

Access Reader

183U-Module/ AR-723-U/ AR-721-K/ AR-725-U/ AR-725-K/ AR-661U



Table of Contents

01. AR-723-U Terminal Cable	01
• AR-723-UB (125kHz)	
• AR-723-UD (13.56MHz)	
02. AR-723-UD (13.56MHz) Terminal Cable	02
• Standard RS485 connection	
• RS485 simulates one-way output of RS232	
• Controller connected to reader	
03. AR-661U Terminal Cable	03
04. AR-661U Diagram	03
• 721-H with 2 pcs of 661U for two-door anti-pass-back	
• Improvement of RF interference for 2 pcs of 661U	
• Controller / AR-661U Diagram	
05. AR-721-K & AR-725-K/U (125kHz) Terminal Cable / Diagram	04
06. AR-721-K & AR-725-K/U (13.56MHz) Terminal Cable / Diagram	04
07. 183U-Module Terminal Cable / Diagram	05
08. Communication Protocol Function Description	05
09. Extension Function	06
10. Installation	07
11. Contents	08

01. AR-723-U Terminal Cable

AR-723-UB (125kHz)



Wire Application	Wire	Color	Description
Power	1	Black	DC Power 0V (GND)
	2	Red	DC Power 12V
Beeper	3	Purple	Beeper Input (Low Sound)
LED	4	Brown	LED Green Input
LED	5	Yellow	LED Red Input
Card Present	6	White	Card Present
Wiegand	7	Green	Wiegand DAT:0 Output
	8	Blue	Wiegand DAT:1 Output
Beeper	9	Gray	Beeper Output
	10	Orange	--

Communication Option (Jumper)		※Default Value	
Communication Mode	Jumper adjustment	Wiegand DAT:0 Output	Wiegand DAT:1 Output
※WG Mode	DAT :1 DAT :0 	WG-D0	WG-D1
UART Mode	Tx Rx 	Rx	Tx

When selecting UART Mode, it is suggested to purchase additional converter (AR-321L485-12V)

AR-723-U RS-232 TTL:By order) Format: 9600, N, 8, 1

DAT:0: TTL Inverted Serial Output.(Connect to PC COM port)

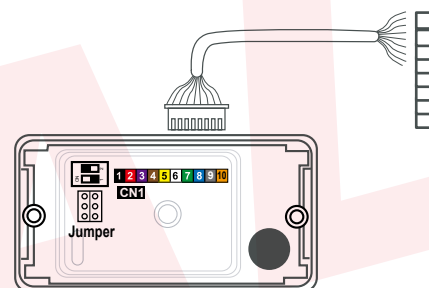
DAT:1: TTL Serial Output. (Connect to PC COM port through RS-232 invert driver)



WG34

AR-723-UB[125kHz]

Output Selection		※Default Value	
Output	232 (TTL)/ ABA (DIP_SW1)	26/34 (DIP_SW2)	
WG26	OFF	OFF	
※WG34	OFF	ON	
RS-232 (TTL:By order)	ON	OFF	
ABA II	ON	ON	



AR-723-UB[125kHz]

AR-723-UD (13.56MHz)

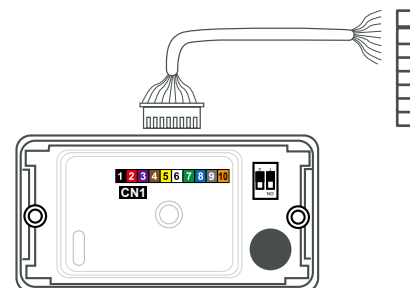
Wire Application	Wire	Color	Description
Power	1	Black	DC Power 0V (GND)
	2	Red	DC Power 12V
Beeper	3	Purple	Beeper Input (Low Sound)
LED	4	Brown	LED Green Input
LED	5	Yellow	LED Red Input
Card Present	6	White	Card Present
Wiegand	7	Green	Wiegand DAT:0 Output
	8	Blue	Wiegand DAT:1 Output
Networking	9	Gray	RS-485(A+)
	10	Orange	RS-485(B-)



WG34

AR-723-UD[13.56MHz]

