Ingeniería Electrónica

SMART IDENT

RF CARD READER/WRITER MACHINE

Specifications

User Manual

KYL-3000 Rev. F

KYL–3XXX SERIES

MOTORIZED MAGNETIC & IC CARD READER/WRITER

With TTL Interface

REVISION HISTORY

CHECK	DATE	DESCRIPTION	REV	PAGE
1	2003.2.13	TTL Interface	A	11
2	2005.6.2	Input/Output Signal Change	B	11
3	2006.11.2	Modified the model name information in the SPEC.	C	12
4	2008.02.20	Shutter Timing Addition.	D	14
5	2008.12.23	Add the Sensor Location	E	14
6	2010.08.23	Add the LoCo & HiCo Select	F	15
7	2010.09.26	Add the Motor Signal	G	16

MODEL NAME INFORMATION

K Y X – 3 X X X X

INTERFACE	FUNCTION	MS / IC	TRACK	OPTION	OPTION II
T: RS-232C L: TTL	3: MOTORIZED MS / IC CARD READER	0: - 1: IC ONLY 2: MS- READ ONLY 3: MS- R/W 5: MS(READ ONLY) + IC 6: MS(R/W)+IC	0: - 1: ISO 1 TRK 2: ISO 2 TRK 3: ISO 3 TRK 4: ISO 1,2 TRK 5: ISO 1,3 TRK 6: ISO 2,3 TRK 7: ISO 1,2,3 TRK	0: Without bezel 1: LOW-CO Short bezel 2: HI-CO Short bezel 3: LOW-CO & Shutter 4: HI-CO & Shutter 5: Shutter	R: RF
*IC CONTACK : 8 PIN					

CONTENTS

OVERVIEW

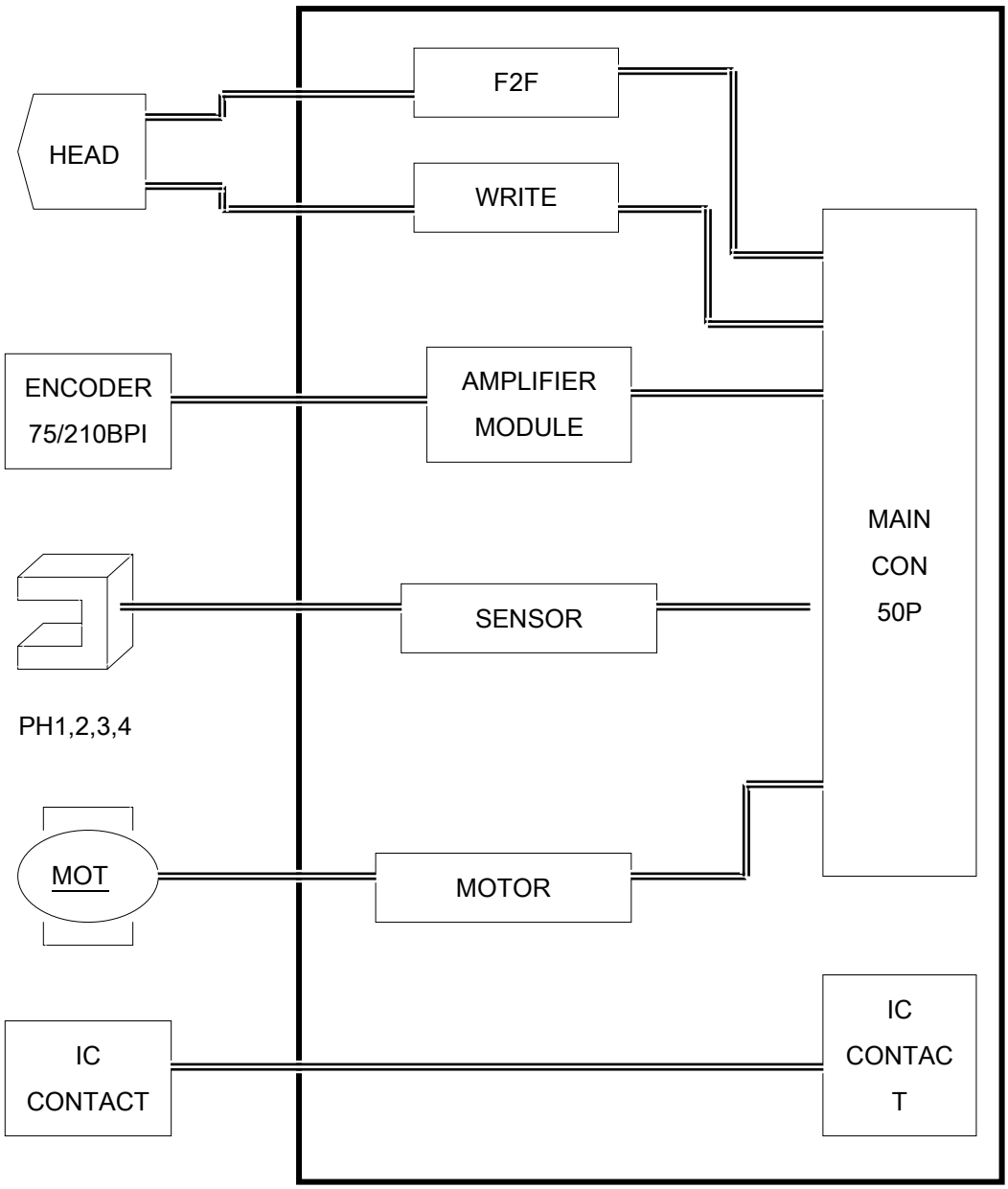
This specification is for the KYL-3XXX Series Motorized TTL Type Magnetic & IC Card Reader/Writer meeting customer's applications.

