

# Accurate leak measurement for large EV batteries at micro-low pressure.



## LS-R902EV

EtherNet/IP



Go to Products page

## Leak Tester for Large EV Battery ASSY

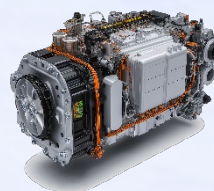
The newly developed CISVAS Filter, Ambient Temperature Compensation, etc. realize highly accurate leak test of large EV battery assemblies with a volume of more than 100 L, which are prone to deformation.

### Features • Functions

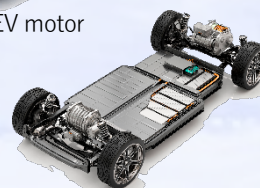
- Newly developed CISVAS Filter
- Ambient Temperature Compensation
- Bypass Circuit
- Mastering
- Self-Check
- Fieldbus
- Troubleshooting
- Compact housing

### Target works

Micro-low pressure, large-volume products such as large EV batteries



EV motor

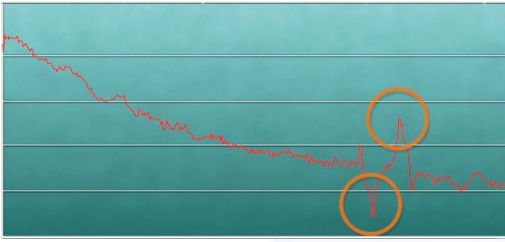


Battery case

- Inverter
- Converter
- EV motor
- Base plate
- Lithium battery cover
- e-axle

# Higher accuracy in leak measurement for large-volume products

## CISVAS Filter



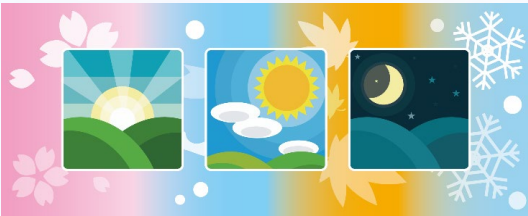
### It filters flow changes caused by sudden work deformation

When test air is applied inside the product, especially large resin product, its housing suddenly deforms during measurement. This irregular deformation disturbs the pressure in the product being measured and can cause false judgment. The CISVAS filter (Cosmo's unique algorithm) monitors the sudden deformation noise during measurement and automatically identifies it, thereby removing it as a factor of false judgment.

As a result, deterioration of yield and false "Pass" judgment on "Fail" products due to the deformation can be prevented.



## Ambient Temperature Compensation



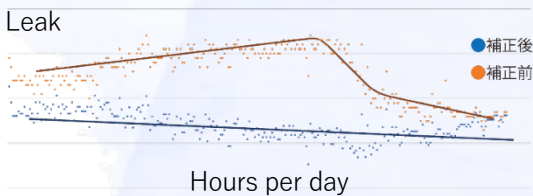
### Reduces false judgments due to ambient temperature change

Temperature change that occurs during air leak test, as well as deformation, can cause false judgment in Detection. Research has shown that especially for large-volume products, changes in ambient temperature have strong correlation to test results and significantly change the data. This change in ambient temperature is caused by a variety of factors, including seasons (spring, summer, fall, winter), transition from morning to afternoon to evening, and sudden winds.

The EV Series Leak Testers measure the ambient temperature in real time and calculate the amount of compensation based on the difference from the reference temperature and reflect it in each leak test. This feature can significantly reduce false judgments caused by sudden and persistent temperature changes.

※ There is a limit to the temperature change that can be tracked by the ambient temperature compensation.

