RN910

Radionode Wireless 4-20mA Transmitter

- ✓ **Multi-Purpose Transmitter**
- ✓ **2.4GHZ Wireless (IEEE 802.15.4)**
- ✓ **4-20mA Input/Output**
- ✓ **PT100 Temp. Sensor Support**
- ✓ **Wireless Data Logging**
- ✓ **Point to Point 4-20mA Wireless Transmitter**

Product Overview

RN910 is designed to be used in 4-20mA In/Out and 3 wire pt100 temperature sensor. Basically two RN910 devices can replace 4-20mA cable into wireless communication. PT100 temp. sensor can be connected to RN910 directly. Then digitally scaled temp value send to remote RN910 for 4-20mA output.

For data logging, PT100 temperature sensor or 4-20mA signal can be sent via wireless to RN001 data logging device that have web monitoring, Email report and SMS alert message.

Application

•4-20mA P2P wireless cable
•4-20mA wireless data logger
•PT100 wireless for 4-20mA output
•PT100 wireless data logger.

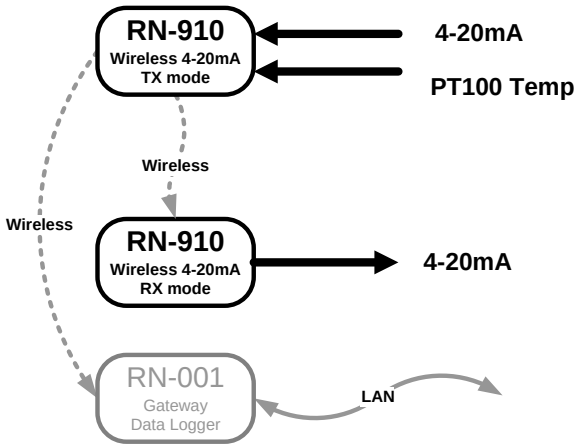
Where to Use

•Food HACCP Management
•Bio Lab. (Deep Freezer)
•Industrial Communication
•Acquiring Data for MES
•Monitoring system for GMP

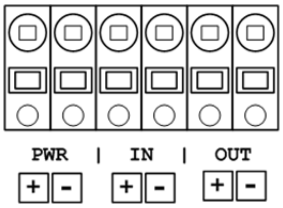
Order Number

•MODEL : RN910 (4-20mA)
•MODEL : RN910-P (PT100)

Block Diagram



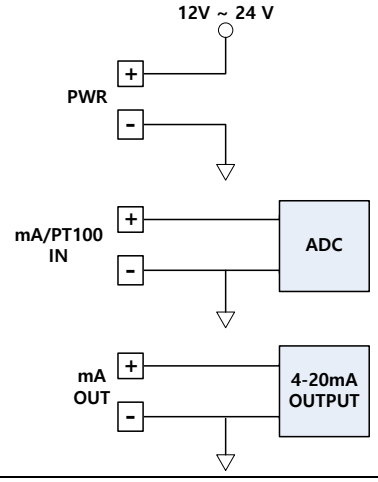
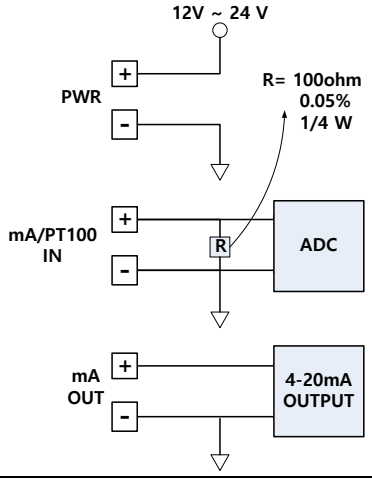
Terminal for Connection