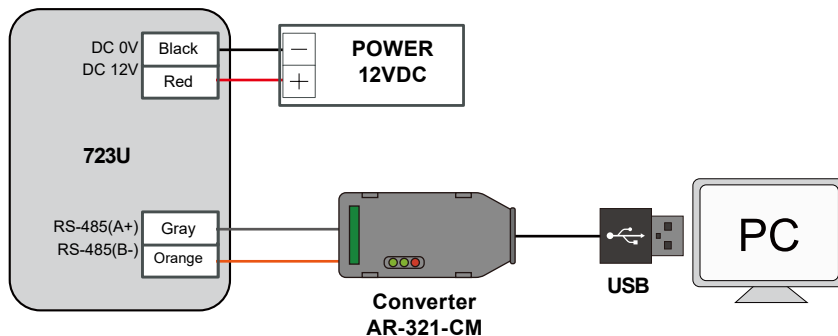
Output Selection		※Default Value	
Output	26/34(DIP_SW1)	232(TTL)/ ABA(DIP_SW2)	
WG26	ON	OFF	
※WG34	OFF	OFF	
ABAI	OFF	ON	
RS-232(TTL:By order)	ON	ON	



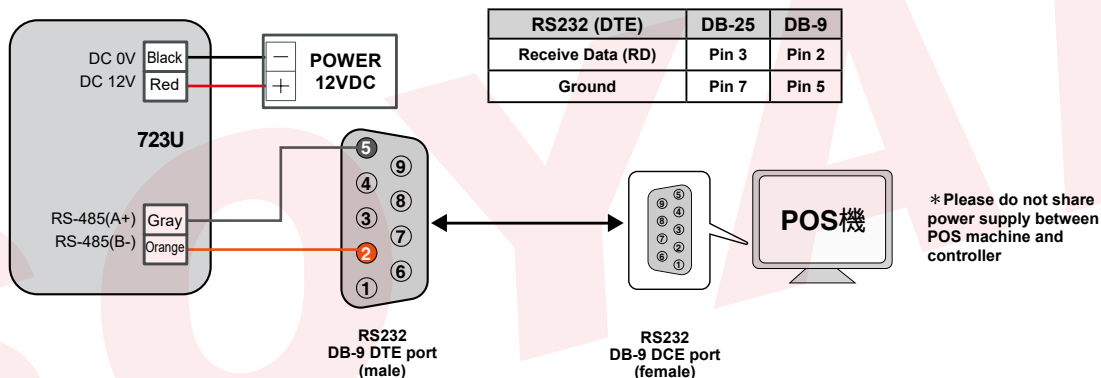
AR-723-UD[13.56MHz]

