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OMRON

# 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
- HiCo card support available
- Shutter available to prevent insertion of foreign objects and improper cards



## Ordering Information

| Magnetic Tracks Supported (R, R/W) | | | | | IC Contact | Built-in Shutter | Interface | Card Ejection | Color | Part Number |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | Center | JIS II | | | | | | |
| R | R | R | — | — | None | No | TTL-compatible | Front/Rear | Black | **3S4YR-MCR1-N** |
| R | R | R | — | — | None | Yes | TTL-compatible | Front/Rear | Black | **3S4YR-MCR1D-N** |
| R | — | — | — | — | None | No | TTL-compatible | Front/Rear | Black | **3S4YR-MCR3-N** |
| R | — | — | — | — | None | Yes | TTL-compatible | Front/Rear | Black | **3S4YR-MCR3D-N** |
| — | R | — | — | — | None | No | TTL-compatible | Front/Rear | Black | **3S4YR-MCR4-N** |
| — | R | — | — | — | None | Yes | TTL-compatible | Front/Rear | Black | **3S4YR-MCR4D-N** |
| — | — | R | — | — | None | No | TTL-compatible | Front/Rear | Black | **3S4YR-MCR5-N** |
| — | — | R | — | — | None | Yes | TTL-compatible | Front/Rear | Black | **3S4YR-MCR5D-N** |
| — | — | — | — | — | X-type(ISO+CP8)* | No | TTL-compatible | Front | Black | **3S4YR-MCR0XC** |
| — | — | — | — | — | X-type(ISO+CP8)* | Yes | TTL-compatible | Front | Black | **3S4YR-MCR0XD** |
| — | — | — | — | — | X-type(ISO+CP8)** | No | TTL-compatible | Front/Rear | Black | **3S4YR-MCR0XCB** |
| — | — | — | — | — | X-type(ISO+CP8)** | Yes | TTL-compatible | 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

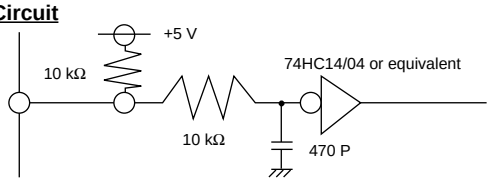
| Part number | | 3S4YR-MCR | | | | | |
|---|---|---|---|---|---|---|---|
| Recommended card type | Magnetic card | ISO 7810, 7811/1-5, 7812, 7813 | | | | | |
| | IC Card | ISO 7816/1-2 | | | | | |
| Recording method | | FM decoding (F2F) | | | | | |
| Card feeding speed | | 40 cm/sec (15.7 in/sec) | | | | | |
| 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 | D-N | XC | XD | XCB | XDB |
| | Waiting | 25 mA | 30 mA | 5 mA | 10 mA | 20 mA | 25 mA |
| | Operating | 350 mA | 550 mA | 100 mA | 350 mA | 500 mA | 700 mA |
| | Start-up, reverse | 2A | 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<br>Max acceleration: 100 mm/sec$^2$;<br>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 | D-N | XC | XD | XCB | XDB |
| | Length | 122 mm | 147 mm | 122 mm | 147 mm | 122 mm | 147 mm |
| | | (4.80 in) | (5.79 in) | (4.80 in) | (5.79 in) | (4.80 in) | (5.79 in) |
| | Width | 90 mm | 90 mm | 90 mm | 105 mm | 90 mm | 105 mm |
| | | (3.54 in) | (3.54 in) | (3.54 in) | (4.13 in) | (3.54 in) | (4.13 in) |
| | Height | 62 mm | 62 mm | 62 mm | 62 mm | 95 mm | 95 mm |
| | | (2.44 in) | (2.44 in) | (2.44 in) | (2.44 in) | (3.74 in) | (3.74 in) |
| Weight | MCR❑ | -N | D-N | XC | XD | XCB | XDB |
| | | 550 g | 750g | 600 g | 800 g | 900 g | 1,100 g |
| | | (19.4 oz) | (26.5 oz) | (21.2 oz) | (28.2 oz) | (31.7 oz) | (38.8 oz) |