Data Before and After Ambient Temperature Compensation



## Leak test of cooling circuits supported



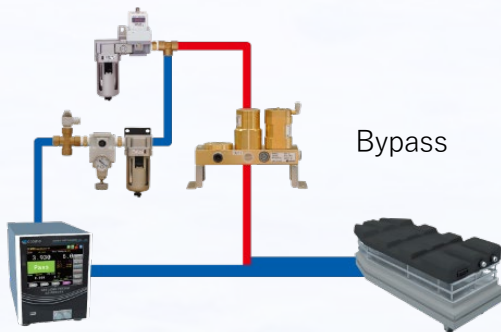
### Same model covers leak test of cooling channels and housing

For LS-R902EV, especially designed for leak testing of EV battery cooling channel system, option Medium Range is available. When used in conjunction with option Micro Low Range, which targets the housing, leak test required for large batteries can be completed.

※ The AL-R302EV can also be used for leak testing of the housing.

# Extensive features for air leak testing

## Bypass Circuit



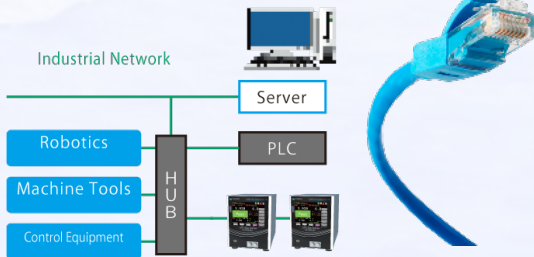
### Reduces cycle time with increased pressure supply

When applying pressure to a work with a large internal volume, it takes a considerable amount of time for pressurization to reach the specified test pressure. Using the Bypass Circuit increases the pressure supply, reducing the overall test time. For LS-R902EV, as shown in the image, adding an E/P Regulator can further reduce pressurization time by applying a higher pressure than the specified test pressure in the early stage of pressurization.

※ For AL-R302, be careful about the handling in test methods where E/P Regulator is used.

## Fieldbus

### Network Overview



### Full communication with the machine

EtherNet/IP or PROFINET can be used in place of the standard Control I/O (Phoenix Contact). Easier setup of PLC and PC. Test results can be output to the network. Complicated wiring of communication cables can be greatly reduced.

## Mastering

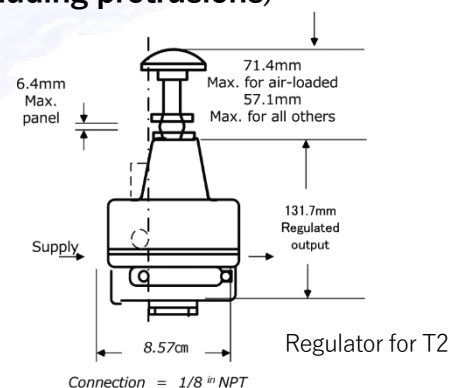
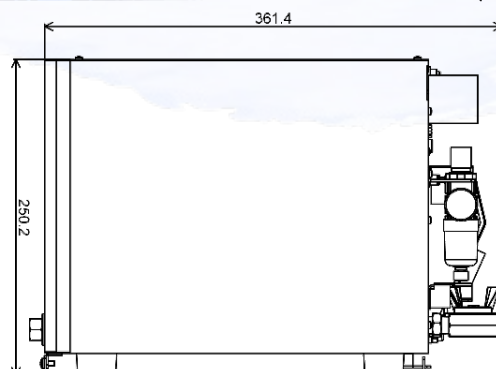
### Compensates for temperature effects due to adiabatic compression

In differential pressure decay leak test, a rise in air temperature (adiabatic change) during pressurization causes a pressure change, which can lead to false judgment. The increase of temperature disappears over time. (The time required for it depends on the characteristics of the work.) Using the amount of convergence over time as a compensation value achieves accurate measurement with a shorter test time.

