& DCM-CH
SWISS SCANNER
Service Manual

International Currency Technologies

Contents

Use of Materials Limitations

ICT reserves the right at all times to disclose or to modify any information as ICT deems necessary to satisfy any applicable law, regulation, legal process or governmental request, or to edit, refuse to post or to remove any information or materials, in whole or in part, in ICT's sole discretion.

1. Limited Warranty:

International Currency Technologies Corporation (ICT) warrants this product (including any accessories) against defects of material or workmanship as follows:

1. LABOR:
For a period of one (1) year from the date of purchase, if this Product is determined to be defective, ICT will repair or replace the Product, at its option, at no charge, or pay the labor charges to any ICT authorized service facility. After the Warranty Period, you must pay for all labor charges.

2. PARTS:
In addition, ICT will supply, at no charge, new or rebuilt replacements in exchange for defective parts for a period of one (1) year. After the warranty period, you must pay for all parts costs.

3. ACCESSORIES:
Parts and labor for all accessories are for one (1) year.

To obtain warranty service, you must take the Product, or deliver the Product freight prepaid, in either its original packaging or packaging affording an equal degree of protection, to any authorized ICT service facility.

This warranty does not cover cosmetic damage or damage due to acts of accident, misuse, abuse, negligence, modification, or to any parts of the Product.
This warranty does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a facility authorized by ICT to service the Product.
This warranty does not cover Products sold AS IS or WITH ALL FAULT, or consumables (such as cleaning cards or bezel stickers).

Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

This warranty is invalid if the factory applied serial number has been altered or removed from the Product.

To locate the service or dealer nearest you, or for service assistance or resolution of a service problem, for product information, or operation,
please call:

ICT Taiwan: 886-2-2797-1238
Europe: +49-0-2102-123-775-0
or visit the ICT Web Site: www.ictgroup.com.tw

2. Model Number Configuration:

DCM-CH X X - X X X - XX

A B C D E F G

Example : DCM-CH CE-3M5-01

(A). Product name

Product name
DCM-CH

Table 1.

(B). Metal Parts

Code	Metal Parts
C	DCM Cover and Base Plate
N	Without Metal Cover and Base Plate

Table 2.

(C). Ext. Board

Code	Ext. Board
E	With External Board
N	Without External Board

Table 3.

(D). Voltage

Code	Voltage
1	12V DC (9~15V DC)
2	24V DC (20~45V DC) & AC24V
3	9~45V DC & 24VAC

Table 4.

(E). Interface

Code	Interface
M	MDB
R	Pulse

Table 5.

(F). Kind of Bill Type

Code	Kind of Bill Type
5	DE-ID, DE-DL, CH-ID. CH-DL, FR-ID

Table 6.

*DL/ID: Driver License/ ID Card.

(G). Product Version

Code	Product Version
1	01 ~ 99

Table 7.

3. Introduction:

DCM-CH / Swiss Scanner is a fine device to provide the function of age verification with stunning performance.
It is designed by ICT, which can be installed in equipments as an auxiliary device.
DCM-CH / Swiss Scanner is checking the date of birth of customers' driver license or identification card for the age 18.
It is fully complied the privacy act and checking the date of birth only.
This device can be used to perform age verification for the restricted products or services such as alcohol, tobacco, erotic toys, movies, night clubs, or membership clubs to the people who are over 18 years old for purchasing.
This device is designed for indoor and outdoor installation.
Power saving is available for outdoor machine (by battery or solar cell system) to keep the operation lasting longer.

3-1. Features:

- Fast Recognition Speed with High Acceptance Rate.
- Strong & Water Proof Structure Design.
- Sleep Mode for Power Saving.
- Simple & Easy Installation.
- Build In IrDA Function for Software Upgrade.
- High System Security.

4. Specification:

Power Requirement	**DCM-CH-** DC 12V (9~45V) AC 24V **Swiss Scanner**- DC 12V ±10%
Swipe Way	One Way
Recognition Speed	Approx. 2 seconds after swiping
Interface	**DCM-CH-** MDB

The product program version can be used for G&F FTL VMC after testing. About other products, Sielaff series, Harting series, and Azkoyen series cannot be guaranteed the function is complete; therefore, that needs another program version.

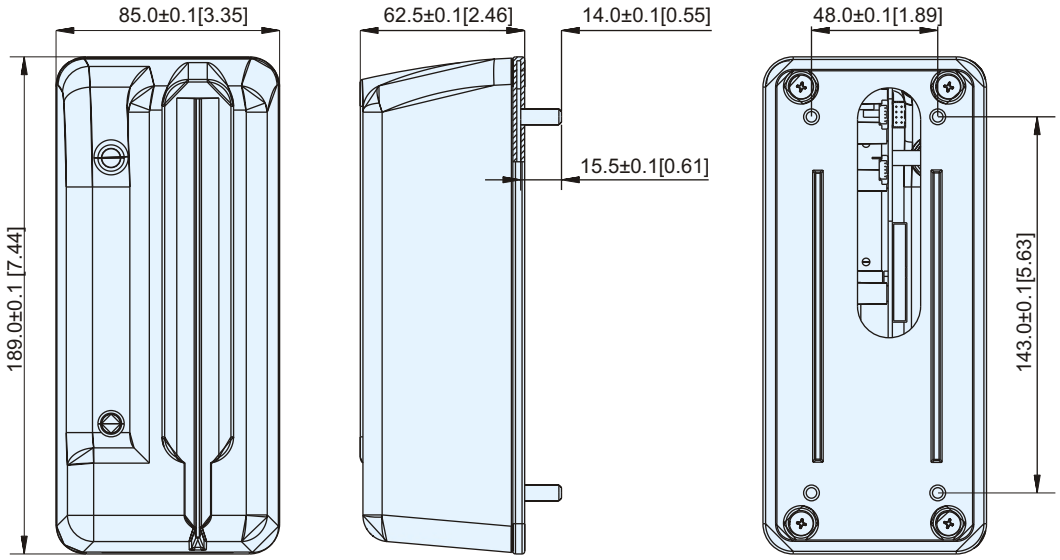
Swiss Scanner- RS232

Power Consumption	**DCM-CH-** 12V DC Standby : 0.1A, 1.2W Operation : 0.2A, 2.4W Maximum : 0.25A, 3W Sleep Mode: 70μA, 0.96mW **Swiss Scanner-** 12V DC Standby : 0.1A, 1.2W Operation: 0.2A, 2.4W Maximum: 0.25A, 3W
Operation Environment	Operation Temperature: -20°C~60°C Storage Temperature : -30°C~70°C Operating Humidity : 30%~95%RH(no condensation) Storage Humidity : 0%~95%RH(no condensation)
Real Time Counter	Deviation: ±8 mins/year
Weight	**DCM-CH-** Approx. 0.82 kg **Swiss Scanner-** Approx. 0.24 kg
Installation	**DCM-CH-** Vertical/ Indoor/ Outdoor **Swiss Scanner-** Horizontal/ Indoor

5. Dimension:

<DCM-CH>

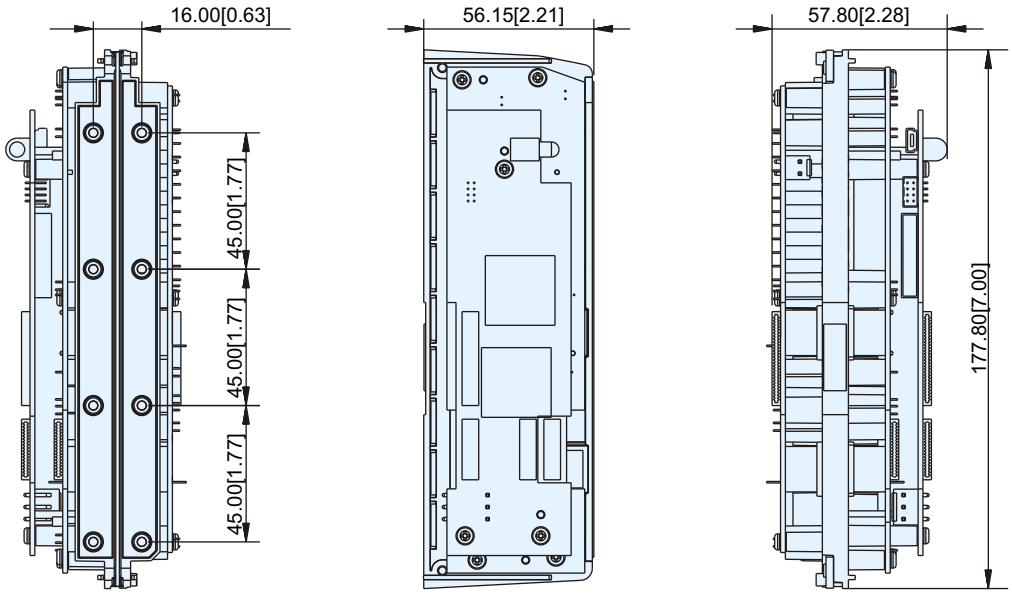
Figure 1.