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

# Engineering Data

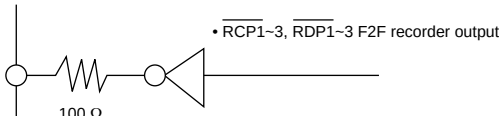
## ■ OUTPUT CIRCUIT DIAGRAM

**Input Circuit**




I/F Board

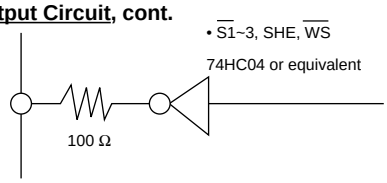
**Output Circuit**



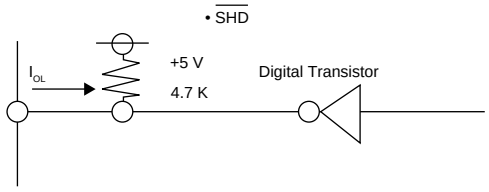

I/F Board

$I_{OH}$ = -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

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

### 3S4YR-MCR0X C/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 | $\overline{MFS}$ | Input | Motor forward signal |
| 6 | $\overline{MRS}$ | Input | Motor reverse signal |
| 7 | $\overline{S1}$ | Output | Card location sensor 1 |
| 8 | $\overline{S2}$ | Output | Card location sensor 2 |
| 9 | $\overline{S3}$ | 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 | $\overline{IECO}$*** | Output | IC card contact press echo |
| 19 | $\overline{IECS}$*** | Output | Stopper release sensor echo (rear ejection only) |
| 20 | $\overline{ISO1}$*** | Input | IC card contact press |
| 21 | $\overline{WS}$** | Output | Card width switch |
| 22 | $\overline{SHD}$** | Output | Sense head detector |
| 23 | $\overline{SO}$** | Input | Shutter open/close |
| 24 | SHE** | Output | Shutter echo switch |
| 25 | $\overline{ISO2}$*** | Input | IC card stopper release (rear ejection only) |
| 26 | 0 VDC | — | 0 VDC (GND) |

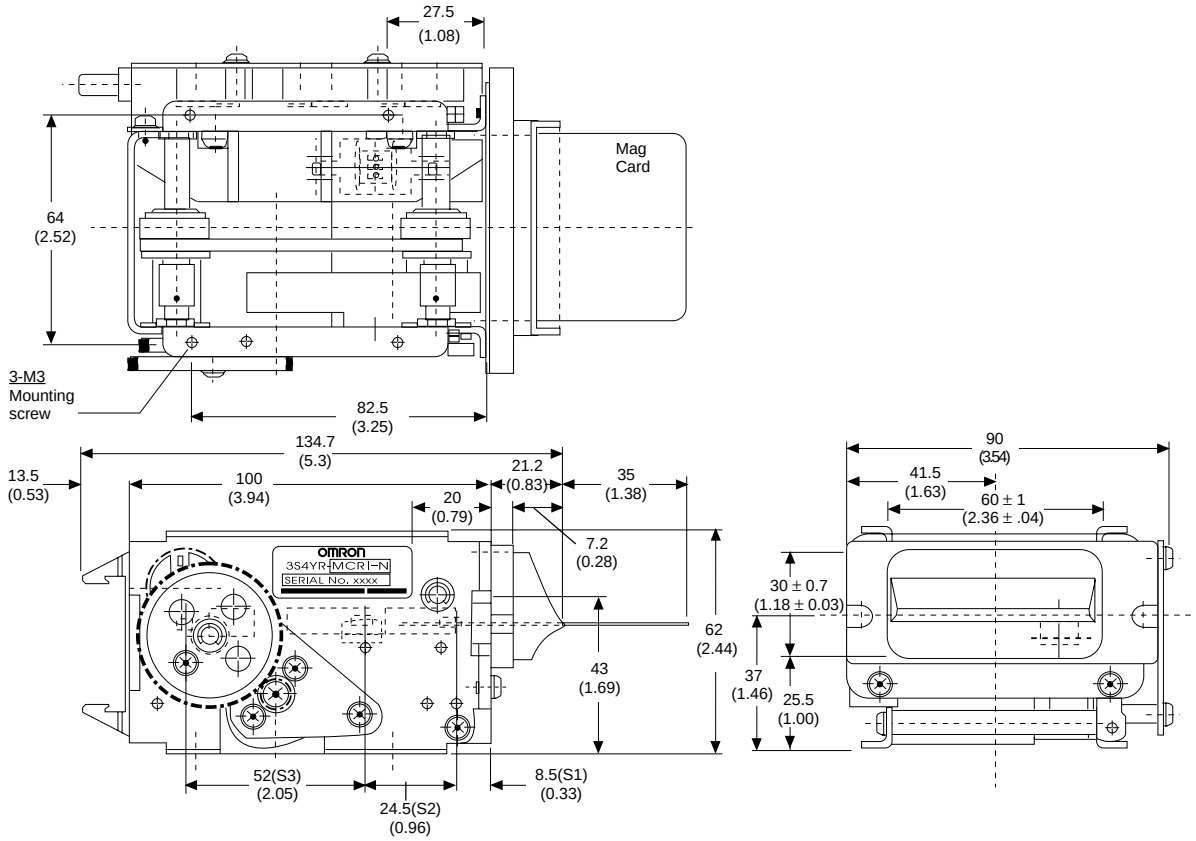
* Signals applicable for the MCR1-N and MCR1D-N only.
** Signals applicable when shutter is attached.
*** Signals applicable for rear ejection models only.