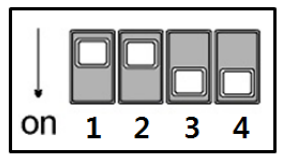
1. Specification

RN-910 Specification			
Dimension	62 * 89 * 27 (mm)	Power	12VDC ~ 24VDC , 0.42 W
4-20mA Input	Accuracy : ± 0.08 % F.S, Resolution : 0.01 mA Sample Rate : 100 msec Max Input Current : 23mA	4-20mA Output	Accuracy : ± 0.08 %, F.S Resolution : 0.01 mA Update Rate : 1 Sec
TX / RX RF Power	TX: 10dBm , RX : -95dBm	Data Logger	Compatible with RN001 Series Update Rate : 5 Sec
Wireless Network	2.4 GHz / Tree Topology	USB Port	232C Compatible Console (RN910 USB Driver Required)
External Temp Sensor (3 Wire PT100 TYPE) <RN910-P Only>	Range -200'C ~ 300'C Resolution : 0.1°C Accuracy : ±1°C Sample Rate : 100 msec	MODE	1) 4-20mA TX mode, <RN910 Only> 2) PT100 TX Mode <RN910-P Only> 3) Receiver RX Mode, 4) Router Mode
. Measuring Current for PT100	0.50mA <RN910-P Only>	Operation Condition	Temperature : -30~50°C , Humidity : 5~ 80%RH

