

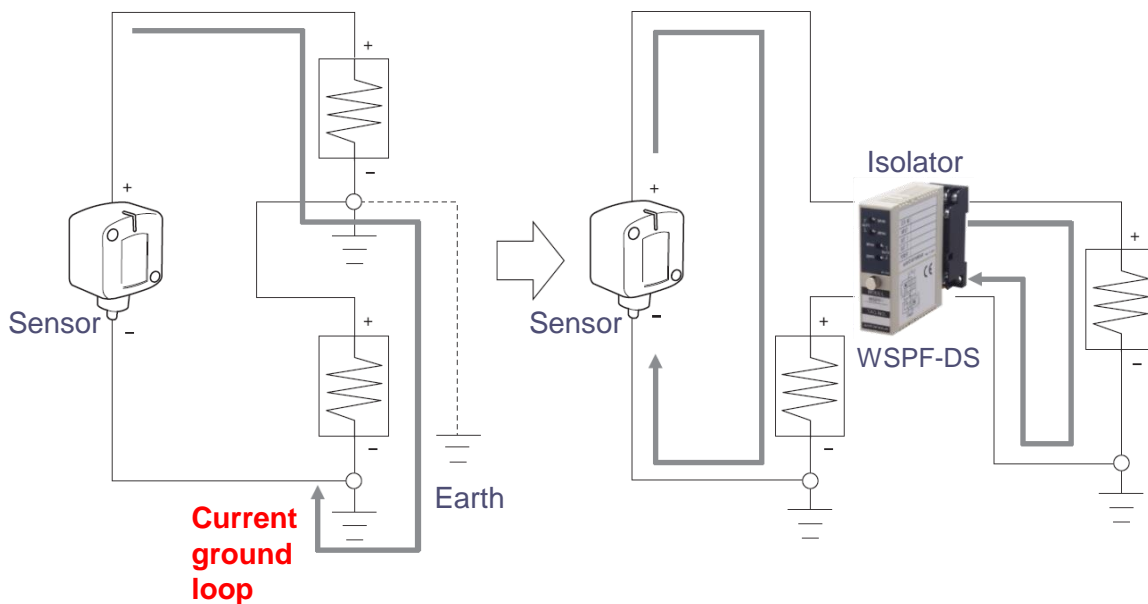


# Applications of Signal converters

Signal converters are used to isolate and convert sensor signal suitable for the connected device (Computer/PLC/DCS etc.), which are used in wide variety of plants and factories. Typical applications are as below.

## 1) Isolator : Prevents current ground loops

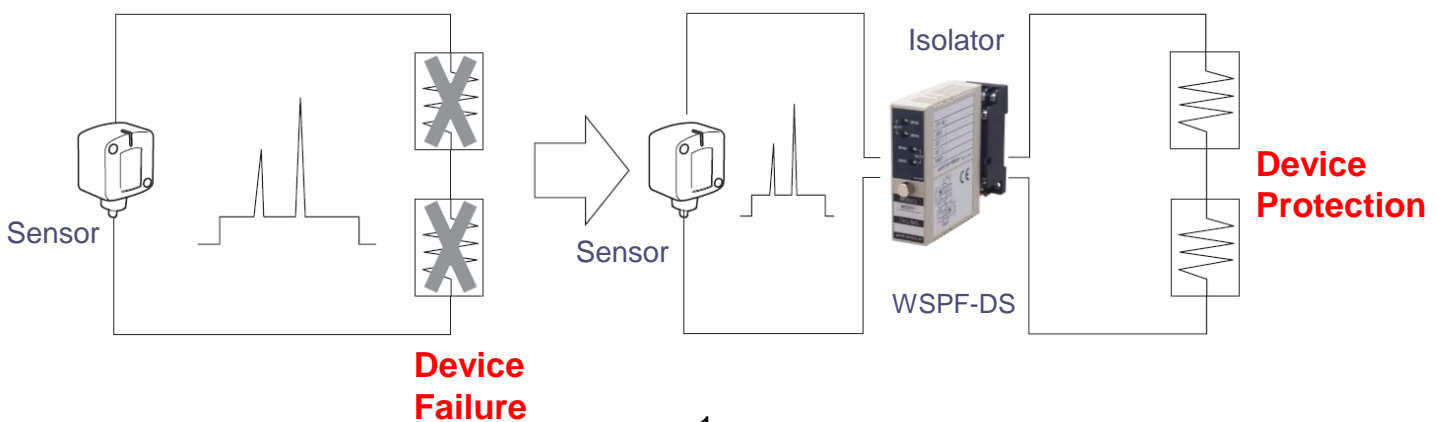
Current ground loop may occur when the 2 devices are wired in series, and also negative sides of both 2 devices are grounding. This makes incorrect signal flow to either of devices. In this case, you can prevent current ground loop by signal isolation between the sensor and the device by using isolator.