Unit: mm [inch]

<Swiss Scanner>

Figure 2.



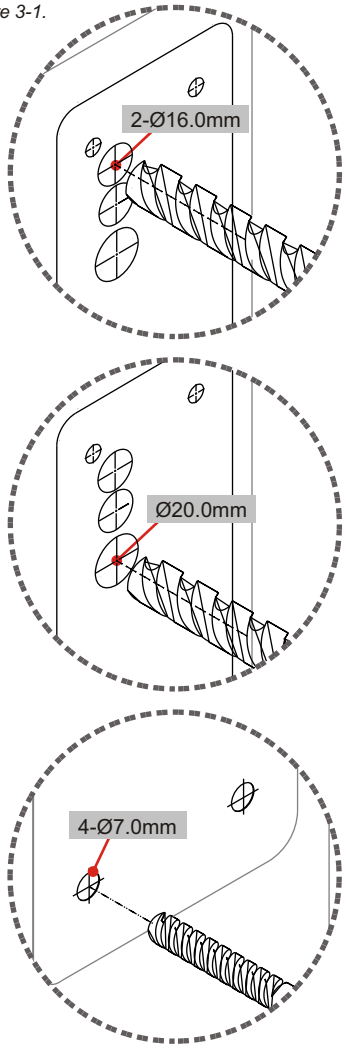
Unit: mm [inch]

6. Installation:

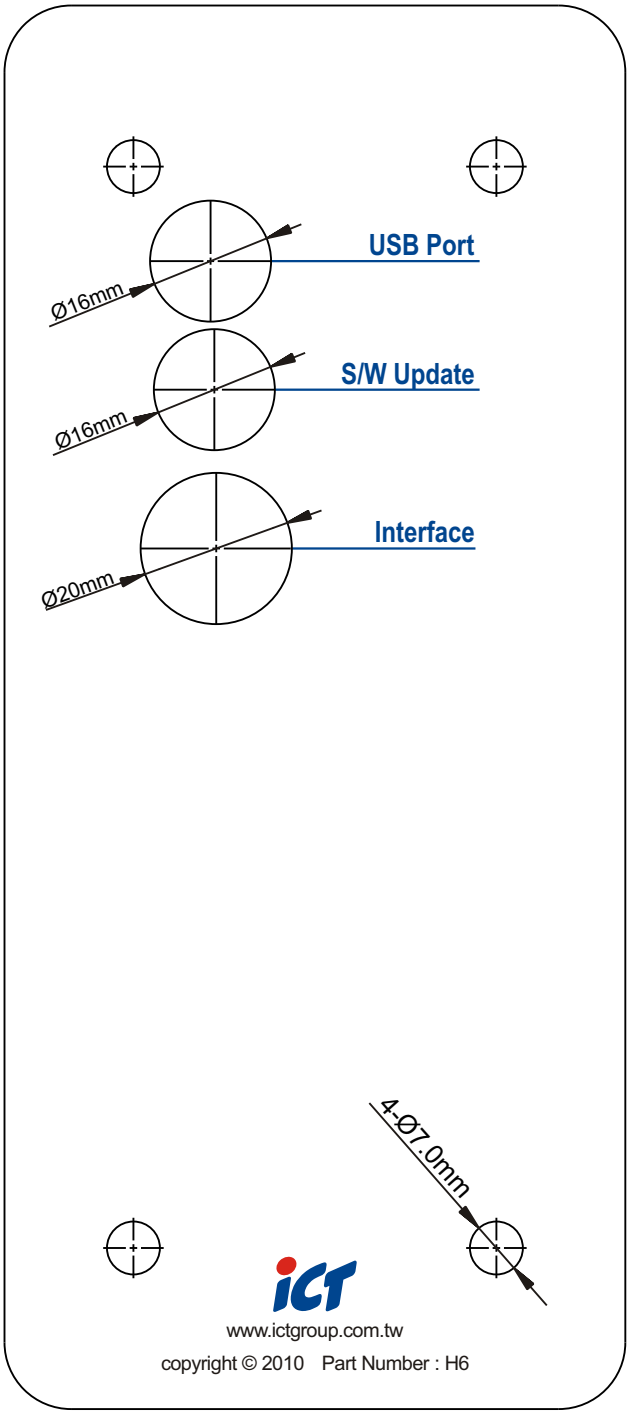
Step 1.
Attach the drilling sticker on an appropriate spot of VMC for installing (as *Figure 3*).

Step 2.
Drill a small hole on every center of seven crosses by a Ø2mm drill, then switch the drill to diameter Ø7.0mm & Ø16.0mm, Ø20.0mm to enlarge circles (as *Figure 3-1*).

Figure 3-1.



(Ratio 1:1) *Figure 3.*



After drilling, please smooth the hole edges to make sure there is no deckle.

Step 3.

Put harnesses(#WEL-RDCM-01) from rear into the hole and connect to DCM-CH (please refer to P.9- **Step 5**. **Standard MDB Connection**), install DCM-CH after connection (as *Figure 4*).

Figure 4.

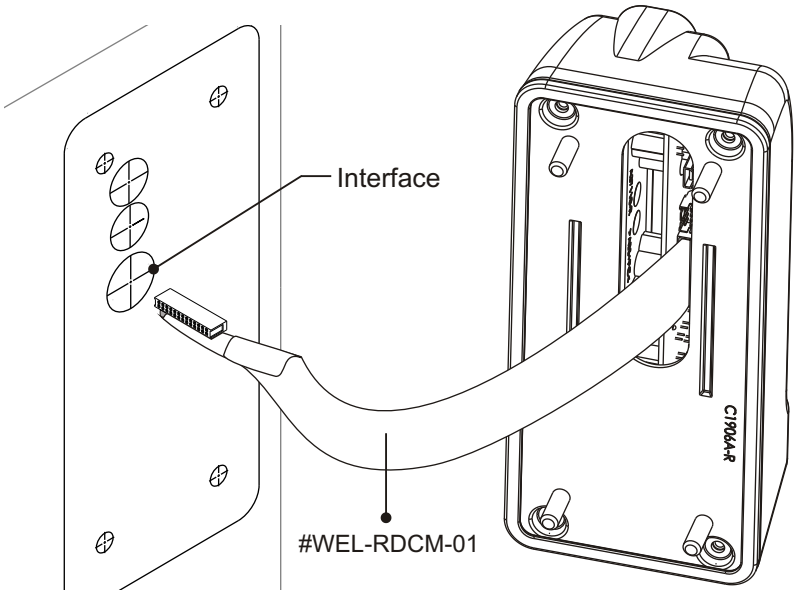
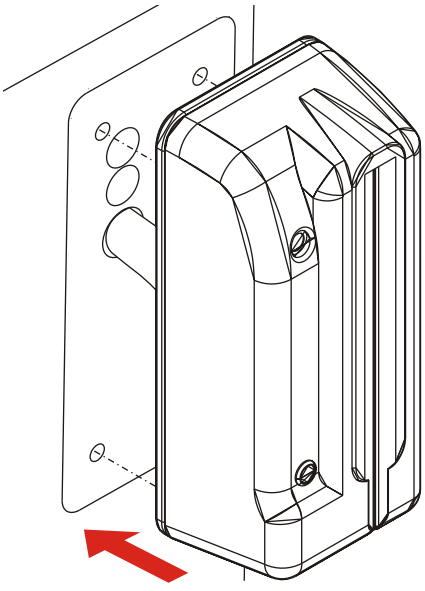


Figure 4-1.



Please roll the cable and then bore it through VMC(as *Figure 4*) to prevent cable damage. Change a new cable whenever a cable is broken.

Step 4.

Open the front door of the vending machine and tighten the screw nuts.

Figure 5

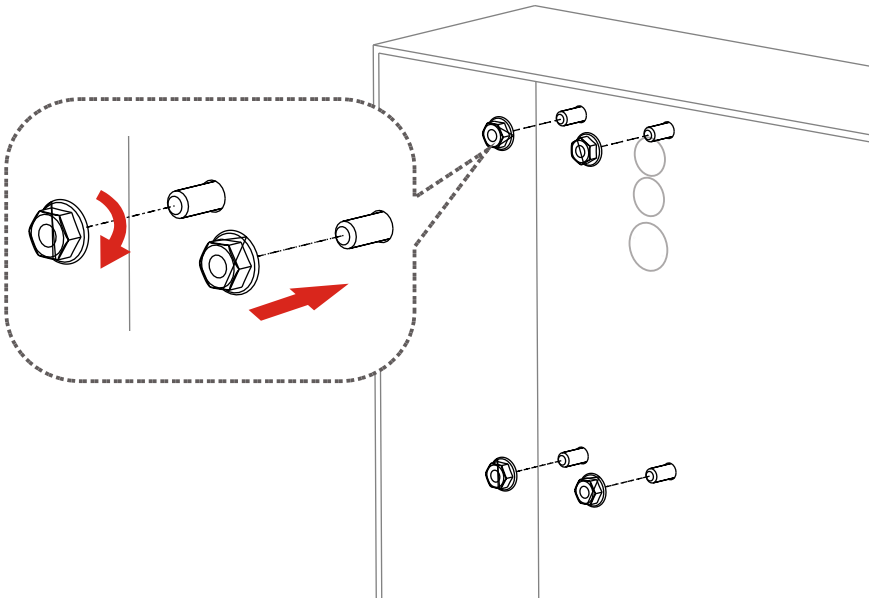
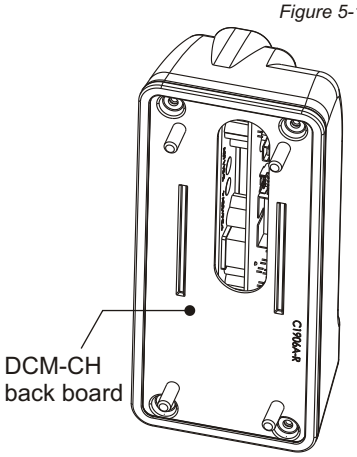


Figure 5-1.



