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# AIR PRESSURE TYPE DESKTOP

# **TERMINATOR**

(Machine Number: 57225-7100)

**OPERATING MANUAL** 



Molex Japan Co., Ltd.

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# <Safety Precautions>

Please read the following before operating the machine.

# 1. Introduction

Thank you for choosing our AIR PRESSURE TYPE DESKTOP TERMINATOR.

This instruction manual is prepared so that the machine is properly used. Please take the time to read this manual, making sure you understand the operating procedures described herein before attempting to operate the machine.

# 2. To operation supervisors

- 1) Operators should fully understand the contents of this manual before operation.
- 2) If operators do not understand English, translate this manual into the proper language.
- 3) Keep this manual near the machine so that operators can refer to it anytime.

## 3. Dangerous operations

#### Observe the following precautions to prevent a life-threatening accident.

- 1) Don't insert a part of your body or other foreign materials into the machine when it is running.
- 2) Don't place the machine on an unstable, off-balanced worktable from which the machine might fall down.
- 3) If more than two operators are engaged in operation or checkup at the same time, even slight miscommunication might lead to a serious accident.
- 4) Don't put your face too near the operation area, as flying fragments may hurt you seriously.

#### Caution

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- 2) The contents of this document are subject to change without notice.
- 3) Molex Japan Co., Ltd. assumes no responsibility for losses resulting from use or misuse of this document.

# <Safety Precautions>

Please read the following before operating the machine.

# 4. Careful handling

Keep the items below to use the machine safely and properly. \* Please contact our application-tooling group if something's wrong with the machine.

1) Replacement and checkup of the parts

When you have to put your hands inside the machine to replace or check the parts, confirm in advance that unplugging the power cable and shutting off the air supply.

- Don't touch the internal electric circuit Don't remove the safe cover of this machine during operation. The electric circuit is included in this place, and it is not only dangerous, but it will become the cause of failure if a hand is touched.
- 3) Malfunctions

If you notice any unusual sound or movement in the machine, stop the operation immediately and check the suspicious parts.

4) Foreign materials

If foreign materials such as water or metals accidentally get inside the machine, stop the operation immediately and remove those materials.

# 5. Installation site

Be careful about the following items when you install the machine.

- 1) Temperature and humidity
  - Don't operate the machine in extremely high/low temperature or extremely high humidity.
  - \* Place it where the temperature is stable around 23 degrees centigrade and the air is well ventilated.
- 2) Dust and corrosive gas

It will become the cause of failure if dust, corrosive gas, etc. are in the circumference of this machine.

\* Please don't install this machine to such a place.

3) Near electromagnetic sources

If the machine is used near a surge generator or powerful electromagnetic source, there is a possibility of carrying out incorrect operation.

\* Please don't operate this machine in such a place.

4) In place where unstable power sources

The machine may incorrect-operate in the place where change of power supply voltage is sharp beyond a specification value.

\* Please don't install this machine in such environments.

# <Quality Precautions>

#### You surely carry out the following for defect-free production.

# 1. Introduction

In order not to produce a defective article with this machine, this chapter has described "Must be carried out", and "Must not be carried out" as an important matter on operation.

# Keep in mind that there is a possibility that a defective article will be produced when not protecting this.

# 2. Must be carried out

#### Please be sure to perform the following matter to maintain product quality.

1) Enforcement of startup check

Please check the machine in accordance with the "startup checklist" described in this document before an operation start, and start operation after confirming nothing is wrong with the machine.

\* If the check is neglected, there is a possibility that a defective article will be produced.

2) Confirmation of quality

Please start the production after confirming the quality of a product picked up from the first operation, and it passes all of the claims required in the ITD (termination) specifications and the harness drawing of a corresponding connector.

\* It is recommended to initiate the operation on the preferable condition that enough margins for the standard are identified.

# 3. Must not be carried out

#### Please don't perform the following matter by any means to maintain product quality.

1) Using of Unqualified wire

Please don't use an unqualified wire. There is a possibility of causing connector breakage and termination defect by mismatching of a wire outer diameter.

- \* Please operate using a qualified wire.
- 2) Too much deeply termination

Don't terminate a wire too much deeply. It may lead to the breakage of connector and termination punch.

- \* Please terminate a wire in the termination depth of a standard value.
- 3) Wire scrap unexclusion

Because it causes the wire guide (comb) damage when terminating with the cut wire scraps left for the wire guide, it is a prohibition.

\* Please terminate after excluding the wire scraps from the wire guide without fail.

## 1. Description

This machine is an air pressure type desktop terminator that terminates the 15 discrete wires or less to the 2.0mm pitch Mi2 connector of Molex.