## 2) Isolator : Protection from external noise

When the sensor is not isolated and caused the failure, it may affects the connected devices such as Meter/PLC etc. It will make a big problem such as the factory line stop and lowering quality caused by the failure or malfunction.

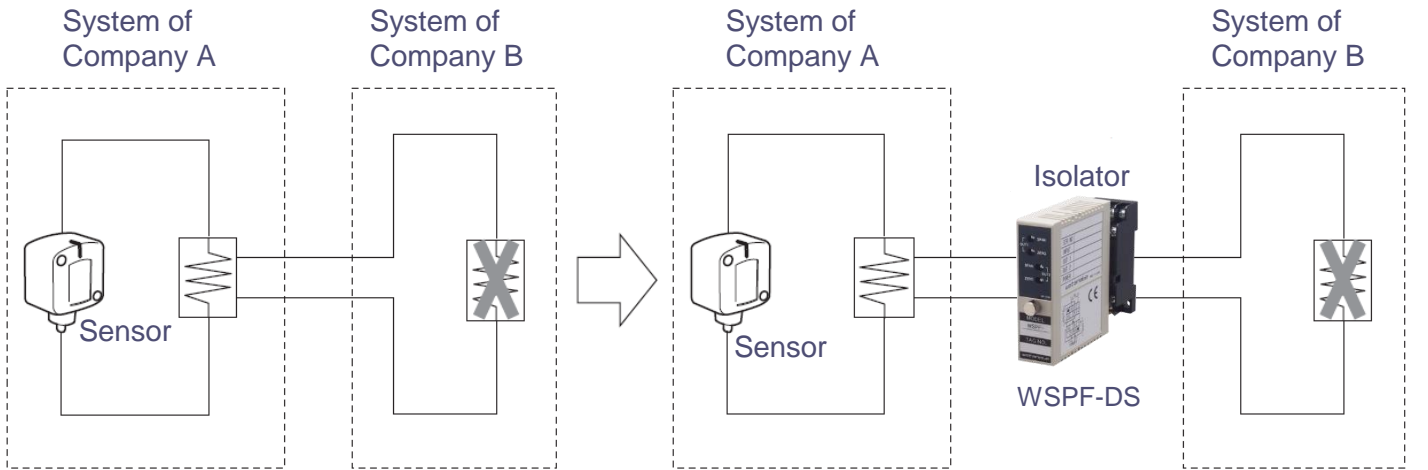
To prevent the above problems, it is important to isolate using Isolator between the sensor and devices.



### 3) Isolator : Clarify the boundary of responsibility

Currently there are various sensors and devices, and those manufacturers are common to be several companies.

Isolator clarifies the boundary of responsibility by isolation between each devices (between the companies) when the failure occurs. This makes easier to solve the problem.



