WISE AIR 4.0
MEASURE TO MANAGE

USER MANUAL · 2026 EDITION

WADL-301

Touch-screen Data Logger & IIoT Gateway

Models covered: WADL-301 — panel-mount, wall-mount and DIN-rail versions



2 × RS485
Modbus master inputs

4 × analogue
Input channels

Modbus TCP
Ethernet data upload

2 × relay
Alarm outputs

INSTALLATION · OPERATION · CONFIGURATION · MAINTENANCE

WISEAIR TECHNOLOGIES INDIA LLP

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CONTENTS

Inside this manual

01	Safety and general information	03
02	Product overview	03
03	What's in the box	04
04	Technical data and dimensions	04
05	Installation	05
06	Electrical connection	08
07	Operation	09
08	Data upload and integration	10
09	Maintenance and software updates	10
10	Troubleshooting	11
11	Warranty and service	11
12	Commissioning report	12

ABOUT WISEAIR

WiseAir Technologies India LLP designs and supplies smart measurement instruments for compressed air and industrial gases — flow, dew point, pressure and power sensors, data loggers, smart drains and leak detection tools. Every WiseAir product is built to make compressed-air energy use **visible, measurable and manageable**.

WiseAir sensors work on their own or as part of the **WiseAir WASM-604 Smart Monitoring platform**, which collects data over Modbus / 4–20 mA, analyses it and reports energy, demand and leakage in real time.

DOCUMENT

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01 Safety and general information

This manual describes how to install, connect and operate the WiseAir WADL-301 data logger. Read it fully before installation and keep it with the product.

ELECTRICAL HAZARD

- Installation and wiring must be carried out only by qualified, authorised electricians, in line with local regulations.
- Switch off and isolate the power supply before you open the back cover or connect any cable.
- Connect the protective earth (PE) terminal on both the 220 V AC and the 24 V DC versions.

BEFORE INSTALLATION

- Make sure there is enough space at the site to install, wire and operate the product after installation.
- Do not install the product in a humid environment.
- Do not install the product in places that require explosion-proof equipment or have other special requirements.

NOTE

The WADL-301 software is updated from time to time. The screens on your unit may differ slightly from those in this manual; the interface on the unit always applies. Contact WiseAir support (details on the back cover) for the latest operating instructions.

02 Product overview

The WiseAir WADL-301 is a touch-screen data logger and IIoT gateway for compressed-air monitoring. It reads WiseAir and third-party sensors over RS485 Modbus and analogue inputs, shows live values and trend graphs on its colour touch screen, records the data, raises alarms through relay outputs, and passes all measurements on to plant systems over Modbus RTU or Modbus TCP.

Connect

Two RS485 Modbus master ports (A, B) and four analogue input channels for flow, dew point, pressure, temperature and power sensors.

View and record

Value cards per measuring point, trend graphs with zoom, data logging, screenshots and USB drive support.

Share and alarm

Data upload to DCS, PLC, SCADA or cloud platforms via Modbus RTU (port C) or Modbus TCP (Ethernet). Two alarm relays.

Typical applications

- Compressor room monitoring: flow, pressure, dew point and power
- Local display of WiseAir sensors on the shop floor
- Gateway between field sensors and a PLC, SCADA or cloud platform

- Alarm on low pressure or high dew point via relay outputs
- Temporary data logging for compressed-air audits
- Virtual channels, e.g. totals of several production lines

03 What's in the box

The WADL-301 is supplied in one of three mounting versions. Check the contents carefully **within 7 calendar days** of receipt and report any discrepancy to WiseAir or your dealer within this period.

Description	Qty	Unit	Version / note
WADL-301 main unit with face cover and 4 mounting clamps	1	set	Panel mount
WADL-301 main unit with face cover, back cover and wall-mounting bracket	1	set	Wall mount
WADL-301 main unit with face cover, back cover and DIN-rail bracket	1	set	DIN rail
Other accessories	1	pcs	Optional
Quick guide (envelope)	1	pcs	Standard

