

Specification Sheet

COSMO AIR LEAK TESTER Model LS-1861



Meets SI Unit Requirement

Improved accuracy with the new Master-Preset compensation feature

Compensates for environmental changes

Improves cycle time

Reduces Master adjustment time

COSMO INSTRUMENTS CO., LTD.

1. OVERVIEW

LS-1861 is a differential pressure decay air leak tester that achieved higher cost performance, and easier operations and daily maintenance comparing to our conventional model using our new Master-Preset compensation feature.

2. FEATURES

Master-Preset compensation feature

This feature compensates the drift errors caused by the volume difference between the work and the master, adiabatic compression effect and change in ambient temperature. This feature enabled to achieve follows:

- The labor hours for adjustment are dramatically reduced when building a leak test machine.
- Cosmo's patented Master Chamber can be used as a Master (Reference).
- On the production lines where multiple models are being tested, suitable measurement for each part can be achieved by executing Master-Preset process during part changeover.
- Since parts on the production line are used for Master-Preset process, the drift error is compensated appropriately according to the changes in the environmental conditions. Since there is no need to prepare non-leaking part, maintenance is made much easier.

Intelligent Pneumatic Circuit

- The Differential Pressure Sensor used for this model is highly sensitive, durable and low in internal volume.
- This model is equipped with newly developed air operated valves with high flow capacity (flow capacity is 1.3 times our conventional valves.)
- This circuit includes self cleaning feature to protect sensor from being contaminated by water, oil and shaving inside the tested part.
- The sensor and the valve performance is checked at the end of the each test cycle to ensure reliability of leak testing.

CAL ports

- CAL ports are easily accessible in the front panel for daily sensitivity check using a Leak Master or a Leak calibrator. These ports are also convenient for periodic calibration of the differential pressure and the pressure gauge.



Dual channel

- Two different sets of test parameters can be programmed independently.

Leak Limit Display / Keyboard lock

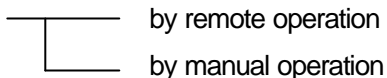
- Leak limit settings are always displayed during leak test.
- Keyboard can be locked to prevent accidental changes of test parameters.

3. DESCRIPTION OF MAJOR FUNCTIONS

Master-Preset Compensation

- Execute a Master-preset process at the beginning of the each shift and when test parameters and/or environmental conditions are changed. It separates the true leakage and the fluctuation by comparing the measured pressure drop of normal leak test and when setting stabilization timer longer.
- Master-preset value is used as a Drift Compensation value.

Master-Preset value can be programmed in the following ways:

- Automatic measurement 
- Manual input using keyboard

Transmitting Clamp signal

- This tester can control external solenoid valve to drive air cylinder.

Charge hold

- Used to search the location of leak(s) during bubble test.

Fixed drift compensation

- Compensation value (Master Preset value) can be manually programmed.

Calibration mode

- Special calibration mode is provided for maintenance, inspection and calibration purposes.

Judgement mode selection

- Judgement timing can be chosen from several options such as:
 - End of the detection stage
 - Time when leak exceeds its limit (results on immediate abortion of test) etc.

Exhaust interference prevention

- It prevents interference from exhaust of other testers on the same station.

Self-cleaning

- Air blow (DL3 stage) prevents water and oil inside the part from entering the pneumatic circuit and the sensor.

Meets SI unit requirement

- All engineering units used are SI units.

Can meet ISO9000 requirement

- Calibration certificate is available.

4. MODEL CLASSIFICATIONS

LS-1861- -

	Pneumatic Circuit Options	A C	Intelligent Pneumatic Circuit Pressure increase method	
	Test Pressure Range	L02 L1 L2 M H15 V	Micro pressure Low pressure Medium low pressure Medium pressure High pressure Vacuum	Up to 16 kPa Up to 80 kPa Up to 160 kPa Up to 700 kPa Up to 1.5 MPa Up to -100 kPa
	Optional Feature	G	External exhaust unit ready (contamination resistance) <ul style="list-style-type: none"> ■ Needs a separate External exhaust unit. ■ Contaminant resistant type exhaust valve is provided for vacuum type tester 	
		E	Without pressure regulator and oil mist separator.	

