

# ZigBee Wireless Product Solutions



Mesh network effectively overcomes various environmental interferences



Fully Compliant with 2.4 GHz (IEEE802.15.4/ZigBee Specifications)

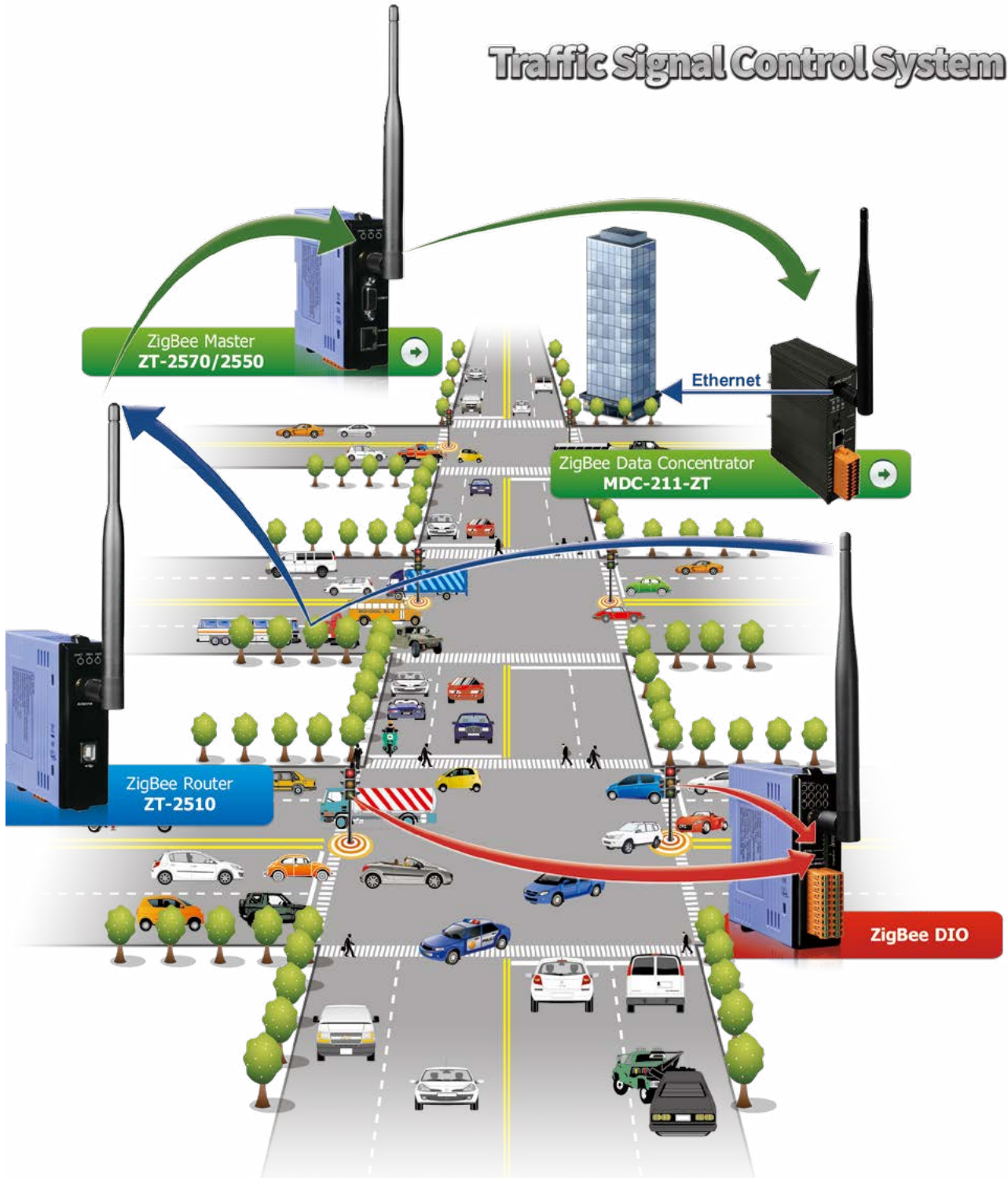


Wireless Transmission Range up to 700 m



# ZigBee Wireless Network

ZigBee is a wireless network protocol that is developed for automation-orientation. Based on WPAN (Wireless Personal Area Network), the IEEE802.15.4 network regular can operate under ISM wireless frequency and organized as a universal, low cost, self-organizing mesh network which can apply in fields such as Industrial Control, Embedded Sensing, Medical Data Acquisition, Toxic gas monitoring and personnel intrusion alarm, and Building / Home Automation.