According to ISO 7811/2, Standard Data is read and written, and Non-ISO User Format Read/Write is also supported optionally .

KYL-3XXX Series has very compact and robust structure providing high reli ability and long life.

KYL-3XXX series is suitable for Banking Terminals, Credit/Debit Card System, Auto ID and Access Control Application.

SYSTEM BLOCK DIAGRAM



SPECIFICATIONS

♦ *Applicable Card*

- Magnetic Card — Confirming To ISO-7810. 7811 Series
- IC CARD — Confirming To ISO-7816 Series

♦ *Performance*

- Card Transport Speed — 280mm/sec ± 10%
- Card Transport Time — 1.0sec Approx.
- Permissible Card Wrap — 3mm Max.
- Magnetic Head — Read : 1mm, Write : 3mm
- Recording Method — FM(F2F)
- Recording Bit Density — ISO-1,3 : 210BPI ± 8%
  ISO-2 : 75BPI ± 5%
- Jitter Card Read — Bit-to-Bit : 23%
  Sub-Interval : 15 :30%
- Card Thickness — 0.76mm ± 0.08mm

♦ *Power Requirement*

- Input Voltage — DC +24V ± 10%
  DC +5V ± 5%
- Stand By — 0mA(24V DC)
  Approx. 80mA(5V DC)
- Motor Starting or Reversing — Approx. 180mA(24V DC)
  Approx. 150mA(5V DC)
- Writing (Triple Track, 300Oe) — Approx. 180mA(24V DC)
  Approx. 300mA(5V DC)
- Ripple — Less than 200mVp-p(24V DC)
  Less than 50mVp-p(5V DC)

♦ *Environmental*

- Temperature and Humidity
  a. Operating Temperature 5℃ ~ 50℃
  Humidity 45% ~ 85%RH Without Condensation
  b. Storage Temperature -25℃ ~ 70℃
  Humidity 25% ~ 95%RH Without Condensation
- Vibration Amplitude 2mm With in 2G or Less Than 10 to 50Hz/min X.Y.Z Directions.
- Shock 30G, 11msec X,Y,Z each Direction One Time.