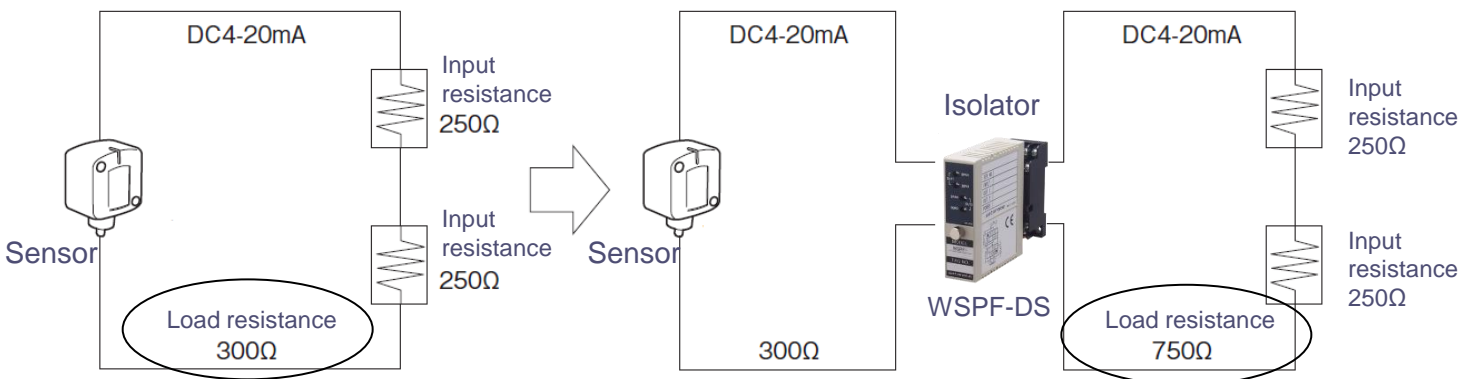
What was the cause?  
Caused by Abnormal signals from system A?

System A & B are isolated by isolator,  
system failure in System B side is problem of System B.

### 4) Isolator : Signal boosting to increase load resistance

If the load resistance of sensor output (4 to 20mA<sub>dc</sub>) is small, connecting an isolator between the sensor and the device can be used to increase the load resistance to the value of isolator output.

This makes it possible to connect the output signals from the sensors to several devices.

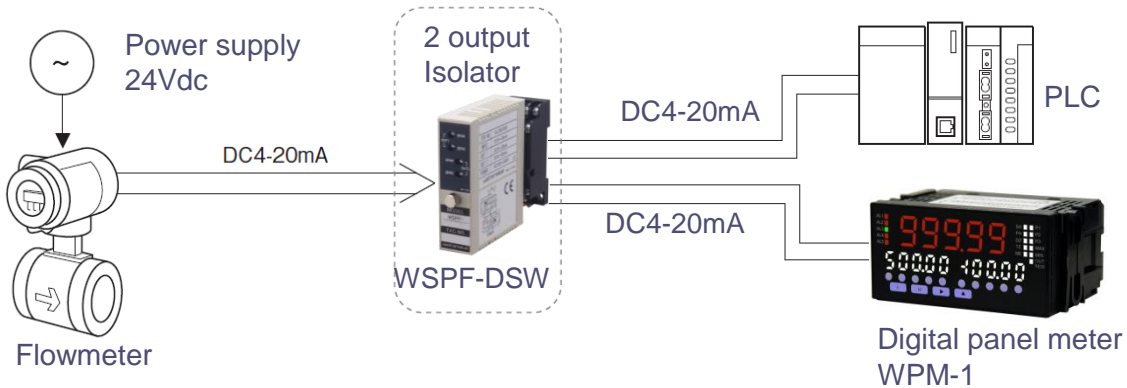


Correct current does not flow when load resistance of sensor output is not enough.

When signal is isolated by Isolator,  
load resistance will be increased to isolators value.  
It will be able to connect 2 devices without problems.

## 5) Signal conversion to 2 different output signal

2 output Isolator WSPF-DSW provides 2 outputs from 1 input from sensor. You can select each output range for 2 different devices.

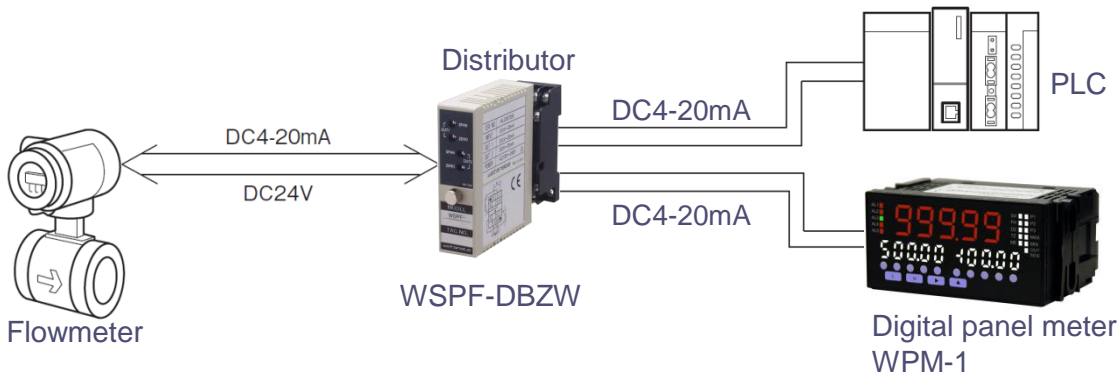


## 6) Current loop supply to transmitter

Distributor (Current loop supply) is a signal converter which uses with 2-wire transmitter, and supplies power to the connected transmitter

