Instruction and Operation Manual

Wireless DP Transmitter Adapter

Dear Customer,

Thank you for choosing our product.

The operating instructions must be read in full and carefully observed before you start up the device. The manufacturer cannot be held liable for any damage which occurs as a result of non-observance or non-compliance with this manual.

Should the device be tampered with in any manner other than a procedure which is described and specified in the manual, the warranty is void and the manufacturer is exempt from liability.
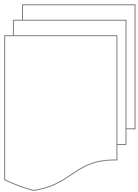
The device is designed exclusively for the described application.

SUTO offers no guarantee for the suitability for any other purpose. SUTO is also not liable for consequential damage resulting from the delivery, capability or use of this device.

Table of Contents

1 Safety instructions

Please check if this instruction manual accords with the product type.

Please observe all notes and instructions indicated in this manual. It contains essential information which have to be observed before and during installation, operation and maintenance. Therefore this instruction manual has to be read carefully by the technician as well as by the responsible user / qualified personnel.

This instruction manual has to be available at the operation site of the service kit at any time. In case of any obscurities or questions, regarding this manual or the product, please contact the manufacturer.

WARNING!

Voltage used for supply!

Any contact with energized parts of the product, may lead to an electrical shock which can lead to serious injuries or even death!

- Consider all regulations for electrical installations.
- The system must be disconnected from any power supply during maintenance work.
- Any electrical work on the system is only allowed by authorized qualified personal.

ATTENTION!

Permitted operating parameters!

Observe the permitted operating parameters, any operation exceeding the parameters can lead to malfunctions and may lead to damage on the instrument or the system.

- Do not exceed the permitted operating parameters.
- Make sure the product is operated in its permitted limitations.
- Do not exceed or undercut the permitted storage and operation temperature and pressure.

General safety instructions

- It is not allowed to use the product in explosive areas.

- Please observe the national regulations before/during installation and operation.

Remarks

- It is not allowed to disassemble the product.

Storage and transportation

- Make sure that the transportation temperature of the service kit between -10°C ... +50°C.

- For transportation it is recommended to use the packaging that comes with the device.

- Make sure that the storage temperature of the device is between -10°C ... +50°C.

- Avoid direct UV and solar radiation during storage.

- For the storage the humidity must be <90%, no condensation.

2 Registered trademarks

SUTO®	Registered trademark of SUTO iTEC
MODBUS®	Registered trademark of the Modbus Organization, Hopkinton, USA
Android™, Google Play	Trademarks of Google LLC

3 RF Exposure Information and Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help
- This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

4 Application

The Wireless DP Transmitter Adapter provides a wireless interface between the mobile phone App S4C-DP and the SUTO Dew Point Transmitters of the S211, S215, and S220. With this DP Adapter, you can manage the Dew Point Transmitter settings through the free mobile phone App S4C-DP, including:

- Read, configure, and verify operating parameters
- Monitor online measurement values
- Calibrate the Dew Point Transmitters

The Wireless DP Transmitter Adapter is referred to as DP Adapter for short in the following description.

5 Features

- Connect mobile phone and Dew Point Transmitters with wireless connection *
- M12 connector
- 24 VDC power supply
- Extra low power consumption

* The DP Adapter contained the SRRC approved radio modular with CMIIT ID: 2020DP2713.

6 Technical Data

CE UK CA FC Contains FCC ID: 2AC7Z-ESP32WROOM32E	
Housing material	Plastic casing
Connector	M12, 5 pins
Weight	0.12 kg (without power supply)
Plug adapter power input	100...240 VAC / 0.7 A
Plug adapter power output	24 VDC/0.05 A
Power consumption of Wireless DP Transmitter Adapter	1.2 W
Operating temperature	-10℃... +50℃

7 Contents of Package

Make sure that all components listed below are included in your package.

Qty	Description	Ordering No.
1	Wireless DP Transmitter Adapter with M12 connection cable, and a 100...240 VAC/24 VDC power supply (including 3 plug adapters of US, EU and UK types) with 1.5 m cable	A699 3302
1	Instruction manual	No P/N

8 Installation

The DP Adapter supports all models of the S211, S215, and S220, as shown in the table below.

