1792370-0 A

SPECIFICATIONS OF MANUAL SWIPE TYPE MAGNETIC CARD READER

TYPE

V3A-6K
V3A-6
V3A-7K
V3A-7
V3A-6KB
V3A-6B
V3A-7KB
V3A-7B

A 14.JAN,1999

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FIGURES

1. Outline

This document describes the specifications of manual swipe type magnetic card reader V3A series (double track reading).

2. Name and Type

2.1 Name Manual Swipe Magnetic Card Reader

2.2 Type

V3A-6K	(ISO Track 1&2) with cover	Ivory White
V3A-6	(ISO Track 1&2) without cover	Ivory White
V3A-7K	(ISO Track 2&3) with cover	Ivory White
V3A-7	(ISO Track 2&3) without cover	Ivory White
V3A-6KB	(ISO Track 1&2) with cover	Black
V3A-6B	(ISO Track 1&2) without cover	Black
V3A-7KB	(ISO Track 2&3) with cover	Black
V3A-7B	(ISO Track 2&3) without cover	Black

3. Function

3.1 Card Feed Method: Manual feed

3.2 Card Read Direction: One direction See Fig.1,2

3.3 Read/Write: Read only
Possible to read both tracks on the same time.

4. Applicable Card

4.1 Magnetic Card: Conforms to ISO 7810 - 7811.
Note 1. Magnetic tape should be written under saturated condition.
2. For details, refer to ISO 7810 - 7811.

4.2 Magnetic Stripe Encoding: Conforms to ISO 7810 - 7811.
(ISO Track 1,2 and 3)

4.3 Card thickness: 0.76 +/- 0.08 mm

4.4 Card Warpage: 2 mm or less(including card thickness)

4.5 Reference Standards:

(1) ISO/IEC7810 :1995-08-15	Identification cards - Physical characteristics
(2) ISO/IEC7811-1:1995-08-15	Identification cards - Recording technique Part 1 : Embossing
(3) ISO/IEC7811-2:1995-08-15	Identification cards - Recording technique Part 2 : Magnetic stripe
(4) ISO/IEC7811-3:1995-08-15	Identification cards - Recording technique Part 3 : Location of embossed characters on ID-1 cards

(5) ISO/IEC7811-4:1995-08-15	Identification cards - Recording technique Part 4 : Location of read-only magnetic tracks - Track 1 and 2
(6) ISO/IEC7811-5:1995-08-15	Identification cards - Recording technique Part 5 : Location of read-write magnetic track - Track 3
(7) ISO/IEC7811-6:1996-04-15	Identification cards - Recording technique Part 6 : Magnetic stripe-high coercivity

5. Physical Characteristics

5.1 Dimension

(1) V3A-6K,6KB,7K,7KB	90(W) x 26.5(H) x 28(D) mm	See Fig.1
(2) V3A-6, 6B, 7, 7B	90(W) x 24(H) x 24D) mm	See Fig.2

5.2 Color

(1) V3A-6K, 6, 7K, 7	Ivory White
(2) V3A-6KB,6B,7KB,7B	Black

5.3 Weight

(1) V3A-6K,6KB,7K,7KB	Approx.	42 g
(2) V3A-6, 6B, 7, 7B	Approx.	27 g

5.4 Output

(1) Output Connector and Pin Assignment		See Fig.3
	With connector on PCB 53261-0990 molex.	
	Connector Harness is optional parts.	See Fig.5
(2) Block Diagram		See Fig.4

6. Power Supply

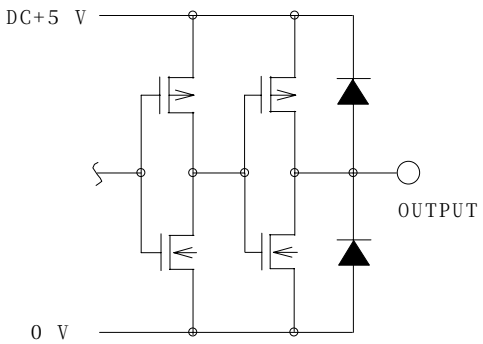
6.1 Supply voltage	DC 5 V +/- 10 %(including ripple)	
6.2 Ripple	100 mVp-p max.	
6.3 Current consumption	Operating mode	6 mA typ.(During operation) 10 mA max.

