COMET
CE Version
Operation Manual

* Thank you for purchasing the COMET automatic soldering unit.

  Read these instructions thoroughly for proper use of this machine.
  Make sure to read "Safety Notes" before you use machine. This information protects you from possible dangers during use.

Apollo Seiko Ltd.

Rev. 13.12 Original Instructions

Safety Notes

Safety precautions

The precautions in the manual are provide for the customer to make the best use of this product safely, and to provide preventive measures against injury to the customer or damage o property.

Various symbols are used in this manual. Please read the following explanation of each symbol.

Symbols Indicating the Degree of Damage or Danger

The following symbols indicate the degree of damage or danger which may be incurred if the safety notes are ignored.

 **Warning**	This Warning symbol indicates the possibility of death or serious injury.
 **Caution**	This Caution symbol indicates the possibility of accidental injury or damage to property.

Symbols Indicating detail of Danger and Preventive Measure

The following symbols indicate the type of safety measure that should be taken.

	Indicate the safety measures that should be taken.
	Be careful. (General caution)
	Indicates a forbidden action.
	Never do this. (General prohibition)
	Do not disassemble, modify, or attempt to repair.
	Do not touch. (Contact prohibition)
	Indicate a necessary action.
	Be sure to follow instruction.
	Be sure to unplug power code from wall outlet.
	Be sure to check that the machine is grounded.

⚠ Warning

Do not use the unit where flammable or corrosive gas is present.
Leaking gas accumulated around the unit can cause fire or an explosion.

Use the unit in an environment between 0 ℃ and 40 ℃ with a humidity level of 20% to 95 % and without condensation.
Use outside these conditions may result in unit malfunction.
OP protection Rating: IP30(IP40 for CE specification models)

Use the unit in an environment where no electrical noise is present.
Failure to do so may result in unit malfunction or breakdown.

Use the unit in an environment that is not exposed to direct sunlight.
Direct sunlight may cause unit malfunction or breakdown.

Install the unit in a place appropriated for its weight and conditions while running.
Placing the unit of a surface that is unstable, or not strong enough to support is weight may cause the unit to fall, overturn, or break down. This could result in operator injury. Be sure to leave a space of at least 30cm between the back of the unit (equipped with a cooling fan) and the wall. Insufficient space can lead to overheating or fire.

Power the unit only with the rated voltage.
Failure to do so may cause electric shock, fire, or unit malfunction.

Plug the power code into the wall outlet firmly.
Failure to do so may cause the plug to het up and may result in fire.

Wipe the power plug with a clean, dry cloth periodically to eliminate dust.
Dust accumulation can deteriorate the electrical insulation and cause fire.

Be sure to check grounding before you use the unit.
Improper grounding can cause electric shock or fire.

Do not allow water or oil come in contact with the unit or the power cable.
Contact with water or oil can cause electric shock, fire, or unit malfunction.
IP protection Rating: IP30 (IP40 for CE specification model)

Check the mounting screws regularly so that they are always firmly tightened.
Loose screws may cause injury or breakdown.

⚠ Warning

Be sure to check the wiring to the main unit.
Improper wiring may result in unit malfunction or breakdown.

Be sure to secure the movable parts of the unit before transportation.
Failure to do so may result in injury or breakdown.

Before operating the unit, be sure to check that there is no danger in or around the operating range.
Failure to do so may result in injury.

Do not attempt to disassemble or modify the unit
Disassembly or modification may cause electric shocks or unit malfunction.

When lubrication or inspecting the unit, unplug the power cord from the power outlet.
Failure to do so may result in electric shock or injury.

If anything unusual occurs (e.g. a burning smell or unusual sound), stop operation and unplug the cable immediately. Contact the dealer from whom you purchased the unit or the office listed on the last page of this manual.
Continuous use without repair can cause electric shock, fire, or unit breakdown.

Be sure to unplug the power code from the power outlet when the unit is not in use for long periods of time.
Dust accumulation can cause fire.

Be sure to turn off the unit before inserting or removing cables such as the teaching pendant cable.
Failure to do so may result in electric shock, fire, data loss, or unit malfunction.

Keep the emergency stop switch within reach of an operator while teaching or running the unit.
Failure to do so may be dangerous since it may not be possible to stop the unit immediately and safely.

Regularly check that the emergency stop switch properly.
Failure to do so may be dangerous since it may not be possible to stop the unit immediately and safely.

⚠ Caution

Be sure not to supply the compressed air contains chemicals, synthetic oil with organic solvent, salt-content or corrosive gas.
Failure to do so may result the unit breakdown.

Attach air filter to the former process side near valve. Select 5μm or less for the filtration level.
Failure to do so may result the unit breakdown.

Be sure to supply dry air.
Failure to do so may result the unit breakdown.

Be sure the iron is cool down before you are touching it for replacing the iron cartridge.
Failure to do so may result in injury or burn yourself.

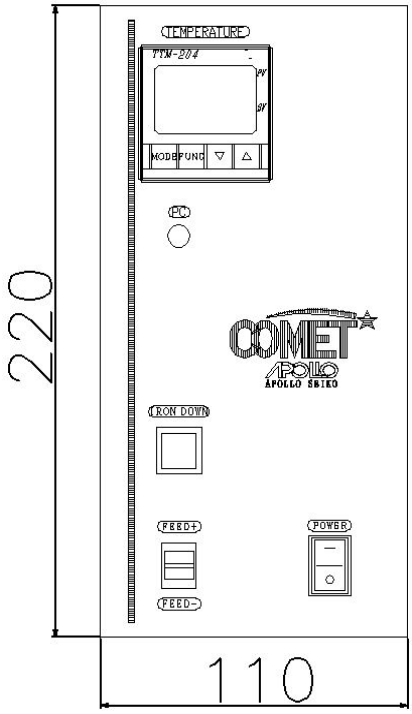
Be sure to handle the unit carefully and not dropping down.
Failure to do so may result in injury or the unit breakdown.

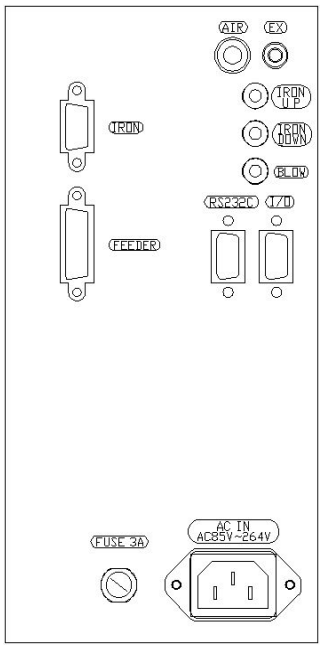
Immunity from responsibility

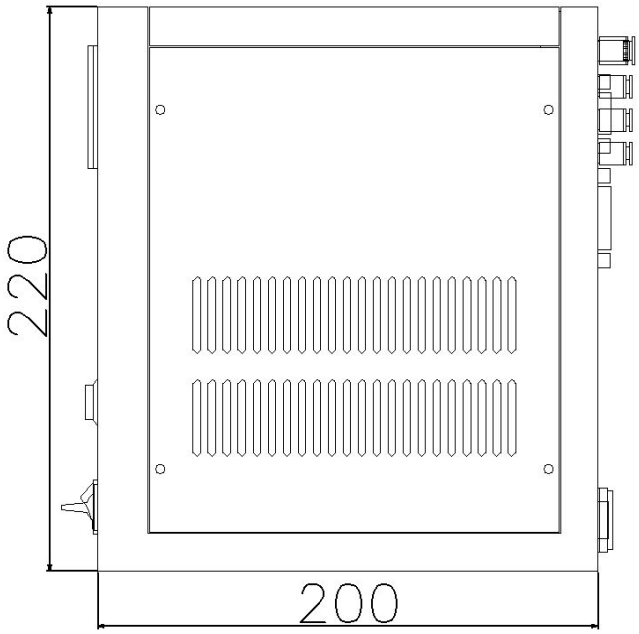
- We do take NO responsibility on a damage caused by misuse, mistake, accident, uses in abnormal condition or natural disaster such as an earthquake, a fire etc.
- We do take NO responsibility on contingency loss （Business loss、Business stop） caused by machine stop.
- We do take NO responsibility on a loss caused by the operation not mentioning on this manual.
- We do take NO responsibility on a loss caused by a wrong connection with other equipment.
- If for any reason the internal circuitry is tampered with altered or repaired without written consent of Apollo Seiko, the warranty is null and void. The customer is allowed to make necessary tooling adjustment, replace solder iron tips and make any necessary adjustments to the temperature controller.

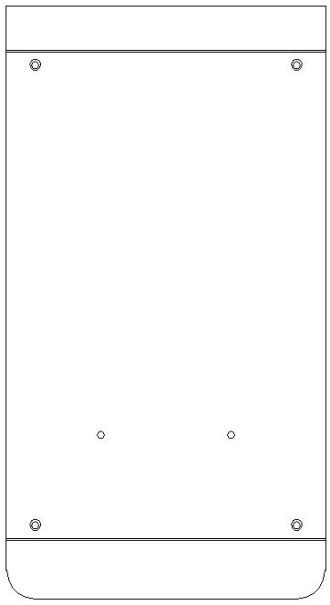
Index

1. COMET controller Dimensions









Total weight including feeder, RSP iron unit is about 5.1kgs.

