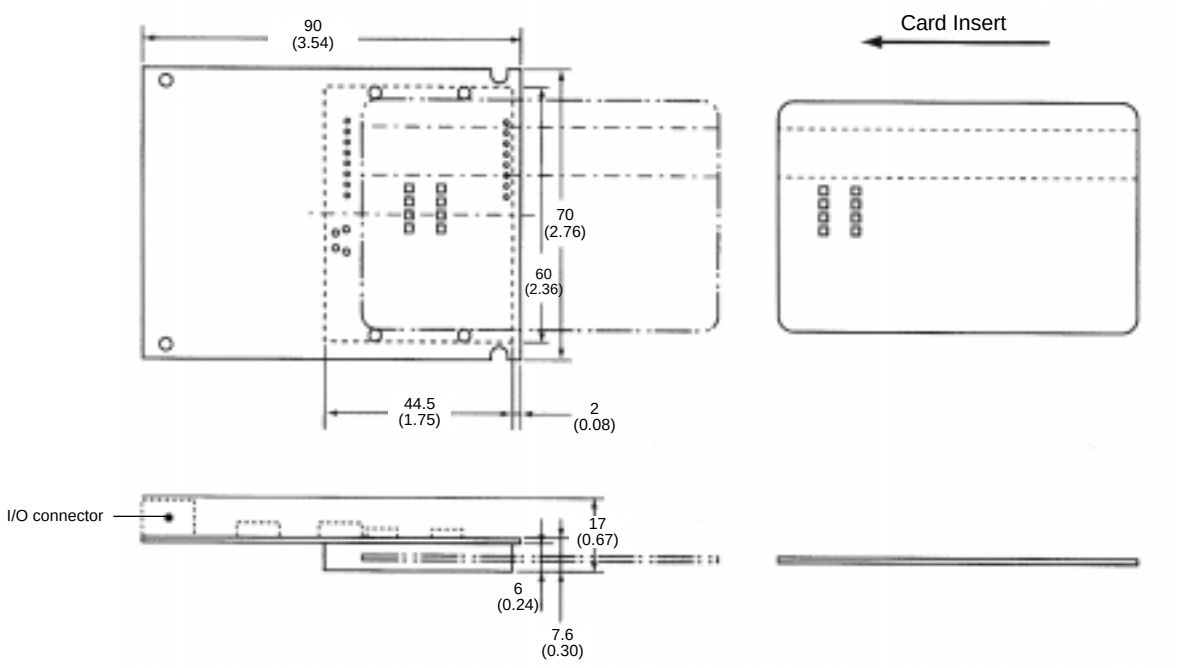
7610-5002SC (3M) interface cable pin location

Pin No.	Signal
1	TXD
2	RXD
3	DTR
4	CTS
5	0V
6	—
7	—
8	+5V
9	0V
10	0V

Dimensions

Unit: mm (inch)

■ V4CF-0J-01V



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OMRON CANADA, INC.
885 Milner Avenue
Scarborough, Ontario M1B 5V8
416-286-6465

Cat. No. Q04BAD1 5/99 Specifications subject to change without notice. Printed in U.S.A.

OMRON®

Manual Smart Card Reader/Writer

V4CF/IF

Compact Manual Insertion Smart Card Reader With RS-232C Interface

- Lightweight with a small profile
- Lifts smart card onto contacts to reduce wear on the card's contacts
- Data is protected even if the card is inadvertently removed from the reader while active
- Supports transmission protocols T=0 and T=1; also supports EMV
- Model with PC Mounting Adaptor allows installation within 3-1/2" PC floppy drive bay

Ordering Information

Magnetic Tracks Supported (R, R/W)												
1	2	3	Center	JIS II	IC Contact	Interface	PC Mounting Adaptor	Card Lock	Cable	Cover	Color	**Part Number**
—	—	—	—	—	ISO 7816	RS-232C	No	No	No	No	N/A	**V4CF-0J-01V**
—	—	—	—	—	ISO 7816	RS-232C	Yes	No	No	No	Ivory	**V4IF-0J-01V**

■ TYPICAL APPLICATIONS

- Electronic purse
- Vending machines
- Game machines
- Access control
- Pay TV
- Time and attendance control
- Public payphones
- Kiosks

Specifications

Part number		V4CF	V4IF
Recommended card type		ISO7816/1-4	
Operating power supply		5 VDC ±5% (including ripple)	
Data transmission		1200, 2400, 4800, 9600, 19200, 38400 bps (automatically set)	
Data mode		Asynchronous mode	
Current consumption		100 mA max.	
Interface connector		7610-5002SC (3M)	
Mounting location		Indoors away from rain, wind, sunlight and dust	Inside PC floppy drive bay
Ambient temperature	Operation	0° to 45°C (32° to 113°F)	
	Storage	-15° to 60°C (5° to 140°F)	
Ambient humidity	Operation	30% to 85% RH	
	Storage	20% to 90% RH	
Durable vibration		10 to 150Hz, half amplitude 0.15 mm (2 G max.)	
Durable shock		20 G	
Dimensions		17 H x 70 W x 90 L mm (2.76 W x 3.54 D x 0.67 H in)	25.4 H x 101 W x 140 L mm (1.00 H x 3.98 W x 5.51 L in)
Weight		Approx. 70 g	Not Available
Service life	IC contact	300,000 times min.	