♦ *Life and Reliability*

- Life Magnetic Head : Min. 1,000,000 Pass
  (1 Pass = One Forward or Backward movement)
  IC Contact : Min. 500,000 Pass
  Card 1,000 Passes
- Reliability Error Rate less than 3/1000.
  MCBF : 500,000 cycles or more
  MTBF : 100,000 HR or more (Electronic parts only)
  MTTR : 30 minutes (unit replacement)

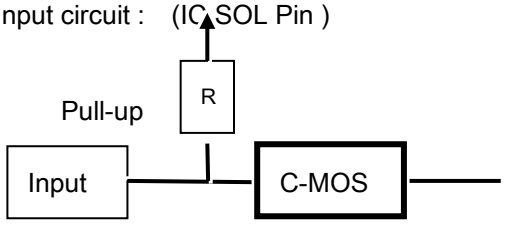
♦ *Warped Cards*

This term refers to an evenly warped card having a height from the top of the convex surface to the base of the warped edge.

H : 3.00mm Max. for card jamming

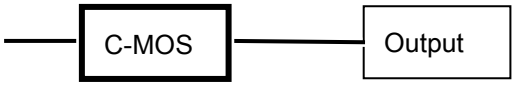
♦ Input / Output Signal

Input circuit : (IC SOL Pin)



TTL level input buffer with pull-up

Output circuit



Output(8mA)

♦ *Pin Assignments*

- Connector 50PIN (Magnetic Card Part) : HIF3BA-50PA-2.54DSA (CN9)

NO	Signal Name	I/O	NO	Signal Name	I/O
1	5V	I	2	5V	I
3	S-GND	1	4	S-GND	I
5	24V	I	6	24V	I
7	S-GND	I	8	S-GND	I
9	/MF	I	10	/MB	I
11	-	-	12	-	-
13	-	-	14	-	-
15	HEAD_A	O	16	HEAD_B	O
17	-	-	18	-	-
19	IC-S/W	O	20	/RDT2-PRE	O
21	PRE-S/W	O	22	/RCL2-PRE	O
23	-	-	24	-	O
25	/PH1	O	26	/PH4	O
27	/PH2	O	28	/PH3	O
29	/PH3	O	30	/STD	O
31	/RCP1	O	32	/RDD1	O
33	/RCP2	O	34	/RDD2	O
35	/RCP3	O	36	/RDD3	O
37	-	-	38	-	-
39	WCP210	O	40	WCP75	O
41	/WDP1	I	42	R/(/W1)	I
43	/WDP2	I	44	R/(/W2)	I
45	/WDP3	I	46	R/(/W3)	I

47	/IC-SOL	I(8.2K PULL-UP)	48	/SHT-SOL	I
49	24V	I	50	24V	I

- Connector 8PIN (IC CARD Part): MOLEX 53014-0810(CN12)

NO	Signal Name	I/O	NO	Signal Name	I/O
1	IC-VCC (C1)	I	2	IC-GND (C5)	I
3	IC-RST (C2)	I	4	IC-VPP (C6)	O
5	IC-CLK (C3)	I	6	IC-I/O (C7)	I
7	IC_REF1 (C4)	O	8	IC_REF2 (C8)	O

- Connector 16PIN (IC CARD Part): HIF3BA-16PA-2.54DSA (CN17)

NO	Signal Name	I/O	NO	Signal Name	I/O
1	IC-VCC (C1)	I	2	IC-RST (C2)	I
3	IC-I/O (C7)	1	4	IC-GND (C5)	I
5	-	-	6	IC-CLK (C3)	I
7	IC-VCC (C1)	I	8	IC-VPP (C6)	O
9	IC_REF1 (C4)	O	10	IC_REF2 (C8)	O
11	/IC-SW	O	12	-	-
13	-	-	14	/IC-SOL	I(8.2K PULL-UP)
15	VCC (+5V)	I	16	GND	I

- Input Signal Function

NO	SYMBOL	NAME	FUNCTION
1	WDPn\	Write Data Pulse	Write data serially input to the magnetic card. The "HIGH"level of this signal indicates data bit "0" and the "LOW" level, data bit "1".
2	R/Wn\	Read/Write Control	Contorl input signal to change the read mode to the write mode. The "HIGH" level of this signal puts the card reader in the READ mode, and the "LOW" level, in the card in-take direction.
3	MF\	Motor Forward Control	Input signal to drive the motor in the forward direction. While this signal is "LOW", the motor rotates in the card in-take direction.
4	MB\	Motor Backward	Input signal to drive the motor in the Backward direction. While this signal is "LOW", the motor rotates in the card in-take