02. AR-723-U Diagram

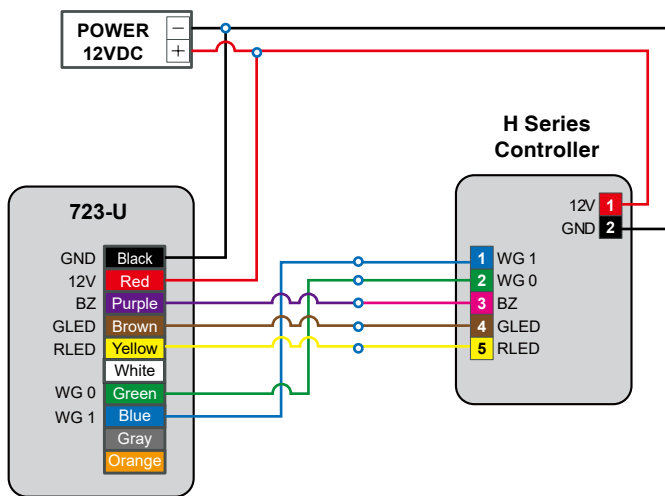
Standard RS485 connection



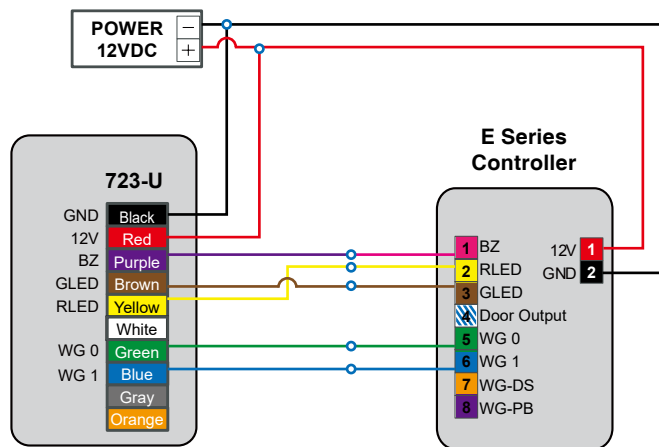
RS485 simulates one-way output of RS232



Home (H) Series Controller Connected to Reader



Enterprise (E) Series Controller Connected to Reader



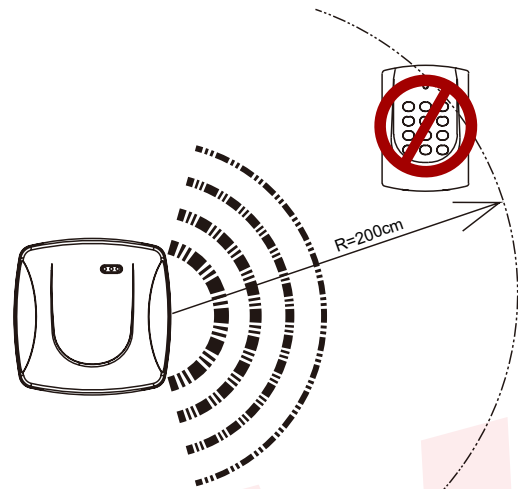
03. AR-661U Terminal Cable

Wire Application	Wire	Color	Description	Remark
Power	1	Black	DC 0V (GND)	regulated
	2	Red	DC 12V~18V	
Beeper	3	Purple	Beeper Output	
Wiegand	4	Green	Wiegand DAT:0	Open collected
	5	White	Card Present	
Wiegand	6	Blue	Wiegand DAT:1	Open collected
Output Selection	7	Yellow	SET1	
	8	Brown	SET2	
	9	Gray	SET3	Reserve

Output Selection				
Output	WG26	WG34	RS-232 (TTL)	WG34 + 4
SET 1	Open	Short to GND	Open	Short to GND
SET 2	Open	Open	Short to GND	Short to GND

※ **Note:**
WG34+4: Follow 0101 after WG34 data stream for reader identification.

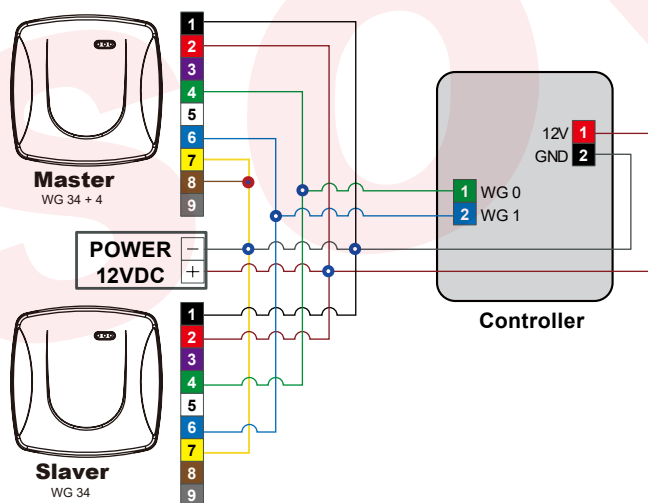
※ Minimum distance between AR-661U & other proximity reader should be over 200cm; otherwise, both readers might interfere each other.



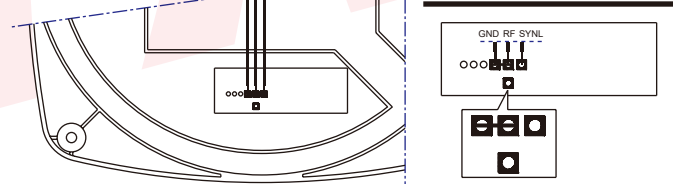
04. AR-661U Diagram

721-H with 2 pcs of 661U for two-door anti-pass-back

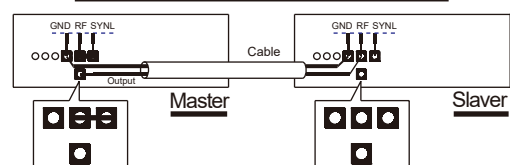
Improvement of RF interference for 2 pcs of 661U anti-pass-back



Single Reader (RF always ON) (RF switching)

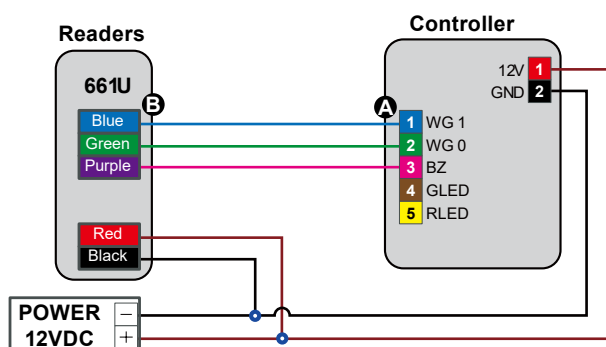


Two AR-661U Readers Wiring



※ When the distance between two AR-661U readers is less than 6m (recommended value), the sensing distance will be shortened. However, you can use this method to avoid interference.