Engineering Data

■ I/O INFORMATION

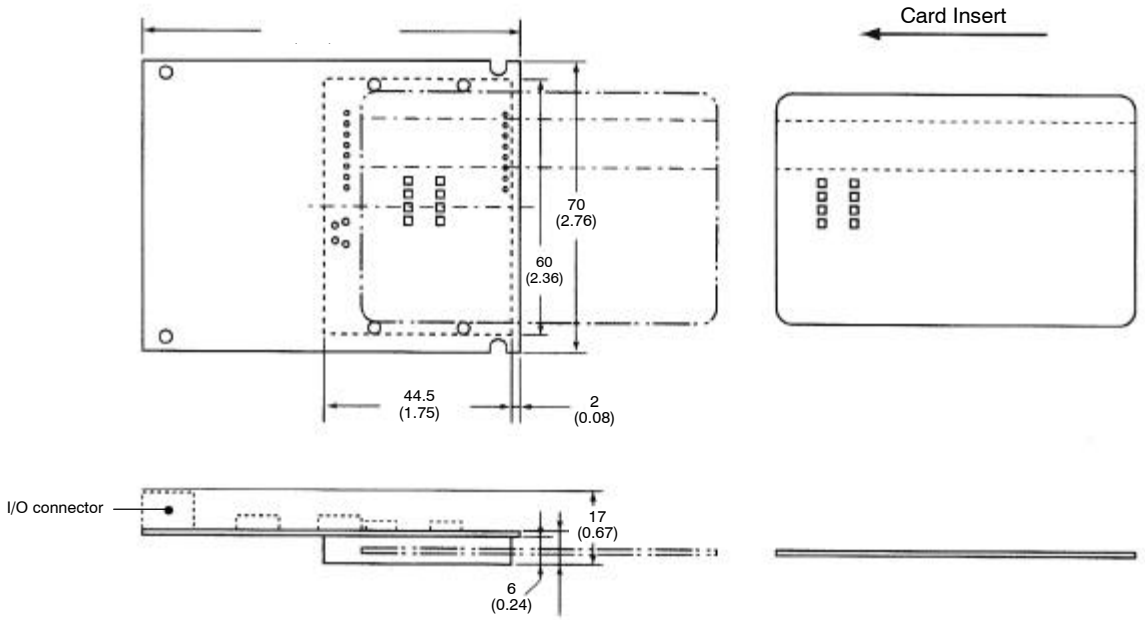
7610-5002SC (3M) interface cable pin location

Pin No.	Signal
1	TXD
2	RXD
3	DTR
4	CTS
5	0V
6	—
7	—
8	+5V
9	0V
10	0V

Dimensions

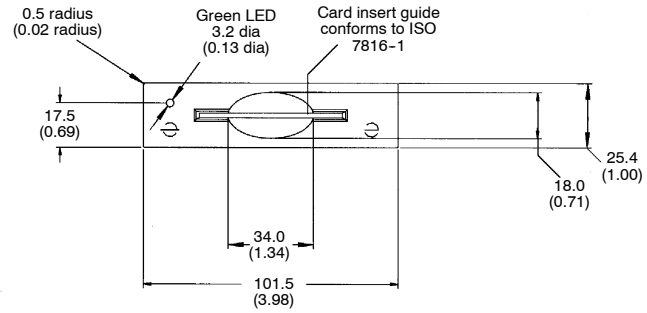
Unit: mm (inch)

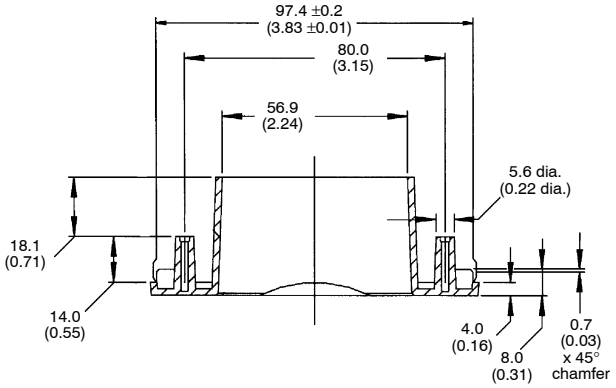
■ V4CF-0J-01V

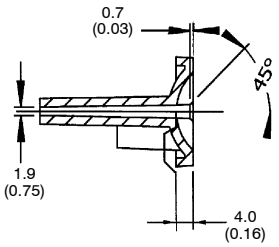


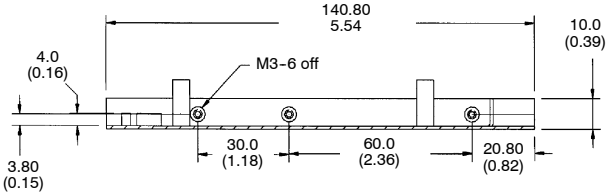
■ V4IF-0J-01V

PC Mounting Adaptor Version (fits inside 3-1/2" PC floppy bay)



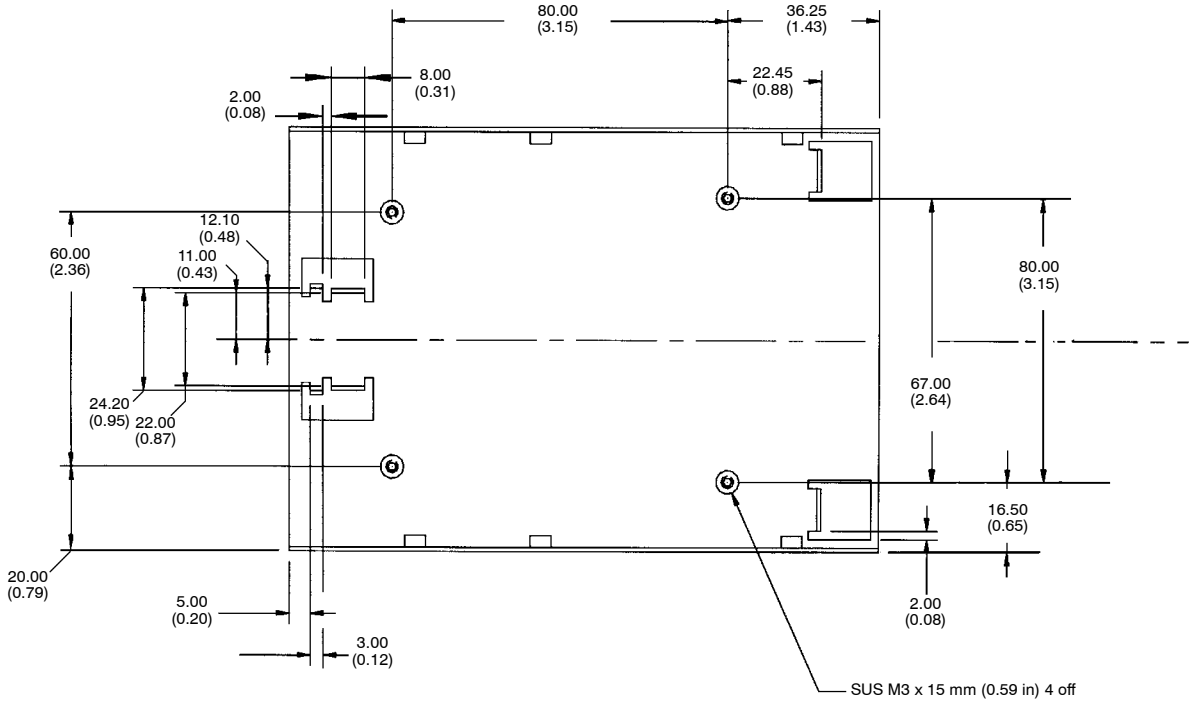






■ V4IF-0J-01V

PC Mounting Adaptor cont.



NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

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Cat. No. GC CR3 7/00 Specifications subject to change without notice. Printed in U.S.A.

OMRON

Desktop Smart Card Reader/Writer — V4DF

Desktop Manual Insertion Smart Card Reader/Writer with RS-232C Interface and Housing

- Lightweight and small design for desktop use
- Lifts smart card onto contacts to reduce wear on the card's contacts
- Data is protected even if the card is inadvertently removed from the reader while active
- Card-locking system with push-button release
- Supports transmission protocols T=0 and T=1; also supports EMV

Ordering Information

Magnetic Tracks Supported (R, R/W)											
1	2	3	Center	JIS II	IC Contact	Interface	Card Lock	Cable	Cover	Color	**Part Number**
—	—	—	—	—	ISO 7816	RS-232C	Manual	Option	Yes	Ivory	**V4DF-0J-01V**

■ ACCESSORIES

Item	**Part Number**
Cable	**V4BF/DF Cable**

■ TYPICAL APPLICATIONS

- Electronic purse
- Access control
- Pay TV
- ID card verification
- Network Access
- PC Peripherals

Specifications

Recommended card type		ISO7816/1-4
Data transmission		1200, 2400, 4800, 9600, 19200, 38400 bps (automatically set)
Data mode		Asynchronous mode
Operating power supply		12 VDC ±10% (Supplied by AC adaptor) (including ripple)
Current consumption		130 mA max.
Interface connector		Hirose TM11R-5C-88 (RJ 45)
Ambient temperature	Operation	0° to 45°C (32° to 113°F)
	Storage	-15° to 60°C (5° to 140°F)
Ambient humidity	Operation	30% to 85% RH
	Storage	20% to 90% RH
Durable vibration		10 to 150 Hz, half amplitude 0.15 mm (2 G max.)
Durable shock		20 G
Dimensions		74 (W) x 124 (D) x 59 (H) mm
Weight		Approx. 200 g
Service life	IC contact	300,000 times min.

Engineering Data

■ I/O INFORMATION

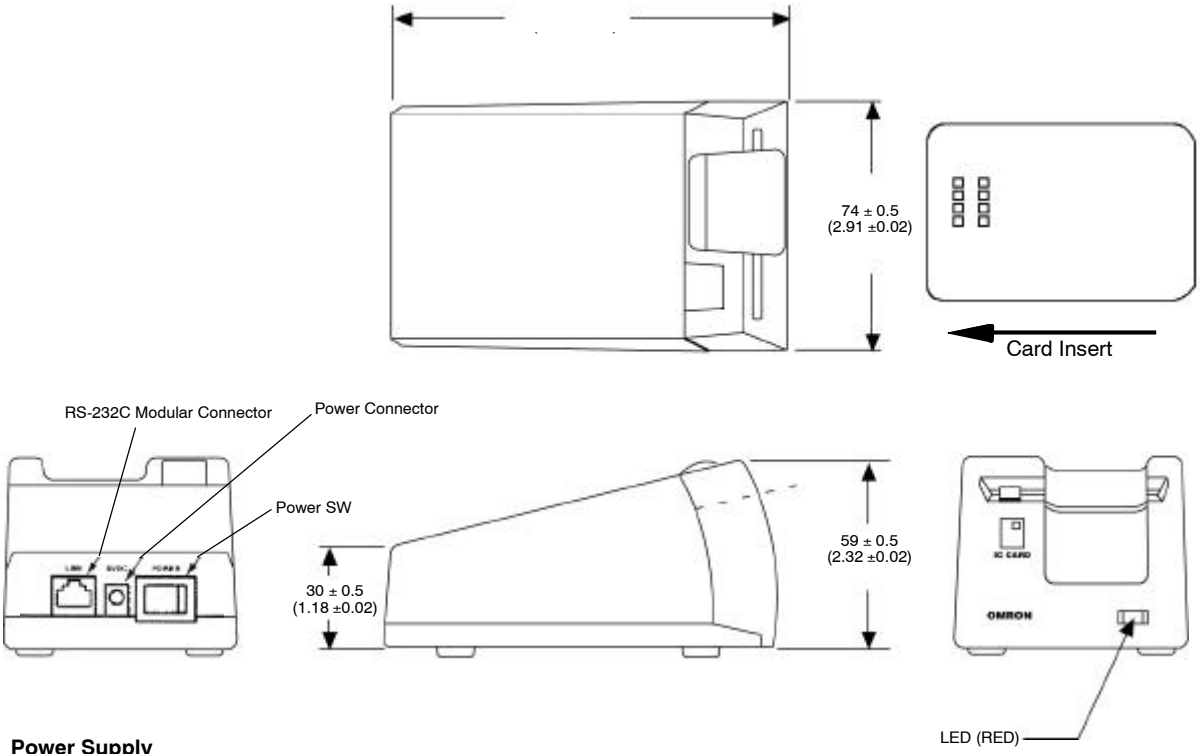
RS-232C interface cable pin location

PC side (D-SUB 9P)		C/R side (RJ-45 8P)	
Pin No.	Signal	Pin No.	Signal
1	—	—	—
2	RxD	8	TxD
3	TxD	7	RxD
4	—	—	—
5	0V	4	0V
6	DSR	6	DTR
7	RTS	5	CTS
8	CTS	—	—
9	—	—	—
Cover	0V	1, 2	0V

Dimensions

Unit: mm (inch)

■ V4DF-0J-01V



Power Supply
AC adapter (12V DC, over 130mA) is to be procured locally.