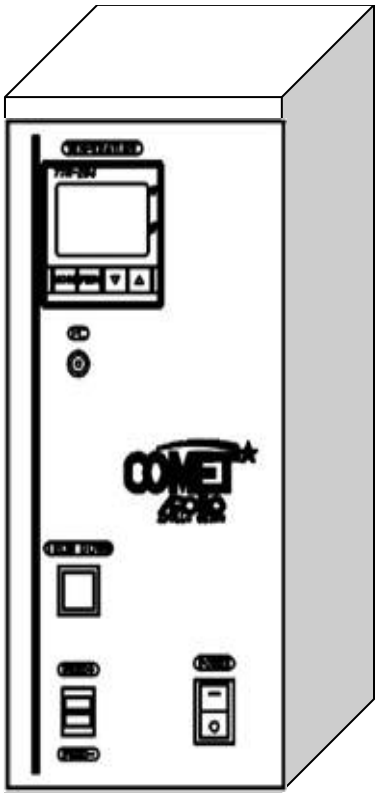
2. Summary of COMET

COMET can be controlled via external I/O. The solder wire speed can be selected via RS232C signal. To move COMET, external controller such as PLC, PC, or robot is required. The RSP iron unit and ZSB feeder are attached with COMET controller. The iron assures very stable soldering temperature and the ZSB will guarantee zero solder ball soldering result.

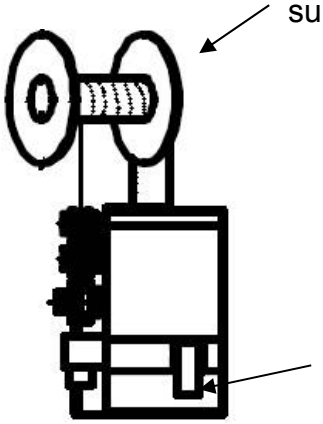
Rate:	AC90-132/180-250V~ 50-60Hz
Power consumption:	200VA
Iron heater power:	100W, 130W DVC48V
Air :	0.4-0.5MPa
Solder feeding speed:	Max 99.9 mm/sec
	Min. 1.0mm/sec
Solder feeding amount:	Max 99.9 mm/sec
	Min. 0.1mm/sec
Solder diameter	0.3 -1.6 mm

3. Description

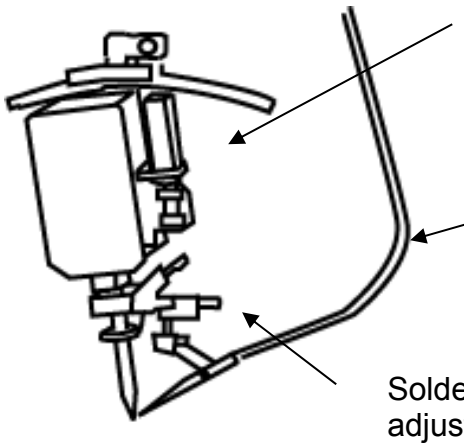
COMET controller



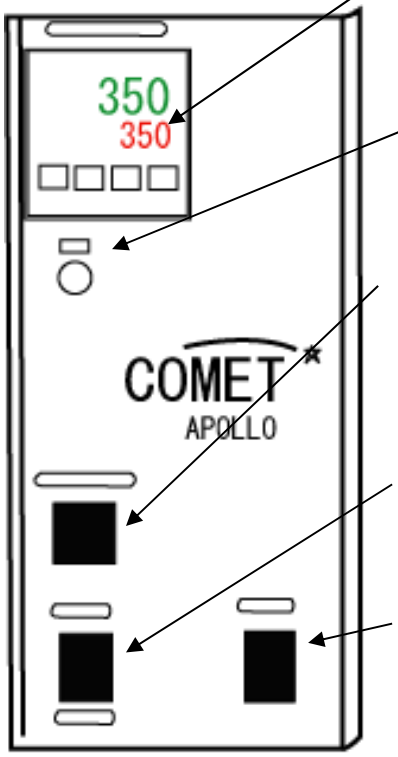
Solder feeder



RSP Iron unit and iron cartridge



A) COMET controller



① Temperature controller
Iron temperature can be set using this controller. To change the temperature, refer to the page 10-11 of this manual.

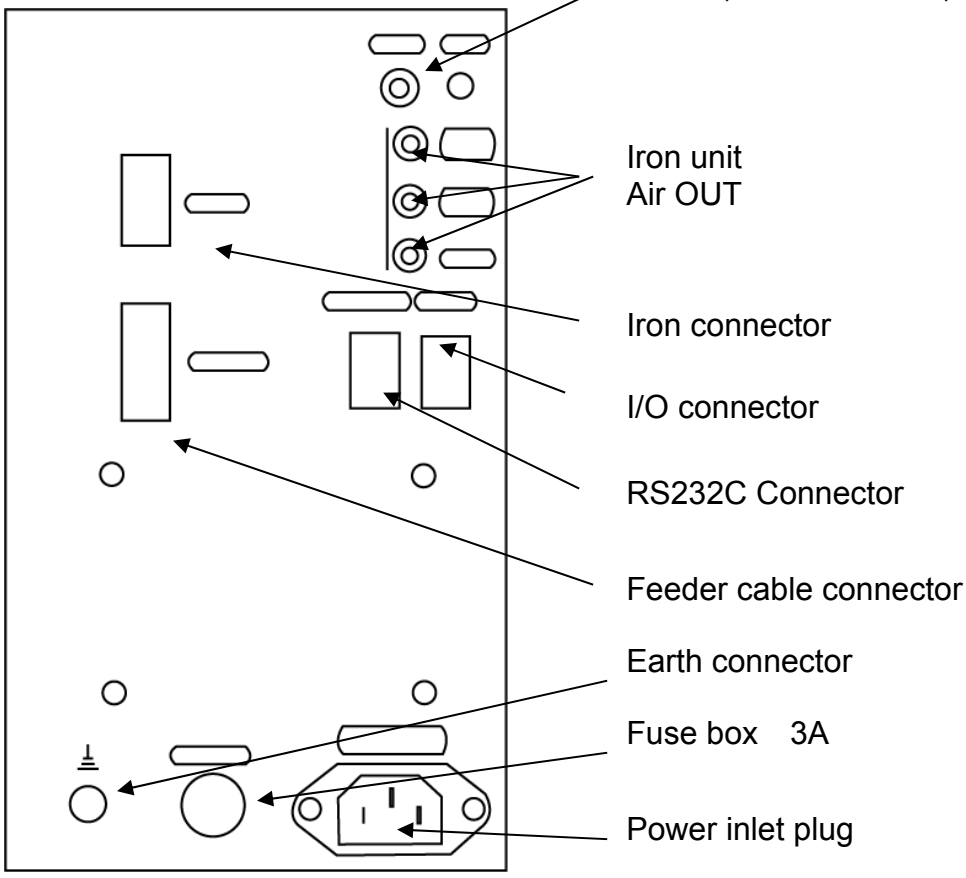
② Data download connector
Temperature data to track tip can be downloaded using this connector.

③ Iron down button
While you press this button, the iron stays at soldering position. So, when you teach soldering position, check the position using this button.

④ Solder feed forward button
Wire solder is forwarded while this button is pressed.

⑤ Power switch
Turn on the power switch. Then, the screen changes to green color to show the machine is ready to solder. In case the machine is not ready, check the air supply and the heater switch.

COMET Back



4. Set up and handling

The pollution degree: Degree 2 according to IEC60664-1.
The noise data: 54.9 dB (A).

1) Remove all the packing material from COMET.

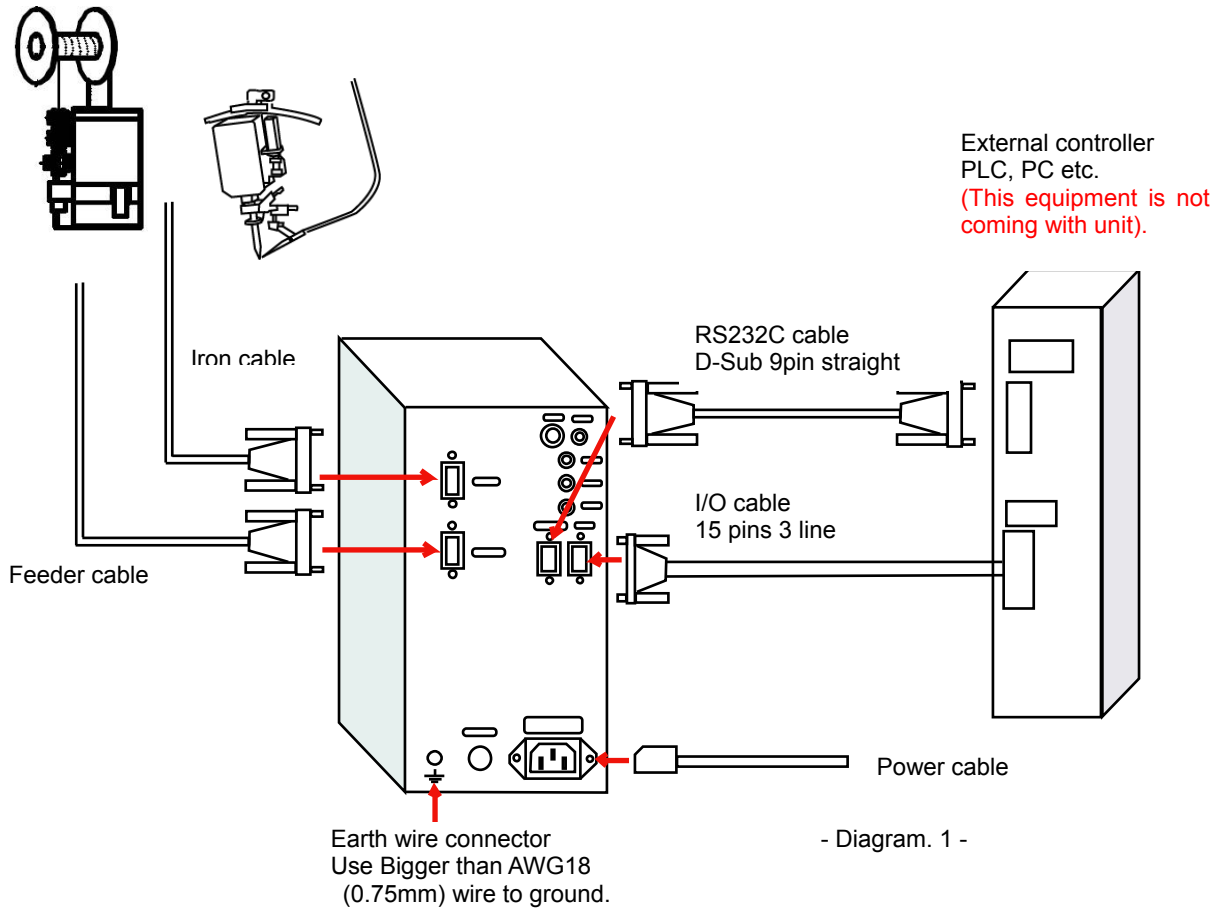
2) Attach 6mm diameter air hose to the back of COMET. Supply air should be clean, dry and the pressure should be between 0.4 - 0.5 MPa constantly. Air was not supplied, iron would not up and down. So, check the air supply and the pressure before staring soldering.