As a feature, the termination work with a high reliabilitry can be done because this machine equips the detection switch of the slide table in the termination position and the air pressure shortage detection switch.

In addition, it also has the feature that the wire protruding length is stabilized by which carried out the termination after cutting the point of the wire.

## 2. Machine Configuration and Applicable Products

- 2.1. Machine Name and Configuration
- 1) Machine name: AIR PRESSURE TYPE DESKTOP TERMINATOR
- 2) Machine number: 57225-7100
- 3) Machine configuration: (1) Air press main body
  - (2) Slide table
  - (3) Foot switch

#### 2.2. Applicable Connector and Wire

 Connector: Molex 2.0mm pitch Mi2 connectors 52484-\*\*\*\*: Mi2 Receptacle (From 2 to 15 circuits)
 Wire: UL1061/UL1571 AWG#26/#28 discrete wire, or other Molex qualified wires. (Mixture of different wire is impossible) Insulation outside diameter = From phi 0.85mm to phi 1.05mm (Conductor composition = 7-twist tin plating copper wire)

# 2.3. Machine Appearance and Unit Name



Slide table

Foot switch

# 3. Specifications

# 3.1. Machine Specifications

1)	Number of termination possible wires:	15 wires or less
2)	Number of termination possible circuits:	From 2 to 15 circuits (When two or more connectors are terminated, it is a number of total circuits in which it assumes between connectors one circuit)
3)	Wire arrangement method:	One wire is arranged in the comb of a prescribed circuit number of the wire guide, and it fixes to the double-sided adhesion tape on the table.
4)	Termination method:	The termination is executed after cutting the point of the wire arranged in the wire guide (comb) by the termination punch,
5)	Table position detection:	The slide table is detected being pushed into the termination position with the switch.
6)	Start of termination:	The termination starts when turns "ON" the foot switch while turned "ON" the table position detection switch.
7)	Termination source:	Air cylinder (Phi80mm and stroke of 25mm)
8)	Termination force:	Approx. 2500N (At the air pressure of 0.5MPa) (Approx. 250kgf)
9)	Adjustment of termination depth:	The termination depth can be adjusted with a stopper bolt on the upper side die-set.
10)	Air pressure shortage detection:	The state that the air pressure decreases more than the set lower bound value is detected. (Lower bound value is set as 0.4MPa)
11)	Controller:	Control method with special circuit.

# 3.2. Power Source Specifications

1)	Power supply:	AC100 V, 50/60 Hz, 1 A or less
2)	Air supply:	0.5 MPa (Approx. 5 kgf/sq. cm), Dryness compressed air

#### 3.3. External Size and Weight

- 1) External size: 315 (width) × 232 (depth) × 2450 (height) mm
- 2) Weight: Approx. 12kgf

#### 3.4. Operating Environment Conditions

- 1) Operating ambient temperature: From 5 to 35 degrees centigrade (Away from direct sunlight)
- 2) Operating ambient humidity: From 35% to 85% RH (No condensation)
- 3) Operating atmosphere: Atmosphere should be free of corrosive gases and contaminants such as dust or lint.
- 4) Voltage variation: Within +/-10% (of the rated voltage)

#### 3.5. Installation Space

Machine installation space required for the purposes of performing operation and maintenance checkups.

(On the worktable from 700mm to 750mm height)

900 (width) × 700 (depth) × 2000 (height) mm

Recommended worktable construction: Anti-vibration feature such as adjuster feet (Load capacity: 200kgf or more)





# 4. Installation of Machine

#### 4.1. Installation

- 1) An air press is arranged from the edge of a solid worktable to 100mm or more inner side, and the stable installation without shakiness is checked.
- 2) A power supply cord is connected to the 2-pole metal connector on the backside of an operation panel, and a foot switch is connected to the 3-pole metal connector.
- 3) A power supply cord is connected to the supply source of AC100V.
- 4) The air supply tube is connected to the air piping mouth of a filter regulator.

#### 4.2. Operation Preparation

- 1) The power switch of the operation panel is "ON/OFF", and the switch lamp "light/turn off" is confirmed.
- 2) Where the pressure adjustment knob of the pressure gauge of a filter regulator is pulled, a knob is turned, and air pressure is adjusted to 0.5MPa.
- "Note" Please set the air pressure shortage detection switch (red needle) to 0.4MPa with a slotted screwdriver.



# 5. Operation Method

### 5.1. Termination Procedure



#### 5.2. Set of Connector

- 1) Pull the "slide table (1)" to the operator side and open the "wire guide (2)".
- 2) Loosen the fixed screw of a "right stopper (3)" in the connector set part and slide it rightward.
- 3) Set a "connector (4)", force lightly the "right stopper (3)" to the connector, and fix it with a screw. (This adjustment is carried out only at the time of the circuit number change)
- 4) Shut the "wire guide (2)" and lock on the slide table with the "hold lever (5)."