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OMRON

Insert IC Card Reader/Writer

V4HF

Desktop IC Reader Supports Both Memory Cards and Smart Cards

- User-friendly command protocol for easy integration
- Inexpensive desktop solution
- Reads/writes both memory and smart cards (T=0, T=1)
- One LED indicator indicates application status
- Supports RS-232C or USB
- Windows® 95/98/NT drivers (Omron API or PC/SC)
- Developer's start-up kit available

Ordering Information

Magnetic tracks supported (R, R/W)					Item					
1	2	3	Center	JISII	IC contact	Interface	Cable	Cover	Color	**Part Number**
—	—	—	—	—	ISO 7816	RS-232C	Yes	Yes	Ivory	**V4HF-0J**
—	—	—	—	—	ISO 7816	USB	Yes	Yes	Ivory	**V4HF-0J-USB**

■ ACCESSORIES

Description	**Part number**
Developers kit (The Developer kit includes: 1 V4HF (RS-232C), driver software disk, instruction manual, hardware and software specifications and six sample IC cards (3 SLE4428, 3 SLE4442))	V4HF Developer Kit

■ TYPICAL APPLICATIONS

- Personal Computer Access
- Internet Commerce

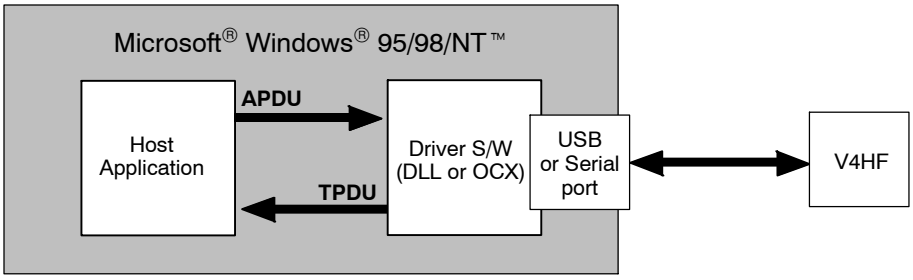
Specifications

Part number		V4HF
Recommended card type	IC (memory) card	2-wire protocol (Siemens SLE4432/42) 3-wire protocol (Siemens SLE4418/28) For all others, contact your Omron representative
	IC (smart) card	ISO 7816/1-3 (T=0, T=1), 3.5795 MHz NTT, S-type IC card (T=14) EMV 3.1.1
Communication		RS-232C, 9600/19200/38400 bps
Contact type		8-pin ISO, soft-landing, Au over Ni
Service life	IC contact	300,000 insertions or 5 years
	IC R/W error rates	Less than 0.001
Operating power supply		5 VDC ± 10%, powered via PS/2 (keyboard) connector. (Power and communication cables provided.)
Current consumption		60 mA typ., 130 mA Maximum
Mounting location		Desktop
Ambient temperature	Operation	0° to 45°C (32° to 113°F)
	Storage	-15° to 60°C (5° to 140°F)
Ambient humidity	Operation	30 to 80% RH, with no condensation
	Storage	20 to 90% RH, with no condensation
Vibration		10 to 150 Hz, single amplitude, 0.15mm (2G max.)
Shock		Peak acceleration 20 G
Dimensions		74 W x 124 D x 59 H mm (2.91 x 4.88 x 2.32)
Weight		Approx. 240 g (including cable)

Engineering Data

■ SOFTWARE INFORMATION

The V4HF includes .DLL and .OCX driver software modules for Windows® 95/98/NT, conforming to Omron API specification. For information on PC/SC (PC/Smart Card) drivers, please contact your Omron representative. The API provides automatic card detection and communication management, automatic conversion of APDU into TPDU. It supports Windows® 95/98/NT.