Dew Point Transmitter	Ordering No.	Model
S211	S699 1211	2-wire analog + SDI
	S699 2211	3-wire analog + SDI
	S699 3211	3-wire analog + Modbus/RTU
	S699 4211	3-wire analog + Modbus/RTU with pressure sensor
S215	S699 1215	2-wire analog + SDI
	S699 2215	3-wire analog + SDI
	S699 3215	3-wire analog + Modbus/RTU
	S699 4215	3-wire analog + Modbus/RTU with pressure sensor
S220	S699 1220	2-wire analog + SDI
	S699 2220	3-wire analog + SDI
	S699 3220	3-wire analog + Modbus/RTU
	S699 4220	3-wire analog + Modbus/RTU with pressure sensor

The power consumption of the DP Adapter is low, which allows to directly add it to the existing dew point transmitter connection system with the existing power supply.

Besides, another solution is provided by using the supplied 100...240 VAC/24 VDC power supply adapter, which makes it more flexible on site.

8.1 Add the DP Adapter to Existing System

1. Connect the dew point transmitter with the M12 connector on the DP Adapter.

2. Connect the DP Adapter to your existing power supply by the M12 cable.

8.2 Connect the DP Adapter to External Power Supply

1. Connect the Dew Point Transmitter with the M12 connector on the DP Adapter.

2. Connect the DP Adapter with the M12 connector on the power supply adapter.

3. Plug the power supply adapter into an electricity supply.

9 Use the S4C-DP App

The smartphone App S4C-DP works with the DP Adapter to configure and calibrate the Dew Point Transmitters easily on site.

9.1 Download and Install

The Android version App is available on SUTO website, and it is free for downloading and using. Give all permissions required by the App during the installation.

9.2 Get Service Partner Permission

After the installation, you do not have the permission to configure. You have the read-only access to the transmitter and can only view transmitter readings and settings.

To change the settings and calibrate Dew Point Transmitters, you must get the service partner permission by scanning a QR code or entering the license key. Contact SUTO sales or service team for it.

1. Make sure your mobile phone is connected, then launch the S4C-DP App on your mobile phone.

2. Power on the transmitter.

3. Click the icon on the bottom left to get permission by two ways:

- Scan QR Code

- Enter License Key
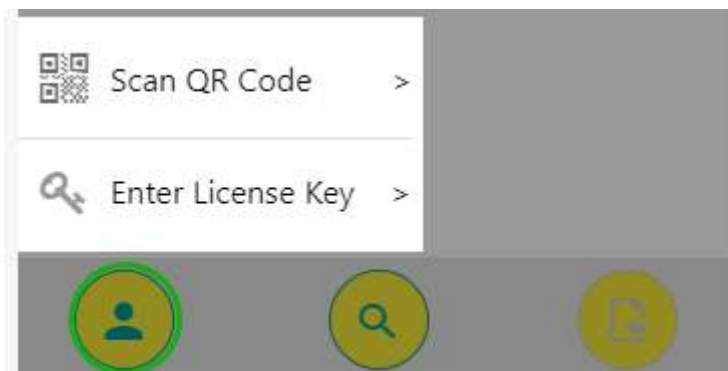
After scanning the QR code or entering the license key, the App pops up "success" on the bottom indicating you have the required permission.

ATTENTION!

After scanning the QR code or entering the license key, you can obtain the operation rights of all models of S211, S215 and S220 Dew Point Transmitters. When configuring subsequent Dew Point Transmitters, you do not need to scan codes or enter keys.

9.3 Enable the Configuration

To configure the Dew Point Transmitter, operate within the valid distance of the DP adaptor's wireless signal, and do the followings:

1. Click the search icon , and the Dew Point Transmitter within the valid distance is listed.
   Here you can see the signal icon is green (as shown in the figure below) because you have the Service Partner permission.
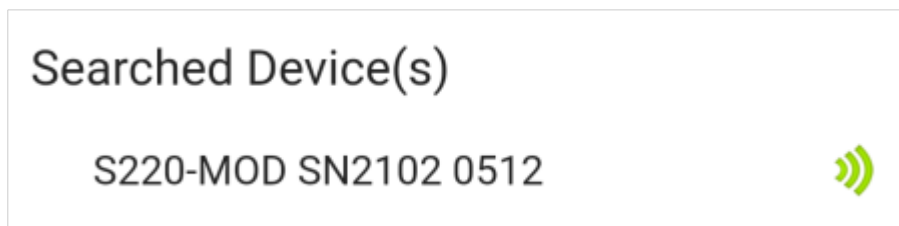
If the icon is red, you do not have the permission to configure, and have the read-only access. Do steps in section 9.2 to get the permission.
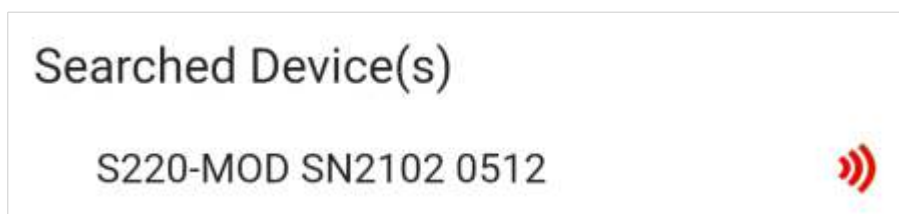
2. Select the desired transmitter from the searched device(s) list.