5. SPECIFICATIONS

Differential pressure indication range	0 ~ ± 199 / ± 1990 Pa (0 ~ ± 19.9 × 10 / ± 199 × 10 Pa)
Leak limit setting	0 ~ ± 99 / ± 990 Pa (0 ~ ± 9.9 × 10 / ± 99 × 10 Pa)
Differential Pressure sensor	Resolution 1 Pa, Range ± 2000 Pa, Proof pressure 5 MPa, Accuracy ± 5 % of RD ± 1 digit (less than ± 1000 Pa)
Number of Channels	2
Timer range	0 ~ 999.9 seconds (Detection timer is 0.1 ~ 999.8 seconds.)
Power	100, 110 and 115 VAC 50/60Hz, Power consumption 30 VA Max.
Test pressure source	Clean and Dry air Pressure of the air source should be much higher than the test pressure.
Pilot Pressure Source	Clean and Dry air Range: 300 ~ 700 kPa Range for H15 is 500 ~ 700 kPa.
Pneumatic Connection	Rc(PT)1/4 (Pressure source inlet and Work and Master ports) Rc(PT)1/8 (Pilot pressure inlet)
Operating temperature	5 ~ 40
Operating humidity	Less than 80 %RH non-condensing
Weight	13 kg
Standard accessories and documents (attached, included)	Regulator and oil mist separator Mounting brackets, Inspection record and Operations manual

6. OPTIONAL FEATURES

- Remote control box Start, Stop and channel switching can be done remotely from the tester.

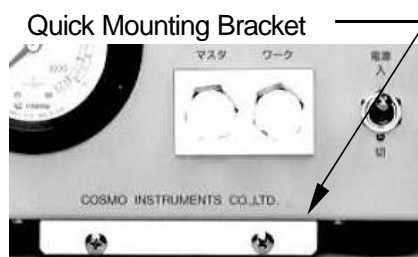
- Quick Mounting Bracket: This tester can be removed from the machine easily from front side.

- Master chamber (Patent) It is connected to Master port as a reference. Easy to adjust and maintain.

- External exhaust valve ready Sensor protection A separate exhaust valve is needed.

- Instruments for calibration and sensitivity check

Product Name	Use
Leak Master LM-1B	Leak sensitivity check, Measuring equivalent internal volume
Leak Calibrator LC series	Leak sensitivity check, Measuring equivalent internal volume
Rotameter	Sensitivity check for large leak
Pressure Calibrator PC-3000	Calibration of Differential Pressure Sensor (DPS)
Digital Manometer DM-3500	Calibration of pressure gauge



Input EXT1 (18P connector)

FUNCTION	PIN #	CONTACT TYPE
START	1, 2	N/O DC15V、 30mA
STOP	3, 4	N/C DC15V、 30mA
Charge hold	14, 15	N/O DC15V、 30mA

Input EXT2 (4P connector)

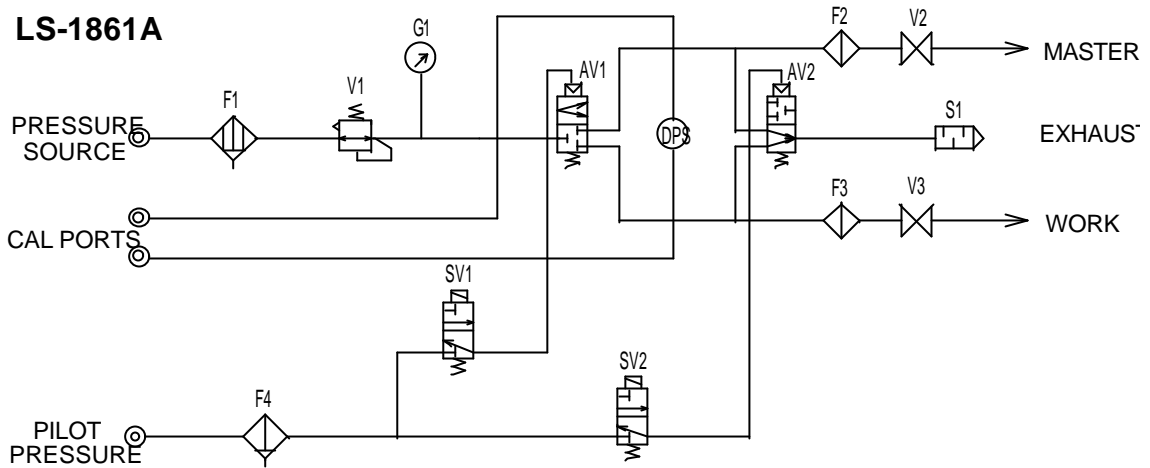
FUNCTION	PIN #	CONTACT TYPE
Channel 1	1, 2	N/O DC15V、 30mA
Master Preset	3, 4	N/O DC15V、 30mA

Output EXT1 (18P connector)