Controller / AR-661U Diagram



※ No 661U needs to connect to LED

AR-661U	PIN	Function
Blue	Blue	DAT: 1
Green	Green	DAT: 0
Purple	Pink	BEEP
---	Brown	G-LED
---	Yellow	R-LED

05. AR-721-K & AR-725-K/U (125kHz) Terminal Cable / Diagram

Cable: CN1

Wire Application	Wire	Color	Description
Power	1	Red	DC Power 12V
	2	Black	DC Power 0V

Cable: CN2

Wire Application	Wire	Color	Description
Wiegand	1	Thin Blue	Wiegand DAT: 1 Input ABA Format: Clock
	2	Thin Green	Wiegand DAT: 0 Input ABA Format: Data
ABA	3	Orange	ABA Format: Card Present
	4		No Connection
Beeper	5	Pink	Beeper Input (Low Sound)
LED	6	Brown	LED Green Input (Low Bright)
	7	Yellow	LED Red Input (Low Bright)

Cable: CN3

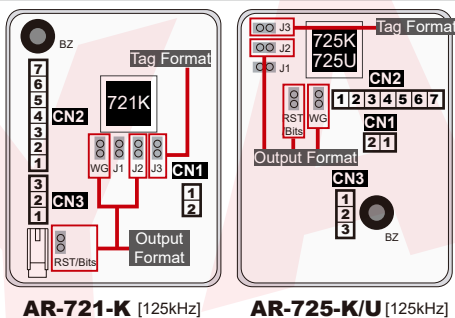
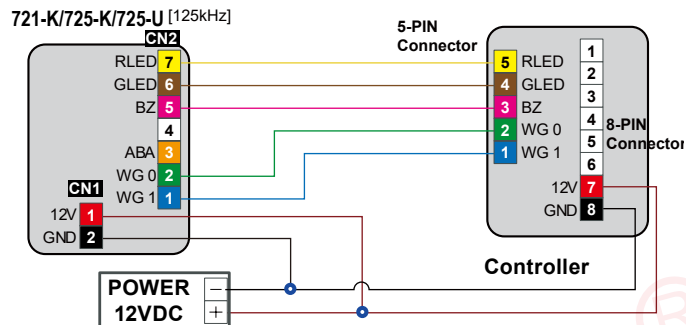
Wire Application	Wire	Color	Description
Tamper Switch	1	Red	N.C.
	2	Orange	COM
	3	Yellow	N.O.

Wiegand Output Format

Output Format	WG	J2	RST/Bits
Wiegand 26 Bit	Open	Open	Open
Wiegand 34 Bit	Open	Open	Short
RS-232	Short	Open	Open
Magnetic (ABA 8 Digital)	Short	Open	Short
Magnetic (ABA 10 Digital)	Short	Open	Open

EM(125kHz)

※ Cable position is showed in the Terminal Cable



Tag Format	J3
SOYAL Format	Short
EM Format [Default]	Open

06. AR-721-K & AR-725-K/U (13.56MHz) Terminal Cable / Diagram

Cable: CN1

Wire Application	Wire	Color	Description
Output Format	1	Orange	SET2
	2	Purple	SET1
	3	White	Reading card
Power	4	Thick Red	DC 12V
	5	Thick Black	DC 0V (GND)

Cable: CN2

Wire Application	Wire	Color	Description
Beeper	1	Pink	Beeper Input (Input Low)
LED	2	Brown	LED Green Input (Input Low)
	3	Yellow	LED Red Input (Input Low)

Cable: CN3

Wire Application	Wire	Color	Description
Tamper Switch	1	Red	N.C.
	2	Orange	COM
	3	Yellow	N.O.