The screw thread is able to abide by maximum 1/4 turn when it is tight already, over tighten screw nuts can cause screw thread abrasion.

Please change DCM-CH back board (as *Figure 5-1*) when screw thread on it is abraded.

Please replace the screw when it is broken.

Step 5.

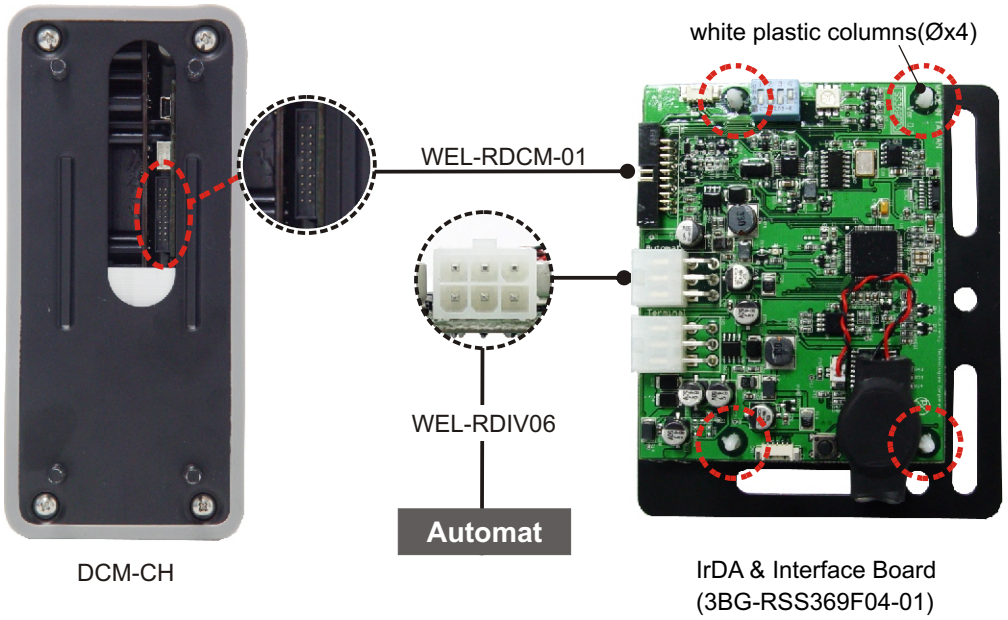
Standard MDB Connection.

Before connecting the harness(#WEL-RDCM01) to IrDA & Interface Board (3BG-RSS369F04-01), please make sure the battery is in position on the board.

The wire of battery is connected completely to the board; and PCBA is completely placed in white plastic columns.

Then connect the harness(#WEL-RDCM01) to IrDA & Interface Board (3BG-RSS369F04-01).

Figure 6



Please turn the power off before connecting.

Step 6.

Installation MDB on DCM-CH

1. Please make IrDA & Interface Board(3BG-RSS369F04-01) connector side to downward as *Figure 7.*
2. Fit the holes on IrDA & Interface Board to the lowest two screws on DCM-CH as *Figure 7-1.*
3. Move the module metal frame to right to appropriate location and tighten the screw nuts as *Figure 7-2.*

Figure 7.

Figure 7-1.

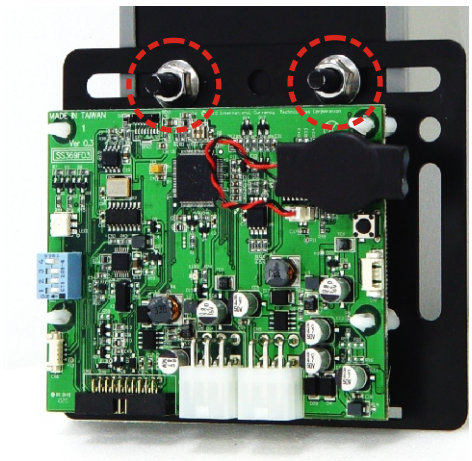
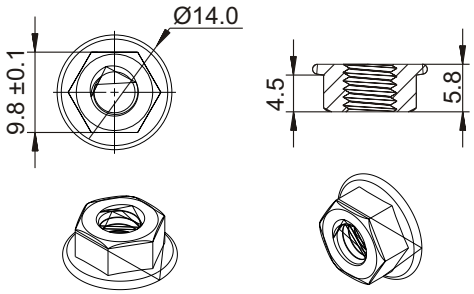


Figure 7-2.



❖ Bush Screw Nuts (optional parts) are available and also customize if the screws on DCM are too short to install on VMC after MDB Filter installation.

(Please refer to “Accessory List”)

Step 7.

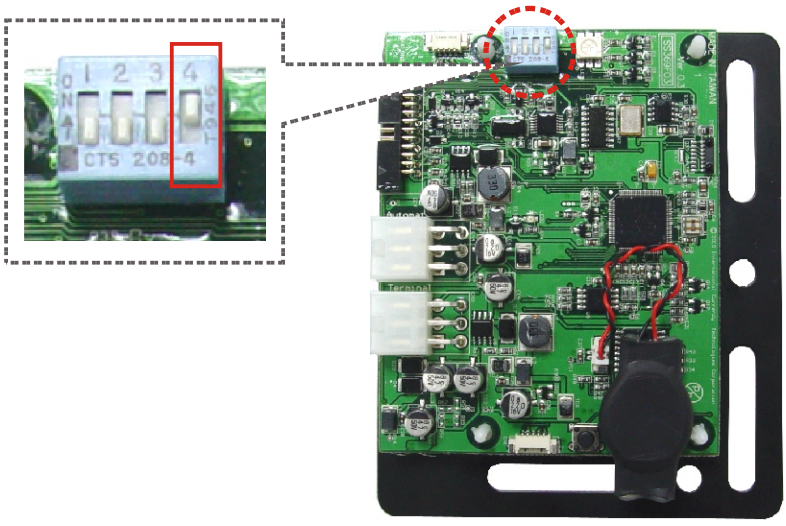
After making sure DCM-CH has been installed completely, apply power to DCM-CH.
All wires and parts of DCM-CH can neither be on-line plugged nor on-line unplugged.
DCM-CH will flash green light when power is applied. And then you may test it by valid ID or valid DL.
Please refer to page 14 for further light message information.
After testing ID/ DL, please test sleeping function.

♦ Set dip switch 4 to **"ON".**
DCM-CH will not sleep when dip switch 4 is ON.

Then set dip switch 4 to **"OFF".**
When VMC does not send any signals to DCM-CH, DCM-CH will sleep in 5 seconds.

♦ Make sure DCM-CH has been installed well; and it will work correctly after these tests successfully.

Figure 8.



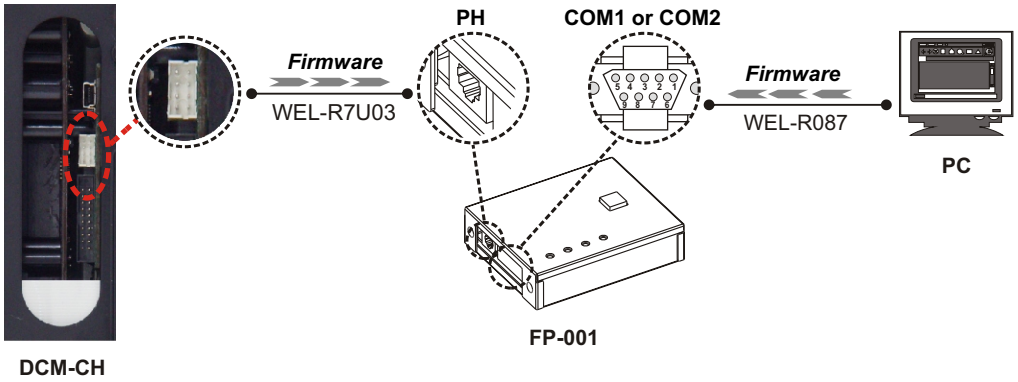
Please contact ICT-E for support when you have any questions about DCM-CH.