◆ = Direct IC Contact

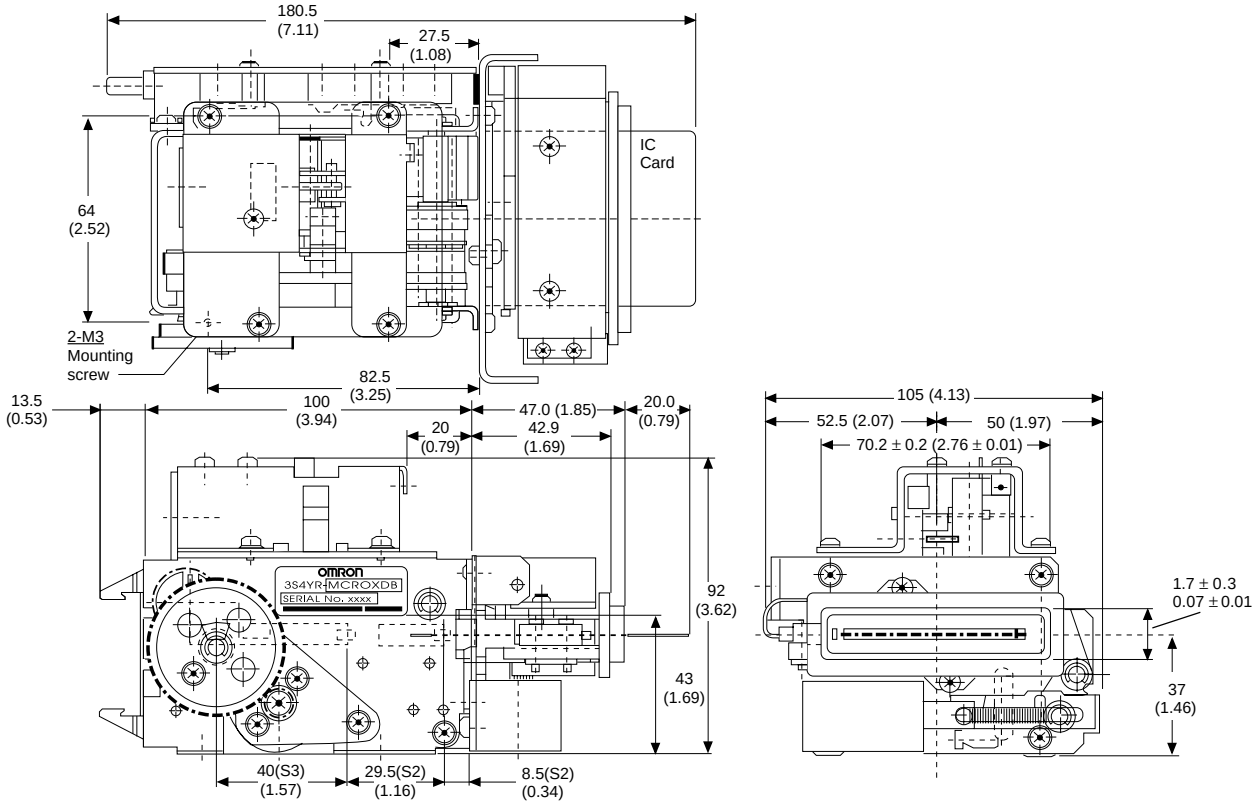
# Dimensions

Unit: mm (inch)

## ■ 3S4YR-MCRN




## ■ 3S4YR-MCR0XDB (Landing IC Contact)



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