3) Attach power plug to COMET and the supply power must be 90-132/180-250V~ 50-60Hz. The overvoltage category is “Category II according to IEC60664-1”.

4) Attach cables as per the diagram 1.

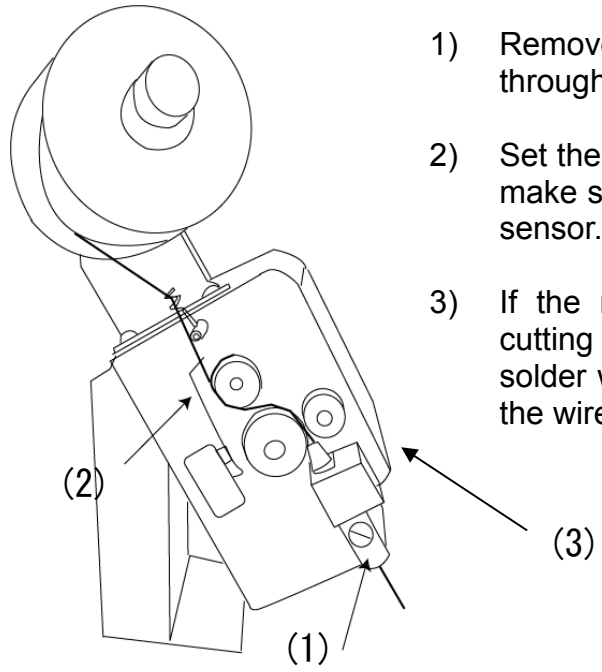
5) Remove the left cover loosing screws before attaching solder wire. Refer to the manual page 10 how to set. Solder wire to be used should be handled carefully according to the manufacturer’s MSDS.

6) Use the attached silicon ring to replace iron cartridge make sure not to touch it in bare hand. Heater cartridge takes about 30 minutes to cool down reaching normal temperature from 350℃.



- Diagram. 1 -

5. Set of solder wire

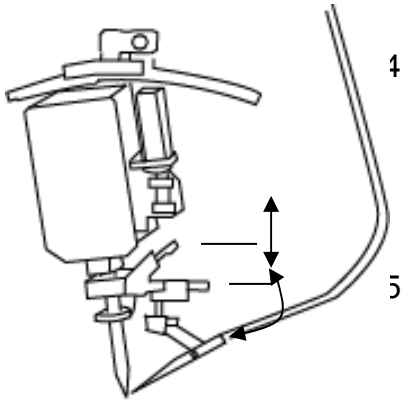


1) Remove the tube and pull solder wire through first. Then attach the solder tube.

2) Set the solder wire as per the diaggram. And make sure to set solder wire on the shortage sensor.

3) If the release lever is upper position, the cutting blade/pinch roller does not feed a solder wire. So, when you would like to feed the wire, put down the leaver before.

5.1 How to adjust RSP iron unit

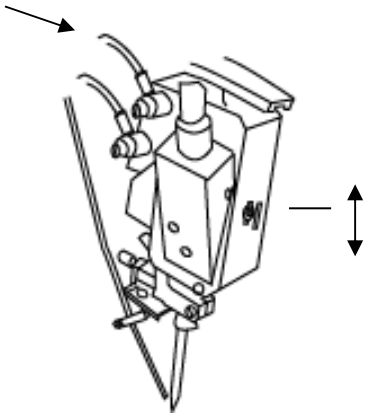


4) Solder wire feeding position can be adjusted.

Upper adjusting screw : Up down direction
Lower adjusting screw : Side way direction

5) Iron up down speed can be adjusted by turning screws after undoing nut.

Upper black screw : Raising speed
Lower white screw : Go down speed



6) Second solder feeding position can be altered by moving this screw. Adjusting the screw position, First solder wire can be put between the iron tip and a solder pattern.

Move it to lower : The same feeding positions.
Move it to upper : The second feeding position become higher and the first solder would be melt down between the iron tip and a solder pattern.

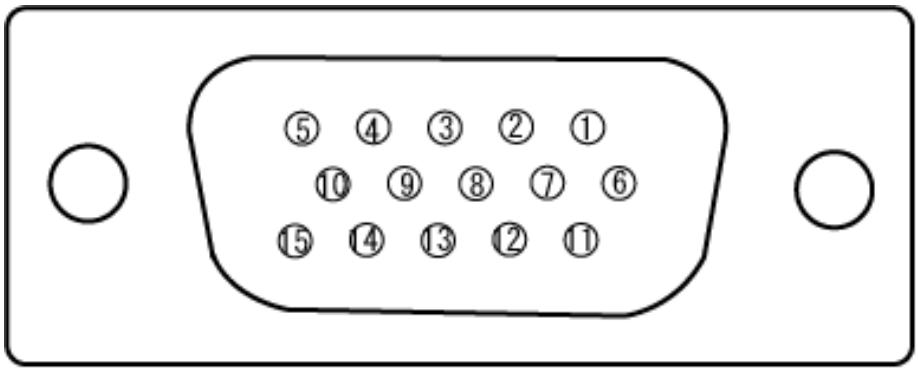
6. I/O Connector Pin Assignment and Wiring Diagram