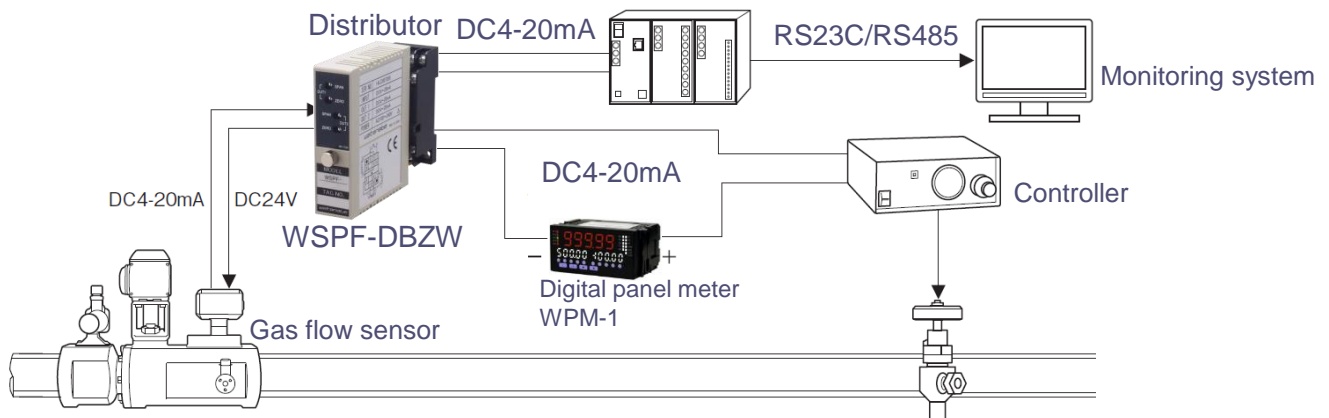
Distributor provides power supply (24Vdc) of 2-wire transmitter and receive 4-20mA dc signal from the line. Then isolates and converts 4-20mA dc signal and output to other device.

When flowmeter is outside and difficult to supply power, you can reduce man-hour by using distributor which can provide power with transmission line.



(2 output distributor)

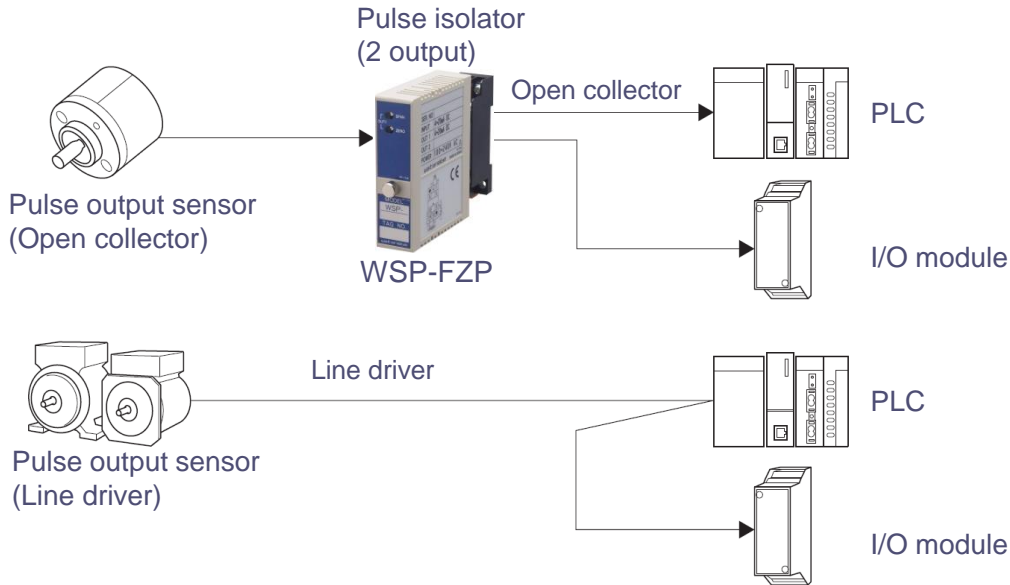
2 output distributor (WSPF-DBZW) is possible to split the sensor signal into two.