"Note" Please do not move the "left stopper" for the set standard of the connector.



#### 5.3. Wire Arrangement and Termination

- 1) Arrange one "wire (1)" in the comb of the predetermined circuit number of the "wire guide (2)", and fix it to a "double-sided adhesion tape (4)" in the position to which the "wire point (3)" comes out a little from the comb edge.
- 2) After ending the arrangement of all wires, grasp the "knobs (6)" of the "slide table (5)" by both hands, push it into the interior in the machine completely, and the termination is executed by turning on the "foot switch" in the state.
- 3) After termination, draw out the slide table to the front and remove the cut "wire scraps" from the "wire guide (2)" completely.
- 4) Open the "wire guide (2)" and take out the terminated connector from the slide table.
- "Note" Please remove the "wire scraps" because it causes the wire guide damage and a defective termination.



#### 6.1. Daily Maintenance

1) Maintenance of machine

Before a work start, please carry out the machine check in accordance with the "startup checklist" in this manual, and start work after checking that it satisfies a standard.

\* Please record each check result simultaneously.

#### 2) Removal of foreign article

Foreign substances such as dust and wire waste will accumulate on "termination punch", "wire guide", "connector set part" and "table slid part" during operation.

Please remove them from the machine every day after turning off the power and checking safety.

\* Neglect may become the cause that a poor wire cutting and a termination defect.

#### 3) Cleaning of work end

Please wipe with a dry cloth lightly after cleaning a machine with compression air every day at the time of a work end. There is an effect that maintains a sensor function and prevents rusting.

#### 4) Lubrication

Apply a proper amount of "Lithium family grease" (JIS No. 2) or equivalent to the die set and the "U"-shaped ditch of the wire guide side with the frequency of once a month.

#### 5) Discharge water

Please discharge water collected in the filter regulator of the air supply entrance with the frequency of once a week.

#### 6.2. Checking of Machine

Please reconfirm the standard value with Mi2 IDT (termination) specifications of the latest version before it works.

1) Termination (IDT) depth

The termination depth must meet the standard value. **Standard>** Termination depth = 0.7+0.1/-0.15mm



2) Wire protruding length

The size between the inner wall of a hosing and a wire point must meet the standard. **Standard>** Wire Protruding Length = 0.5mm or less

- Damage of wire insulation There must not be remarkable damage of the wire insulation with the termination punch and the wire guide, etc.
- 4) Damage of housing There must not be remarkable damage of the housing with the termination punch.
- 5) Conductor shear drop The amount of the conductor shear drop of the cut wire must not be remarkably.

#### 6.3. Adjusting Method of Termination Depth

- 1) Turn "OFF" the power supply switch of the terminator, and detach the "safety cover on the front.
- 2) Remove the "stop screw (1)" on the slide base, and detach the "slide table (2)".
- 3) Loosen the "nut (4)" at the center of the "upper die-set (3)", and adjust the termination depth turning the "stopper bolt (5)".
- 4) The direction of the adjustment and the amount of the adjustment are as follows.
  - \* To shallow: Turn the stopper bolt in the "direction of "A".
  - \* To deep: Turn the stopper bolt in the "opposite direction of A".
  - \* Adjustment value: Approx. 1.0mm/one turn
- 5) After adjusted, fasten the "nut (3)" firmly where the wrench is set to the "stopper bolt (4)".
- 6) Henceforth, re-set the remaining parts in the reverse order.
- "Note" After adjusted it, please start the production after confirming the termination depth meets the standard by the trial operation.



#### 6.4. Adjusting Method of Connector Position

- 1) Open a "wire guide (1)", loosen the fixed screw of a "left stopper (2)" (it does not usually move with fixation), and adjust the connector position finely.
- 2) After adjusted it, confirm that the punch mark on the wire is in the center part of the IDT slot by the trial operation. The presence of the wire insulation crack is confirmed at the same time.
- 3) After that, the termination of the different circuit number is carried out only by position adjustment of the "right stopper (3)".
- "Note" The "left stopper" is the set standard of a connector. Please use it while fixed after it adjusts once.