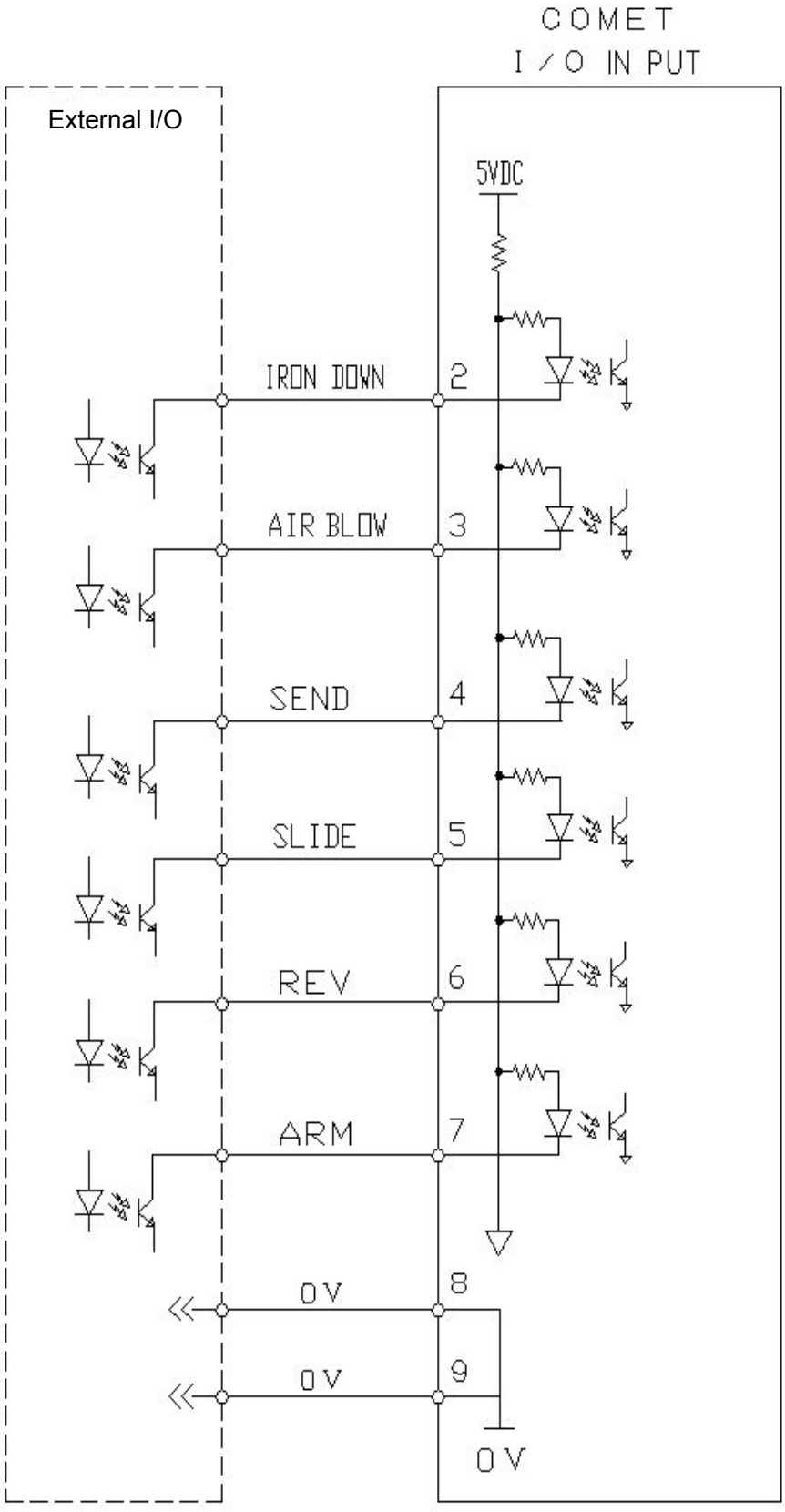
6.1 I/O connector

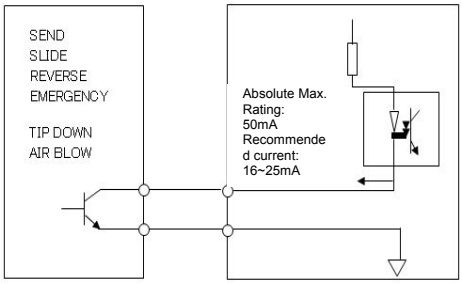
Pin No,	Signal Name	Description	Signal type
1			
2	S+	Turn solder motor forward	To COMET, IN
3	S-	Turn solder motor reverse	To COMET, IN
4	IRON DOWN	Lower the iron tip	To COMET, IN
5	S+（SLIDE）	Turn solder motor forward *1	To COMET, IN
6	AIR BLOW	Blow air for cleaning	To COMET, IN
7	EMERGENCY	Stop solder feeding motor *2	To COMET, IN
8	COM_IN	Common IN terminal	
9	COM_OUT	Common OUT terminal	
10	SOLDER SHORTAGE	Solder shortage detecting *3	From COMET, OUT
11	SOLDER CLOGGED	Solder clogging detecting *3	From COMET, OUT
12	TE,PERATURE READY	Temperature ready *4	From COMET, OUT
13	TIP DOWN LS	Iron lower sensor checking *3	From COMET, OUT
14	TIP UP LS	Iron upper sensor checking *3	From COMET, OUT
15			

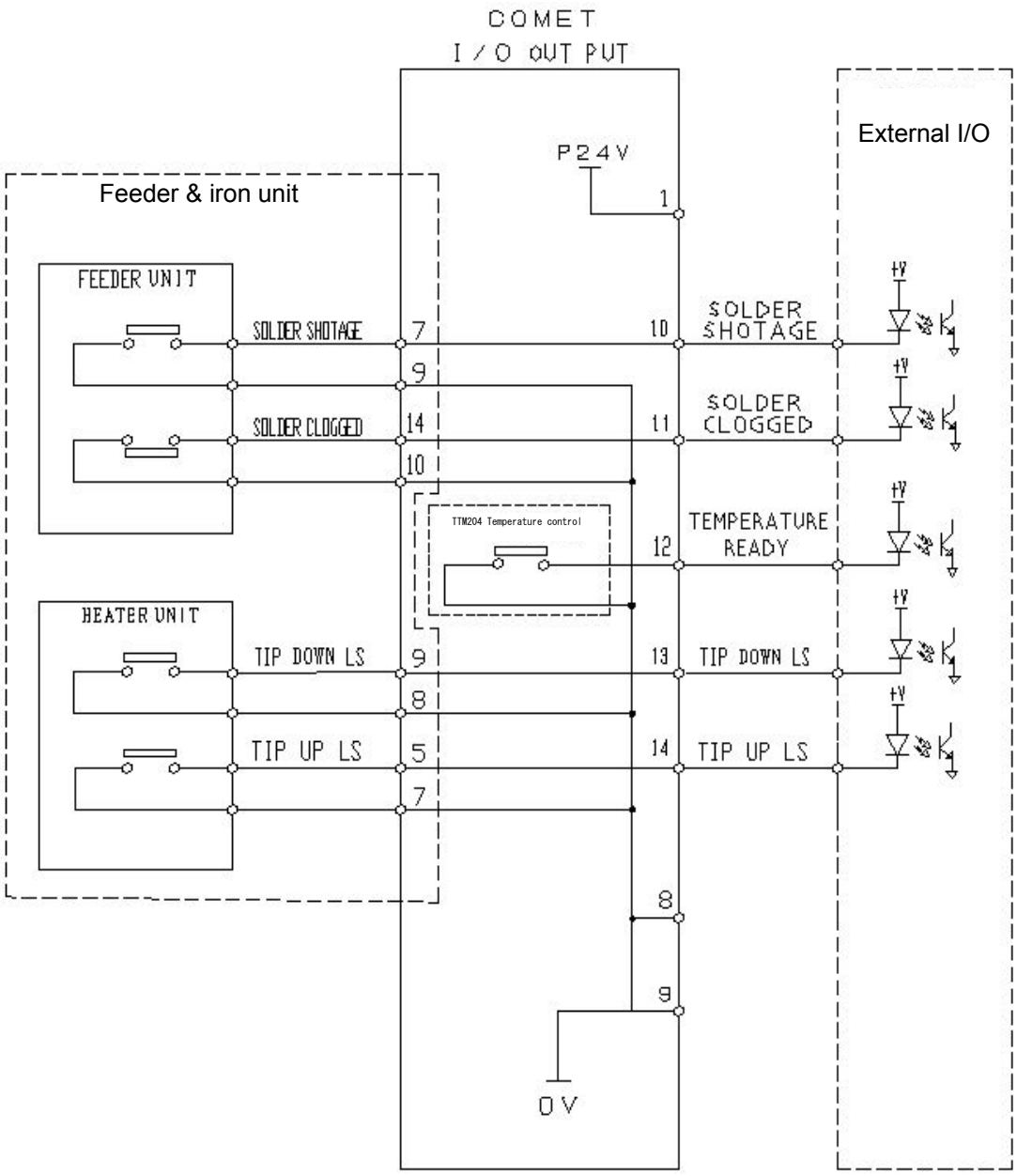
*1 Solder feeding speed is entered by COM communication.
*2 Normal ON type signal.
*3 These micro photo sensor signals are coming through vial COMET PCB.
*4 Refer to the manual P14-15 for temperature ready condition.

Connector diagram



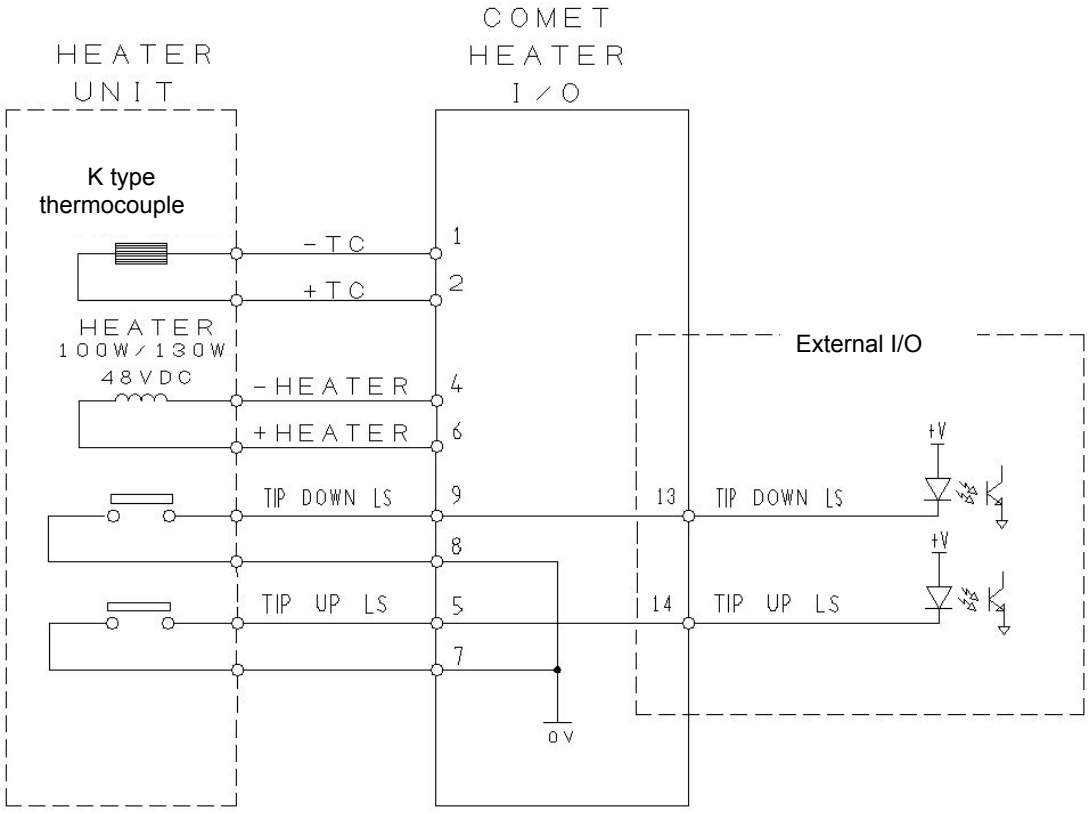

COMET
I／O IN PUT
External I/O
5VDC
IRON DOWN
2
AIR BLOW
3
SEND
4
SLIDE
5
REV
6
ARM
7
0V
8
0V
9
0V


SEND
SLIDE
REVERSE
EMERGENCY
TIP DOWN
AIR BLOW
Absolute Max.
Rating:
50mA
Recommende
d current:
16~25mA


COMET
I / O OUT PUT
External I/O
P24V
1
Feeder & iron unit
FEEDER UNIT
SOLDER SHOTAGE
7
9
SOLDER CLOGGED
14
10
TTM204 Temperature control
HEATER UNIT
TIP DOWN LS
9
8
TIP UP LS
5
7
10
SOLDER SHOTAGE
11
SOLDER CLOGGED
12
TEMPERATURE READY
13
TIP DOWN LS
14
TIP UP LS
8
9
0V