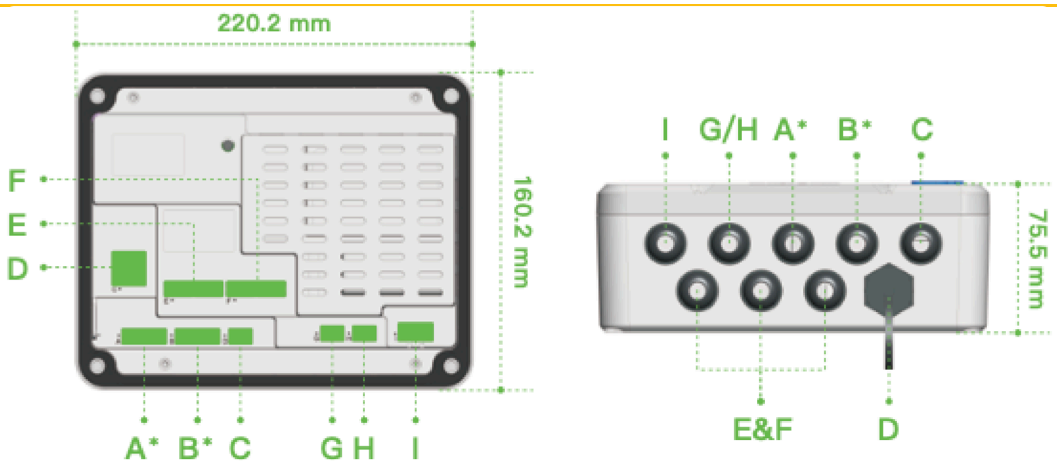
04 Technical data and dimensions

INPUTS	
RS485 inputs	2 ports (A, B), Modbus master, with sensor power output
Analogue inputs	4 channels (VI_A to VI_D) on connectors E and F, with sensor power output

OUTPUTS AND COMMUNICATION	
RS485 output	1 port (C), Modbus RTU data upload
Ethernet	1 port (D), 1G Ethernet, Modbus TCP data upload
Relay outputs	2 relays (G, H), changeover contacts NO / COM / NC

POWER SUPPLY	
Supply	220 V AC (L, N, PE) or 24 V DC (V+, V−, PE), according to version

MECHANICAL	
Dimensions (W × H × D)	220.2 × 160.2 × 75.5 mm
Mounting	Panel, wall or DIN rail (according to version)
Panel cut-out	185.4 × 120.5 mm, corner radius 10.5 mm
Operation	Colour touch screen



Dimensions and connector positions: A, B — RS485 inputs; C — RS485 output; D — Ethernet; E, F — analogue inputs; G, H — relay outputs; I — power input

> **NOTE**
> For data not listed here (display size, power consumption, operating temperature, protection class, storage capacity and wireless options), refer to the current WADL-301 datasheet or contact WiseAir support.

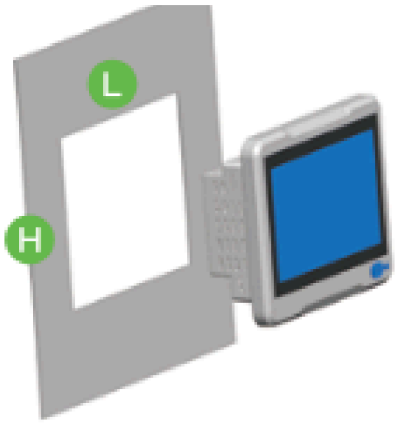
05 Installation

Install the product correctly according to these instructions to make sure it works reliably. Choose a dry location with enough room for the cables, the cable glands and later access to the back cover.

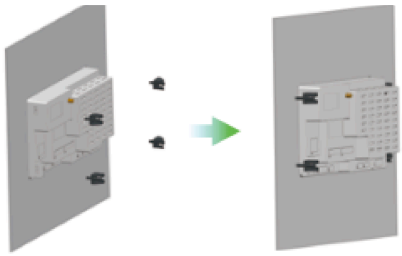
A — Panel mount

1. **Cut the opening and insert the unit**
   Cut an opening of **185.4 × 120.5 mm** (L × H, corner radius 10.5 mm) in the panel. Insert the unit into the opening from the front.

2. **Fit the clamps**
   From behind the panel, put the 4 mounting clamps into the mounting holes on the back of the unit and tighten them with a screwdriver. Then carry out the electrical wiring (section 06).



Insert the unit into the cut-out (L × H)



Fit and tighten the 4 clamps

B — Wall mount

1 Open and wire

Remove the back cover with a screwdriver and carry out the electrical wiring (section 06).

2 Close the back cover

Refit the back cover and tighten its four screws.

3 Fit the wall bracket

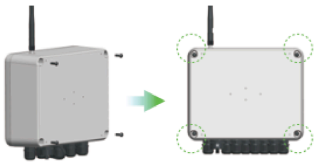
Place the wall-mounting bracket on the back of the unit, align the holes and fix it with the 4 M3 self-tapping screws supplied.

4 Fix to the wall

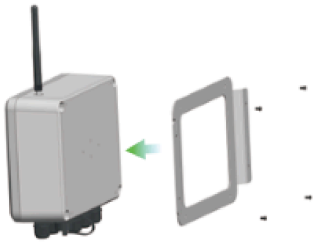
Hold the unit in position on the wall and fix the bracket to the wall with four screws through the bracket holes.