7. Download:

7-1. Software Download and Upgrade by FP-001.

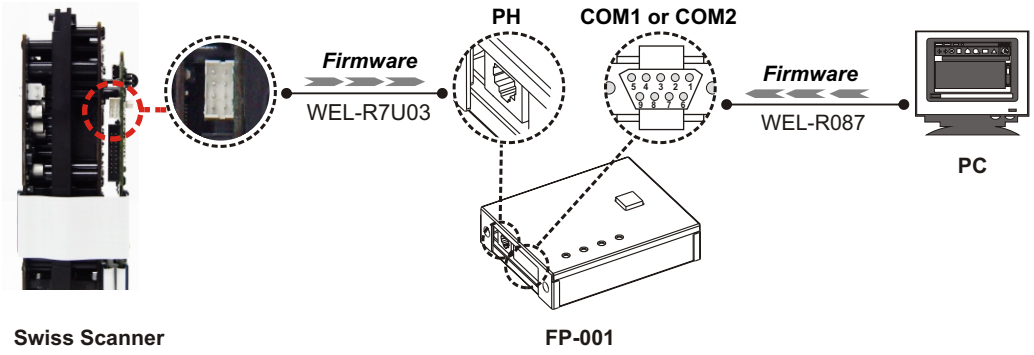
<DCM-CH>

Figure 9.



<Swiss Scanner>

Figure 10.



Please contact ICT-E for support when you have any questions about DCM-CH & Swiss Scanner.

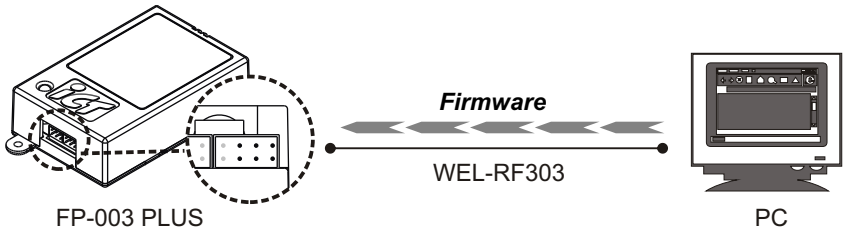
7-2. DCM-CH Upgrade Power Saving MCU.

Step 1.

Connect FP-003 PLUS to PC as *Figure 11* and download firmware from PC to FP-003 PLUS.

When the firmware is saved completely in FP-003 PLUS, you may disconnect it.

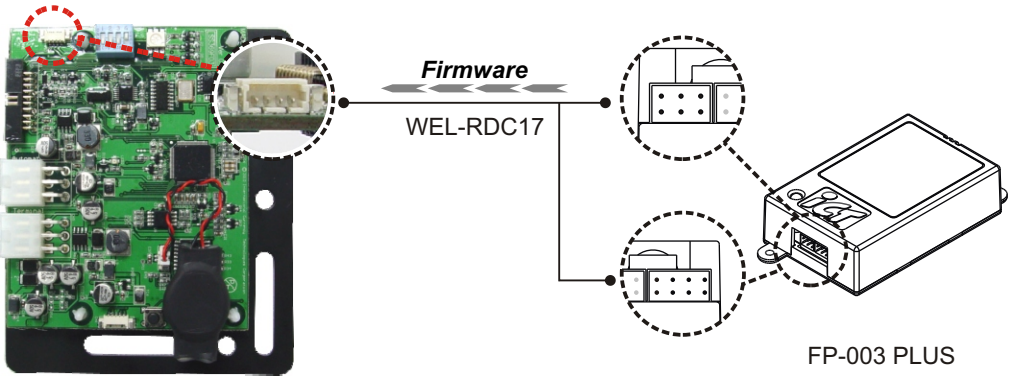
Figure 11.



Step 2.

Connect FP-003 PLUS to IrDA & Interface Board as *Figure 12* and download the firmware which is saved in FP-003 PLUS from **Step 1** to PC.

Figure 12.



- **Please adjust Dip switch 4 to ON (not in sleep mode) before updating program to avoid power failure.**
- **Please contact ICT-E for support when you have any questions about DCM-CH.**

7-3. DCM-CH Software Download by IrDA & Interface Board.

Use the tools “Pocket PDA” to download software.

1. **Use Device ID : D C M - C H _ _ to update DCM-CH.**
2. **Use Device ID : D C M - I R E X to update IrDA & Interface Board.**

The function needs corresponding software to support.

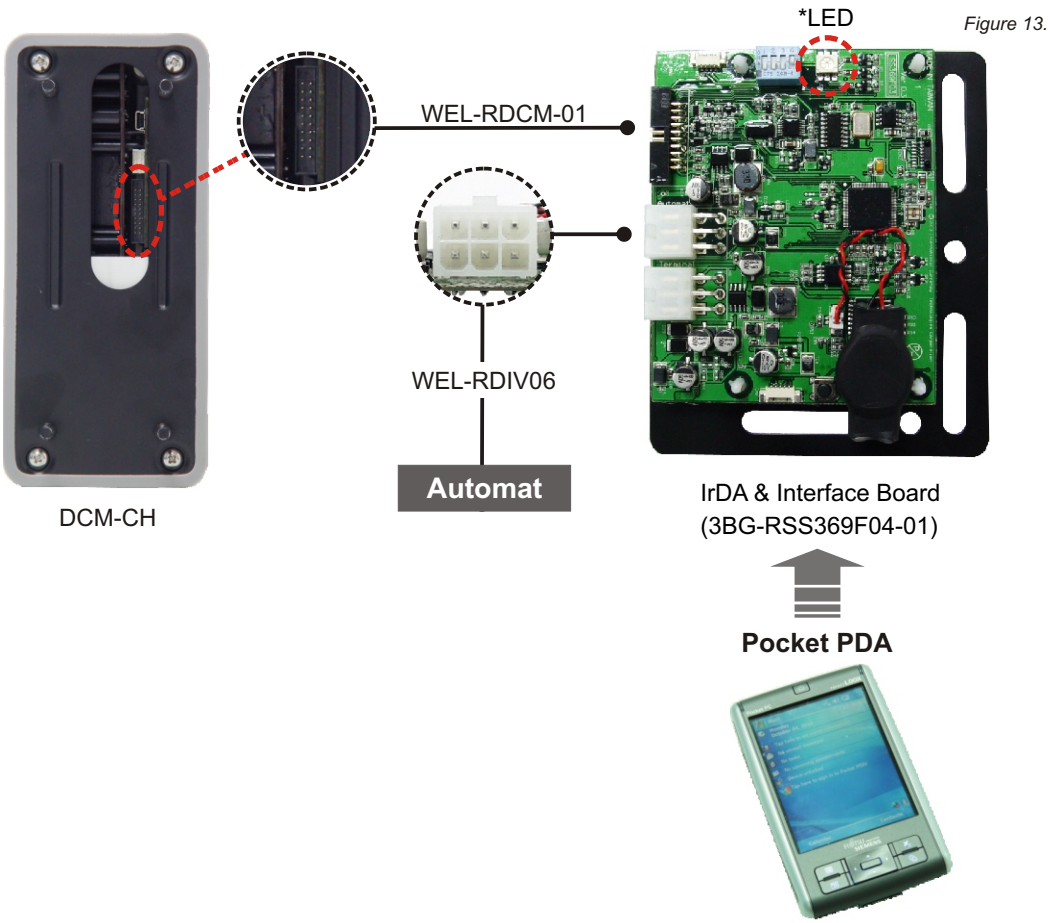


Figure 13.

*LED Status:

Color	Status	Definition
Green	Flash	Power ON
Blue	Flash	Receive Software from Tools
Orange	Flash	Download Software to DCM-CH
Red	Shining for 3 seconds	Download Failed

Table 8.

♦ **Please adjust Dip switch 4 to ON (not in sleep mode) before updating program to avoid power failure.**

8. Test Tools

8-1. Tools

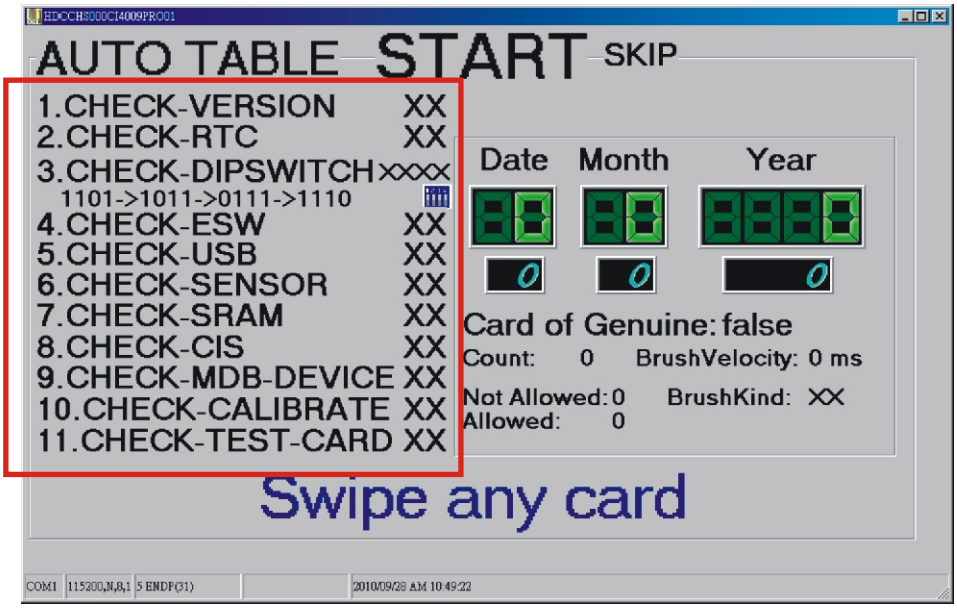


Figure 14.