*Wireless / Low cost / High Stability / Easy to Use*

# Different types of ZigBee devices

## ZigBee Coordinator (Master):

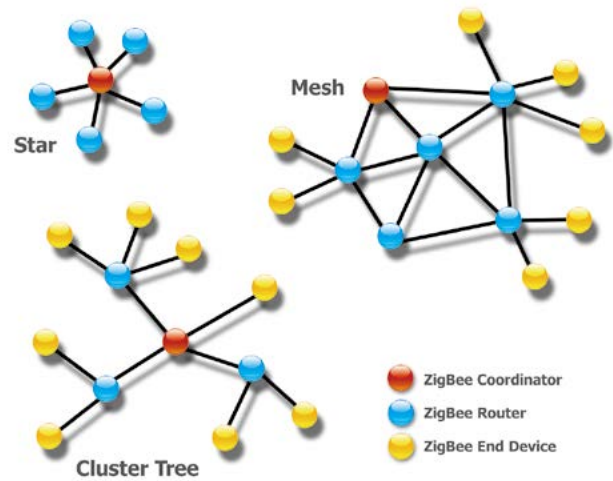
There is only one Coordinator in a ZigBee network. The function of coordinator is to save all messages among the network to make sure the best transmission distance between two stations.

## ZigBee Router (Slave):

Router can be used as a repeater while in operating. The main function is to transmit and transfer data between devices.

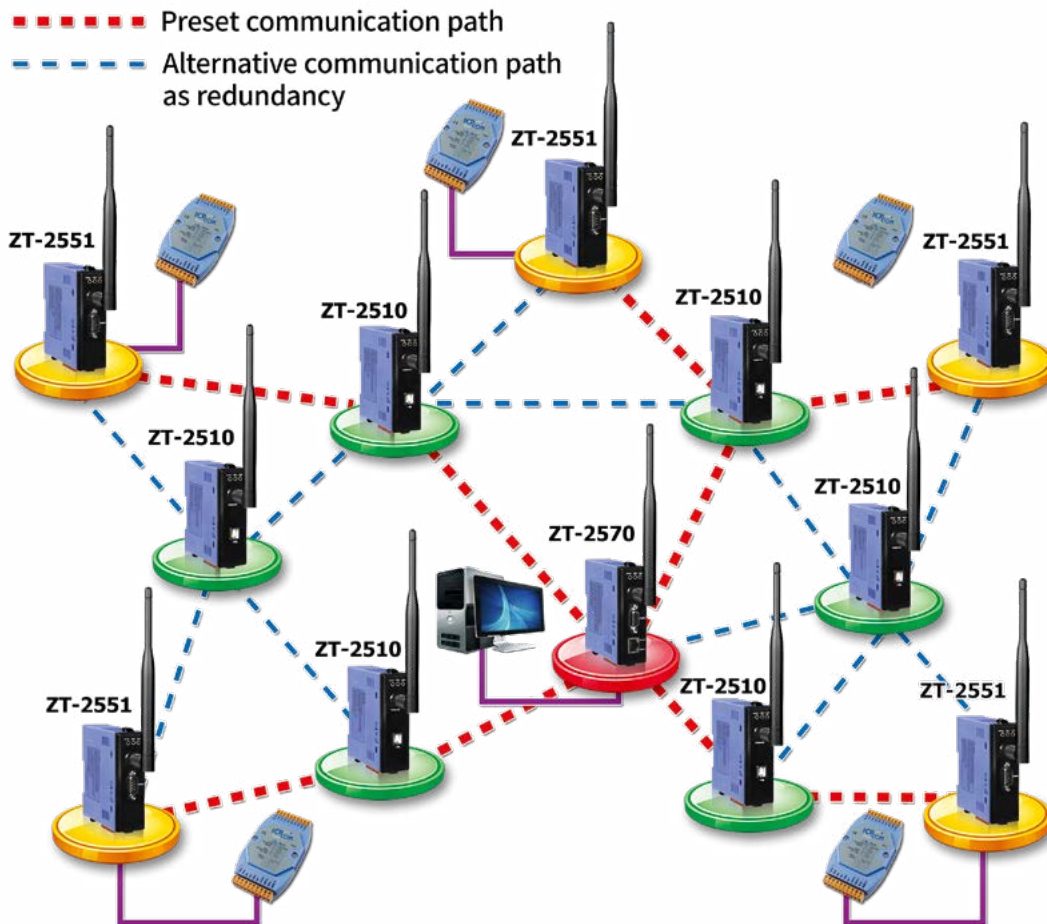
## ZigBee End Device (Slave):