## 7) Pulse isolator : Distribution of the pulse

2 output pulse isolator can divide the pulse into 2 devices.

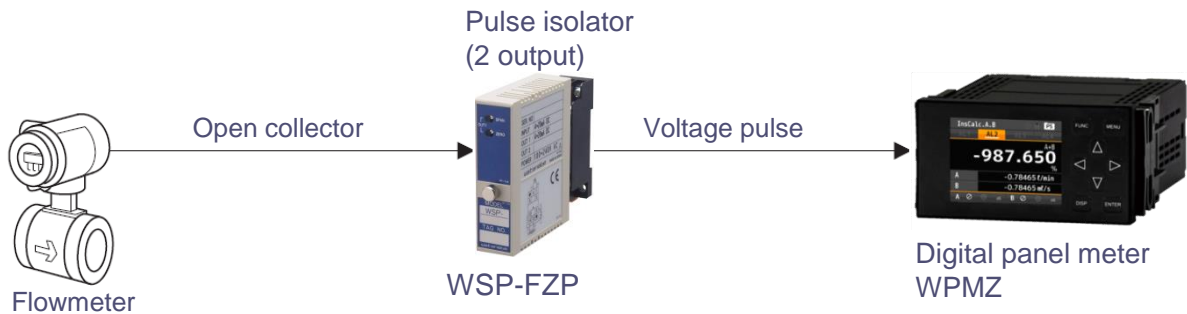
But, in case of the line driver signal, it is possible to transmit a signal to a multiple devices by connecting in a multi-drop(daisy-chain).



## 8) Pulse isolator : Conversion of the pulse signal

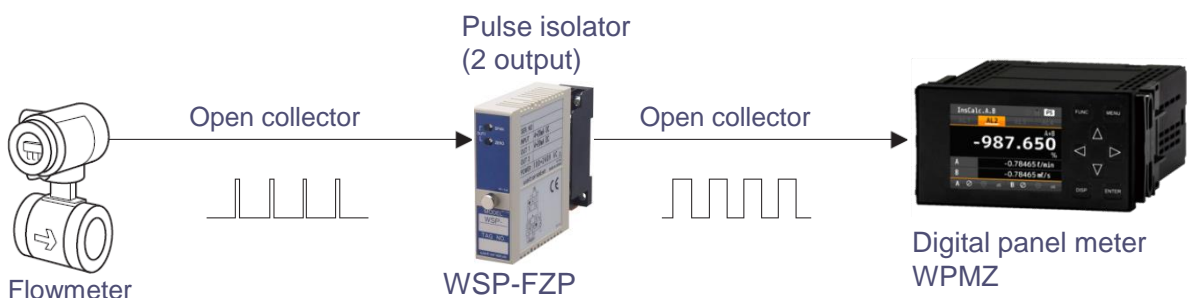
Pulse isolator is used to convert and distribute the pulse signal.

If the input and output specifications of the connected device is different, you can convert the signal to the specifications to suit the connected device by the pulse isolator.



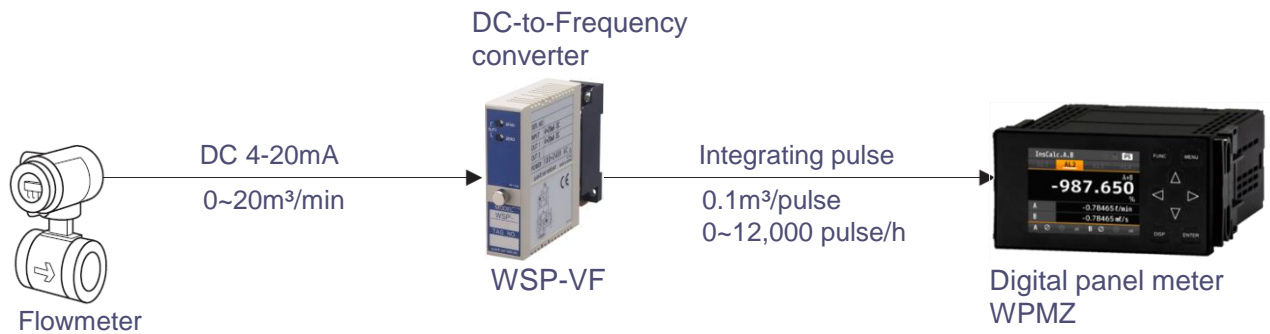
## 9) Pulse isolator : Conversion of the pulse width