7. Specifications

7.1 Circuit Configuration	Magnetic head and IC. IC: CMOS IC	See fig.4

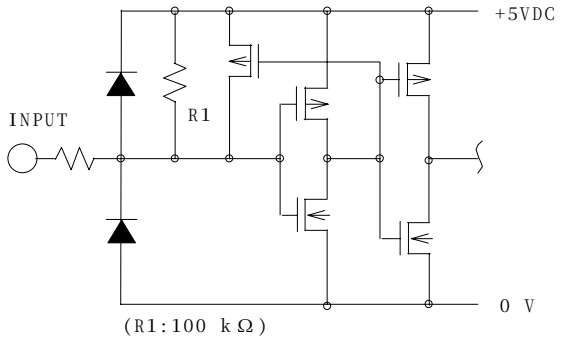
7.2 Output Circuit

$\overline{\text{RDP1}}$ $\overline{\text{RDP2}}$
$\overline{\text{RCP1}}$ $\overline{\text{RCP2}}$
CLS1 CLS2



7.3 Input Circuit

$\overline{\text{CSV}}$



7.4 Output Signal

(1) $\overline{\text{RDP1}}$ (Read Data Pulse of ISO Track NO.1 or NO.3)
This data output signal is produced by the F2F decorder.
The "High" level of this signal indicates data"0", and the "Low" level, data"1".

(2) $\overline{\text{RCP1}}$ (Read Clock Pulse of ISO Track NO.1 or NO.3)
This clock pulse signal is output for demodulating read data sampling.
Signal RDP1 must be accepted at the trailing edge of signal RCP1.

(3) $\overline{\text{CLS1}}$ (Card Loading Signal of ISO Track NO.1 or NO.3)
This signal indicates that a card is inserted for reading.
The level of this signal becomes "Low" while a card is passing a head, and this signal is returned to "High" after a card passed a head.

(4) $\overline{\text{RDP2}}$ (Read Data Pulse of ISO Track NO.2)
This data output signal is produced by the F2F decorder.
The "High" level of this signal indicates data"0", and the "Low" level, data"1".

(5) $\overline{\text{RCP2}}$ (Read Clock Pulse of ISO Track NO.2)
This clock pulse signal is output for demodulating read data sampling.
Signal RDP2 must be accepted at the trailing edge of signal RCP2.

(6) $\overline{\text{CLS2}}$ (Card Loading Signal of ISO Track NO.2)
This signal indicates that a card is inserted for reading.
The level of this signal becomes "Low" while a card is passing a head, and this signal is returned to "High" after a card passed a head.

7.5 Input Signal

$\overline{\text{CSV}}$ (Current Save)

Current consumption can be reduced by designation of this signal, if necessary.

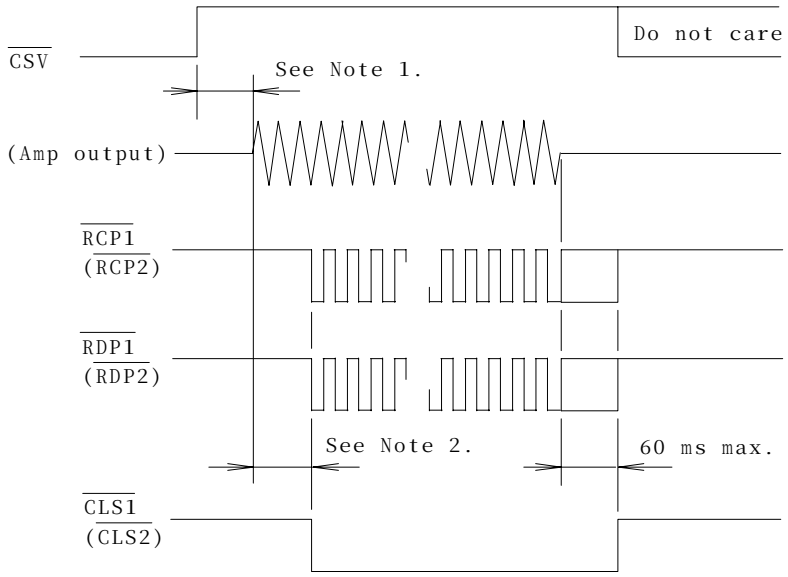
"H" or "Open" : Operating mode
"L" : Stand-by mode
(Impossible to read)

7.6 Electrical Characteristics of Signals

(1) Logic	Negative logic
(2) Output Voltage	V_{OH} : 3.5 V min. (I_{OH} : -1 mA) V_{OL} : 0.4 V max. (I_{OL} : 4 mA)
(3) Input Voltage	V_{IH} : 0.8 VCC min. V_{IL} : 0.2 VCC max.