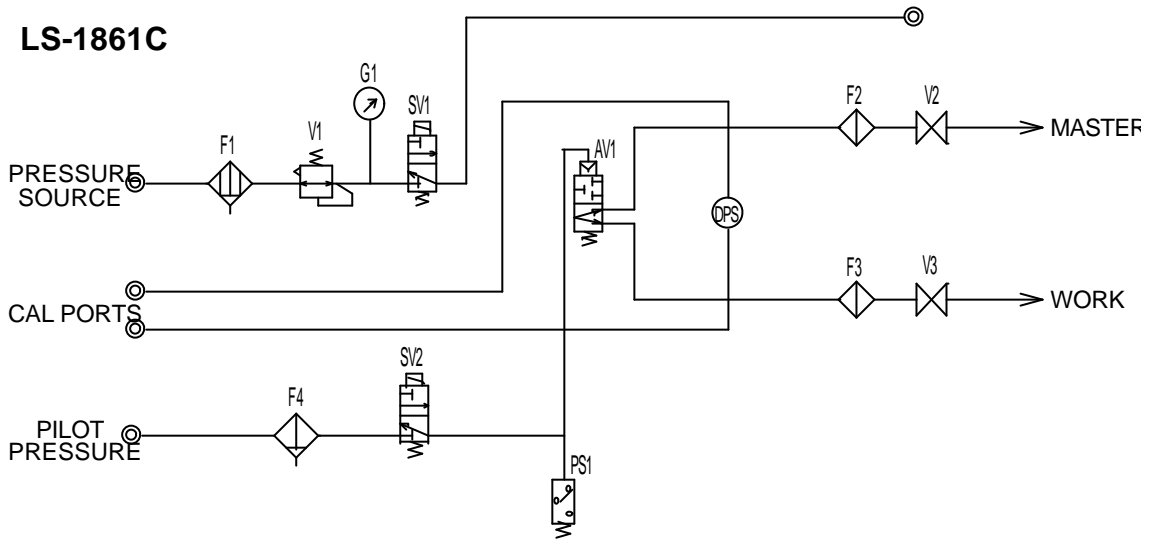
FUNCTION	PIN#	CONTACT TYPE
BUSY	10, 8	N/O dry contact
END (a) END (b)	11, 12 13, 12	N/O dry contact N/C dry contact
GO	5, 6	N/O dry contact
(-) NO-GO	9, 8	N/O dry contact
(+) NO-GO	7, 8	N/O dry contact
ERROR	16, 8	N/O dry contact
CLAMP	17, 18	N/O SSR output 100, 110 and 115 VAC Max. 30VA Inductive load

8. PNEUMATIC CIRCUIT

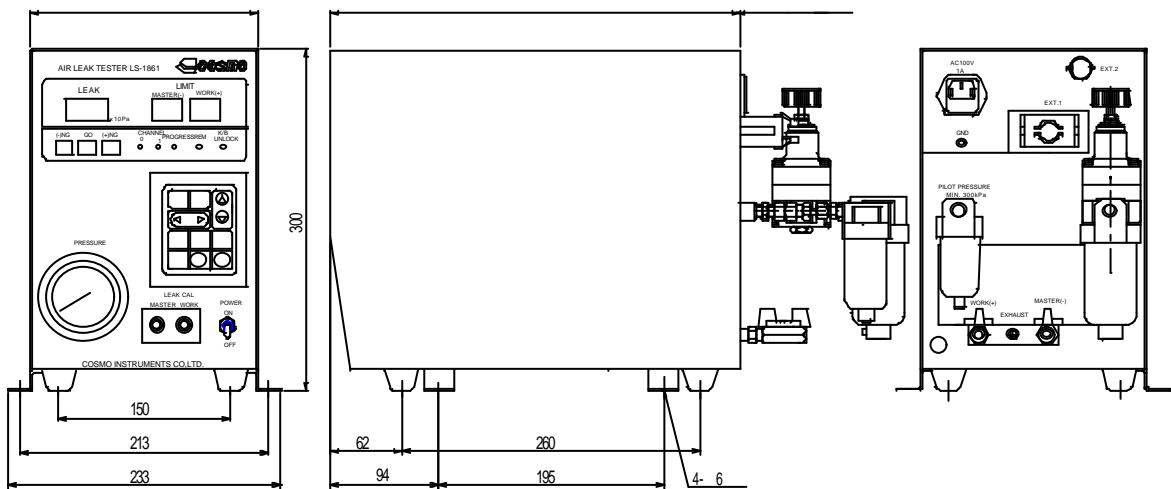
■ LS-1861A



■ LS-1861C



9. EXTERNAL APPEARANCE



Note: The contents of this specification sheet is as of March 1, 1999 and is subject to change without notice.

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