Cable: CN4

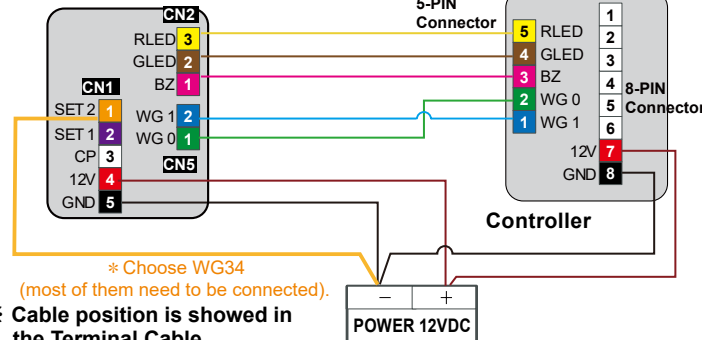
Wire Application	Wire	Color	Description
Networking Module	1	Thick Green	RS-485 (B-)
	2	Thick Blue	RS-485 (A+)

Cable: CN5

Wire Application	Wire	Color	Description
2-PIN Connector	1	Thin Green	WG DAT:0 Output
Wiegand	2	Thin Blue	WG DAT:1 Input
			ABA Format: Clock

Mifare(13.56MHz)

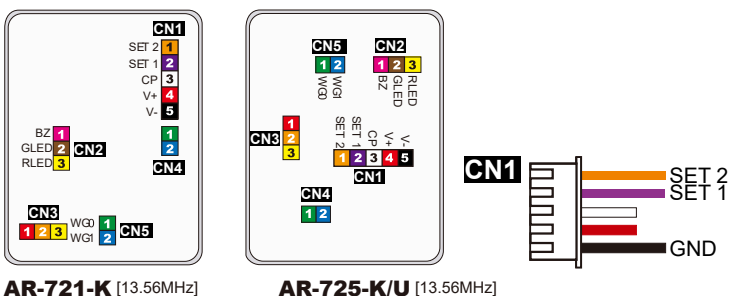
721-K/725-K/725-U [13.56MHz]



※ Cable position is showed in the Terminal Cable

Output Format

Output Format	SET 1	SET 2	Note
WG-26	Open	Open	Hex
WG-34	Open	Short to GND	Hex
ABA-10	Short to GND	Open	BCD 10
ABA-5-5	Short to GND	Short to GND	BCD 5:5



Wire Application	Wire	Color	Description
Power	1	Red	DC12V
Networking	2	Blue	RS-485 (A+)
	3	Green	RS-485 (B-)
Power	4	Black	DC 0V (GND)
--	5	Yellow	--

Echo	Value	Description	[i.e.] Card Number = 01234:56789		
Head	7E	Initial Value			
Length	09	Compute the data length from Node to the end including XOR and SUM			
Node Function	00	The value 00 is fixed, the message would be sent to PC from the device			
Data Field	03	Receive data from AR-723-U (early version 71)			
	01				
UID 0~31bits	04	Site H	Site Code – High	[UID31-24]	
	D2	Site L	Site Code – Low	[UID23-16]	
	DD	Card H	Card Code – High	[UID15-8]	
	D5	Card L	Card Code – Low	[UID7-0]	
Type	01	- B (125kHz): CID [Bits(39~32)] - D (13.56MHz): Chip ID (Please refer to Table 10-2) - S (125kHz & 13.56MHz) : Tag Type (Please refer to Table 10-3)			
UID 32~64bits (For use with 183U module only)	04	Site H	Site Code – High	[UID31-24]	
	D2	Site L	Site Code – Low	[UID23-16]	
	DD	Card H	Card Code – High	[UID15-8]	
	D5	Card L	Card Code – Low	[UID7-0]	
XOR	51	XOR=FF^00^71^04^D2^DD^D5^01 =51			
SUM	4B	SUM=(00+71+04+D2+DD+D5+01+51) · FF=4B(LSB)			

7E	0D	00	03	01	6A	4E	15	04	05	80	5E	C8	DB	5B
					Card Number				Chip ID	Card Number			XOR	SUM

Chip	Unknown	Ultra Light	Standard 1K	Plus 4K	SOR-LAM	SOR-UIM	SOR-CIM	SOR-SIM
Code	0x00	0x01	0x02	0x03	0x22	0x42	0x42	0x82