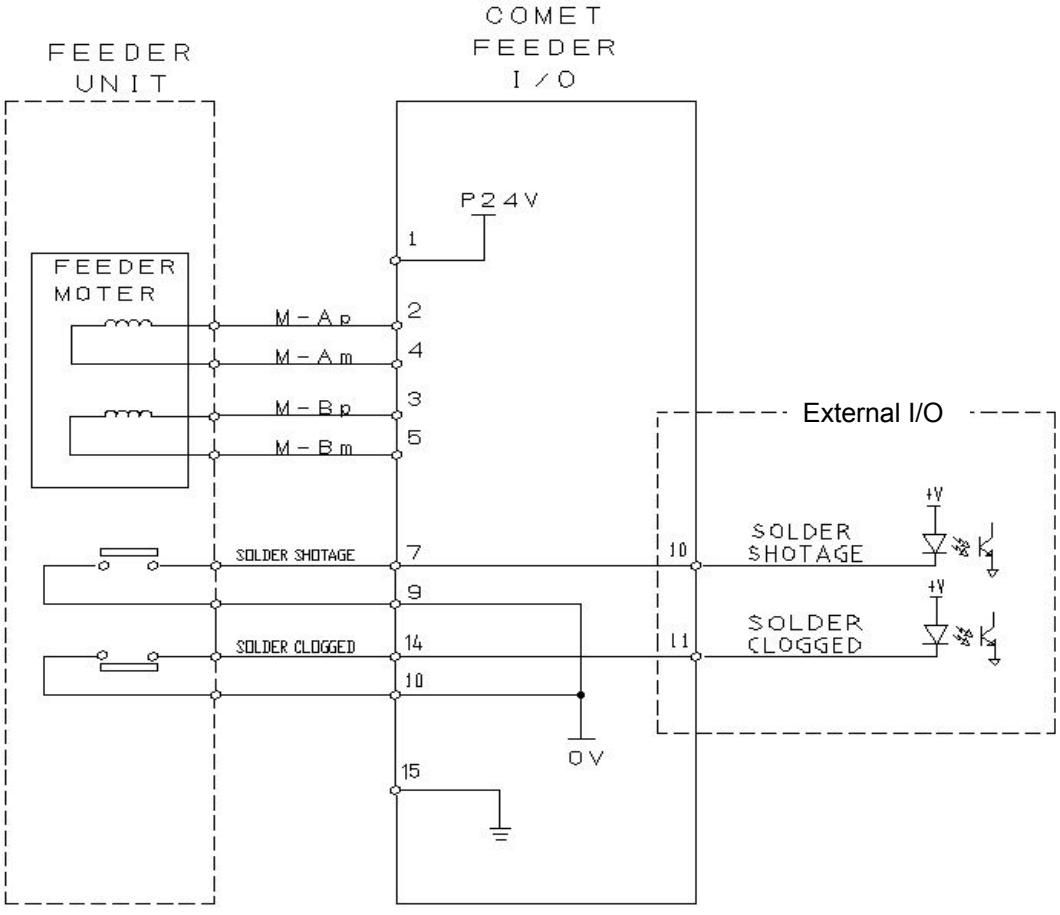
6.2 Iron cable connector

Pin No,	Signal Name	Description	Signal type
1	- TC	Thermocouple -	To COMET, IN
2	+ TC	Thermocouple +	To COMET, IN
3	Not used		
4	- Heater	Heater power 0V	From COMET, OUT
5	Tip up LS	Iron up detection signal	To COMET, IN
6	+ Heater	Heater power DC48V	From COMET, OUT
7	COM	COMET 0V	
8	COM	COMET 0V	
9	Tip down LS	Iron down detection signal	To COMET, IN



6.3 Feeder connector

Pin No,	Signal Name	Description	Signal type
1	P24V	Comet side DC24V	
2	M-Ap	Feeder A phase pulse command	From COMET, OUT
3	M-Bp	Feeder B phase pulse command	From COMET, OUT
4	M-Am	Feeder A phase pulse command	From COMET, OUT
5	M-Bm	Feeder B phase pulse command	From COMET, OUT
6	Not used		
7	SOLDER SHORTAGE	Stop shortage signal	To COMET, IN
8	Not used		
9	COM	Comet 0V	
10	COM	Comet 0V	From COMET, OUT
11	Not used		
12	Not used		
13	Not used		
14	SOLDER CLOGGED	Solder clogged signal	To COMET, IN
15	Not used		



7. Feeder RS232C communicaiton command

7.1 Communication specification

Baud rate	9600
Data bit length	8
Parity	None
Start bit	1
Stop bit	1
Header	$ (ASCII)
Delimiter	CR(Control code)

7.2 Communication detail

	Operation	Command	Singal type
	COMET preparation check	7F000M000S	To COMET, IN
	Solder feeder forward	7F***M***S	To COMET, IN
	Solder feeder reverse	7R***M***S	To COMET, IN
*1	Slide solder feeding speed	7S000M***S	To COMET, IN
	Manual feeder forward speed	7F000M***S	To COMET, IN
	Manual feeder reberse speed	7R000M***S	To COMET, IN
*2	Communication finish	OK	From COMET, OUT
	Error detection after communication finish		
		NG	From COMET, OUT

***M	Feeding length is specified	e.g.	300M : 30.0mm
***S	Feeding speed is specified	e.g.	300S : 30.0mm/sec.

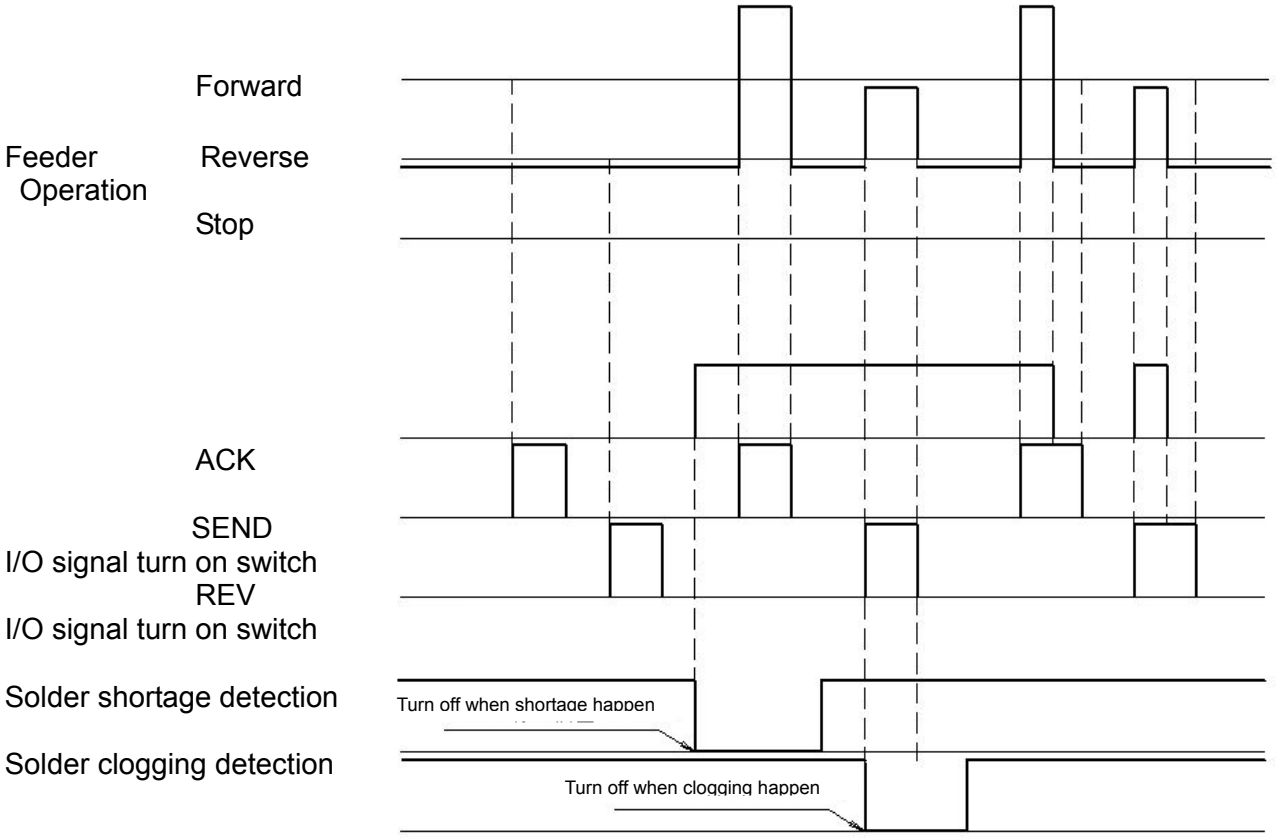
*1 This speed is acitvated when I/O signal “SLIDE” is ON. It feed forward until the “SLIDE” signal is turned off.