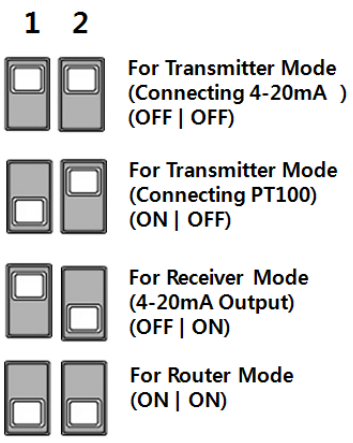
2. Internal Block

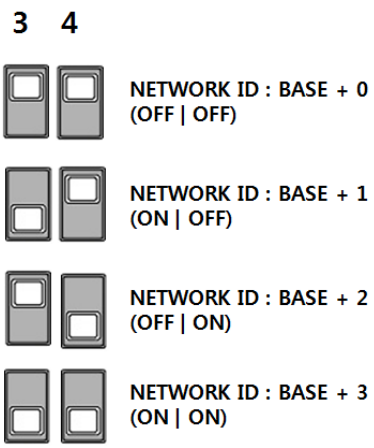
MODEL : RN910-P	MODEL : RN910
	

3. Switch Mode

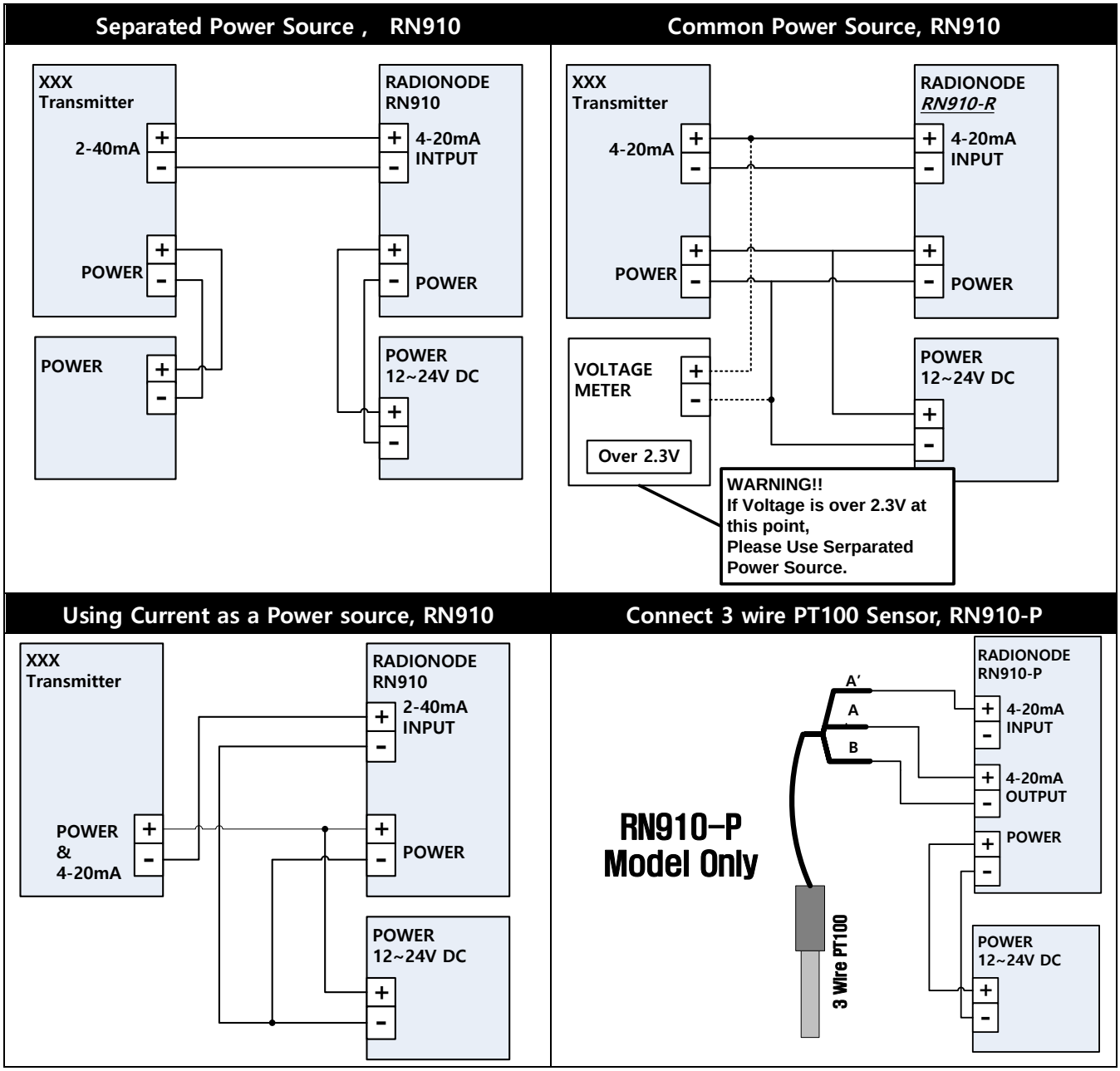


*DEFAULT NETWORK ID BASE
→ 300 (Decimal)