Functions are shown as follows:

1. Auto-align version name.
2. Auto-saving time (depends on computer).
3. Half-manual align DIPSWITCH.
4. Auto-align plug-in version.
5. Auto-checking USB.
6. Auto-align illuminant.
7. Auto-checking SRAM.
8. Auto-checking CIS.
9. Auto-checking MDB wires.
10. Auto-checking the calibration number of white card
11. Swipe test card.

Press “START”.

Figure 15.

Step 1. CHECK-VERSION.

Figure 16.

Step 2. CHECK-RTC.

Figure 17.

Step 3. “CHECK-DIPSWITCH” presents blue and manually adjust dip switch which is same to green one.

Figure 18.

Figure 18-1.

Figure 18-2.

Figure 18-3.

Step 4. Reads plug-in version.

Figure 19

Step 5. CHECK-USB.

Figure 20.

Step 6. “CHECK-SENSOR” lights up LED automatically to be the brightest and darkest to test SENSOR response.

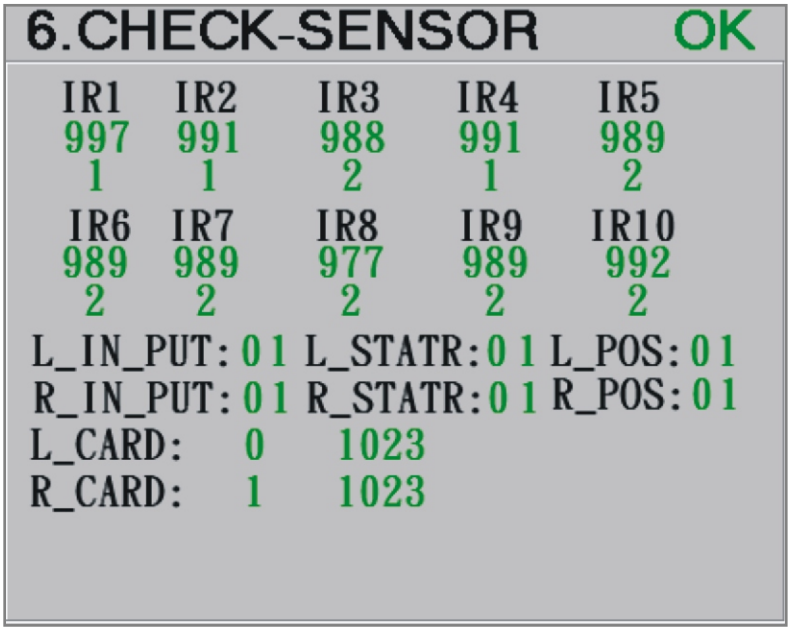


Figure 21.

Step 7. CHECK-SRAM.

Figure 22.

Step 8. Proceed CIS checking to wait “Insert Calibration Card” (as *Figure 23*) with a beep sound; insert white card (standard card).

Figure 23.

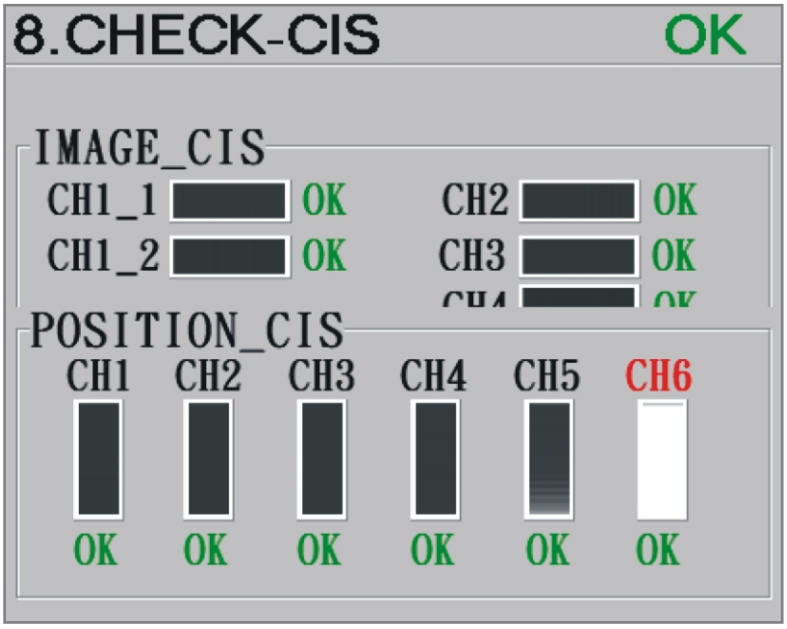


Figure 23-1

Step 9. Automatically check MDB circuit.

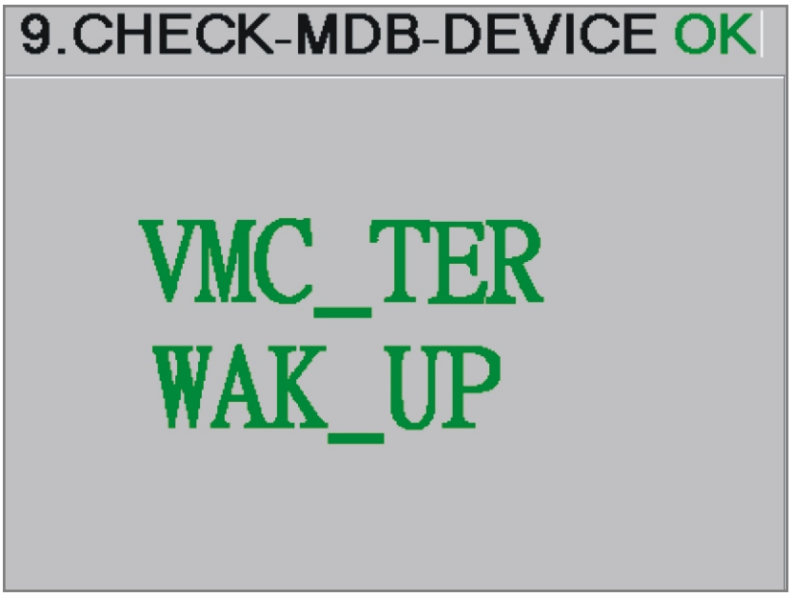


Figure 24.

Step 10. Proceed white card calibration to wait “Draw Out Calibration Card” (as *Figure 25*) with a beep sound; and then take out white card.

Figure 25.

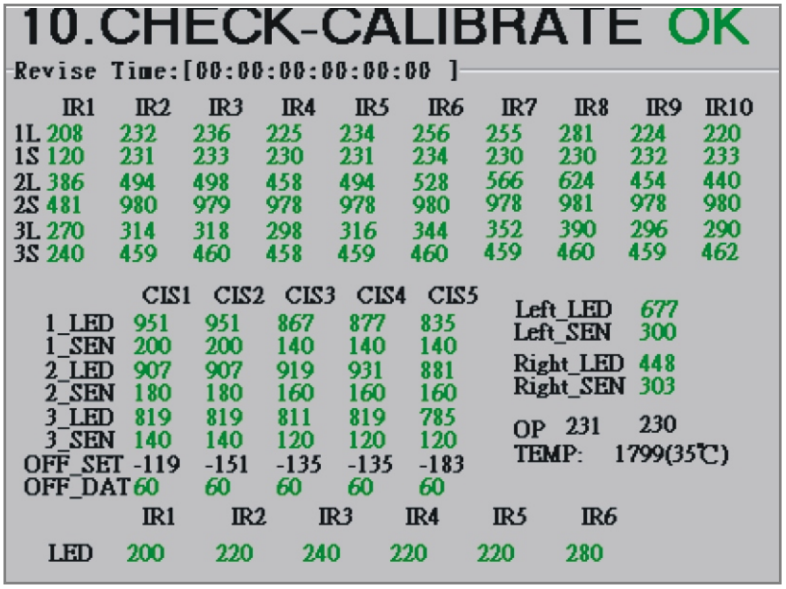


Figure 26.