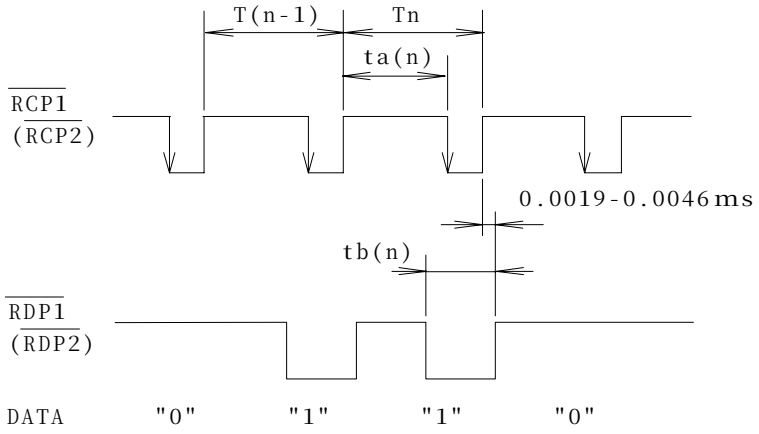
7.7 Timing Charts of Output Signals

(1)



NOTE 1: Logic circuit is reset within 0.5 ms max.
2: Ignored bits from the card edge are 18 bits(ISO track 1,3) or 7 bits(ISO track 2).

(2)



ta(n)=5/7・T(n-1)
Tb(n)=1/2・Tn

8. General Performance

8.1 Card Feed Speed	100 to 1,200 mm/s
8.2 Card Feed Force	0.88 N typ. 1.76 N max. (Under normal use with normal card)

8.3 Read-out Bit Interval (Nominal value)

(1) ISO Track 1,3(210 BPI)	1.21 ms (at 100 mm/s) 0.101 ms (at 1,200 mm/s)
(2) ISO Track 2(75 BPI)	3.4 ms (at 100 mm/s) 0.283 ms (at 1,200 mm/s)