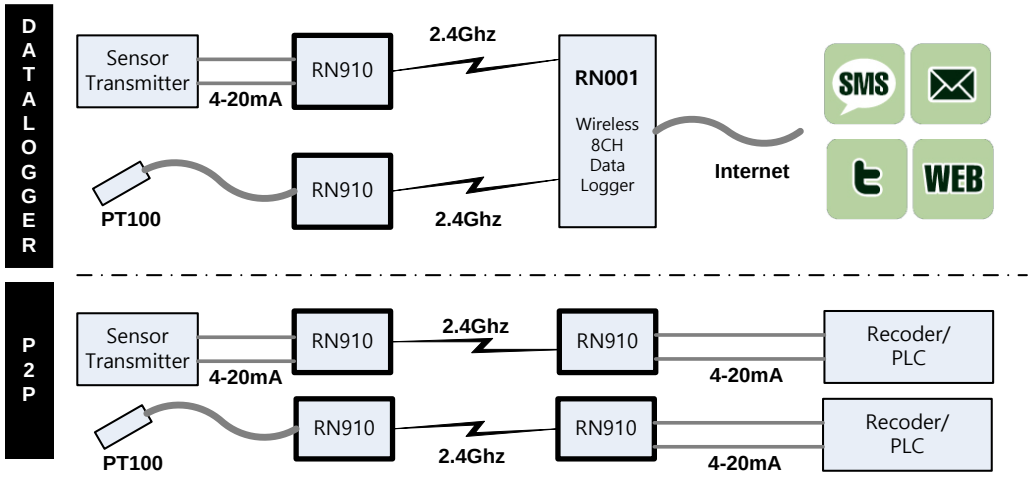




4. How to Connect

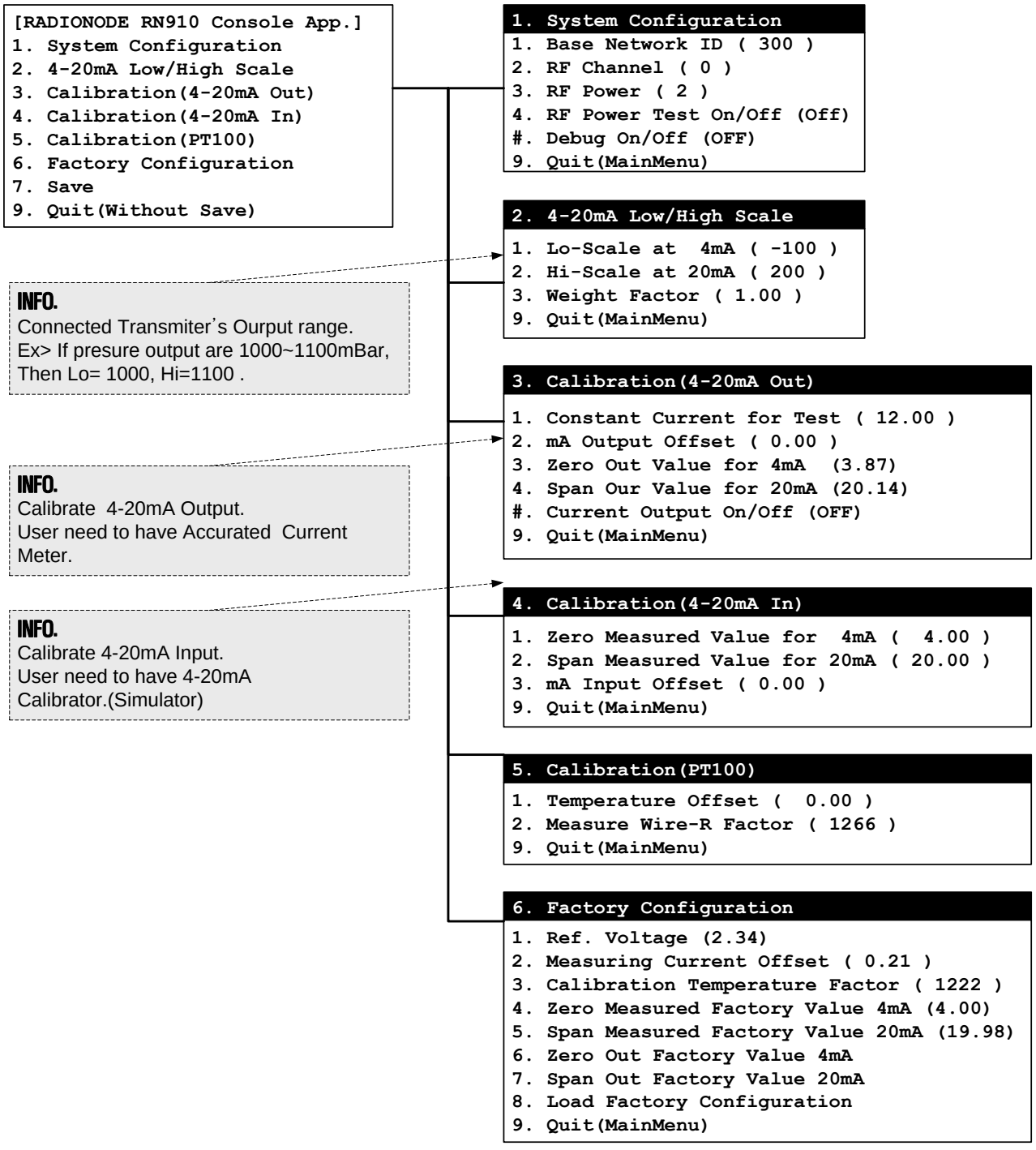


5. Multiple Applications



6.USB Console Menu

RN910 device can be configured via USB port. Once device is connected to PC, New serial port will be detected. Then user can access serial console menu using general serial terminal program. There are wireless communication, 4-20mA scale factor and calibration parameters in menu.



*COM Port's Buadrate is 115200 bps. (Driver Download: www.radionode.co.kr)

*Type "**radionode114**" for entering console menu.