Step 11. Manually swipe white test card to check if CIS is normal (the maximum of mistake is three times).

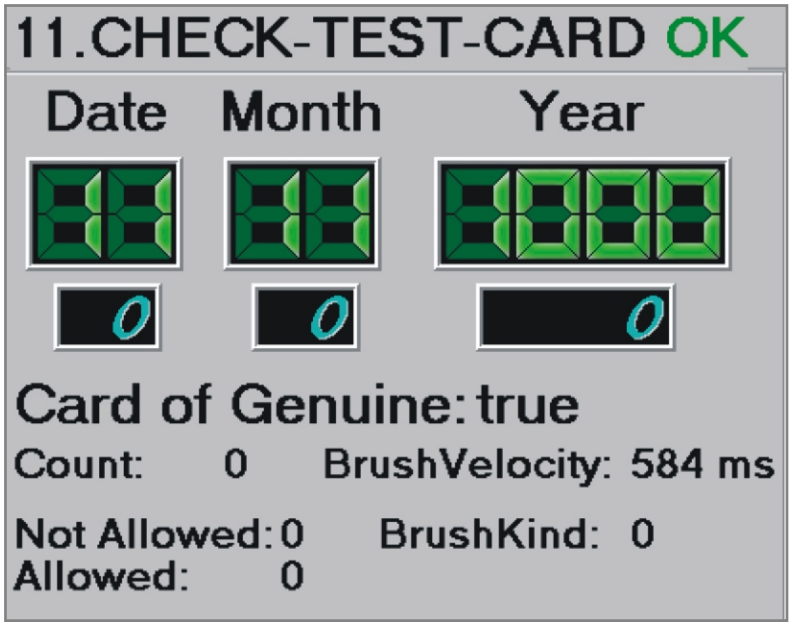


Figure 27.

9. Connectors:

<DCM-CH>

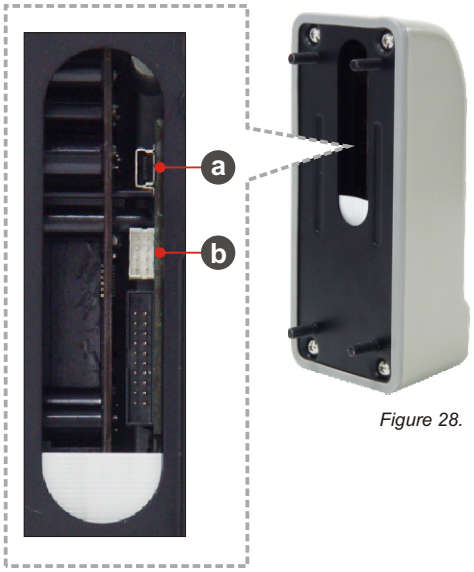


Figure 28.

<Swiss Scanner>

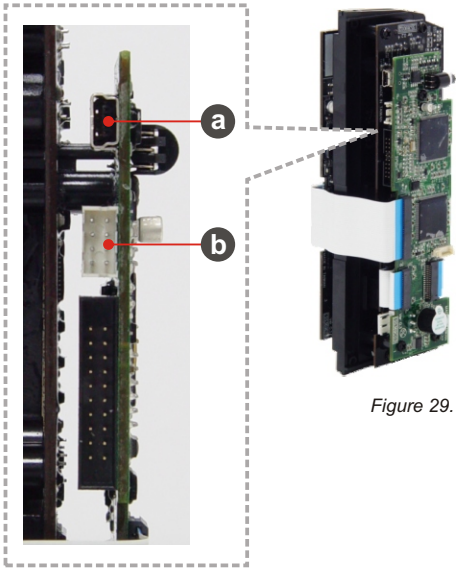


Figure 29.

a.

USB Connector	
Pin No.	Define
1	VBUS
2	USB_D-
3	USB_D+
4	GND
5	GND

Table 9.

b.

Com Port Connector		
Pin No.	Define	Input/Output
1	GND	Common
2	TX1(Debug)	Output
3	RX1(Debug)	Input
4	/Program	Input
5	/Reset	Input
6	+5V DC	Output
7	RX2(Device)	Input
8	TX2(Device)	Output

Table 10.

10. IrDA & Interface Board:

Burglarproof System &
Build-in IrDA Function.

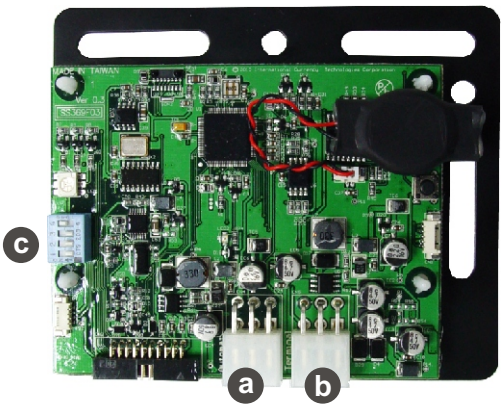


Figure 30.

a.

To Automat Connector Pin Definition		
Pin No.	Pin Name/Function	Input/Output
1	9~45V DC	Input
2	GND	Input
3	Wakeup Trigger	Input/Output
4	Master Receive	Output
5	Master Transmit	Input
6	Communication Common	Common

Table 11.

b.

To Terminal Connector Pin Definition		
Pin No.	Pin Name/Function	Input/Output
1	9~45V DC	Output
2	GND	Output
3	Wakeup Trigger	Input/Output
4	Terminal Transmit	Input
5	Terminal Receive	Output
6	Communication Common	Common

Table 12.

c.

DIP SW					
	Function	SW1	SW2	SW3	SW4
	Check Document OK wakeup VMC.	ON			
★	Insert Document wakeup VMC.	OFF			
	Age Limit 16Y. (Only Non-AVD Command Mode)		ON		
★	Age Limit 18Y. (Only Non-AVD Command Mode)		OFF		
	Reserved			ON	
★	Reserved			OFF	
★	Indoor MDB/ Pulse				ON
	Outdoor MDB				OFF

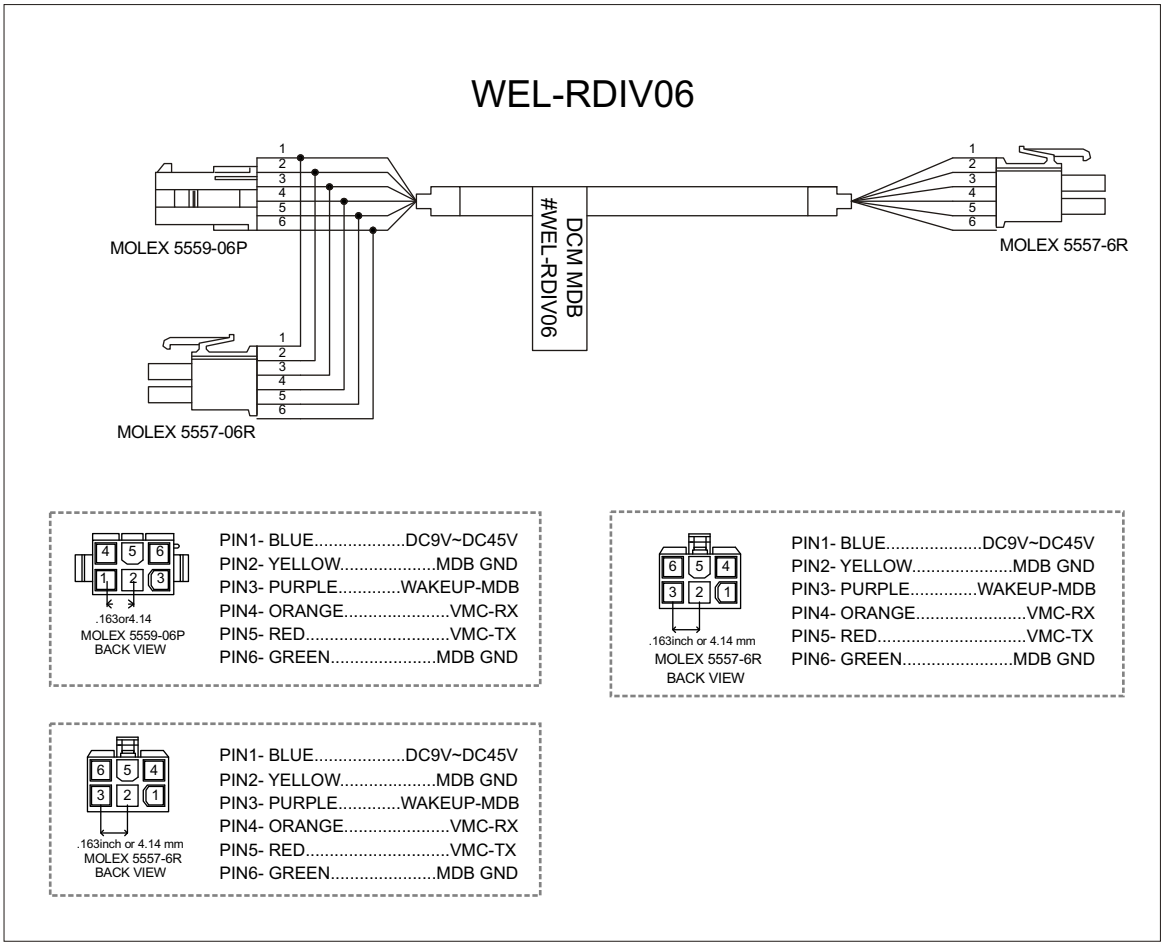
Table 13.