		Control	direction.
5	/SHT-SOL	Shutter Solenoid	"HIGH"level : IC-Solenoid Off "LOW"level : IC-Solenoid On
6	IC-SOL\	IC Contact Solenoid	"HIGH"level : IC-Solenoid Off "LOW"level : IC-Solenoid On

- Output Signal Function

NO	SYMBOL	NAME	FUNCTION
1	RDDn\	Read Data	Read data serially output to the magnetic card. The "HIGH"level of this signal indicates data bit "0", The "LOW" level, data bit "1".
2	RCPn\	Read Clock	Clock pulse output used for read sampling. Read data sampling is performed at the falling edge of the Signal.
3	WCP\	Write Clock Pulse	Clock pulse output for write data transfer. Write data is input in synchronization with the falling edge of the signal
4	STD\	Start Data	When input is started from the start mark of write data at the Fail to "L" of this signal, than data are written in order from the specified start character position of the card
5	PH1\	Card Enter Detection	"HIGH"level : Card Non Detection "LOW"level : Card Detection
6	PH2\	Magnetic Head Center	
7	PH3\	Return Position	
8	PH4\	IC Contact Position	
9	PRE-S/W	Shutter Switch	"HIGH"level : Switch Off "LOW"level ; Switch On

10	HEAD_A HEAD_B	HIGH-CO & LOW CO SELECT	300 Oe, 1750 Oe, 2750 Oe, 4000 Oe
11	IC-SW\	IC Contact Switch	"HIGH"level : Non Contact "LOW"level ; Contact