## Other Features

- 5.7-inch color touch-screen
- K(Ve) Auto Setup
- Self Check
- Charge Hold
- Exhaust Interference Prevention
- Noise Reduction
- Waveform display
- CAL Driving Valve for Leak Master
- Intelligent 2 Pneumatic Circuit
- Drift Compensation
- USB Port, RS-232C
- E/P Regulator ready

## External Appearance W195 x D361.4 x H250.2 (excluding protrusions)



# Specification

DPS	AD Resolution	24 bits (Output Resolution 0.001 Pa) *1
	Resolution	0.1 Pa
	Reading Accuracy	± 2.5% of rdg ± 1 Pa, 50 Pa or less ± 2 Pa *2
	Accuracy Guaranteed Range	± 1000 Pa
	Sensor Proof Pressure	5 MPa
Test Pressure Sensor	Reading Accuracy	± 1% of F.S. ± 1 digit (Linearity, Hysteresis and Repeatability)
	Temperature Characteristics	± 0.1% of F.S. / °C
Display Unit *3	Test Pressure	kPa, MPa (PSI, kg/cm <sup>2</sup> , bar, mbar, mmHg, cmHg, inHg)
	Leak	Pa, kPa, mL/s, mL/min, L/min, Pa·m <sup>3</sup> /s, E-3 Pa·m <sup>3</sup> /s, Pa/s, Pa/min, *Pa/s, *Pa/min (mmH <sub>2</sub> O, inH <sub>2</sub> O, mmHg, in <sup>3</sup> /min, in <sup>3</sup> /d, ft <sup>3</sup> /h)
Leak Display	3 to 5 digits (Floating point)	Sampling Rate: 10 times / sec
Leak Limit Range (Standard)	Up to ± 999.9 Pa	
Number of Channels	32 channels (#00 to #31)	
Timers	Up to 999.9 s (Resolution: 0.1 s)	
Power Source	24 VDC, 1.0 A AC adapter (100 to 240 VAC)	
Test Pressure Source	Pressure media: Clean air [The source pressure must be sufficiently higher than the test pressure] Compressed Air Quality Class JIS B 8392-1 (2012) / ISO 8573-1 (2010) [1.4.1] *Except for high pressure testers	
Pilot Pressure	Clean air regulated between 400 to 700 kPa	
Port Size	Rc(PT) 1/4 (Test pressure, Pilot pressure, Work and Master ports)	
LCD/TP	5.7 inch color LCD 640 x 480 dots (VGA)	
Environment Temperature	Operation Temperature: 5 to 40 °C Storage Temperature: -20 to 60 °C	
Humidity	80 %RH or less / no dew condensation	
Weight	Approx. 11 kg (Main unit of the standard model only)	
Control I/O Port	NPN / PNP common, Phoenix Contact connector, Fieldbus (Option)	
RS232C Serial Communication	I/F fixed length, ID/F fixed length, T/F fixed length, Others	
USB Port	Save Data, Parameter Restore, Backup (Test parameter / System), Firmware upgrade	
Standard Accessories	Oil mist separator, Regulator, Filter regulator, Control I/O connector, Ambient Temperature Sensor, Inspection Record of the product, Calibration Certificate of the Standard, AC adapter, Power cable	

\*1 Depends on the product specifications.

\*2 Depends on the sensor.

\*3 The unit in ( ) are not available for SI unit restriction models.

## Model **LS-R902EV-AB-C-D** A, C, and D are mandatory fields

A	Tester Model	T1	Medium Pressure Test pressure range 50 to 800 kPa	
		T2	Micro Low Pressure Test pressure range 1 to 14 kPa	
		T3	Micro Vacuum Test pressure range -2 to -14 kPa	
B	Option	Fieldbus *1	N5A	EtherNet/IP
			N6A	PROFINET
		With high-precision sensor	S	PT-110FC, 1% of rdg ± 1 Pa (50 Pa or less: ± 2 Pa)
C	Display Units and Other	UX1	SI units (For Japan)	
		UX2	All units (For overseas)	
		UX3	UL Certified (In preparation)	
D	Power Cable	VA	125 VAC, 3 m	
		VE	250 VAC, 2 m	
		VK	250 VAC, 2 m (Only for Chinese customers)	

\*1 Not CE Compliant.

※ The contents of this catalog are as of Sep 2025. The specifications are subject to change without prior notice.

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