■ I/O INFORMATION

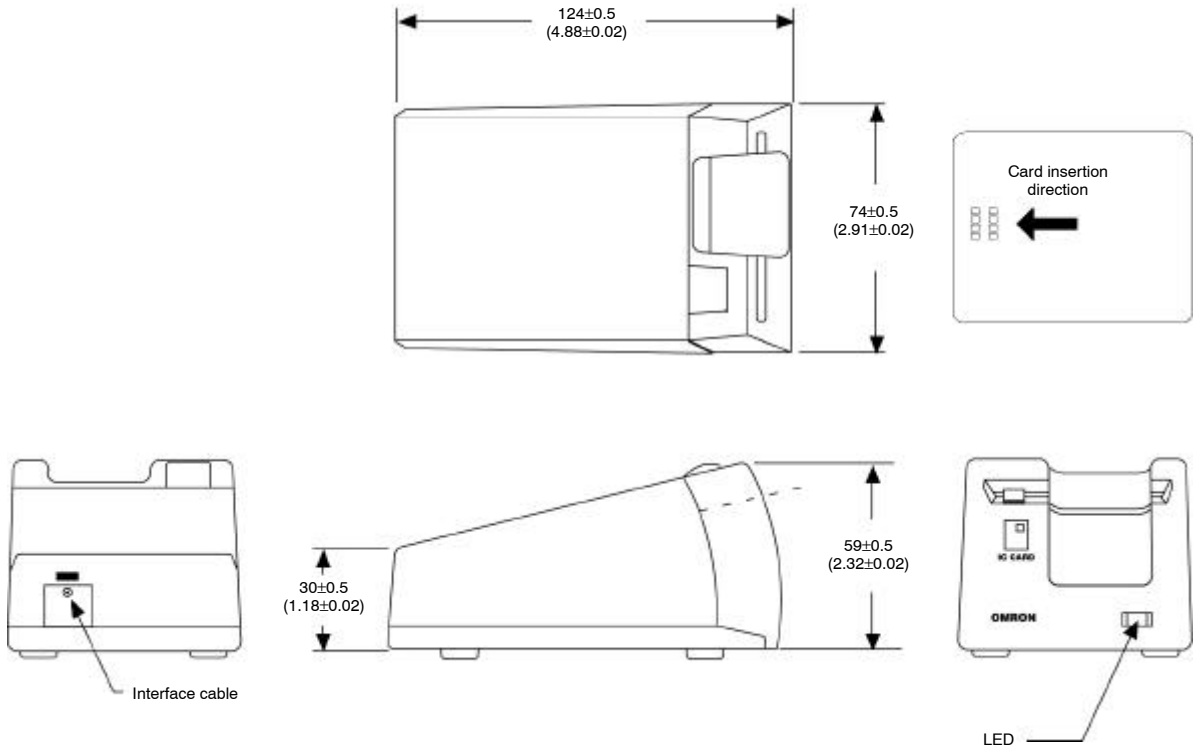
RS-232C interface cable pin location

PC Side (D-Sub 9P)	
Pin #	Signal
1	-
2	RXD
3	TXD
4	-
5	0V
6	DSR
7	RTS
8	CTS
9	-
Cover	0V

CR Side (RJ-45 8P)	
Pin #	Signal
-	-
8	TXD
7	RXD
-	-
4	0V
6	DTR
5	CTS
-	-
-	-
1.2	0V

Dimensions

Unit: mm (inch)



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OMRON®

IC Card Contact

XR7A

Applicable to ISO 7816 Compatible IC Cards

- Utilizes standard IC card contact dimensions
- Button-style for extremely space-constrained applications
- Available with or without card detect switch
- Surface mount directly to PCB

Ordering Information

Magnetic tracks supported (R, R/W)					Item					
1	2	3	Center	JISII	Number of pins	Interface	Detect switch	Cable	Cover	**Part Number**
—	—	—	—	—	8-pin	Contact	No	No	No	**XR7A-0835-1**
					6-pin	Contact	Yes	No	No	**XR7A-0635-2**

Specifications

■ RATINGS/CHARACTERISTICS

Part number	XR7A-0835-1	XR7A-0635-2
Type	Module type	Module type (with card detector switch)
Number of poles	8	6 + 2 switch poles (normally open)
Terminal construction	SMT terminals	
Rated current	0.5 A	
Contact resistance	100 mΩ max. (at 20 mVDC, 100 mA max.)	
Insulation resistance	1,000 MΩ min. (at 500 VDC)	
Withstand voltage	500 VAC for 1 min. (leakage current 1 mA max.)	
Insertion durability	100,000 times	
Operating temperature	-40°C to 90°C (-40°F to 194°F) No icing at low temperature	

■ MATERIALS/FINISH

Part number	XR7A-0835-1	XR7A-0635-2
	Module type	Module type (with card detector switch)
Base	Fiberglass-reinforced PPS (UL94V-0)/black	Fiberglass-reinforced LCP (UL94V-0)/black
Case	---	
Contact connector	Phosphor bronze/nickel base, gold plated	
Contact terminal	Phosphor bronze/nickel base, tin alloy plated	
Switch contact connector	---	Phosphor bronze/nickel base, gold plated
Switch contact terminal	---	Phosphor bronze/nickel base, tin alloy plated

Note: XR7A IC card contacts are compatible with IC Cards conforming to ISO 7816 contact dimensions.

■ RECOMMENDED REFLOW CONDITIONS

Preheating temperature	150°C ±10°C (302°F ±50°F)
Preheating time	60 to 120 s
Soldering temperature	200°C to 240°C (392°F to 464°F)
Soldering time	30 s max.

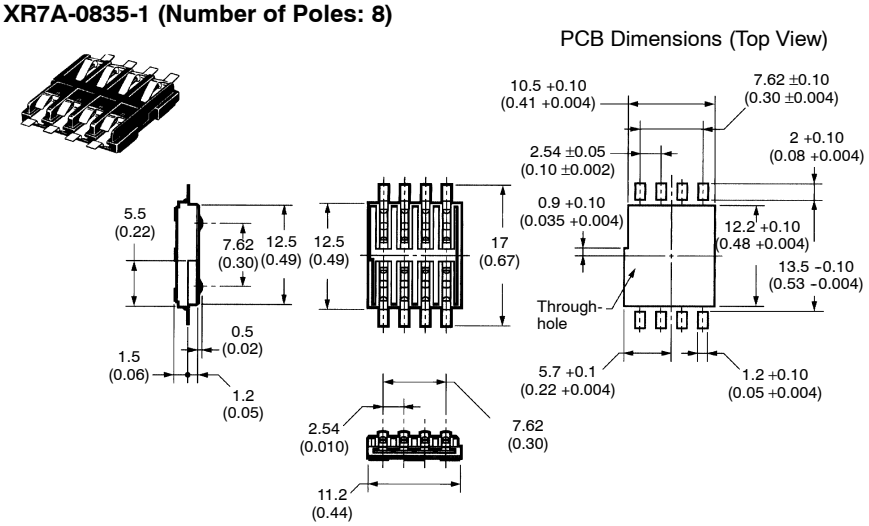
Note: The soldering time is 10 s max. when the soldering temperature is 240°C (464°)

Dimensions

Unit: mm (inch)

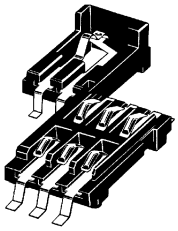
■ MODULE TYPE

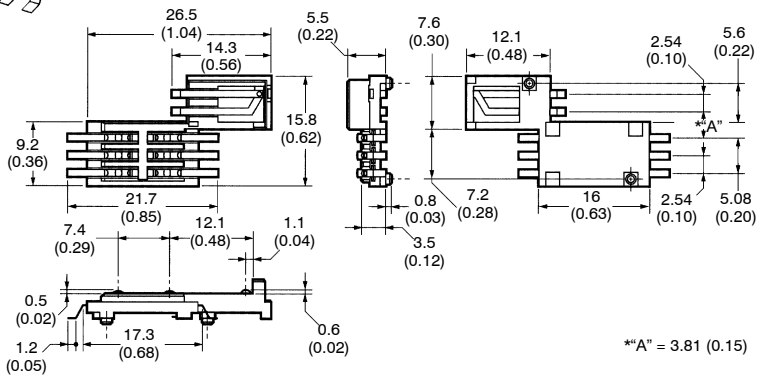
XR7A-0835-1 (Number of Poles: 8)