There is a case that can not detect pulse depending on the ON width, although the pulse type is correct. In this case, pulse isolator can widen the ON width of pulse signal to detect correctly.



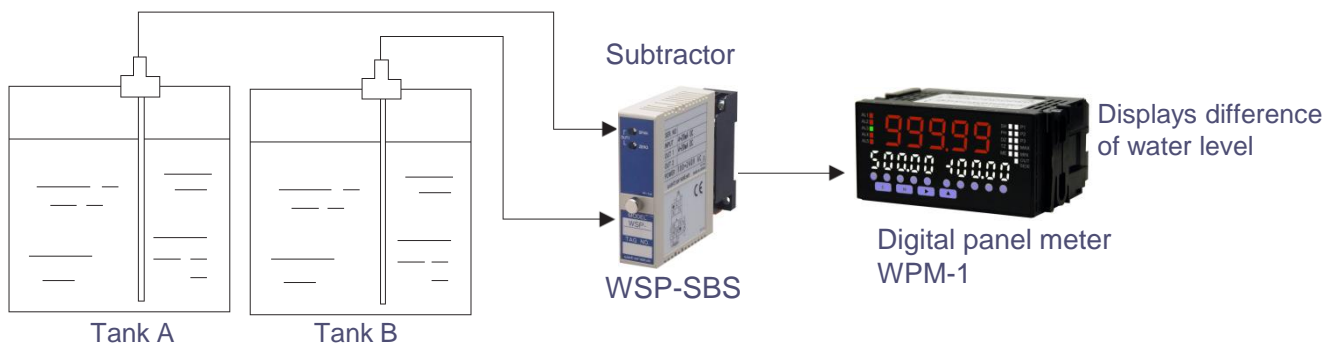
## 10) DC to Pulse converter : Flow rate integration by using analog output flowmeter

DC to pulse converter converts analog signal to pulse signal for flow rate management.



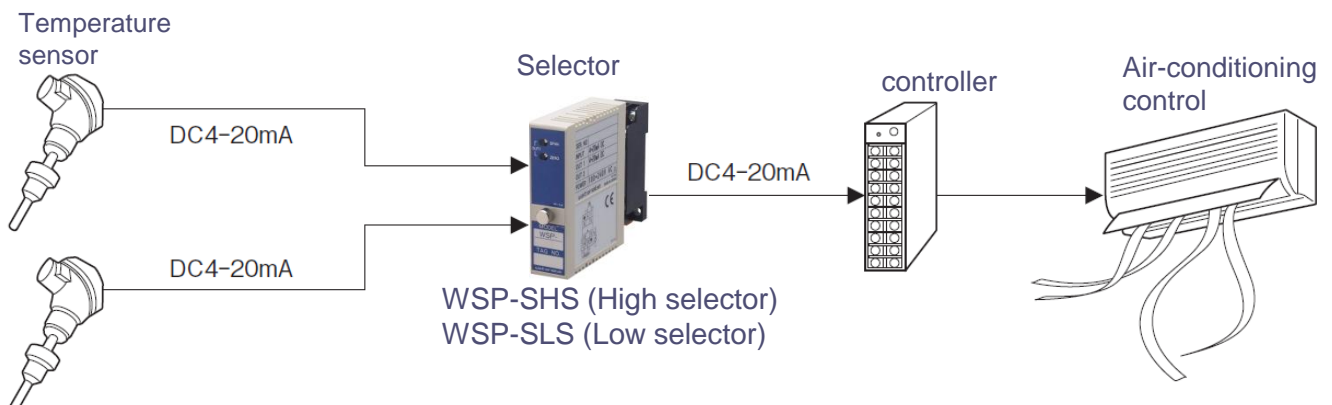
## 11) Subtractor

Subtractor is used to display difference of water level by inputting two water levels in the tank. By using the digital panel meter which has the alarm output, you can set to output alarm when the water level difference exceeds.