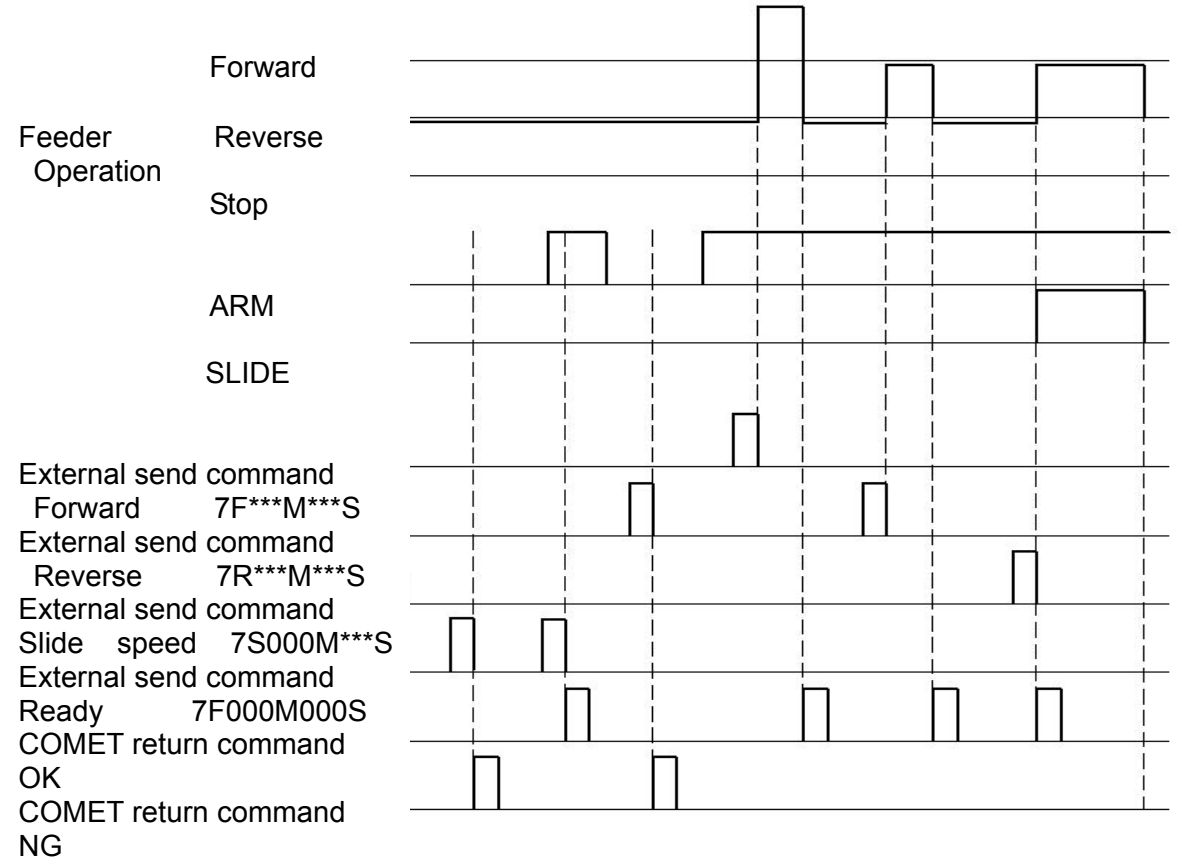
*2 If “Slide solder feeding speed” is sent, retun OK signal.

Communication example :

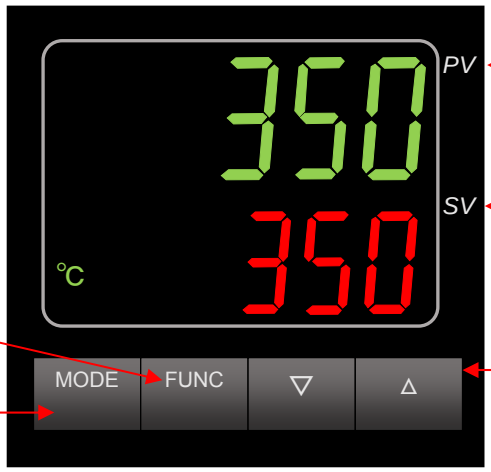
Send data (HEX)	24	38	52	30	35	30	4D	30	35	30	53	0D				
Send data (ASCII)	$	8	R	0	5	0	M	0	5	0	S	CR				
Receive data (HEX)													24	4F	4B	0D
Receive data(ASCII)													$	O	K	CR

7.3 Timing chart





8. How to set temperature controller



PV (Present temperature)

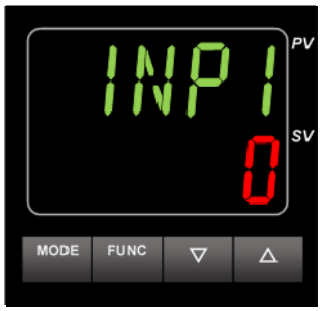
SV (Set temperature)

Digit change

Parameter change
Refer to Flow chart.

SV can be changed by pushing ▽ △ (0~500℃)

Initial setting mode

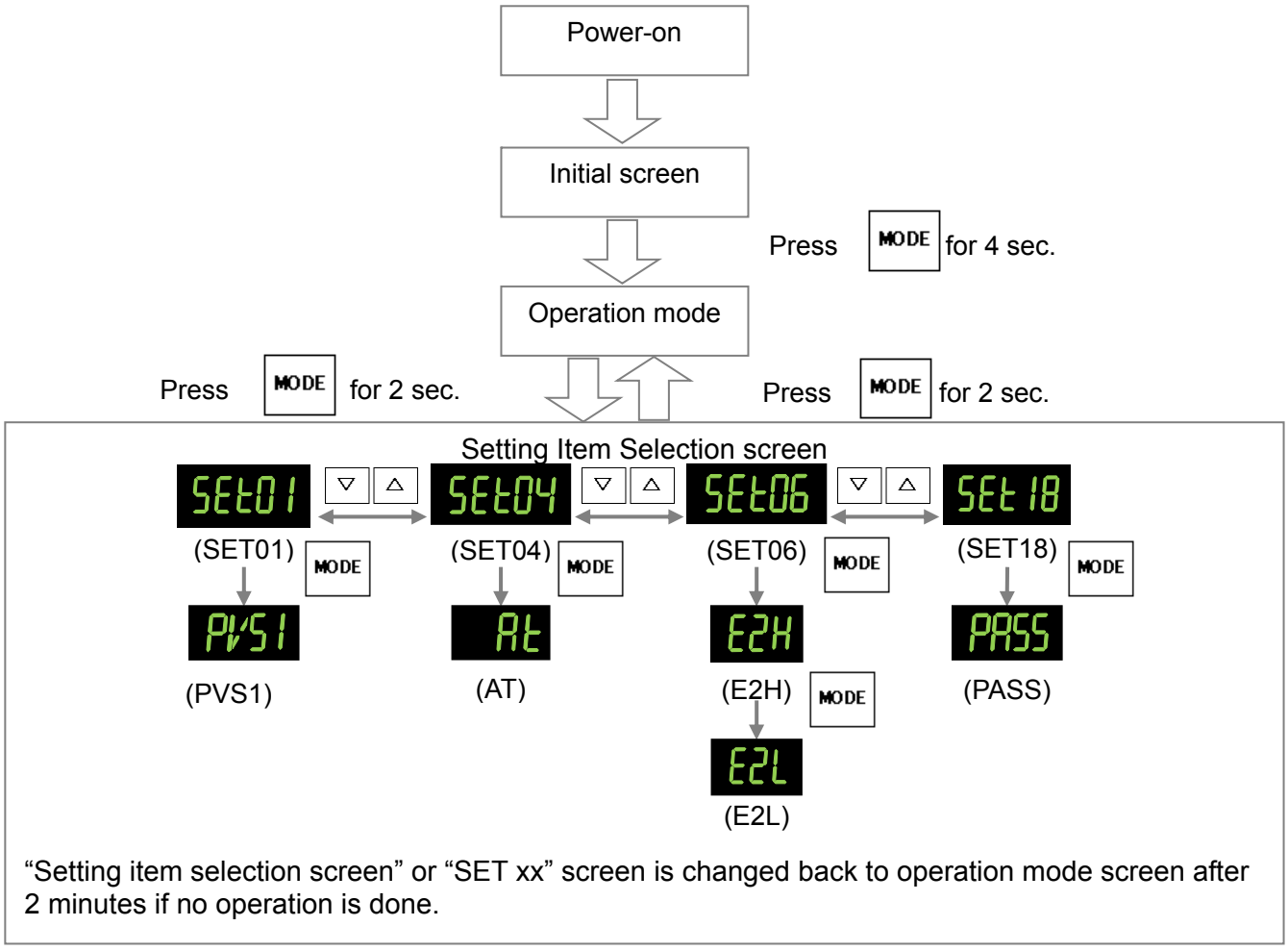


4 sec.

Operation screen

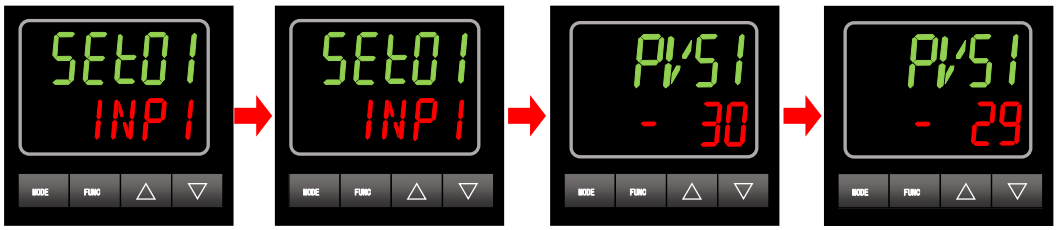
*When the PV display shows in green color, PV value alarm is within the setting range. When it is in red, it is out of its range.

8.1 Operation flow chart



"Setting item selection screen" or "SET xx" screen is changed back to operation mode screen after 2 minutes if no operation is done.