1 — Remove the back cover



2 — Refit the back cover



3 — Fit the bracket



4 — Fix to the wall

C — DIN-rail mount

1 **Open, wire and close**

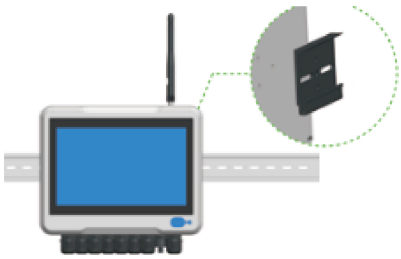
Remove the back cover with a screwdriver, carry out the electrical wiring (section 06) and refit the back cover.

2 **Mount on the rail**

Slide the unit onto the DIN rail already fixed to the wall and adjust its position as required.



Remove the back cover and wire



Slide onto the DIN rail

06 Electrical connection

DANGER

Isolate the power supply before you open the back cover. Connect the supply only after all signal wiring is complete and the cover is closed.

Route each cable through its own cable gland on the bottom of the unit (see the dimension drawing in section 04) and connect it to the matching connector on the board. Tighten the glands after wiring.

DEVICE PORT MUST MATCH THE WIRING

When you add a sensor in the touch screen (Setting → Device Connection), the **Device port** you select (Port A or Port B) must be the connector the sensor is actually wired to. A sensor wired to connector A but configured on Port B will not communicate.

Connector pin assignment

Connector	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
A — RS485 input	NC	VO−	VO+	RS485 A+	RS485 B−	RS485 GND		
B — RS485 input	NC	VO−	VO+	RS485 A+	RS485 B−	RS485 GND		
C — RS485 output	RS485 A+	RS485 B−	RS485 GND					
D — Ethernet	1G Ethernet port							
E — Analogue input	VO+	VO−	VI_D−	VI_D+	VO+	VO−	VI_C−	VI_C+
F — Analogue input	VO+	VO−	VI_B−	VI_B+	VO+	VO−	VI_A−	VI_A+
G — Relay 1	NO	COM	NC					
H — Relay 2	NO	COM	NC					
I — Power, 220 V AC	L	N	PE					
I — Power, 24 V DC	V+	V−	PE					

VO+ / VO− = power output for the connected sensor. VI_x+ / VI_x− = analogue input channel x. NC = not connected (on relays: normally closed contact).

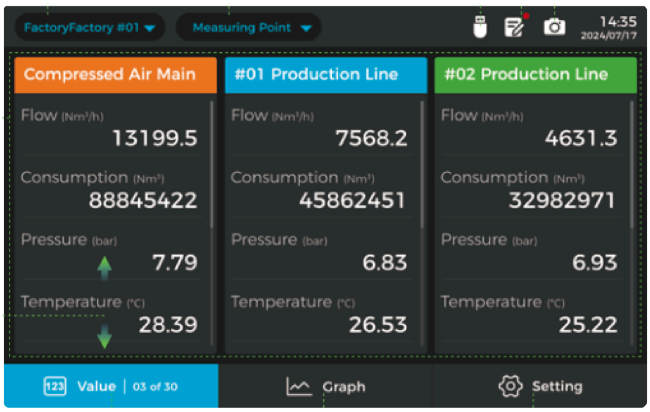
Wiring notes

- **RS485 sensors (A, B):** connect the sensor bus to A+, B− and GND. Several Modbus sensors can share one port if each has a unique Modbus address. A sensor can be powered from VO+ / VO− of the same connector — check that the sensor accepts this supply.
- **Analogue sensors (E, F):** connect each sensor to one VI channel and, if it needs power, to a VO+ / VO− pair of the same connector.
- **RS485 output (C):** connect to the Modbus RTU master of your PLC, DCS or SCADA system.
- **Ethernet (D):** connect to the plant network for Modbus TCP data upload.
- **Relays (G, H):** use NO / COM or NC / COM to switch an alarm lamp, horn or PLC input.
- Use screened twisted-pair cable for RS485 and analogue signals and keep it away from power cables.

07 Operation

The menu bar at the bottom of the screen switches between the three main views: **Value**, **Graph** and **Setting**.

Value view



Value view

- Use the drop-down lists at the top left to select the **measurement site** and the **measuring point**.
- Each card shows one measuring point. Swipe left or right to see more measuring points.
- Slide a card up or down to see all its measuring channels (e.g. flow, consumption, pressure, temperature).
- Status bar icons: USB drive inserted; data recording (a blinking red dot means recording is in progress); screenshot; time and date.