## 12) Selector

When you control the floor temperature of the buildings, you can send the higher or lower temperature data of the 2 points to the temperature controller.

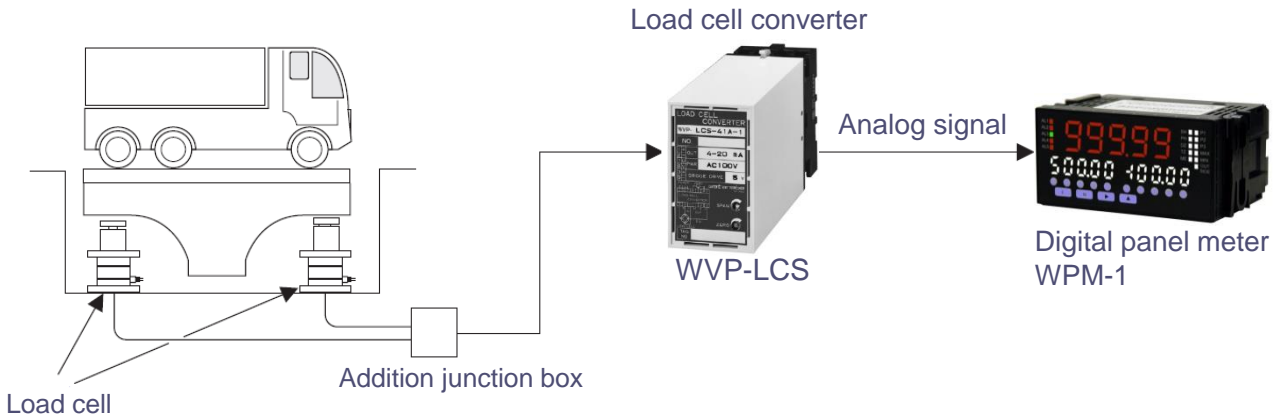


## 13) Load cell converter

The load cell is the sensor to measure the weight.

When using more than one load cell sensors like track scale, signal will go through the addition junction box, and then input to the load cell converter

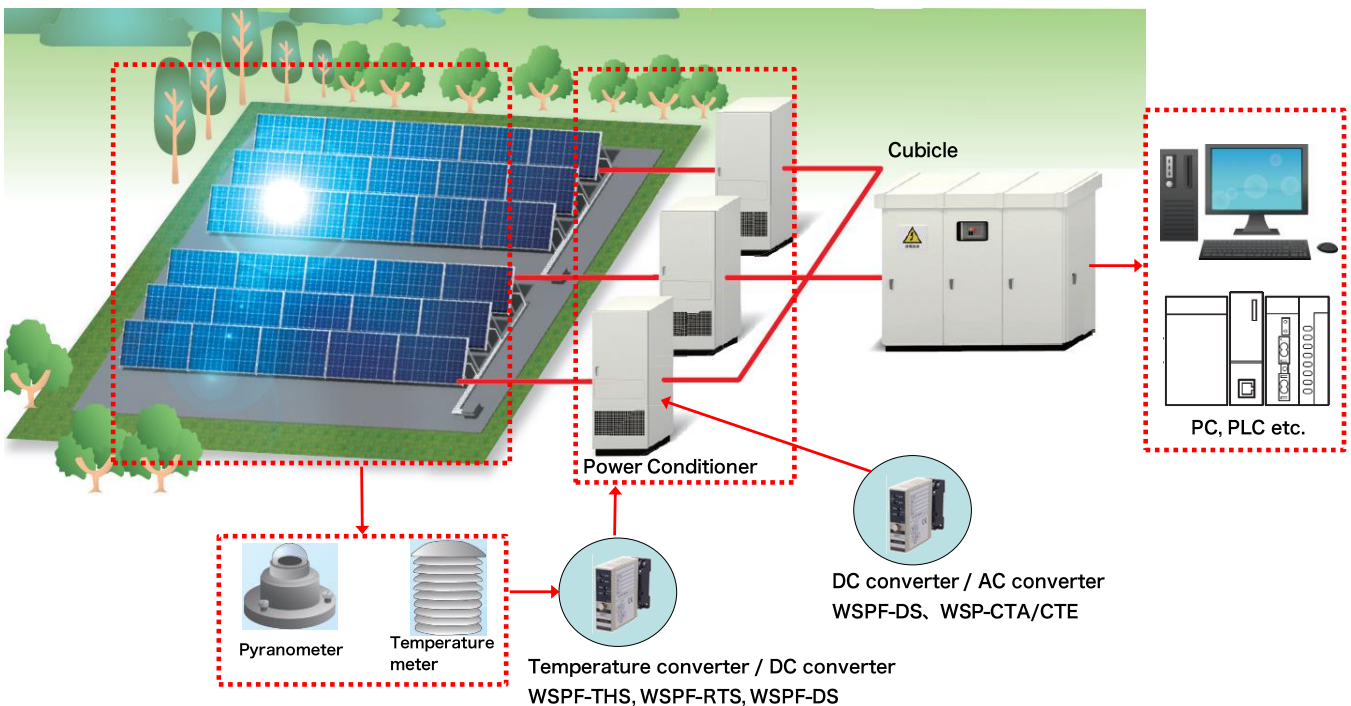
Since the signal from the load cell sensor is very small, you need signal conversion if connected device don't have special input specification.