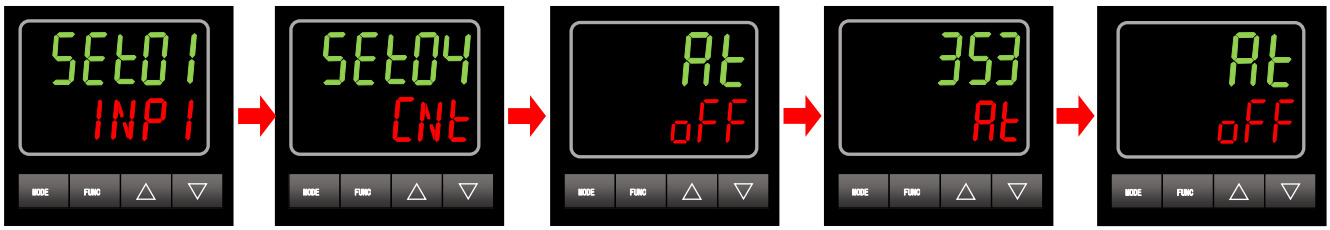
<Temperature calibration PVS1>



Press [MODE] for 4 sec. Press [MODE] once. Change value by [▽] [△] Press [MODE] for 2 sec to return.

*If temperature calibration with higher accurancy, leave the soldering unit for 30 minutes,

<Auto tuning AT>



Press [MODE] for 4 sec. Press [△] until above screen appears. Press [MODE] once. Press [△] once. Press [MODE] for 2 sec to return.

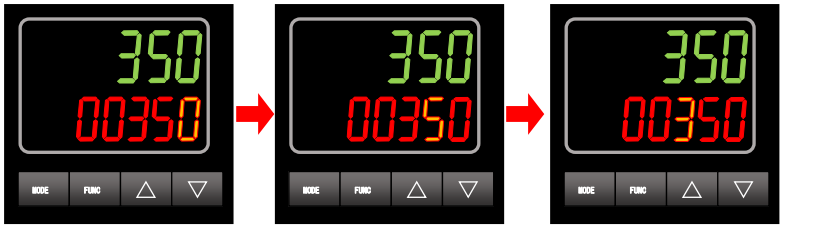
<Temperature alarm upper limit E2H>

Press [MODE] for 4 sec. Press [△] until above screen appears. Press [MODE] once. Change value by [▽] [△] Press [MODE] for 2 sec to return.

<Temperature alarm lower limit E2H>

Press [MODE] for 4 sec. Press [△] until above screen appears. Press [MODE] twice. Change value by [▽] [△] Press [MODE] for 2 sec to return.

<Digit change function>



Push [FUNC] once to change 1st digit. Push [FUNC] twice to change 2nd digit. Push [FUNC] three times to change 3rd digit.

Press [MODE] or leave for 4 sec to return.

8.2 Parameter showing

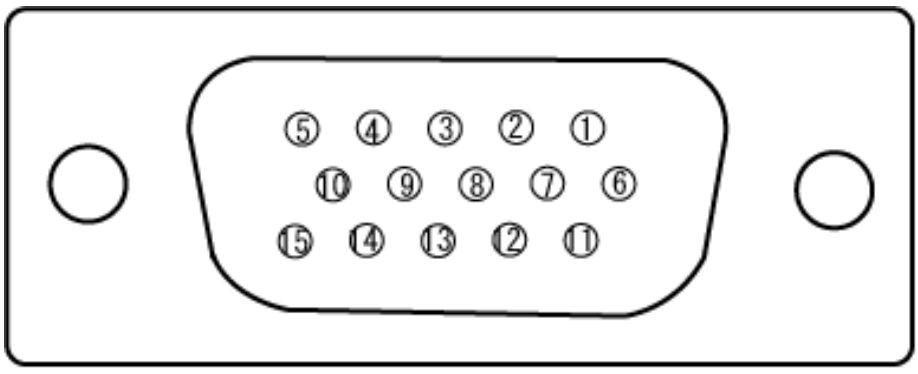
	Description	Setting detail	Initial value
PVS1	PV calibration zero setting	Use ▲or▼key to change . -500~500 (℃)	-35
AT	Auto-tuning operation mode	Push ▲or▼key to turn on. “AT” is flashing during auto-tuning on the SV line. It finishes when oFF is displayed (When ERR02 is displayed, the solder wire may not be set properly.)	oFF
E2H	PV value alarm upper limit setting	Use ▲or▼key to change . 0~500 (℃)	50
E2L	PV value alarm lower limit setting	Use ▲or▼key to change . 0~500 (℃)	50
PASS (flash)	Password setting	No need to set	—

9. I/O Connector Wiring Diagram

Pin No,	Signal Name	Description	Signal type
1			
2	S+	Turn solder motor forward	To COMET, IN
3	S-	Turn solder motor reverse	To COMET, IN
4	IRON DOWN	Lower the iron tip	To COMET, IN
5	S+（SLIDE）	Turn solder motor forward *1	To COMET, IN
6	AIR BLOW	Blow air for cleaning	To COMET, IN
7	EMERGENCY	Stop solder feeding motor *2	To COMET, IN
8	COM_IN	Common IN terminal	
9	COM_OUT	Common OUT terminal	
10	SOLDER SHORTAGE	Solder shortage detecting *3	From COMET, OUT
11	SOLDER CLOGGED	Solder clogging detecting *3	From COMET, OUT
12	TE,PERATURE READY	Temperature ready *4	From COMET, OUT
13	TIP DOWN LS	Iron lower sensor checking *3	From COMET, OUT
14	TIP UP LS	Iron upper sensor checking *3	From COMET, OUT
15			

*1 Solder feeding speed is entered by COM communication.
*2 Normal ON type signal.
*3 These micro photo sensor signals are coming through vial COMET PCB.
*4 Refer to the manual P14-15 for temperature ready condition.

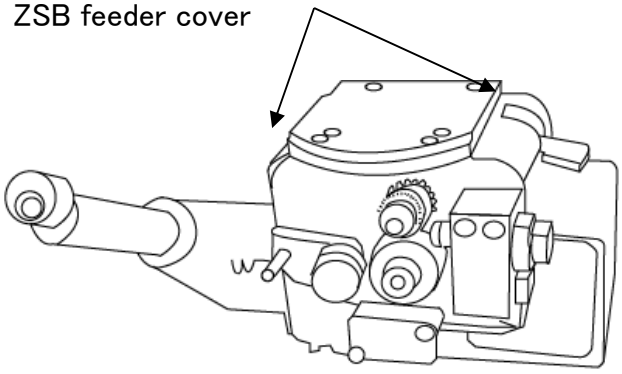
Connector diagram



10. ZSB feeder adjustment and alignment

If the ZSB (Zero solder ball) feeder is used, the cutting depth and the alignment have to be adjusted properly as follows :

1) Five set screws for ZSB feeder cover



1) Remove the cover after loosing five setting screws.

2) Loosen the setting screw.

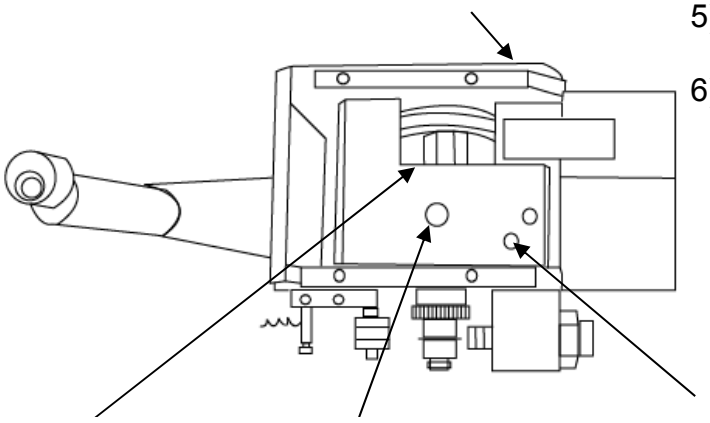
3) Adjust the screw to make the cutting blade center of the lower roller V grove.

4) Adjust the depth screw for the cutting blade to penetrate into flux core after loosing setting screw.

5) Tighten the setting screw 2).

6) Put back the cover and tighten five screws 1).

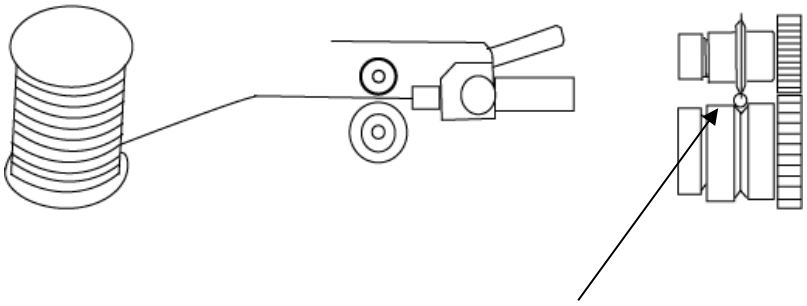
4) Setting screw for the cutting depth adjusting screw.



3) Adjusting nut for alignment

2) Setting screw for the adjusting screw

4) Adjusting screw for the cutting depth. Turn clockwise to raise the cutter and unti-clockwise to lower it.



The cutting blade to be the center of the lower roller V grove and the depth should the center of the solder wire as indicated.

11. Maintenance

11-1 Daily inspection requirement items are as follows:

Note: when the inspection, turn off the power and cool down the iron tip.

1) Existence of solder wire:
If the solder wire is not sufficient, please change to new one.

2) Wear of iron tip
If soldering result become unstable, please change it to new one. The life time of
the iron tip is depend on the heating time, the solder feeding point and speed.

3) Breaking of heater
The causes of a breaking of heater when the lamp for indication of temperature error is on and the temperature controller is normal are as follows:

(1) The breaking of heater. Change the iron cartridge
(2) The breaking of the relay cord (CC-5F) Change the iron cord.
(3) The iron tip is worn. Change the iron cartridge

4) Air pressure
Make sure the air pressure if it is adequate. (0.4-0.5 MPa)

5) Clog of the tube set
If the top (exit side) of the tube set clog by a flux or solder wire, please get rid of it and clean it with alcohol.

6) Up/down movement
Make sure if the up/down movement of iron unit of iron unit is smooth. Also, make sure if there is no flux sticking in moving parts.