This type of devices communicates with the parent node (including coordinator, router) with the most streamlined functions. These devices are usually in sleep mode and cannot directly relay data from other devices.



# ZigBee Network Feature – Mesh Network

ZigBee technology possess strong networking capabilities can form star, cluster tree, and mesh of networks. Wireless network transmission is easily affected by factors such as humidity, temperature, climate, obstacles, and electromagnetic interference. These effects are usually difficult to completely eliminate in industrial environments. The mesh network feature of ZigBee is a key aspect of its design and makes it a highly versatile and reliable technology for a wide range of applications.

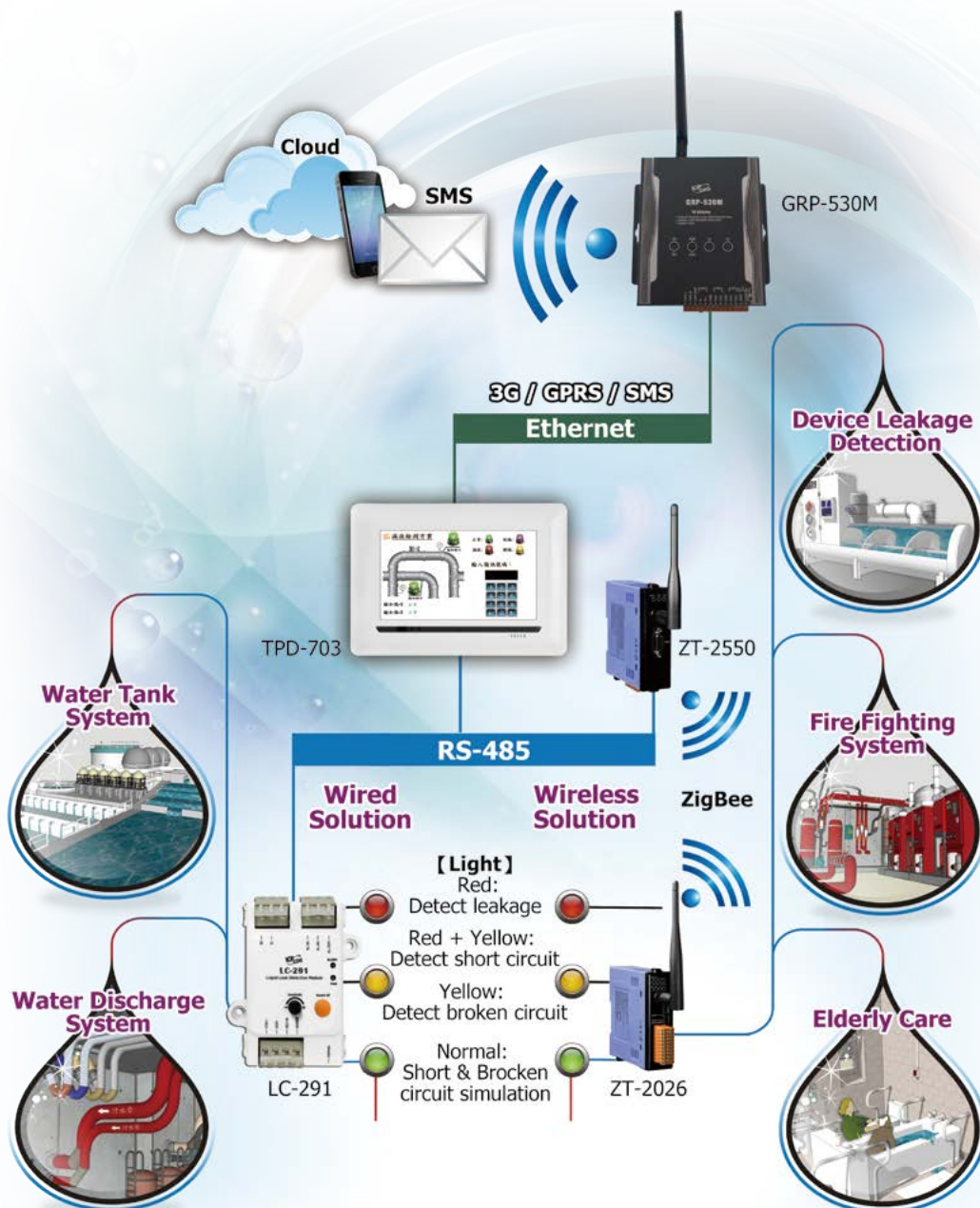


# Applications

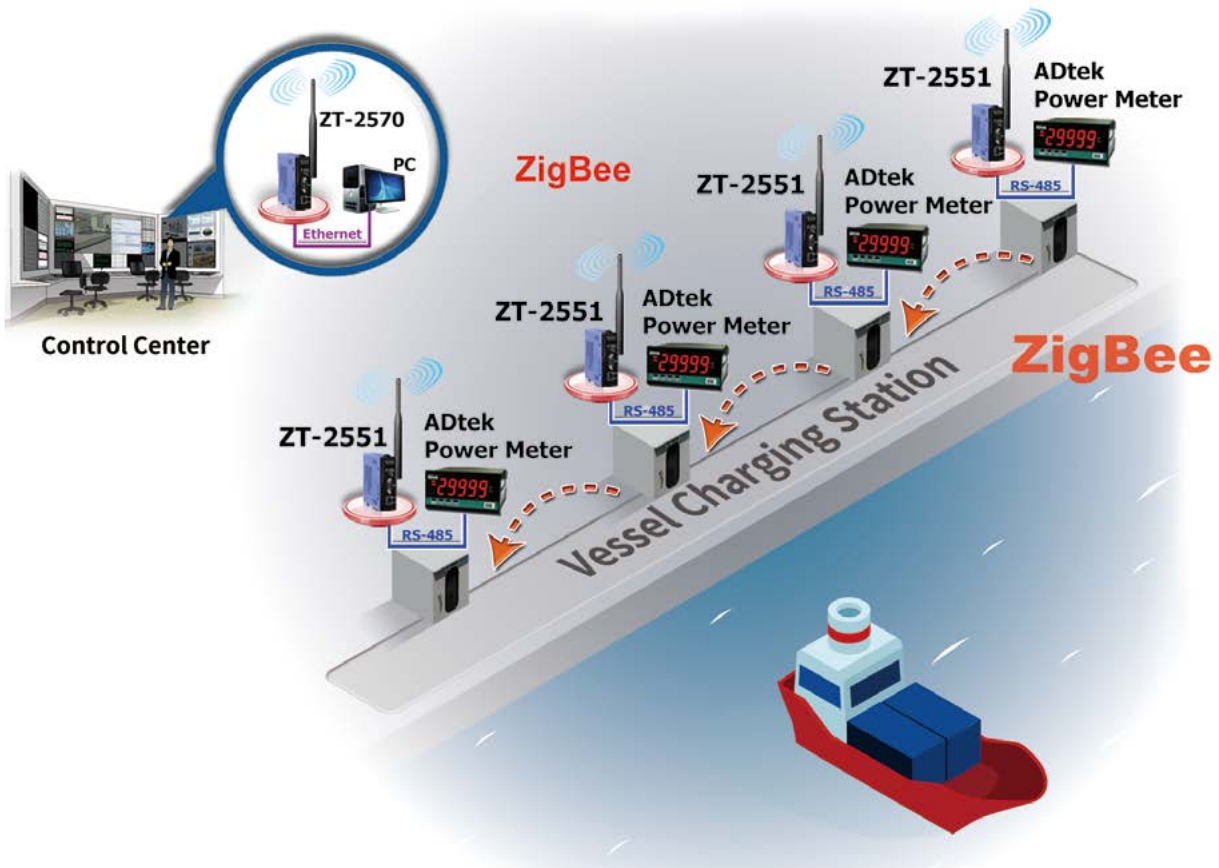
ZigBee is a low-power wireless communication technology that was developed for use in industrial automation control. It is based on the IEEE 802.15.4 standard, which specifies the physical and media access control layers for wireless personal area networks (WPANs). ZigBee technology is widely used in home automation systems, such as smart lighting, climate control, and security systems, as well as in industrial and commercial applications, such as monitoring and control of machines and equipment, and in healthcare applications, such as remote patient monitoring.