8.4 Magnetic Head

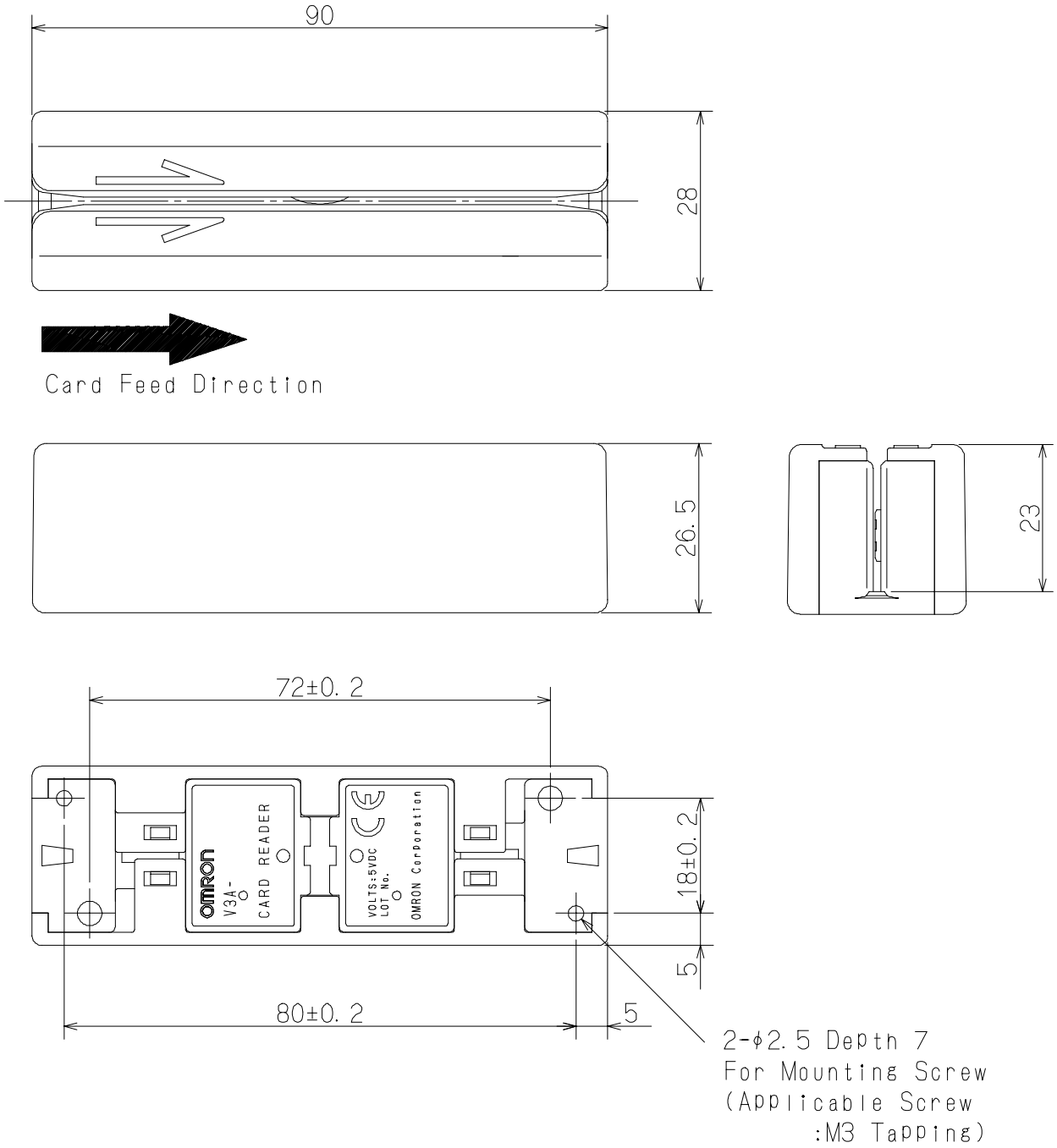
(1) Number of track	2
(2) Track width	1.4 mm
(3) Core material	Permalloy
8.5 Dielectric Strength	DC 250 V for 1 minute. (Between circuit and mounting screw)
8.6 Insulation Resistance	10 M $_{OHM}$ min. (Measured at DC 250 V with a megohm-meter between circuit and mounting screw)

9. Environmental Conditions

9.1 Temperature	During operation:	-10 to +55 degree(Celsius)
	In Storage:	-30 to +70 degree(Celsius)
9.2 Humidity	During operation:	30 to 85 %RH (absolute air humidity: 23 g/m^3 or less)
	In Storage:	20 to 90 %RH (absolute air humidity: 40 g/m^3 or less)
9.3 Vibration	10 to 150 Hz, single vibration width of 0.15 mm Provided that acceleration is 19.6 m/s^2 max., swept 4 times under 8 min./time.	
9.4 Shock	Peak Acceleration:	196 mm/s^2
9.5 Installation	Indoor, e.g. office (place not exposed to direct sunlight)	