Tags	ISO14443A	ISO14443B	ISO15693	125kHz (EM)
Code	0x00	0x01	0x02	0x03

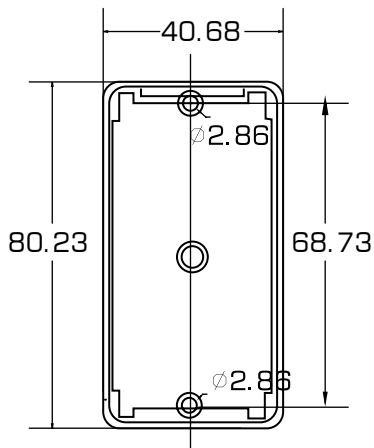
09. Extension Function

- FAQ : [How to setup the access mode as card plus pin on main controller and card only on weigand reader?](#)
- FAQ : [How to setup the door number of controller and reader in different configurations?](#)
- FAQ : [Why I had set the new Wiegand Door Number, but it is still same to the Door Number?](#)
- FAQ : [How to set up WG format of AR-661U?](#)

SOYAL[®]

10. Installation

AR-723-U

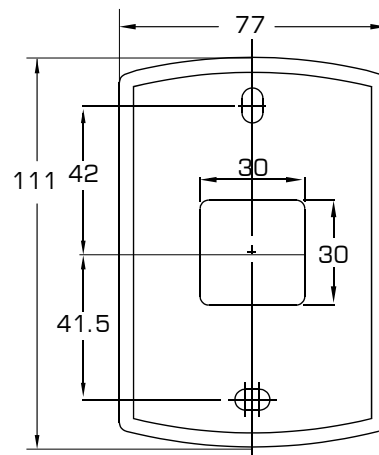


Front View

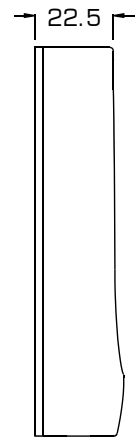


Side view

AR-721-K

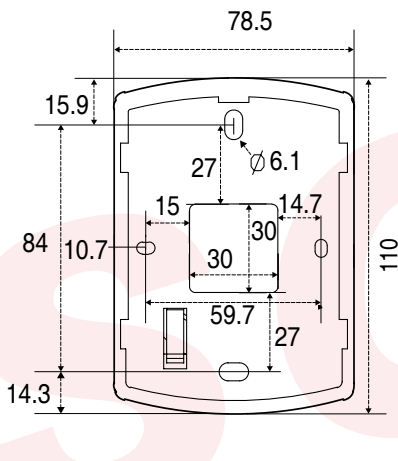


Front View



Side view

AR-725-K/U

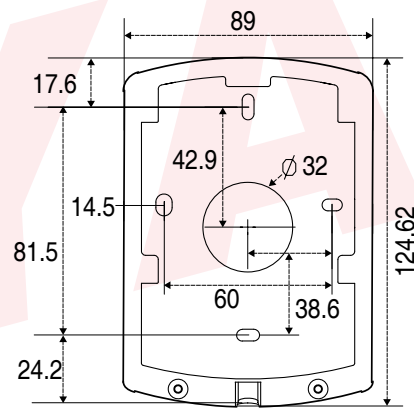


Front View



Side view

AR-725-K/U(Metal Housing)