## 14) Converter in the Solar power system

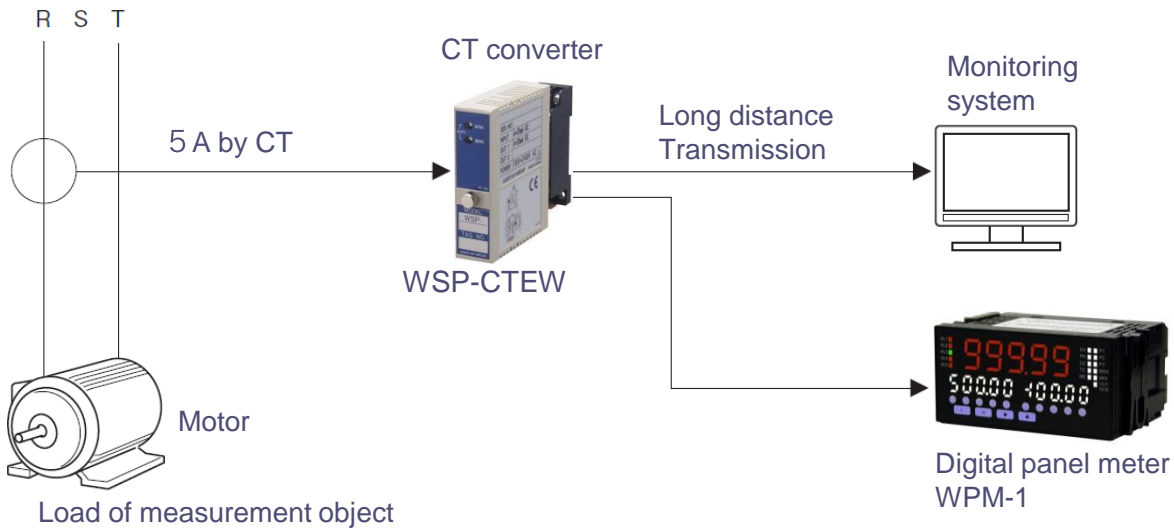
In the solar power system, converters are used in the following applications.

- 1) Temperature converters and DC converters are used to convert signal from the pyranometer / temperature meter, then output to the power conditioner.
- 2) DC converters and AC converters are used inside the power conditioners to convert signal from the solar panels.



## 15) CT converter : Current load measurement in the rolling process of steel works

CT converters are used in current monitoring of the rolling process. CT converter measures a load of the motor etc. used in the rolling, and then transmit to the monitoring system or the panel meter as process signal.



## 16) Tacho generator converter : Speed monitoring of conveyor belt

Tacho generator converter receives an AC voltage signal (Revolutions of the motor) from the tacho generator mounted on the motor, and then convert and output DC signal which can be used in digital panel meters and control devices.