- The wireless transmission range can reach 700 meters.
- Support Modbus TCP/RTU.
- Converters, repeaters, bridges, data concentrators, wireless I/O, and various modules provide complete topology and solutions.

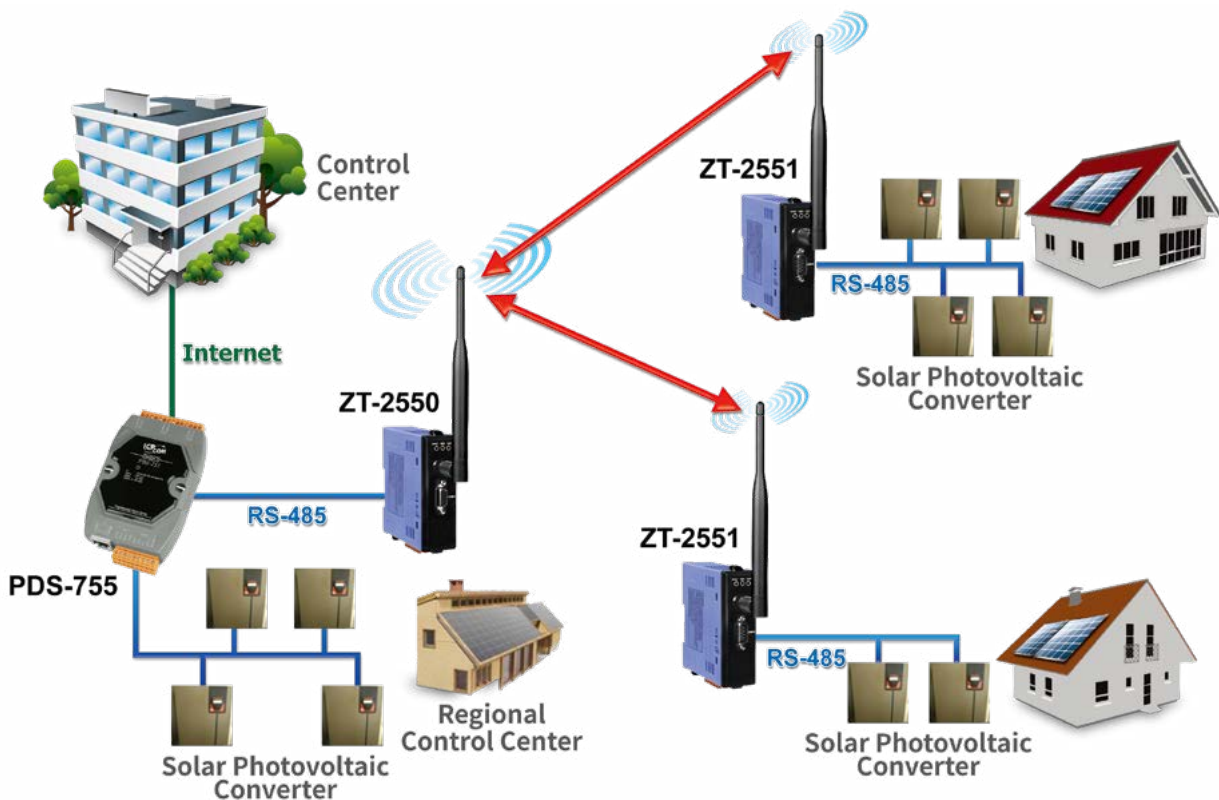
## Leak Detection System



# Vessel Charging System



# Solar Charging System

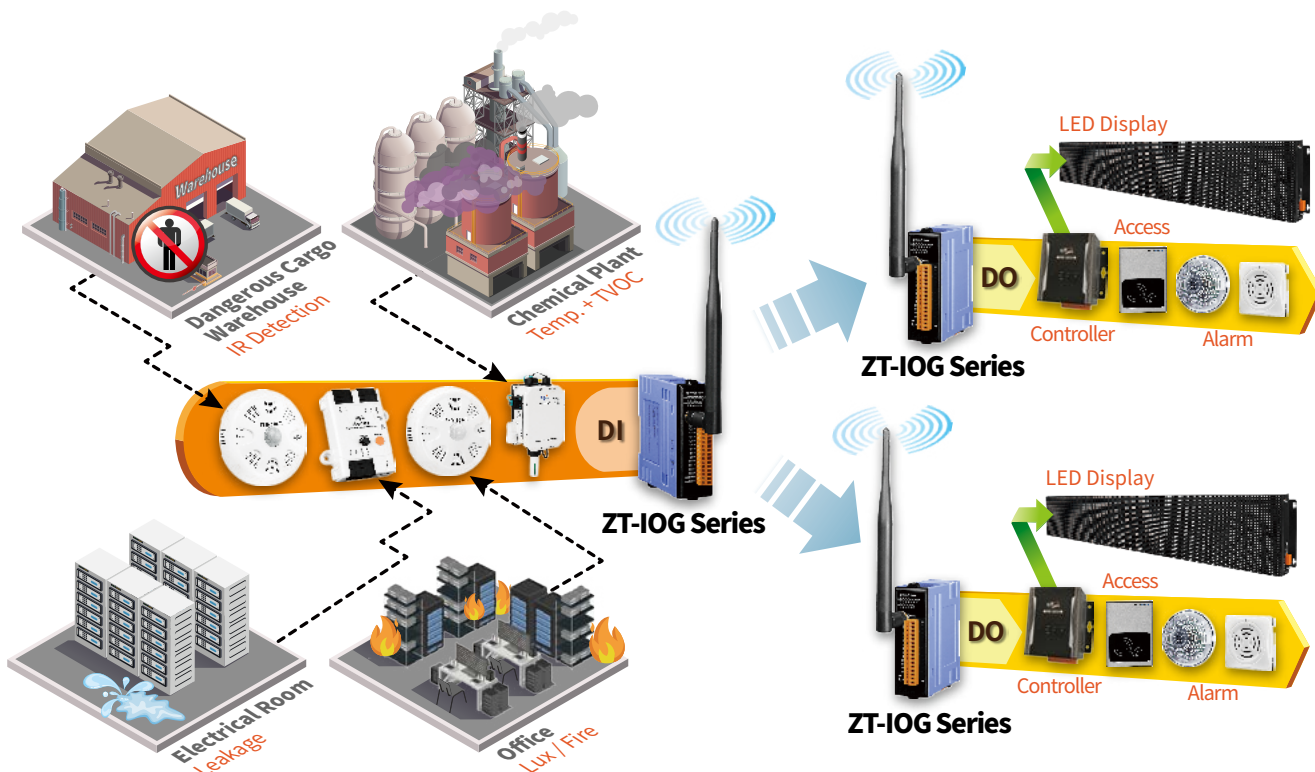


# Street Lamp Monitoring System

Master or Data Center of Control Room

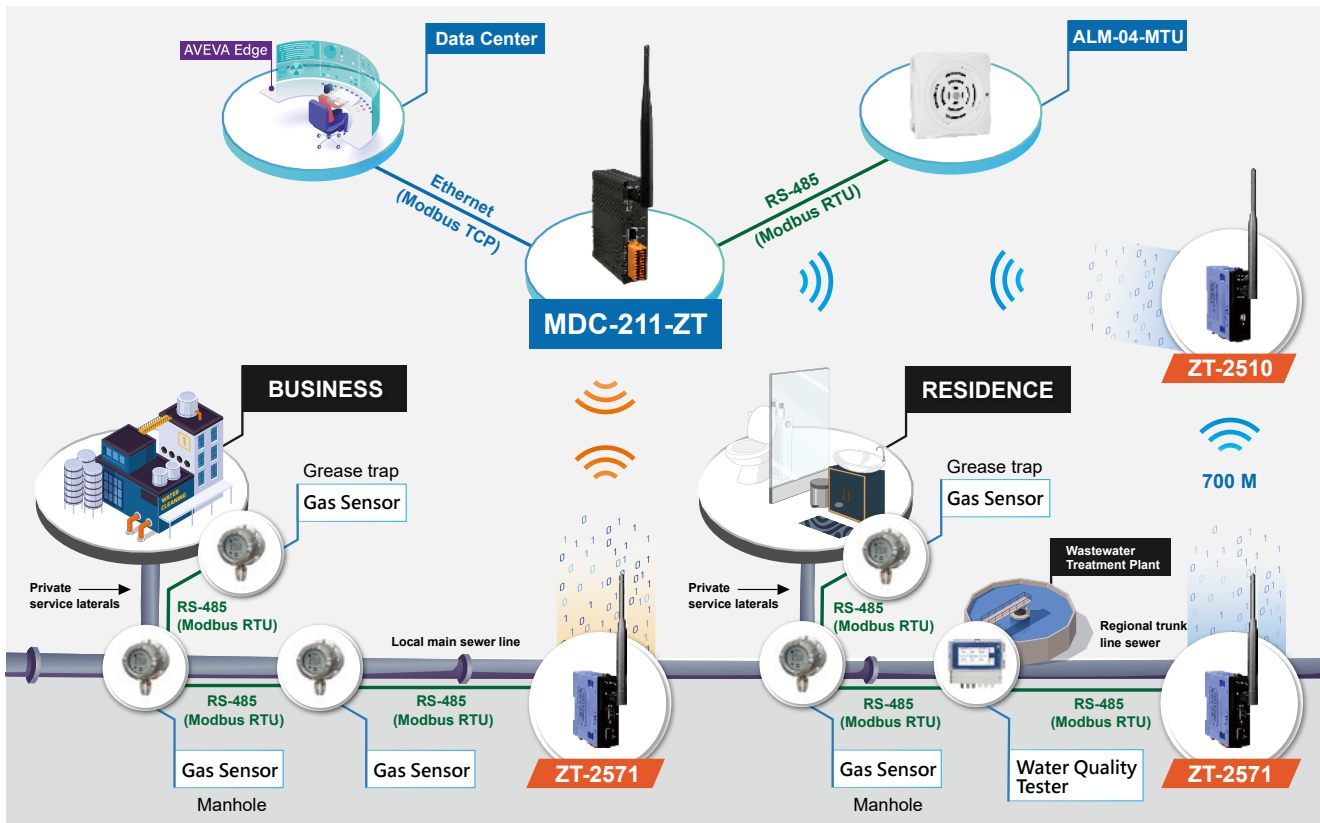