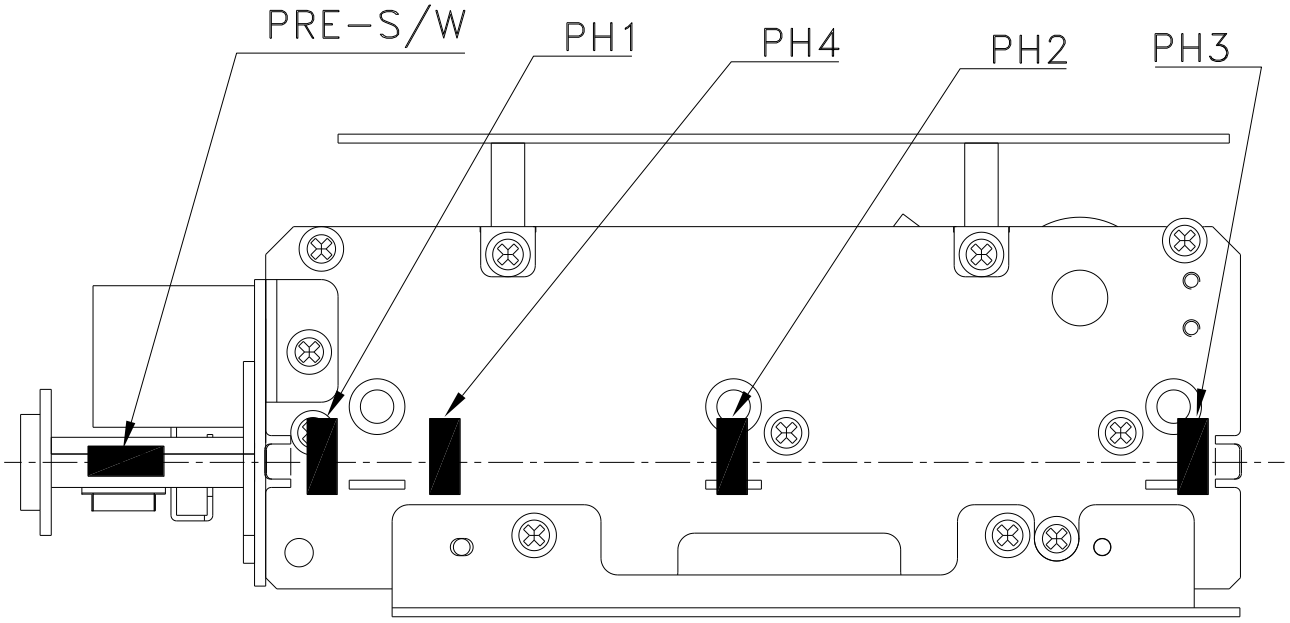
- Motor Control

MF\	MB\	MOTOR
L	L	STOP
L	H	FORWORD
H	L	BACKWORD
H	H	BREAK

- HIGH-CO & LOW-CO SELECT.

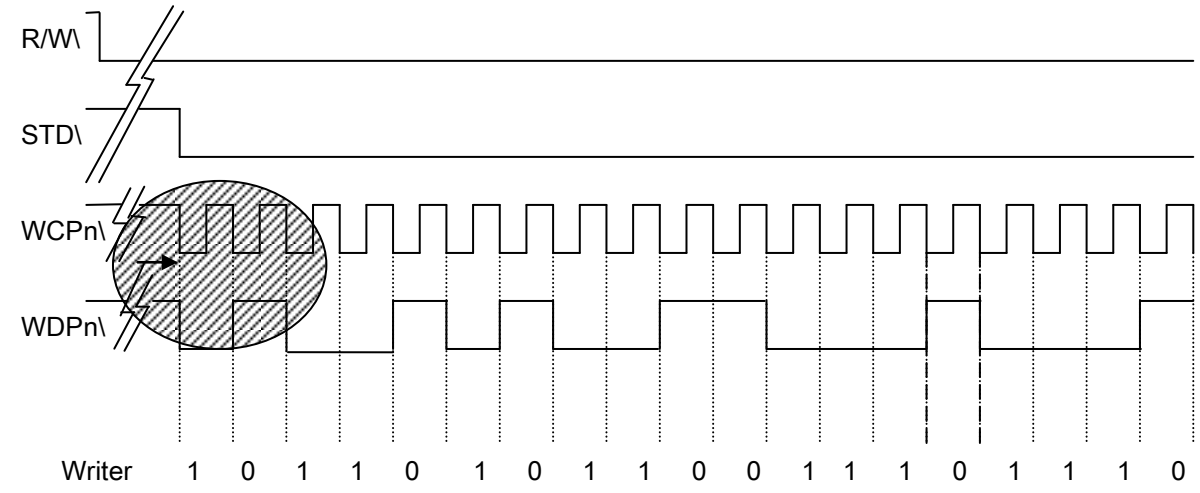
HEAD_A	HEAD_B	Oe
L	L	300
L	H	1750
H	L	2750
H	H	4000