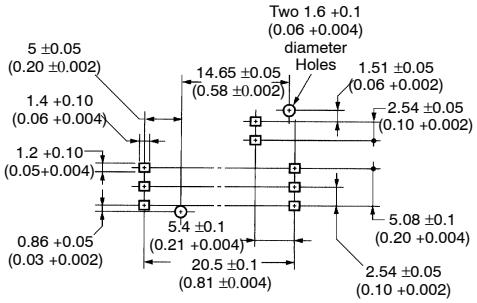
■ MODULE TYPE WITH CARD DETECTOR SWITCH

XR7A-0635-2 (Number of Poles: 6 + 2 Switch Poles)





PCB Dimensions (Top View)



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OMRON®

IC Card Connector

XR7B

Ultra-Compact, Low-Cost Manual Insert IC Card Connector

- Wide range of models to meet various applications
- Insertion-style friction connector for low-cost, lower usage applications
- Similar profile to 3S4YR-SHR
- Through-hole mounts directly to PCB

Ordering Information

Magnetic tracks supported (R, R/W)					Item						
1	2	3	Center	JISII	IC contact	Interface	Detect switch	Cable	Cover	Color	**Part Number**
—	—	—	—	—	ISO	Contact	Yes	No	No	Black	**XR7B-0831-2**
					ISO, CP8	Contact	Yes	No	No	Black	**XR7B-1631-2**

Specifications

■ RATINGS/CHARACTERISTICS

Part number	XR7B-0831-2	XR7B-1631-2
Compatible cards	ISO 7816	
Type	Case type (with card detector switch)	
Number of poles	8 + 2 switch poles (normally open)	16 + 2 switch poles (normally open)
Terminal construction	DIP straight terminals	
Rated current	0.5 A	
Contact resistance	100 mΩ max. (at 20 mVDC, 100 mA max.)	
Insulation resistance	1,000 MΩ min. (at 500 VDC)	
Withstand voltage	500 VAC for 1 min. (leakage current 1 mA max.)	
Insertion durability	100,000 times	
Operating temperature	-40°C to 90°C (-40°F to 194°F) No icing at low temperature	

■ MATERIALS/FINISH

Part number	XR7B-0831-2	XR7B-1631-2
Type	Case type (with card detector switch)	
Base	Fiberglass-reinforced PBT (UL94V-0)/black	
Case	Fiberglass-reinforced PBT (UL94V-0)/black	
Contact connector	Phosphor bronze/nickel base, gold plated	
Contact terminal	Phosphor bronze/nickel base, tin alloy plated	
Switch contact connector	Phosphor bronze/nickel base, gold plated	
Switch contact terminal	Phosphor bronze/nickel base, tin alloy plated	

■ RECOMMENDED REFLOW CONDITIONS

Preheating temperature	150° ±10°C (302° ±18°F)
Preheating time	60 to 120 s
Soldering temperature	200°C to 240°C (392°F to 464°F)
Soldering time	30 s max.

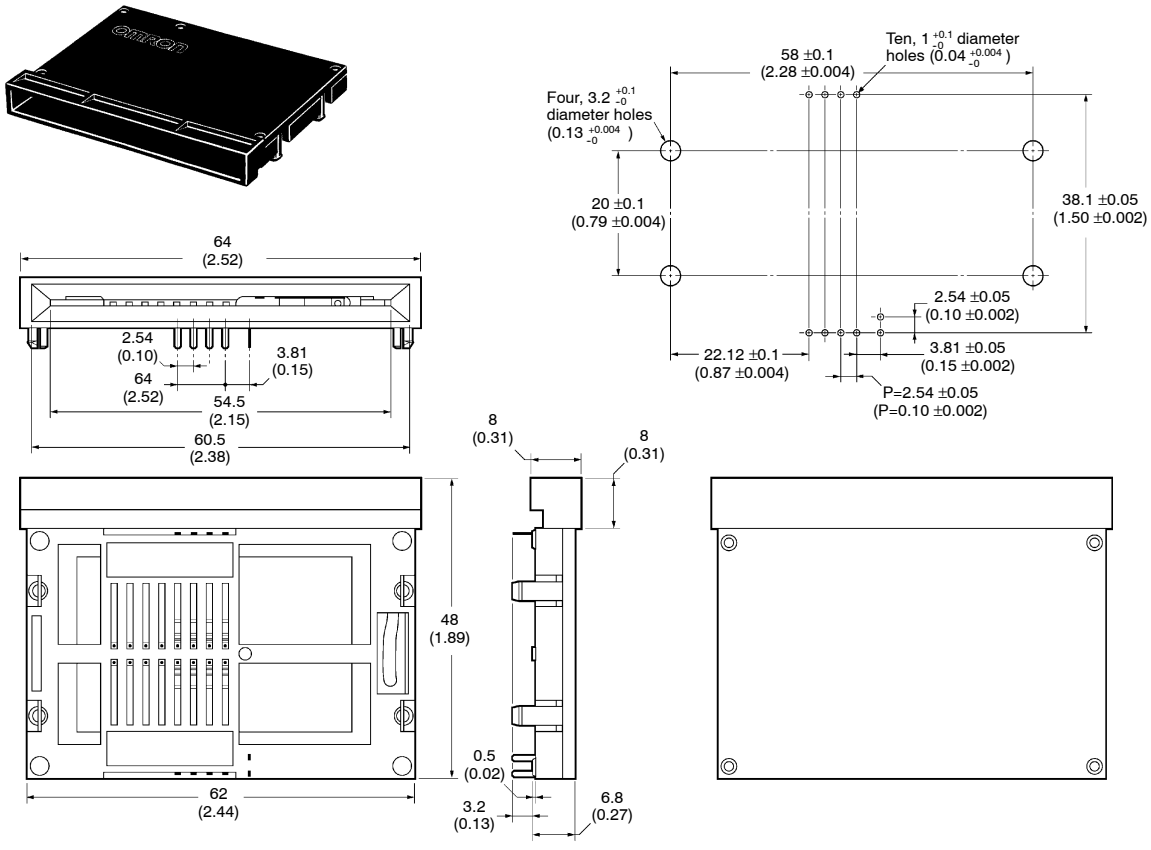
Note: The soldering time is 10 s max. when the soldering temperature is 240°C (464°F).