3. Navigates to the measurement home page by clicking the selected transmitter from the connected device list, or the icon on the bottom right.
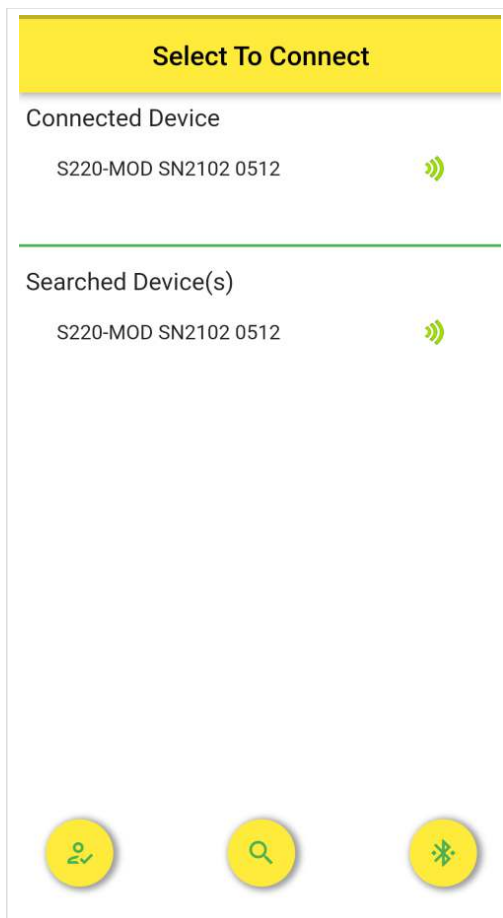
10 S4C-DP App Instructions

10.1 Features

- Supports Android 7.0 or above versions.

- Designed for service people to check sensor readings and change settings.

- Multiple languages supported: English, German, Chinese, and French.

10.2 Menus

On the startup page of S4C-DP App, click on a certain dew point transmitter to enter the main screen. The screen provides four menus at the bottom for you to operate: **Online**, **Settings**, **Calibrate** and **System**.
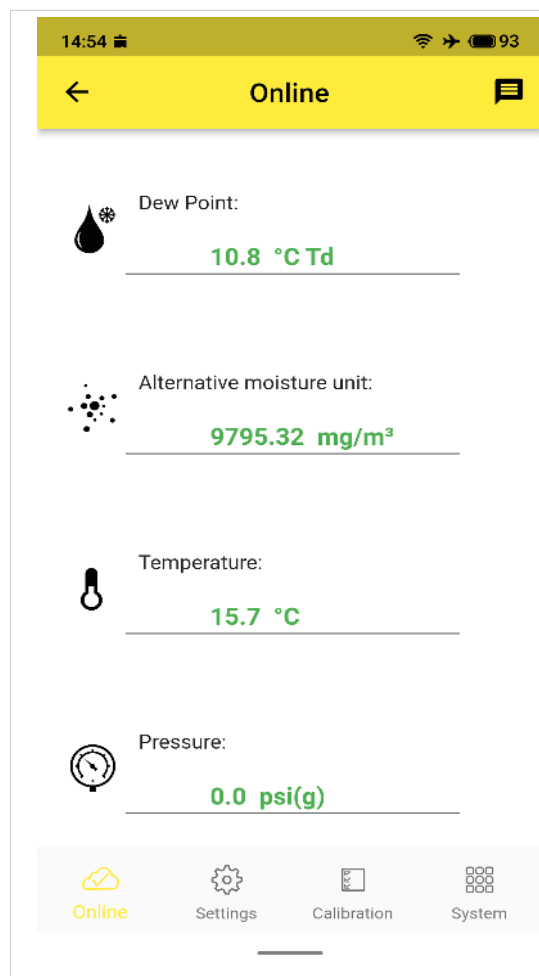
10.3 Online

The **Online** menu enables you to view the online measurement values, including dew point, humidity, temperature, and pressure.