***All the devices are already calibrated before wrapping. Please take care of your calibrating work.**

6.1 System Configuration

1. Base Network ID

Network ID is logical ID for separating wireless group. Actual Network ID value is base ID + selected ID that changeable with DIP switch. Default Base ID is 303 and can be set in console menu.

2. RF Channel

2.4Ghz Physical RF Channel.

3.RF Power

2.4Ghz RF Power Parameter

4.RF Power Test On/Off

This is used for testing RF power in manufacturer.

6.2 4-20mA Low/High Scale

1. Lo-Scale at 4mA

Type scaled value in case of 4mA input.

When the transmitter's output range are -200 ~ 300, you need to put "-200" for LO-Scale value.

2. Hi-Scale at 20mA

Type scaled value in case of 20mA input.

When the transmitter's output range are -200 ~ 300, you need to put "300" for Hi-Scale value.

3.Weight Factor

It is the specific value that you want to multiply. Default are 1.0. ex> power = current X voltage.

6.3 Calibration (4-20mA Out)

1. Constant Current for Test

For calibration, you need to put the value you want to test between 4mA and 20mA. For example, 15mA output should be measured if you put 15mA value. If calibration is really required, you can use Offset, Zero out and Pan out menu. [Refer to image CAL-C]

2. mA Output Offset

Type offset value for RN910's 4-20mA output.

Ex> -4.12

3. Zero Out Value for 4mA

Type measured value on Current Meter. It is supposed to be close to 4.0mA

[Refer to image CAL-C]

4. Span Out Value for 20mA

Type measured value on Current Meter. It is supposed to be close to 20.0mA

[Refer to image CAL-C]

#.Current Output On/Off

When it is on, Actual current is giving off on RN910's output terminal.

6.4 Calibration (4-20mA In)

1. Zero Measured Value for 4mA

Type measured value on RN910 display while accurate 4.0mA is coming from calibrator.

[Refer to image CAL-A]

2. Span Measured Value for 20mA

Type measured value on RN910 display while accurate 20.0mA is coming from calibrator.

[Refer to image CAL-A]

3.mA Input Offset

If additional offset is required, type offset value.

[Refer to image CAL-A]

6.5 Calibration (PT100)

1. Temperature Offset

This parameter is PT100 Temperature Offset. It will affect temperature value directly. For example 20.15 °C = 19.5°C + 0.65°C(OFFSET)

2. Measure Wire-R Factor

RN910 device gives static current (0.5mA) to 3 wire PT100 temperature sensor. Unlike 4 wire PT100, 3 wire with static current need to consider a resister of wire. Wire-R factor represent the resister value that can be measured from RN910 calibrator mode. RN910 automatically measure wire-R factor and use it for accurate measurement. [Refer to image CAL-B]

3.Measuring Current Offset

RN910 use static current 0.5mA for PT100 measurement. Please make sure that it is precisely 0.5mA. Otherwise it needs to be calibrated.

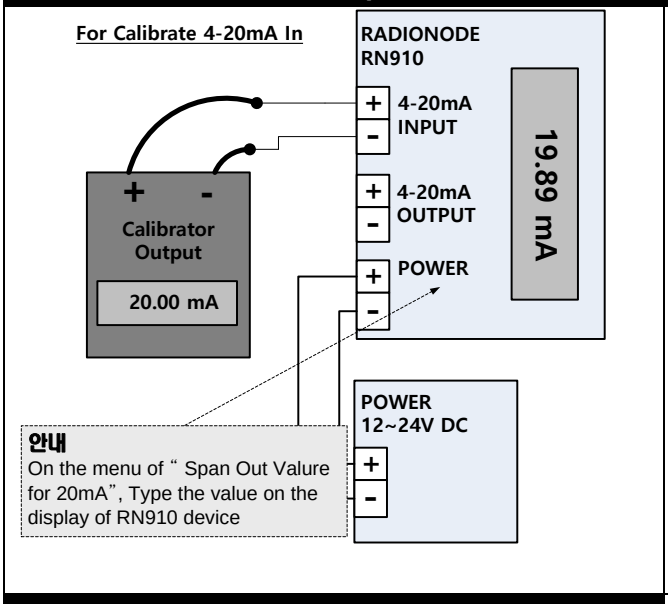
[Refer to image CAL-B]