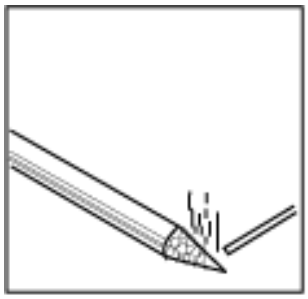
7) Cutting blade and pinch roller for solder wire feeding
Make sure flux or solder does not stick to the above parts. If so, clean it with a soft
(brass) wire brush and alcohol.

11-2 After every 5,000 points soldering
Check the solder tip temperature with a thermometer. Refer to the page 14-15 for thermo-controller temperature display calibration.

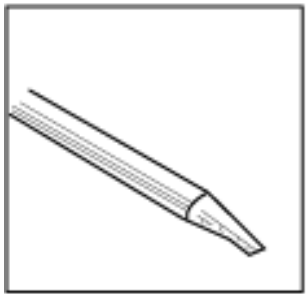
11-3 Every month
Make sure a solder wire run through the solder wire tube. If not, clean the inside tube or replace.

11-4 Every year
Send the thermometer to an authorized agent for the calibration.

12. HANDLING OF IRON TIP

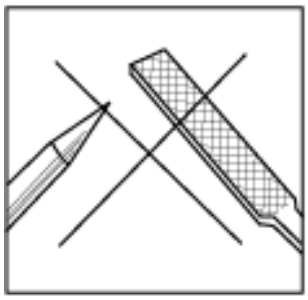


① Attach iron tip, then the vinyl resin coating on the iron tip is cracked and peel off during the temperature rising. Please use it after making pre- soldering by solder including flux.



② Iron tip should be placed at iron stand after pre-solder on iron tip. If tip is left at the stand without solder after cleaning , the tip cannot be wet with solder.

③ Please remove oxidations of flux lightly by wet sponge with water. If using the dry sponge or wiping too much, tip will not be wetted by solder easily.



④ Do not file the iron tip because the iron plating under the tip is the very important.

If a tip is not getting wet with solder!!

① Remove pre-solder on tip completely.
② Remove oxidation by a sand paper after cooling down the iron tip to room temperature.
③ Turn on the power and make pre-solder on the iron tip during rising the temperature.

The tip will wet with solder by the above process.

13. TROUBLE SHOOTING

This table is designed to help trouble shoot common problems that may occur with the LUNA unit. If you have tried the recommended solution and the problem persists, please contact Apollo Seiko directly for technical support.

Problem	Failure reason	Recommended solution
The COMET is not receiving power	The power code is disconnected Fuse is blown Control PCB is not working	Check the power cord connection Replace with a new power cord Replace with a 3 Amp fuse Contact Apollo Seiko for repair
The iron tip does not heat properly	Heating element is broken Heater / iron connector is damaged The tip is at end of life The control PCB is damaged	Change the heater and / or iron connector Replace the iron unit cable Replace with an new iron tip Contact Apollo Seiko for repair
Solder is not being properly fed	The release lever becomes opened The solder feeding gear is racing The stepping motor is damaged The control PCB is damaged	Engage the solder release lever Adjust the roller gear lever Contact Apollo Seiko for repair Contact Apollo Seiko for repair
The temperature controller does not allow for adjustment	Heater connection is damaged Iron tip is "dead" The control front switch is damaged	Replace heater and / or cable Replace the iron tip with a new one Replace with a new one
The unit does not display a READY signal	There is no air supplied to the unit An error condition exists.	Connect the 6mm air inlet tube Check the iron unit up/down movement Replace the tip/heater Fix error problem and reset
Temperature abnormality does not disappear	Values of low or high temperature alarm limit are incorrect.	Check low/high temperature limit and set correct values.

14. CARE OF IRON TIP

Introduction

Soldering is a technique which connects a metal to another metal by alloy reaction.
Solder material melts, but mother material (metal pieces on the work-piece) never melt by soldering.
There are three important factors (Three great factors of soldering) for the alloy reaction as follows:

- Cleaning the metal surface
- Formation of alloy layer which by melting solder and connecting to metal surface
- Heat source which should be maintained in suitable temperature in order to form alloy layer by soldering.

Solder iron tip is related to the formation of alloy layer and the heat source.
So, It is very important for a good care of solder tip to make a stable soldering.
Care of iron unit

Apollo soldering tip, HI-TIP (AS, HQ, TM, TS and DC model) realized the high performance and long life by using oxygen-free copper as a mother material with special iron plating and careful after treatment.
Usually, the life of the tip is about 50,000 points. However, if it is used at more than 400□ or if solder with a bad solder feeding position, the life is shorten extremely to approximately 5,000 points caused by "Iron plate Corrosion". Therefore, please use it with suitable condition. If the condition is proper, the life exceeds 100,000 points.

1) Check iron tip by eyes every fixed time

Oxide is left on the iron tip.	Study of the number of air brow cleaning.
"Solder rise" exceed the solder plated area.	A malfunction is occurred by leavening a corrosion by chloride element in flux. Replace the iron tip.
Bad solder flow	Remove pre-soldering on the iron tip completely. Cool it to room temperature and remove oxidation by a sand paper. Then turn it on again and make pre-soldering to iron tip surface during rising temperature.
Transformation of iron tip	Need to change of iron tip by the corrosion of chloride element in flux and wear phenomenon.

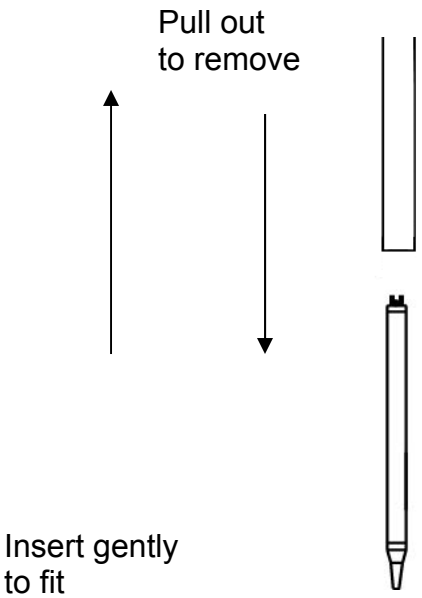
2) Check for soldering defect

Imperfection of electric connection by of flux membrane	Clean the surface and make iron tip temperature high and heating time longer.
Rough soldering surface	This defect occurs if the heating temperature is high or low. Adjust it to proper temperature.
Soldering removes and comes off because the solder does not melt.	Shortage of heat
Solder flow	The malfunction occurs if the heating temperature is high the heating time is long or the exceeding solder feed amount is supplied.
Transformation of top of tip	Need to change of iron tip by the corrosion of chloride element in flux and wear phenomenon..

There are many solder defects except the above mentioned as follows:
" Solder shortage", "Icicle", "Solder excess", "Burning film" etc.
Please select suitable condition by seeing through the solder states.

How to change iron cartridge

DCS-***, DCN-***type

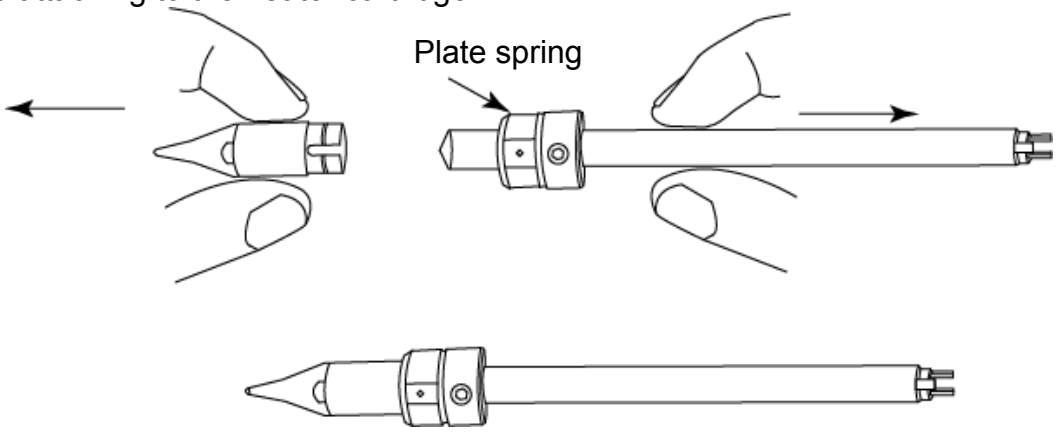


1) Make sure to turn the power off and coll down the iron cartridge room temperature and pull down the iron cartridge to replace a new one. Note that heater cartridge takes about 30 minutes to cool down reaching normal temperature from 350℃.
Use attached silicon ring to remove. If it does not come out, using silicone ring pull it down strongly. In case flux is jammed, remove it carefully with an alcohol.

2) To attach a new one, insert it gently until the holder end.
Then turn it until you feel the position key in the position.
When you feel a clicking, insert it firmly.
Do not turn the iron cartridge while the key is not in the position or the key is damaged.

DC-X type, X-***

1) Make sure to turn the power off and coll down the iron cartridge room temperature and pull down the whole iron cartridge. Note that heater cartridge takes about 30 minutes to cool down reaching normal temperature from 350℃.Then pull out the iron tip only as the diagram. If any problem, push up the plate spring to unlock the ball plunger.
2) White burning inhibitior is appliced inside tip. So, please make sure it is there beofre the attaching to the heater cartridge.



Apollo Seiko Ltd
2271-7 Jinba, Gotenba-shi, Shizuoka
Japan 〒412-0047
Tel: +81.550.88.2828
Fax: +81.550.88.2830
E-mail: apollo@apolloseiko.co.jp
URL: http://www.apolloseiko.co.jp