Dimensions

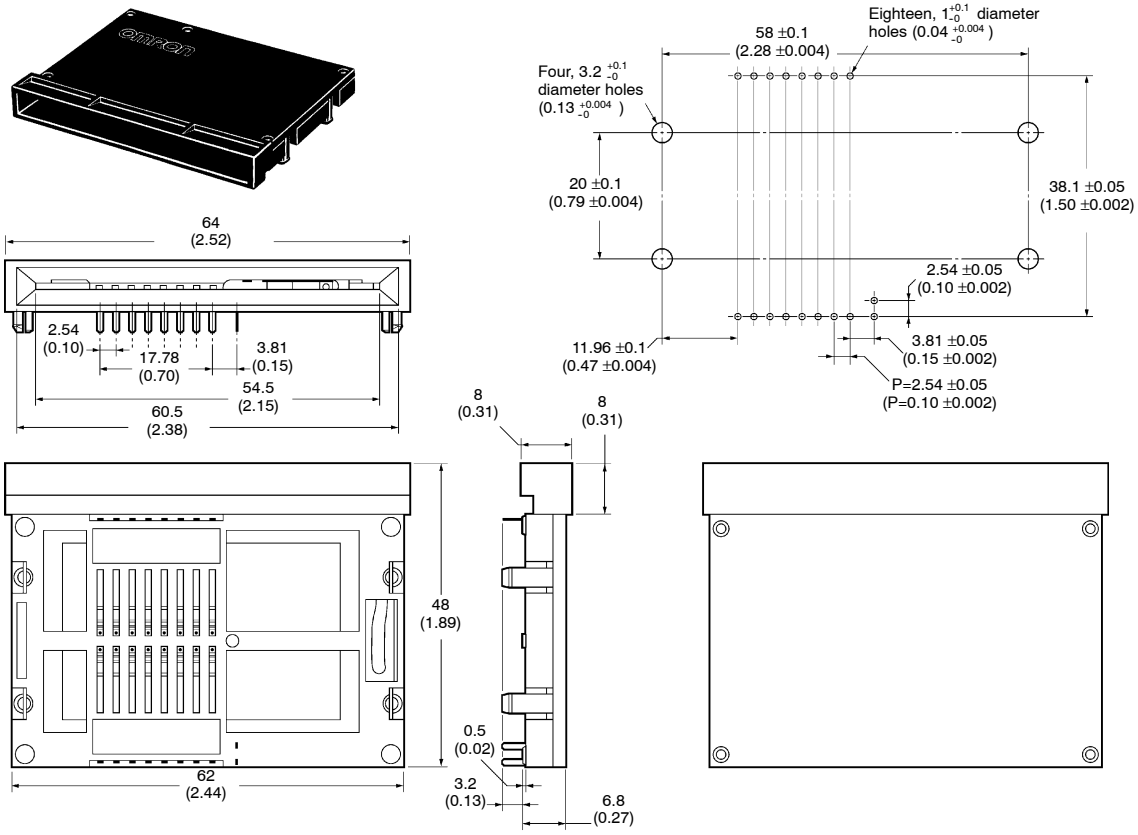
Unit: mm (inch)

■ CASE TYPE WITH CARD DETECTOR SWITCH

XR7B-0831-2 (Number of Poles: 8 + 2 Switch Poles)



XR7B-1631-2 (Number of Poles: 16 + 2 Switch Poles)



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- Through-hole mounts directly to PCB

Ordering Information

Magnetic tracks supported (R, R/W)					Item						
1	2	3	Center	JISII	IC contact	Interface	Detect switch	Cable	Cover	Color	**Part Number**
—	—	—	—	—	ISO	Contact	Yes	No	No	Black	**XR7B-0831-2**
					ISO, CP8	Contact	Yes	No	No	Black	**XR7B-1631-2**

Specifications

■ RATINGS/CHARACTERISTICS

Part number	XR7B-0831-2	XR7B-1631-2
Compatible cards	ISO 7816	
Type	Case type (with card detector switch)	
Number of poles	8 + 2 switch poles (normally open)	16 + 2 switch poles (normally open)
Terminal construction	DIP straight terminals	
Rated current	0.5 A	
Contact resistance	100 mΩ max. (at 20 mVDC, 100 mA max.)	
Insulation resistance	1,000 MΩ min. (at 500 VDC)	
Withstand voltage	500 VAC for 1 min. (leakage current 1 mA max.)	
Insertion durability	100,000 times	
Operating temperature	-40°C to 90°C (-40°F to 194°F) No icing at low temperature	

■ MATERIALS/FINISH

Part number	XR7B-0831-2	XR7B-1631-2
Type	Case type (with card detector switch)	
Base	Fiberglass-reinforced PBT (UL94V-0)/black	
Case	Fiberglass-reinforced PBT (UL94V-0)/black	
Contact connector	Phosphor bronze/nickel base, gold plated	
Contact terminal	Phosphor bronze/nickel base, tin alloy plated	
Switch contact connector	Phosphor bronze/nickel base, gold plated	
Switch contact terminal	Phosphor bronze/nickel base, tin alloy plated	

■ RECOMMENDED REFLOW CONDITIONS

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Preheating time	60 to 120 s
Soldering temperature	200°C to 240°C (392°F to 464°F)
Soldering time	30 s max.