Graph view



Graph view

- After the channels are set up, their live values are listed in the right-hand column.
- Tap a channel button on the right to show its curve in the graph; tap it again to hide the curve.
- Use two fingers horizontally or vertically to zoom the X (time) or Y (value) axis.
- Press and hold a channel button for 3 seconds to open the setting of that channel.

Setting view

Function	Purpose	Items
Device Connection	Connect WiseAir or third-party sensors	Modbus master, Auto search, Manual add, Virtual channel
Layout Setting	Choose how measurement data is shown on the screen	Auto layout, Select device and channel
Sensor Setting	Set sensor parameters	Flow meter, Dew point meter
Alarm Setting	Set the critical alarm value for a measurement	Alarm channel
Data Upload	Upload measurement data to DCS, PLC, SCADA or cloud platforms	Modbus RTU, Modbus TCP
Data Logger	Record measurement data	Data logging
File Management	View screenshots and recorded data files	Recorded files, Screenshot files
System Setting	Time, language, screen brightness and software	Screen setup, Language, Date and time, System information, System upgrade, System restart
Configuration Guide	Step-by-step guide for first set-up	Device connection, Layout setting

First set-up

1. Set the language, date and time (Setting → System Setting).
2. Add the sensors (Setting → Device Connection): use **Auto search** or **Manual add**. For each device enter the device type, a description (e.g. “Compressor 1 flow”), the device port (Port A or Port B, as wired), the Modbus address and, if needed, a delay in ms.
3. Arrange the value cards (Setting → Layout Setting), or follow the **Configuration Guide**, which leads you through device connection and layout.
4. Set alarms (Setting → Alarm Setting) and start recording (Setting → Data Logger).
5. If the data is needed in another system, set up Modbus RTU or Modbus TCP (Setting → Data Upload).

08 Data upload and integration

The WADL-301 makes all its measuring channels available to other systems:

Modbus RTU	Via RS485 output connector C (A+, B−, GND)
Modbus TCP	Via Ethernet connector D

Configure the interface under Setting → Data Upload. For the register list of the uploaded values, and for connection to the WiseAir WASM-604 Smart Monitoring platform, contact WiseAir support (details on the back cover).

09 Maintenance and software updates

- Clean the touch screen with a soft, dry or slightly damp cloth. Do not use solvents or sharp objects.

- Check periodically that the cable glands are tight and the back cover is closed.
- Back up recorded data and screenshots regularly (Setting → File Management; a USB drive can be inserted).
- Software updates are installed under Setting → System Setting → System upgrade. Update only with software and instructions supplied by WiseAir, and do not switch off the unit during an update.

10 Troubleshooting

Symptom	Possible cause	Action
Screen dark	No supply; wrong supply for the version	Check L/N/PE (220 V AC) or V+/V−/PE (24 V DC) at connector I
Sensor shows no values	Device port does not match the wiring; wrong Modbus address	Check Device port (A/B) and address in Device Connection; try Auto search
Several sensors on one port fail	Duplicate Modbus addresses; A+/B− swapped	Give each sensor a unique address; check the wiring
Analogue channel wrong	Wrong VI channel or polarity; sensor not powered	Check VI_x+ / VI_x− and VO+ / VO− wiring; check the channel setting
No data recorded	Data logging not started	Start logging in Setting → Data Logger; check the red recording dot
PLC/SCADA receives no data	Data Upload not configured; wrong network or bus settings	Check Setting → Data Upload and the Ethernet or RS485 output wiring
Screens differ from this manual	Newer software version	The interface on the unit applies; contact WiseAir for current instructions

11 Warranty and service

The warranty period and conditions for the WADL-301 are stated in your WiseAir quotation and invoice. Do not open the unit other than the back cover for wiring as described in this manual. For service, contact WiseAir support (details on the back cover) and quote the serial number and software version (Setting → System Setting → System information).

12 Commissioning report

DATA LOGGER	
Serial number	
Mounting version (panel / wall / DIN rail)	
Supply (220 V AC / 24 V DC)	
Software version	
Connected devices (port / Modbus address)	
SITE	
Customer	
Location	
Installed by	
Installation date	

Installation checks

#	Check	Yes	N/A	No	Comments
1	Unit mounted securely; glands tight; back cover closed				
2	Power supply and PE connected correctly				
3	All sensors communicate; device ports match the wiring				
4	Date, time, layout and alarms set				
5	Data logging started				
6	Data upload (Modbus RTU / TCP) checked, if used				

WiseAir representative _____ Customer representative _____ Date _____

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Need help with your WADL-301?

Our product specialists support installation, commissioning, configuration and calibration — remotely or on site.

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> When you contact support, please keep the sensor serial number, firmware version and a photo of the installation ready.

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Specifications are subject to change without notice.