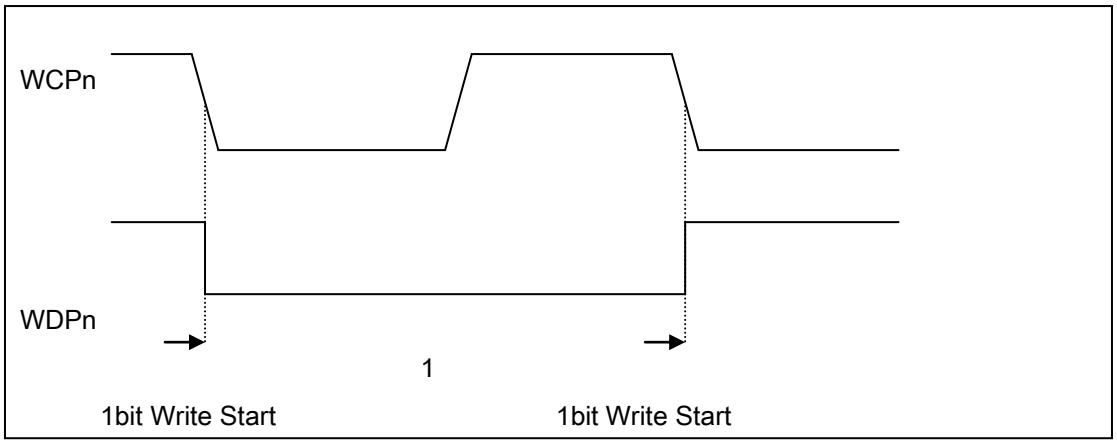
-Sensor Location

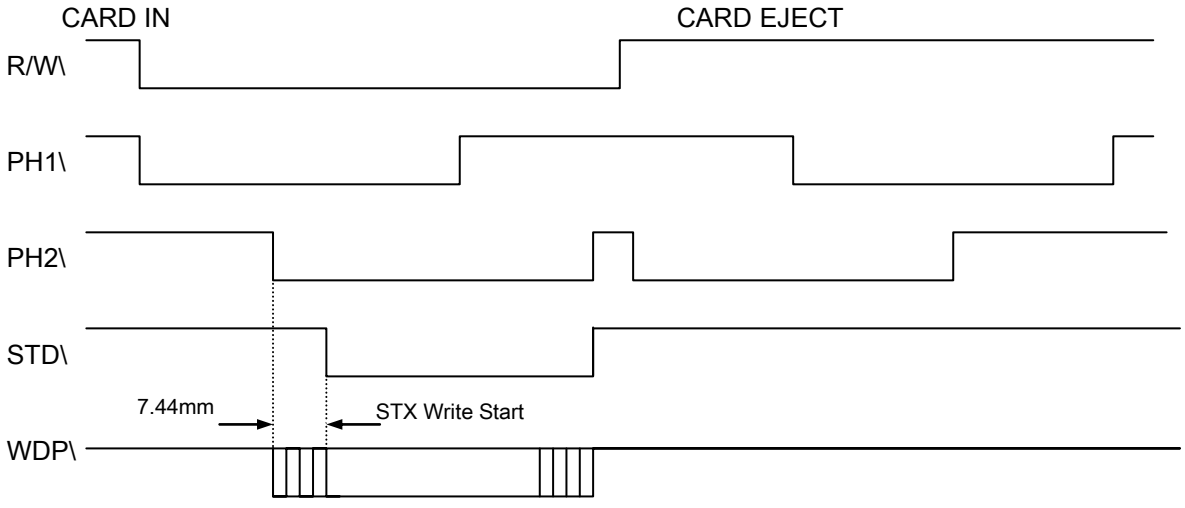

PRE-S/W
PH1
PH4
PH2
PH3

♦ *Timing Chart*

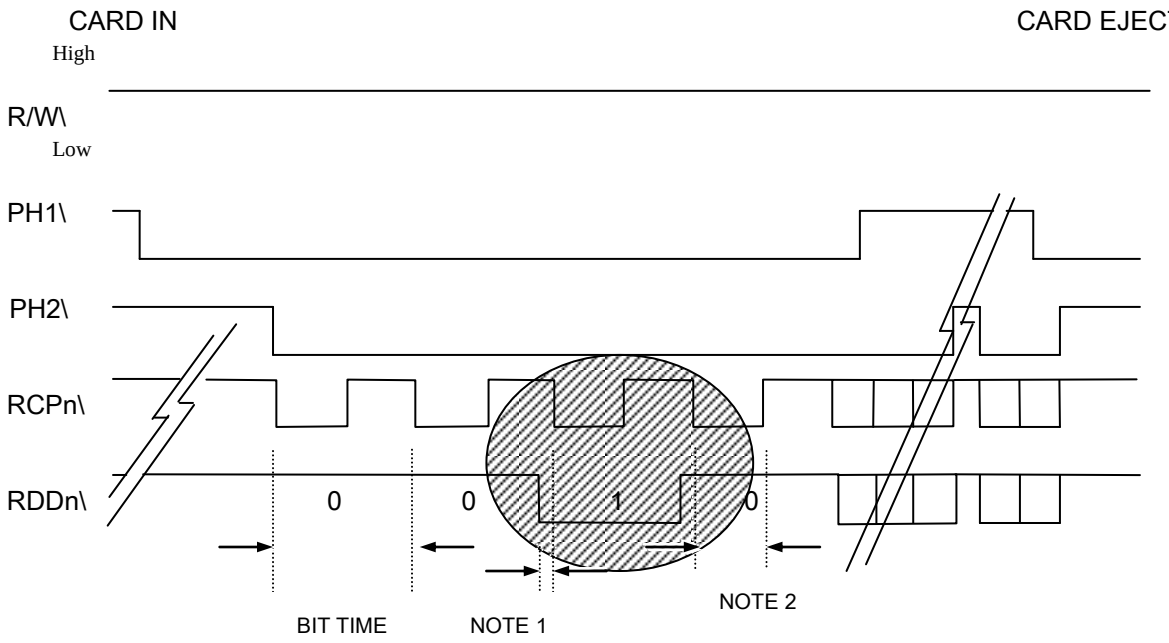