(★) Default

Note: Automatic switch to Indoor. When Scanner disconnector Ext. MDB board.

11. Harness:

Figure 31.



12. How to use DCM-CH & Swiss Scanner?

1. Hold driving license or ID (one of these two) and swipe it .

2. One second after swiping it, for valid card, there will be a sound as “beep”, for counterfeit card, there will be two sounds as “beep beep”; in the mean time, LED light will light up to indicate status of DCM-CH & Swiss Scanner.

   Please refer to Table 14-LED flashes to check the status of document.

<DCM-CH>

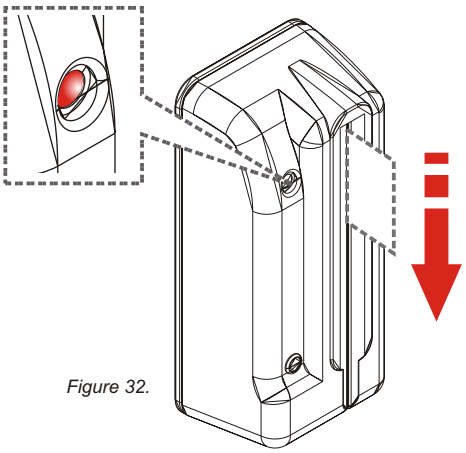


Figure 32.

<Swiss Scanner>

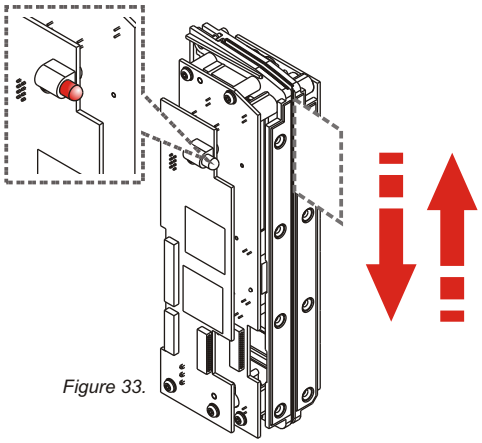


Figure 33.

LED Light		
Red	Green	Status
	*Flashes	Standby (Idle Mode ON & Dip SW1 ON)
*Flashes		Standby (Sleep Mode ON & Dip SW3 ON)
Blink By Turns		Card Inserted
	ON	Card PASS
ON (3 secs)		Card NG

Table 14.

If LED lights red costantly, please contact ICT-E for technical support.

13. Maintenance:

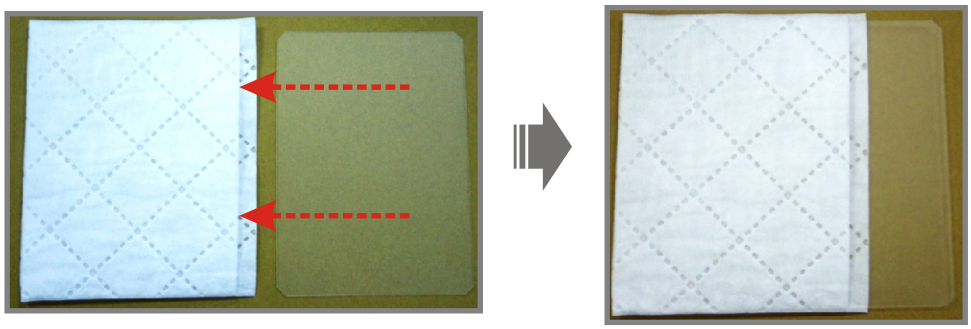
13-1. Cleaning:

If DCM-CH & Swiss Scanner shows error massages when the document is normal, please use the cleaning card to clean internal part without disassembling, then test DCM-CH & Swiss Scanner by inserting the document again.

Please follow steps below to clean DCM-CH & Swiss Scanner .

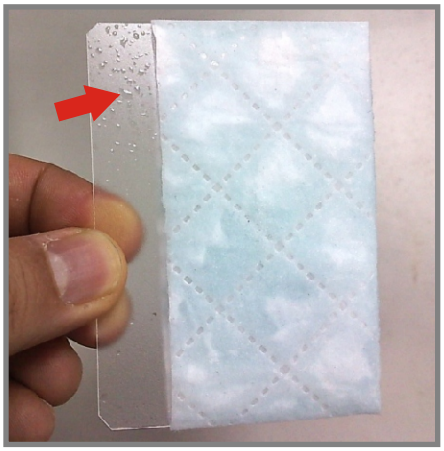
Step 1.
Put the card in cloth as *Figure 34*.

Figure 34.



Step 2.
Pour water or cleaning liquid (non-volatile liquid) on the cloth as *Figure 35*, then lightly fan the card to get rid of extra liquid, make sure the liquid does not drop from the card.

Figure 35.



Step 3.

Hold the cleaning card, slightly insert into the top of DCM-CH & Swiss Scanner , swipe the card back and forth for several times.

(Change the cloth and clean again if it's necessary.)

Figure 36

1. Do not pour any volatile liquid (such as methanol, ethanol, thinner, and acetone…etc.) on the cloth.

2. After cleaning, please throw the cloth away and keep the card.

3. If the situation can not be solved after cleaning process, please try to disassemble and clean the internal part.

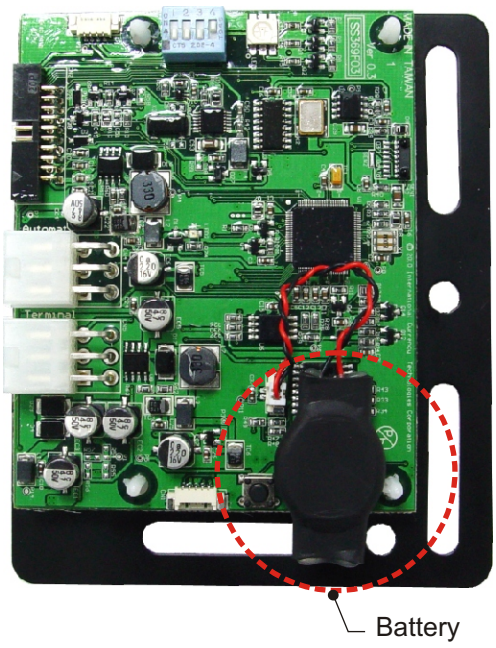
13-2. Battery Replacement:

Normally, battery replacement is required only once every year, to purchase new batteries, please contact ICT (Part Number: #BAT-R0017) or follow the battery specifications as below to purchase appropriate batteries for preventing PCB Board damage.

❖ Battery Specification:

Nominal Voltage	3V
Capacity	220mAh
Operating Temperature Limit	-20°C~60°C
Positive Side of Battery	Red Wire
Negative Side of Battery	Black Wire
Connector	MH 2 PIN

Figure 37.



14. Accessory List:

Figure 38

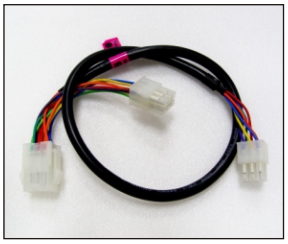
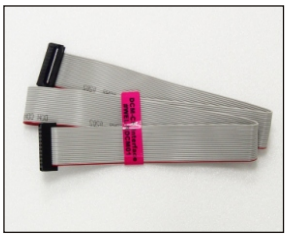
DCM-CH Standard Package			
Part Name	Part Number	Quantity	Picture
MDB Cable	WEL-RDIV06	1 pcs	
MDB Interface Cable	WEL-RDCM01	1 pcs	
M6 Bush Screw Nut Kit	S6007000	1 set (4pcs)	

Figure 39

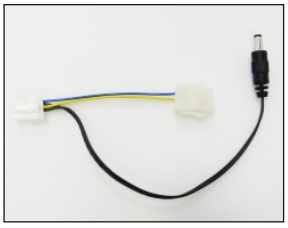
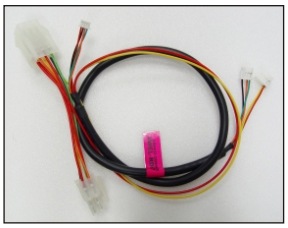
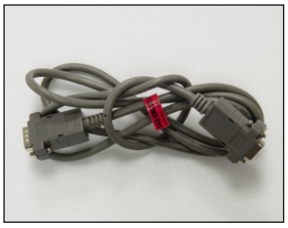
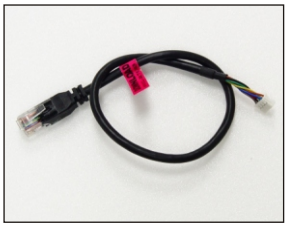
DCM-CH Optional Parts			
Part Name	Part Number	Quantity	Picture
FP-003 PLUS Kit	5RTM-53P00DC3-01	1 set	  
FP-001 Kit	5RTM-51000NA0	1 set	  