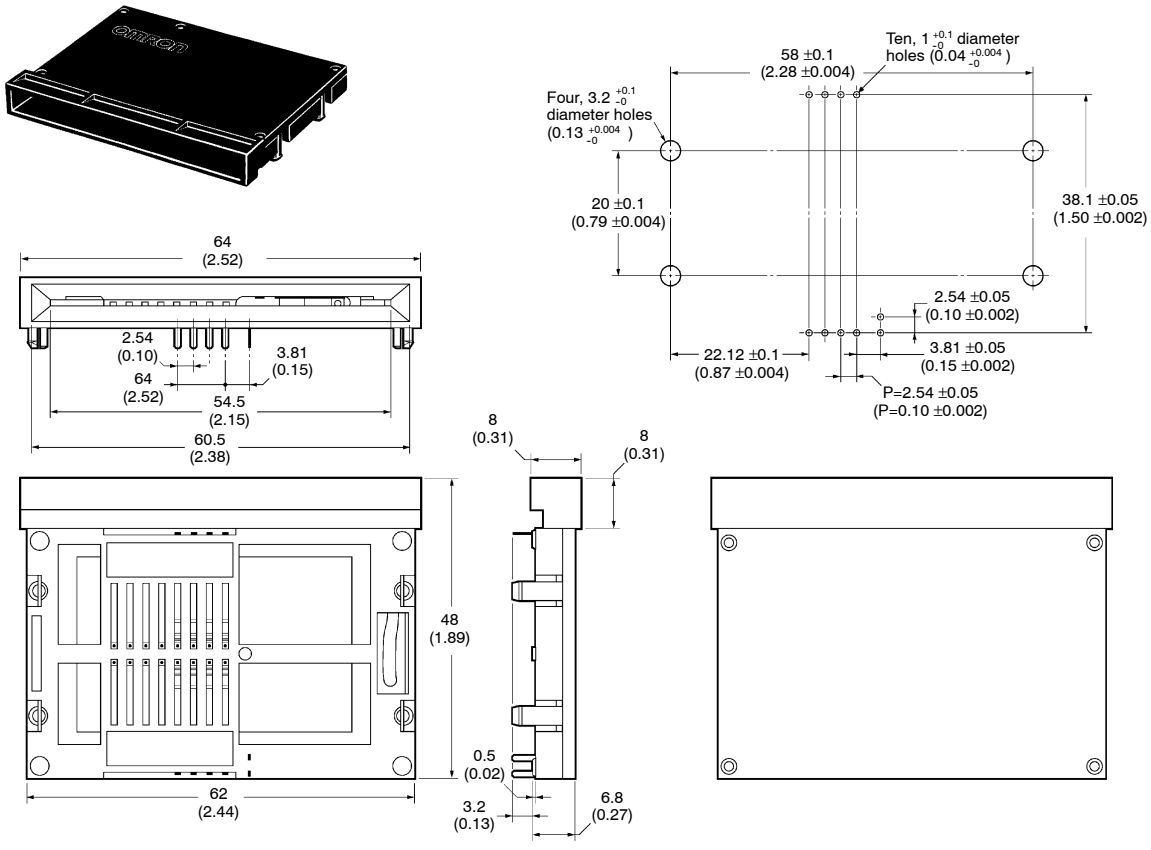
Note: The soldering time is 10 s max. when the soldering temperature is 240°C (464°F).

Dimensions

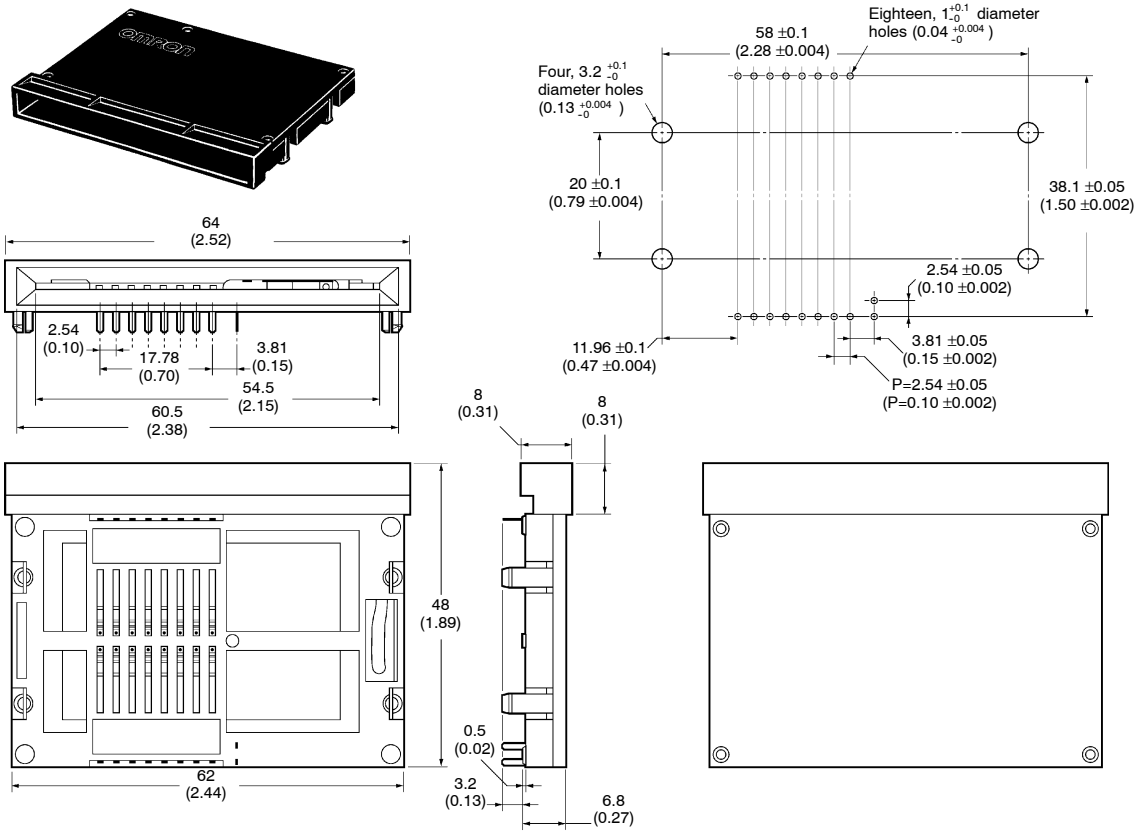
Unit: mm (inch)

■ CASE TYPE WITH CARD DETECTOR SWITCH

XR7B-0831-2 (Number of Poles: 8 + 2 Switch Poles)



XR7B-1631-2 (Number of Poles: 16 + 2 Switch Poles)



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