Right stopper (4)

# 7. Cause and Measures of Breakdown

	Breakdown	Cause	Measures	
1	The newer supply decen't	<ol> <li>The power supply plug has come off the outlet.</li> </ol>	<ol> <li>The power plug is connected with the outlet.</li> </ol>	
	enter even if the power on/off switch is pushed.	2) The fuse cuts.	2) Fuse is exchanged.	
		<ol> <li>The power on/off switch is out of order.</li> </ol>	<ol> <li>The power on/off switch is exchanged.</li> </ol>	
2		<ol> <li>The slide table doesn't make "ON" the limit switch in the machine.</li> </ol>	<ol> <li>The slide table is completely pushed into the interior of the machine.</li> </ol>	
	The termination doesn't operate even if stepping on the foot switch.	2) The foot switch is out of order.	2) The foot switch is exchanged.	
		3) The limit switch in the machine is out of order.	<ol> <li>The limit switch is exchanged.</li> </ol>	
		4) Air pressure shortage.	4) Air pressure is adjusted.	
		<ol> <li>The signal line is not firmly connected with the terminal stand.</li> </ol>	5) The signal line is firmly connected with the terminal stand.	

# 8. Circuit Diagram

## 8.1. Electric Circuit Diagram



8.2. Air Circuit Diagram



# 9. Parts List

9.1. Termination Unit (1 of 2)

"Note" Please do not change the screw of No.20 to a cap screw. Then, parts are damaged.



# 9.1. Termination Unit (2 of 2)

### [Applicable Model] 57225-7100: Air Pressure Type Desktop Terminator

No	Parts No.	Parts Name	Q'ty	Maker & Parts No.
	[Perishable Parts]			
13	57225-2101	Punch-A (Cutting side)	1	
14	57225-2102	Punch-B (Middle)	1	
15	57225-2103	Punch-C (Wire side)	1	
16	57225-2104	Blade (Lower blade)	1	
	[Standard Par	ts for Termination Unit]		
1	57225-1101	Base Plate	1	
2	57225-1102	Wire Guide	1	
3	57225-1103	Base Block	1	
4	57225-1104	Wire Guide Block	1	
5	57225-1105	Top Die	1	
6	57225-1106	Holder	2	
7	57225-1107	Stopper	1	
8	57225-1108	Right Stopper	1	
9	57225-1109	Hold Lever	1	
10	57225-1110	Stopper	1	
11	57225-1111	Shoulder Bolt	1	
12	57225-1112	Safety Cover	1	
17	57348-0002	Locating Bolt	1	MISUMI: ANBN6x30
18	57348-0004	Revolving Bolt	2	MISUMI: GRM5
19	57354-0001	Stop Pin	1	
20	-	Button Head Screw	2	M3x6L



# 9.2. Press Unit (2 of 2)

-				
No	Parts No.	Parts Name	Q'ty	Maker & Parts No.
	[Standard Par	ts for Press Unit]		
1	57357-1014	Base Plate	1	
2	57357-1002	Right Frame	1	
3	57357-1003	Left Frame	1	
4	57357-1004	Top Plate	1	
5	57357-1005	Cylinder Joint Plate	1	
6	57357-1015	Guide Plate	2	
7	57357-1007	Cylinder Joint	1	
8	57357-1008	Guide Plate	2	
9	57357-1009	Front Cover	1	
10	57357-1010	Upper Cover	1	
11	57357-1011	Stopper Block	1	
12	57357-1012	Rear Cover	1	
13	57357-0001	Micro Switch	1	MATSUSHITA: ABV161061
14	57357-0002	Stopper Bolt	1	MISUMI: UST6-30
15	57357-0003	Air Cylinder	1	KOGANEI: CDAS80x25R
16	57357-0004	Solenoid Valve	1	KOGANEI: A040-4E1-25PS
17	57357-0005	Filter Regulator	1	KOGANEI: FR150-02-BGF1
18	57357-1013	Control Box	1	
19	57357-0006	Rubber Leg	4	TAKIGEN: C-30-RK-36

### [Applicable Model] 57225-7100: Air Pressure Type Desktop Terminator

# 10. Air Pressure Type Desktop Terminator Startup Checklist

#### [Applicable Model] 57225-7100: Air Pressure Type Desktop Terminator

"Note" Please check the following matter before the commencement of work, and start operation after checking those without a problem. Please record check results simultaneously.

No.	Check point	Standard	Method/equipment	Record	Startup	Monthly
1	IDT (Termination) depth	0.7+0.1/-0.15mm	Measure with an IDT depth gauge	Data	0	
2	Wire protruding length	0.5mm or less	Check with a magnifier	Data	0	
3	Damage of wire and connector	No remarkable damage	Visual check	-	Ο	
4	Connector set part	No article and dust	Cleanup	-	0	
5	Slide table part	No article and dust	Cleanup	-	0	
6	Comb of wire guide comb	No damage	Visual check	-	0	
7	Wire scraps on a wire guide	No wire scraps	Remove wire scraps	-	ο	
	[Monthly Checking]					
8	Wire guide U-ditch and die set sliding part	No drying up	Grease applying	-	-	0