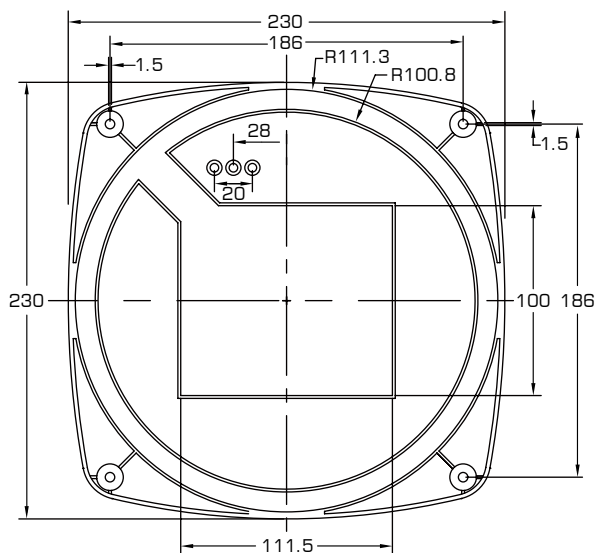


Front View

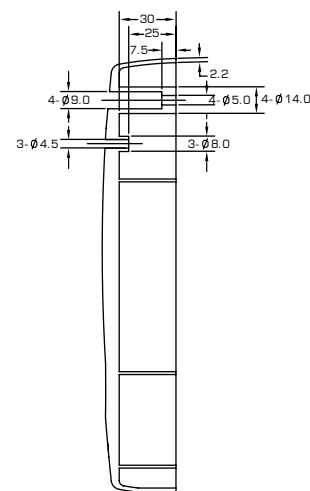


Side view

AR-661-U



Front View



Side view

11. Contents

AR-723-U

1 Product



2 Terminal Cables



183U-Module

1 Product



2 Terminal Cables

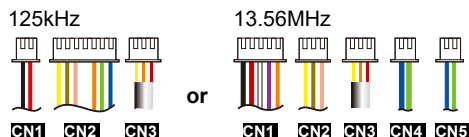


AR-721-K

1 Product



2 Terminal Cables



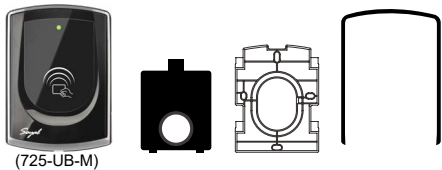
3 Tools



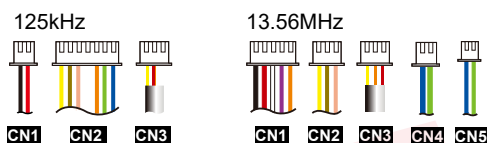
e x1

AR-725-U-M

1 Products



2 Terminal Cables



3 Tools



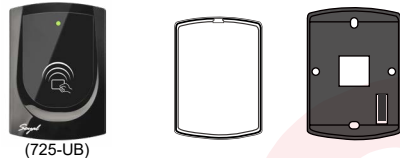
c x2

d x1

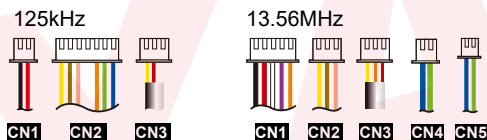
f x1

AR-725-U

1 Products



2 Terminal Cables



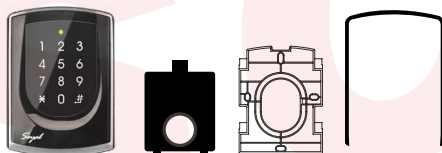
3 Tools



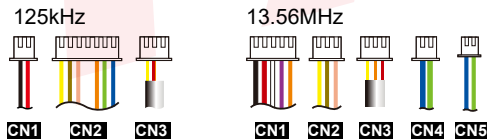
e x1

AR-725-K-M

1 Products



2 Terminal Cables



3 Tools



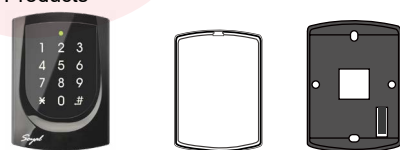
c x2

d x1

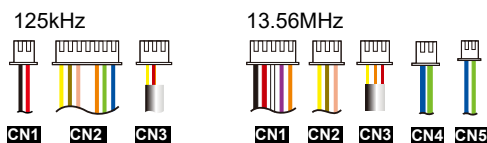
f x1

AR-725-K

1 Products



2 Terminal Cables



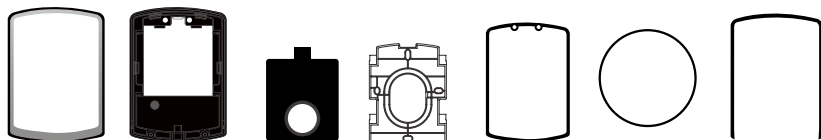
3 Tools



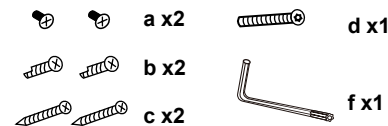
e x1

AR-725X

1 Products



2 Tools



a x2

d x1

b x2

c x2

f x1

AR-661U [Long Range Proximity Reader]

1 Product



2 User Guide



x2

3 Standard Card

[Read Only and Thick]



x4

Parts Description

- a. Button Head Pozidriv Tapping Screw: M3x10
- b. Button Head Pozidriv Slotting Screw: 2.5x10
- c. Flat Head Cap Philips Tapping Screw: 4x19.1
- d. Security Torx Screw: M3.5x15
- e. Flat Head Hex Socket Screw: M3x8
- f. Allen Key