10. Reliability and Life

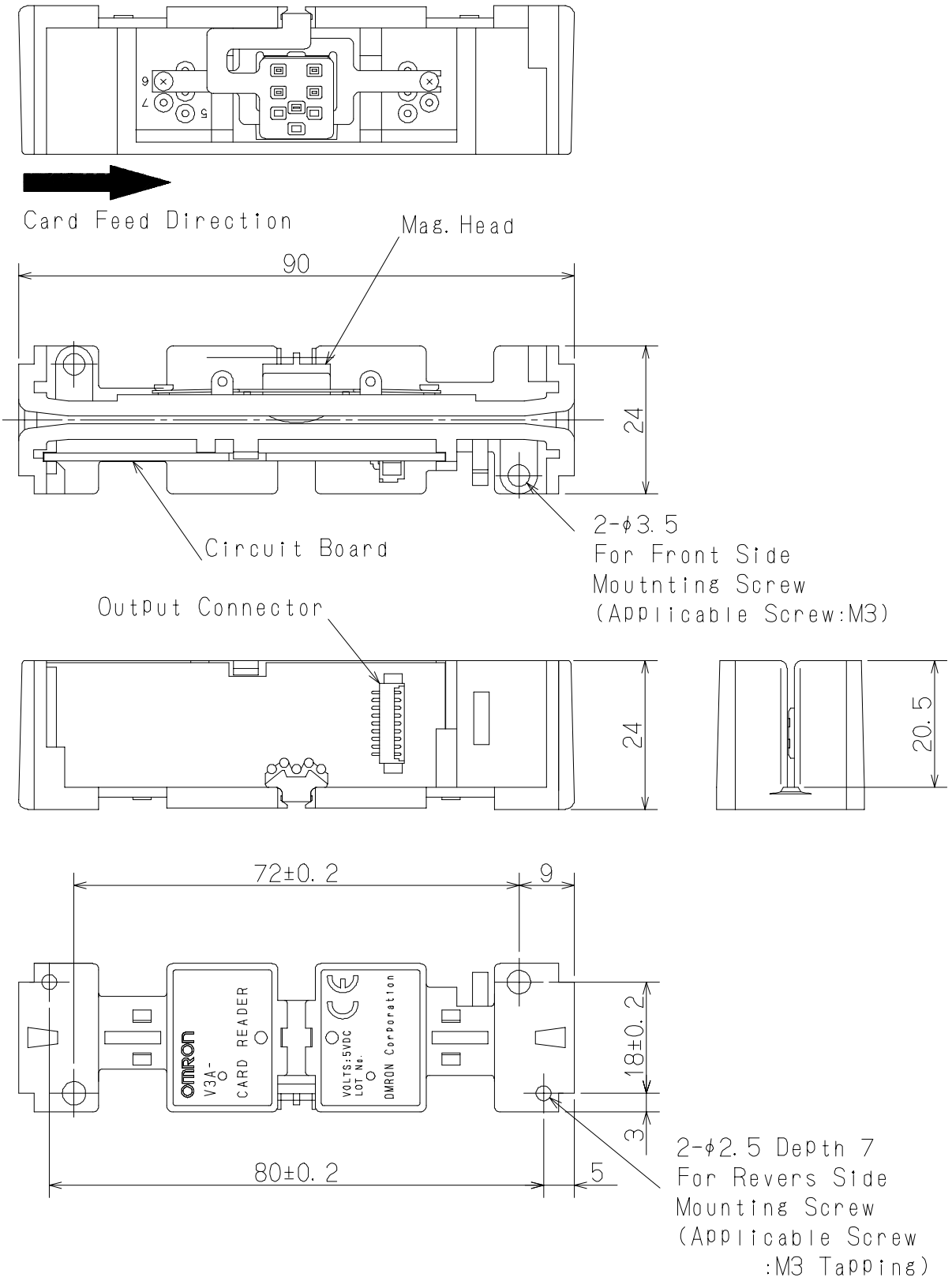
10.1 Life Time	300,000 times processing or 50,000 hours, whichever comes earlier. (Under normal environmental conditions, e.g. office.)
10.2 Magnetic Card	1,000 passes min. (Under normal environmental conditions, e.g. office)
10.3 Read Error Rate	1/1,000 passes max. (Under normal use with normal card.)



ex. V3A-6K

1. All dimensioned are in millimeters.
2. Tolerances unless specified +/- 0.3 mm

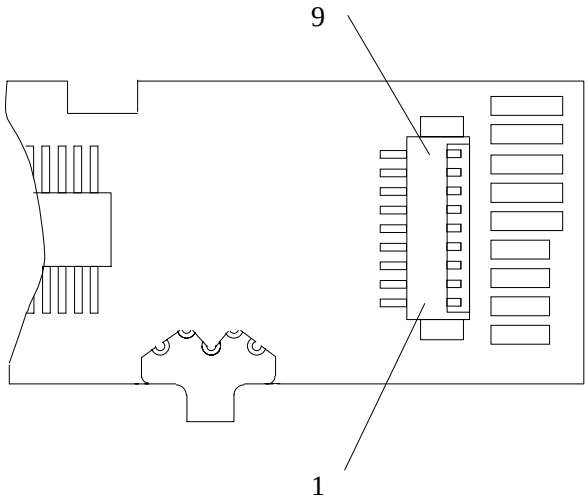
Fig.1 Outline Dimensioned Drawing and Card Feed Direction
V3A-6K,6KB,7K,7KB (with cover type)