6.6 Factory Configuration

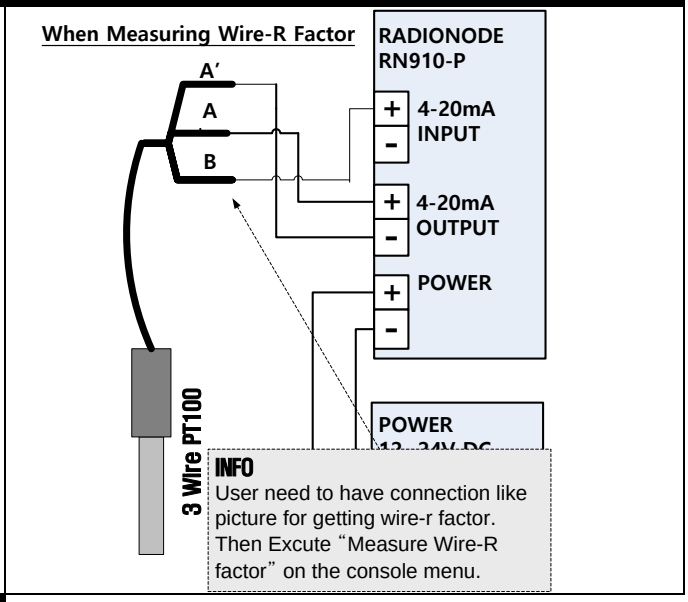
These parameters are set up in factory calibration. User does not need to change these. These can be restored using "6.Load Factory Configuration.

7. How to Connect for Calibration Work

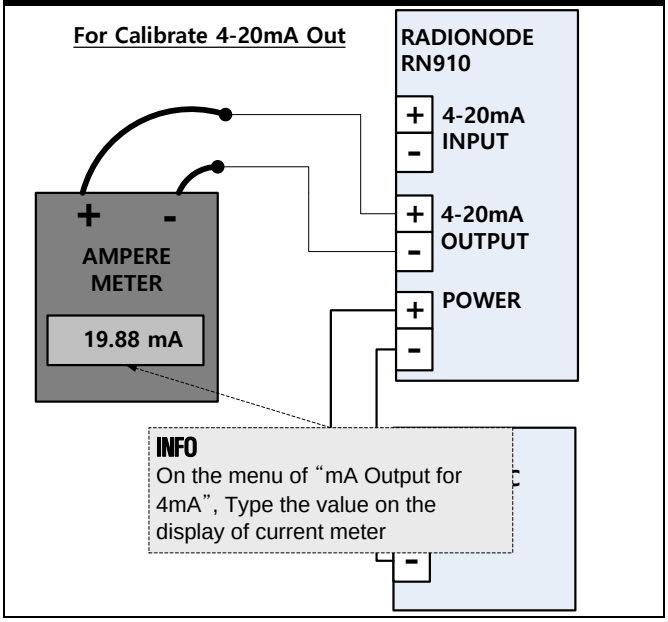
CAL-A . Current Input Calibration



CAL-B. 3 wire PT100 Calibration (Wire-R Factor)



CAL-C. Current Out Calibration



8. LED& DISPLAY

- TX LED : Transmitter Mode
- RX LED : Receiver Mode
- TX & RX LED OFF : No Wireless Signal
- 4 DIGIT Display
  1 .4-20mA Current
  2. Temp. value when using PT100
  3. 0~255 RF signal strength when power up

9. Certification

KCC-CRM-DeK-RN-910

2ABC3-RN910

- Manufacturer : DEKIST Co., Ltd
- Model : RN910

10. Question & Service

- Free repair service within one year
- Paid repair service after one year

- company : DEKIST Co., Ltd
- Phone : +82 (0)31-8004-4359
- Fax : +82 (0)31-8039-4400
- Email : master@dekist.com

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