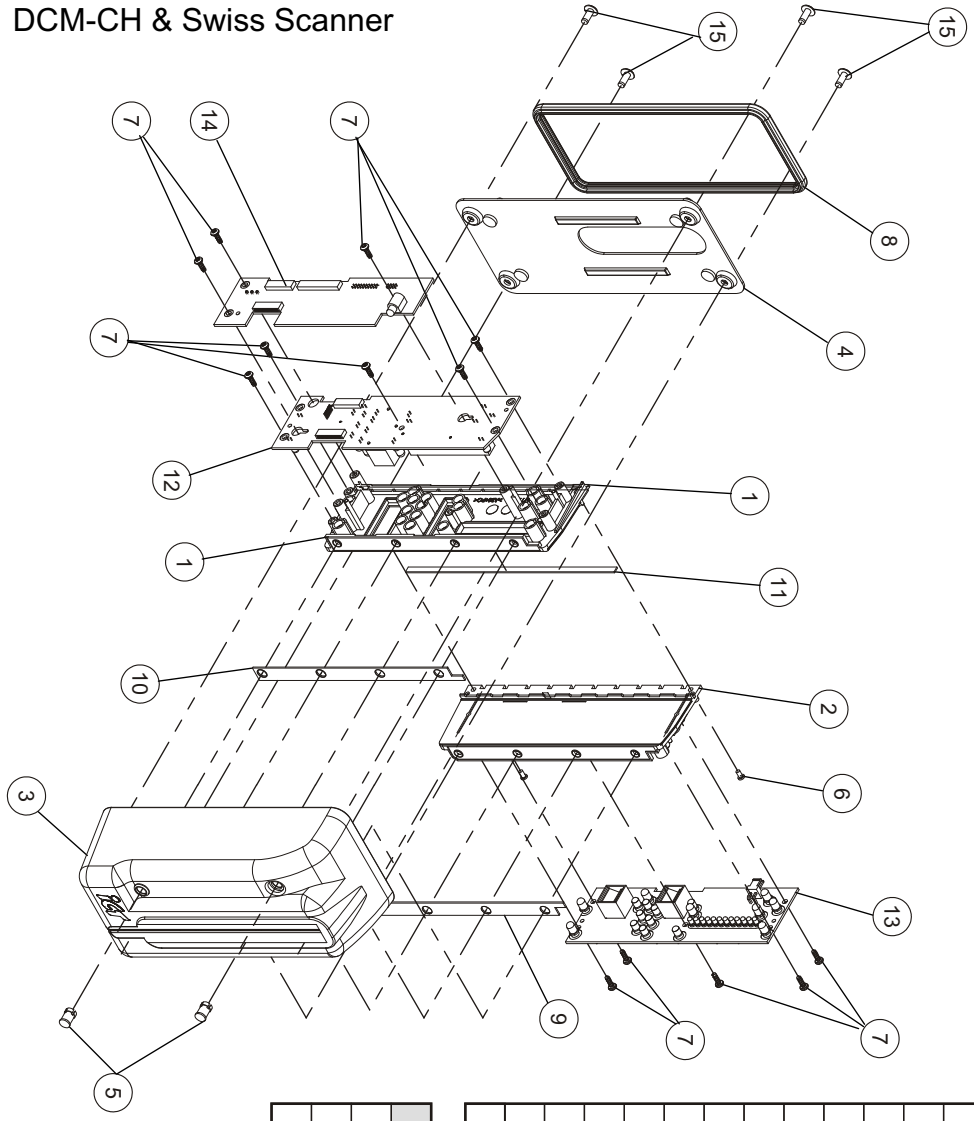
Figure 40

DCM-CH & Swiss Scanner Optional Parts			
Part Name	Part Number	Quantity	Picture
Cleaning Card	Z6024000-R	1 set (5pcs)	

15. Exploded Views

Figure 41

DCM-CH & Swiss Scanner

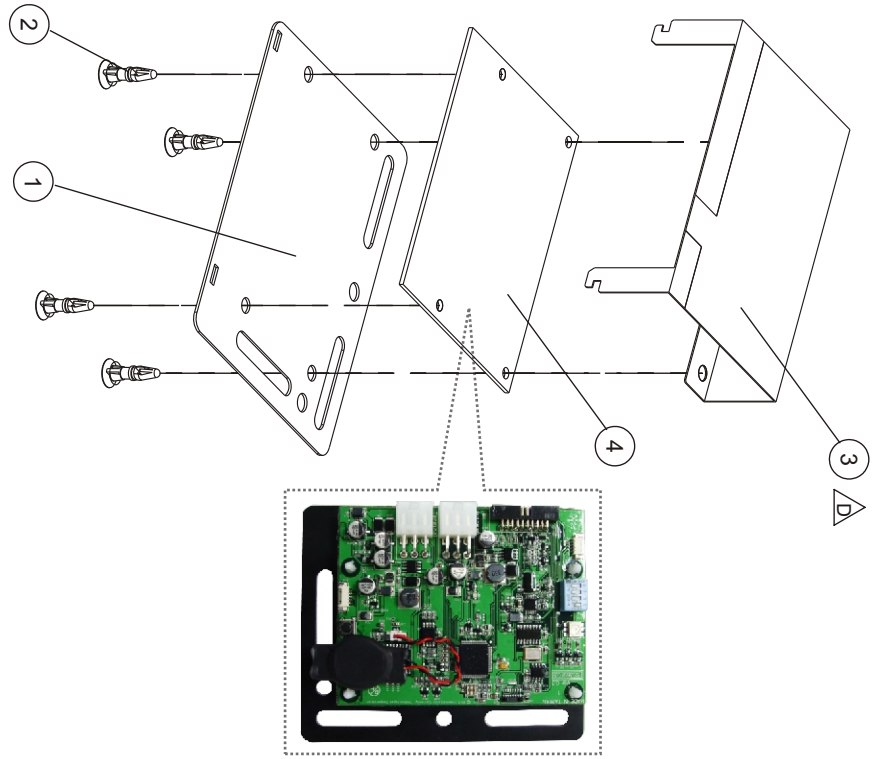


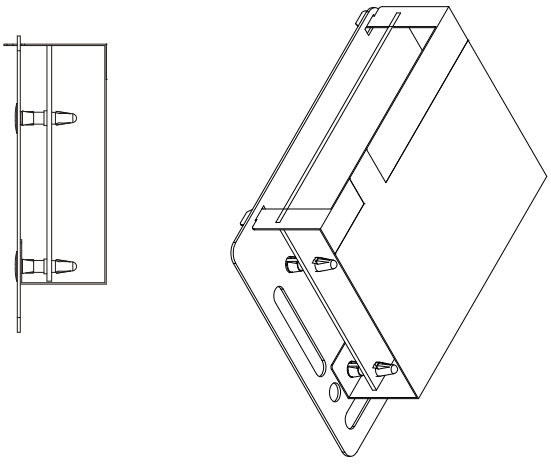
Order	Part number	Appellation	Quantity
1	A3711000-R	DCM-CH Upper Base Module	1
2	A3712000-R	DCM-CH Lower Base Module	1
3	C1878B-R	DC-Mini Cover	1
4	C1906A-R	DC-Mini Bottom Board	1
5	J20360-R	LED Fixed Stand LC5-1	2
6	S20350	M2.5X5l Head Screw Nickel Plated	2
7	S30750	Φ3*8 Self-tapping Screw Black Zinc Plated Tp2	13
8	A32280-R	DC-Mini Waterproof Strip (Bottom Board)	1
9	Z50490-R	Upper Base Waterproof Strip	1
10	Z50470-R	Upper Base Waterproof Strip	1
11	Z50480-R	Upper Base Inside Waterproof Strip	1
12	3DC-RSS369D02-02	DCM-CH LED PCB Board Module	1
13	3DC-RSS369E03-01	DCM-CH SENSOR PCB Board Module	1
14	3DC-RSS369C03-01	DCM-CH CPU PCB Board Module	1
15	S40230	M4x10 Big Truss Head (Stainless)	4

Part number	Torque
S20350	3Kgf-cm
S30750	3Kgf-cm
S40090	7Kgf-cm

Figure 42

IrDA & Interface Board





Note	Order	Part number	Appellation	Quantity
	1	C1952A-R	Plug-in Board Fixed Flake	1
	2	J21610-R	PC Board Interval Pillar (PCBS-10)	4
D	3	Z5052C-R	Ext. Board Waterproof Flake	1
	4	3BG-RSS369F04-01	Ext. IrDA & Interface Board	1

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