ex.V3A-6

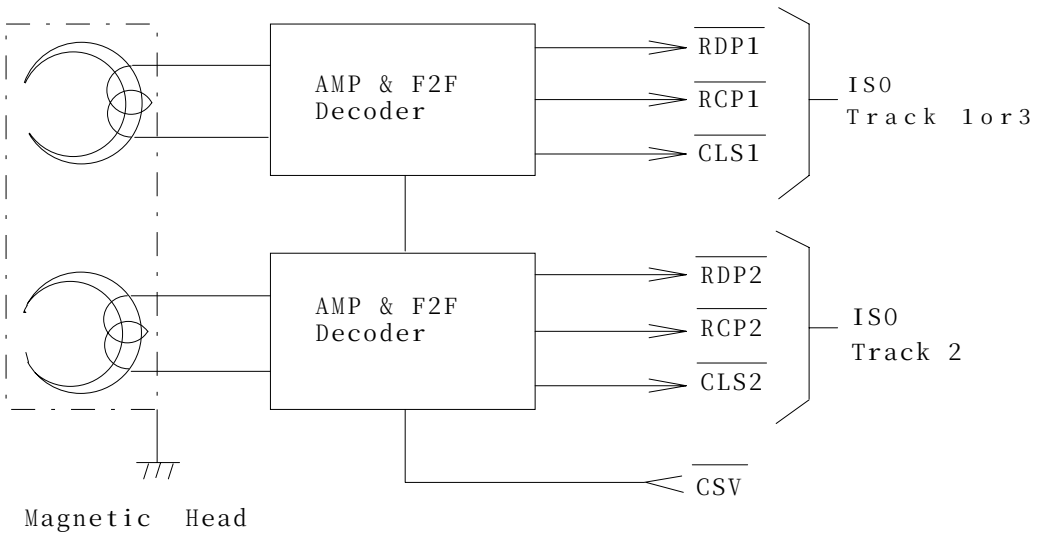
1. All dimensioned are in millimeters.
2. Tolerances unless specified +/- 0.3 mm

Fig.2 Outline Dimensioned Drawing and Card Feed Direction
V3A-6, 6B, 7, 7B (without cover type)



Connector Pin No. (molex 53261-0990	Signal
9	$\overline{\text{RDP1}}$
8	$\overline{\text{RCP1}}$
7	$\overline{\text{CLS1}}$
6	$\overline{\text{RDP2}}$
5	$\overline{\text{RCP2}}$
4	$\overline{\text{CLS2}}$
3	CSV
2	+5VDC
1	0V

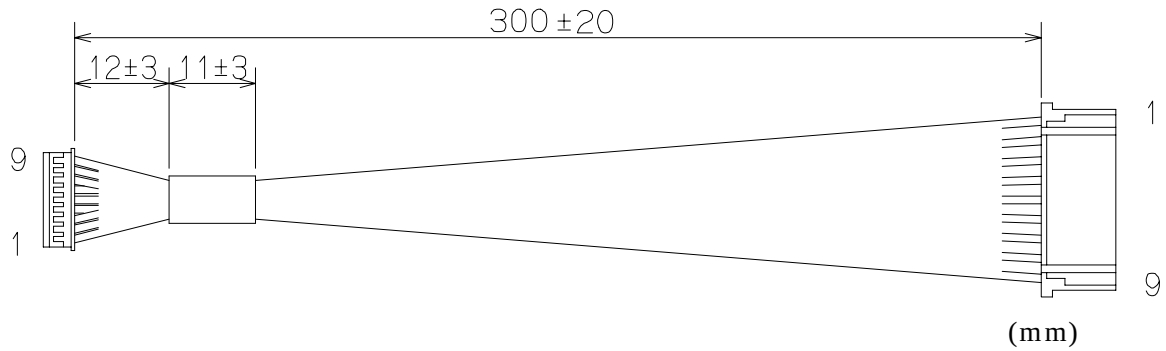
Fig.3 Output Connector and Pin Assignment



Note: Shield case of magnetic head is connected to circuit ground.

Fig.4 Block Diagram

Card reader side Connector Pin No. molex 51021-0900	Signal	Output Connector Pin No. molex 51102-0900	
9	RDP1	1	ISO Track No.1 or No.3
8	RCP1	2	ISO Track No.1 or No.3
7	CLS1	3	ISO Track No.1 or No.3
6	RDP2	4	ISO Track No.2
5	RCP2	5	ISO Track No.2
4	CLS2	6	ISO Track No.2
3	CSV	7	
2	+5VDC	8	
1	0V	9	



Parts No. 3968857-8

Fig.5 Connector Harness (optional parts) and Pin Assignment