10.4 Settings

The **Settings** menu enables you to change settings of the connected dew point transmitter.

Be careful when you change the settings because they might affect the accuracy or the overall performance of the dew point transmitter.

The **Settings** menu contains the following sub-menus:

- Dew Point Settings
- Sensor Display Channel
- Output Settings

10.4.1 Dew Point Settings

This menu sets the general parameters of the dew point transmitter.

Parameter	Settings
Gas type	- Air/N_2/O_2/Ar - CO_2
Unit settings	
Temperature unit	- ℃ - ℉
Pressure unit	- bar(g) - MPa(g) - psi(g) **Note**: Only when the pressure sensor is integrated, the units are available. When no pressure is integrated, the units are unavailable.
Alternative moisture unit	- % rH - ℃ Td/℉ Td (depends on temperature unit)* - g/m^3 - mg/m^3 - g/m^3 atm. - mg/m^3 atm.

	- ppmv - g/kg - ℃ Td atm. /℉ Td atm. (depends on the temperature unit)
Reference pressure	When no pressure sensor is integrated, it is 1013 hPa by default in the dew point transmitter. The unit hPa is unable to change. When the pressure sensor is integrated, the field is grey and unable to change.
Fix line pressure	When no pressure sensor is integrated, it is 6 bar(g) by default in the dew point transmitter, and can be changed. After saving the new settings, the dew point will be re-calculated based on the new inputs of fix line pressure and reference pressure. When the pressure sensor is integrated, the field is grey and unable to change. The unit is related to the **Pressure unit**.

10.4.2 Sensor Display Channel

This menu is used to select which measured channels will be displayed on the dew point transmitter display and the online view of the App.

Four channels can be selected and displayed:

- Temperature

- Alternative moisture unit

- Pressure (Optional)

- Dew Point

At least one channel must be selected.

10.4.3 Output Settings

Scaling Settings	
Select Channel	- Dew point - Alternative moisture unit
4 mA	Set a value corresponding to the 4 mA.
20 mA	Set a value corresponding to the 20 mA.
Modbus/RTU Settings (Optional)	
Device Address	Last two digits of serial number
Baud Rate	19200
Framing/Parity/Stop bit	8,N,1
Response time	10
Response delay	0
Inter-frame space	7
Note: The values of the Modbus/RTU are defaults in the dew point transmitter.	

10.5 Calibration

The calibration includes the following:

- Pressure Calibration (Optional)
  This menu displays only when the pressure sensor is integrated.

- One-point Calibration Dew Point

10.5.1 Pressure Calibration

This menu displays only when the pressure sensor is integrated in the dew point transmitter.

The pressure unit here is related to the pressure unit settings in section 10.4.1.

Parameter	Explanation
Measured pressure	The App reads the measured pressure value from the dew point transmitter and displays it on the App.
Pressure Zero Calibration	It is used to calibrate the dew point transmitter at zero bar(g) pressure. **Note**: Ensure to operate at the environment of 0 bar(g).

10.5.2 One-point Calibration Dew Point

The dew point unit here is related to the temperature unit settings in section 10.4.1.

Parameter	Explanation
Measured Dew Point	The measurement dew point value.
Reference Dew Point	Enter the reference dew point value to calibrate the measured dew point. The range must be lower than -40℃ Td/ -104 ℉ Td.
Calibrate button	Click to download the new reference dew point to the dew point transmitter.
Remove Cal. button	Click to remove the saved reference dew point data from dew point transmitter.

10.6 System

Using **System** menu can view the dew point transmitter information and the App version, and select the language of the App.

10.6.1 Sensor Info

The **Sensor Info** menu displays the following information:

- Sensor info
    - Device name
    - Item number
    - Serial number
    - Calibration date
    - Hardware version
    - Firmware version
- Interface
    - Modbus/RTU
    - SDI
    - 4...20 mA (2-wire)
    - 4...20 mA (3-wire)

    Whether an interface is shown or not depends on the model of the dew point transmitter.

10.6.2 Language

Click **Language** to select the language that the App shows.

10.6.3 App Version

Show the current S4C-DP App version.

11 Maintenance

To clean the DP Adapter, wipe the outer surface only with a wet cloth.

ATTENTION!

Do not use isopropyl alcohol to clean the service kit!

12 Disposal or Waste

Electronic devices are recyclable material and do not belong in the household waste.
The device, the accessories and its packings must be disposed according to your local statutory requirements.
The dispose can also be carried by the manufacturer of the product, for this please contact the manufacturer.

![SUTO iTEC logo]

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