1. Writing Timing



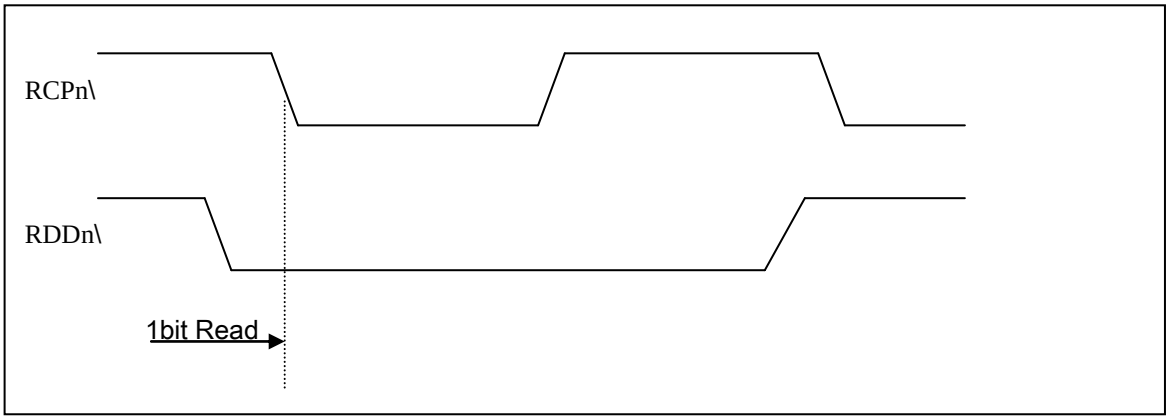




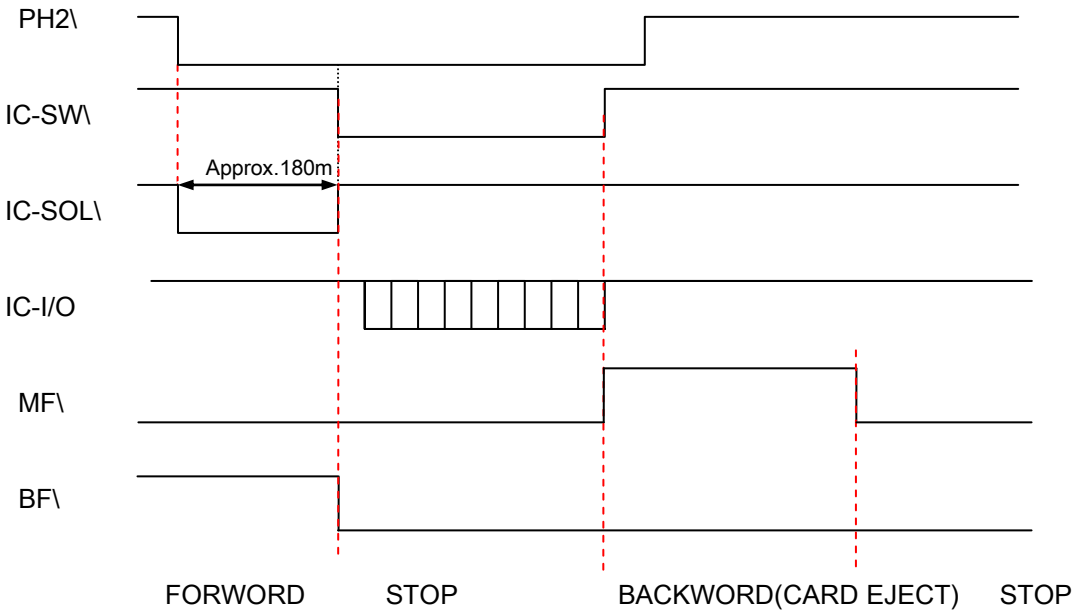
2. Reading Timing



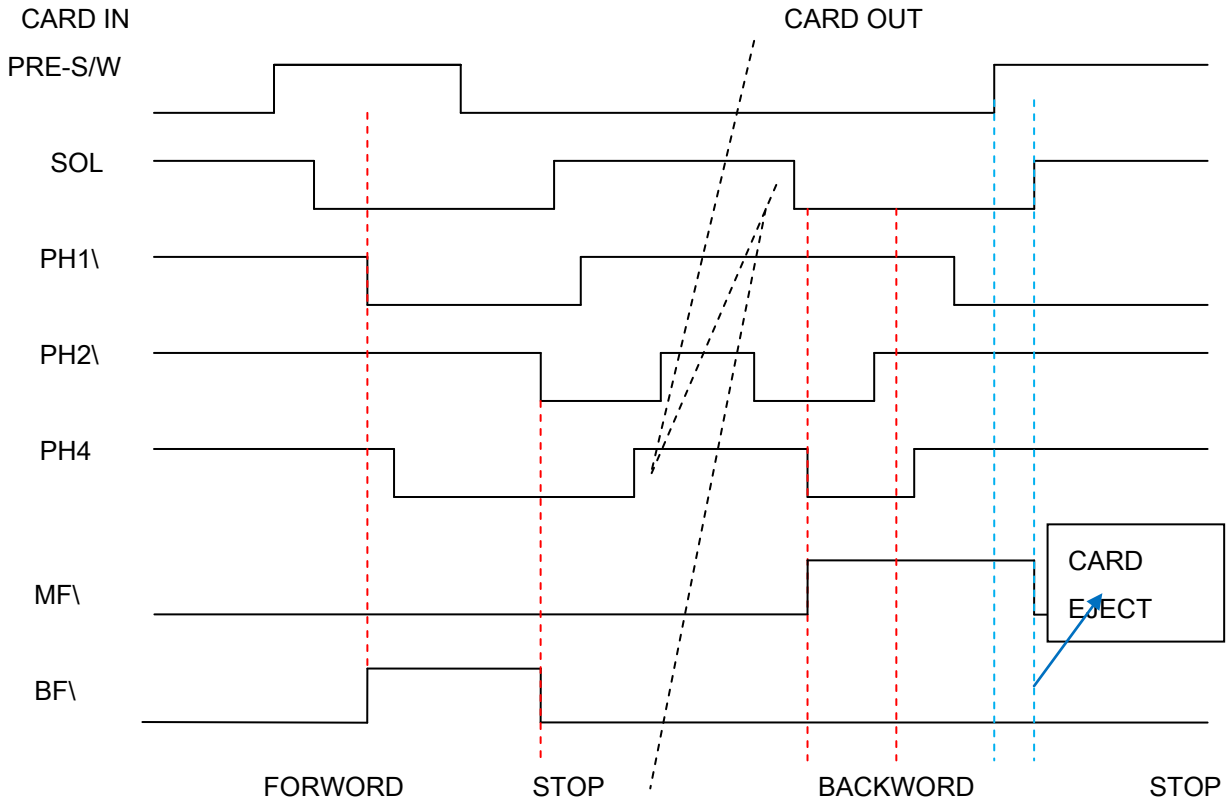
- NOTE1 : The RDD\ valid at 2.0uSec(min.) before the negative edge of RCP\.
- NOTE2 : The "LOW" pulse width of RCP\ is approx. 70% of the bit time.



3. IC CARD Timing



4. Shutter Timing.



DIMENSION DRAWING