# Environmental Monitoring System



# Combustible Gas Monitoring System for Sewers

With the rapid development of the city, the extension of the sewer network, and the increase in sewage, the traditional manual monitoring method cannot detect the source of pollution or disaster early and correct it immediately. The water treatment system is mostly equipped with monitoring modules, recorders, communication cables, and other equipment to achieve monitoring purposes. In order to avoid road excavation from affecting traffic and improve construction efficiency, ICP DAS uses ZT-2571 / ZT-2510 to take advantage of ZigBee wireless communication with low- interference and long distance. Provides the most immediate disaster prevention information to the monitoring unit by sending the sensing data back to the monitoring center.



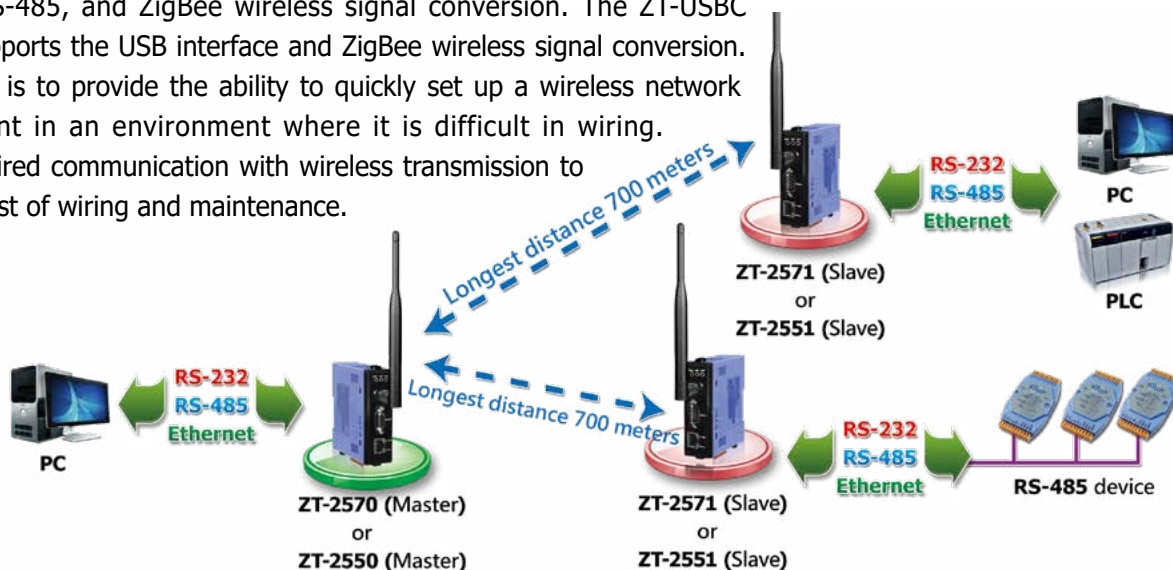
**-- Remote Transmission Solutions, Group Management, Real-time Alarms --**

## Product List and Usage

Products	Description
ZT-2571	It based on the IEEE802.15.4 standard that allow RS-485 to be converted to a personal area ZigBee network.
ZT-2510	It extends the transmission range and improve the quality of wireless signal when the distance is too long.
MDC-211-ZT	Data communication management for ZigBee and RS-485, high-speed collection of field data for analysis and monitoring through Ethernet.
ALM-04-MRTU	With Modbus RTU protocol, the host gives the alarm output command when alarming.
Gas Sensor	Modbus RTU device for continuous detection of flammable gases such as oil and gas, hydrogen sulfide, H2 hydrogen, methane... etc.
Water Quality Tester	Water quality monitoring in the catchment area, including dissolved oxygen, conductivity, turbidity, PH value, water temperature .... etc.

# ZigBee Converters

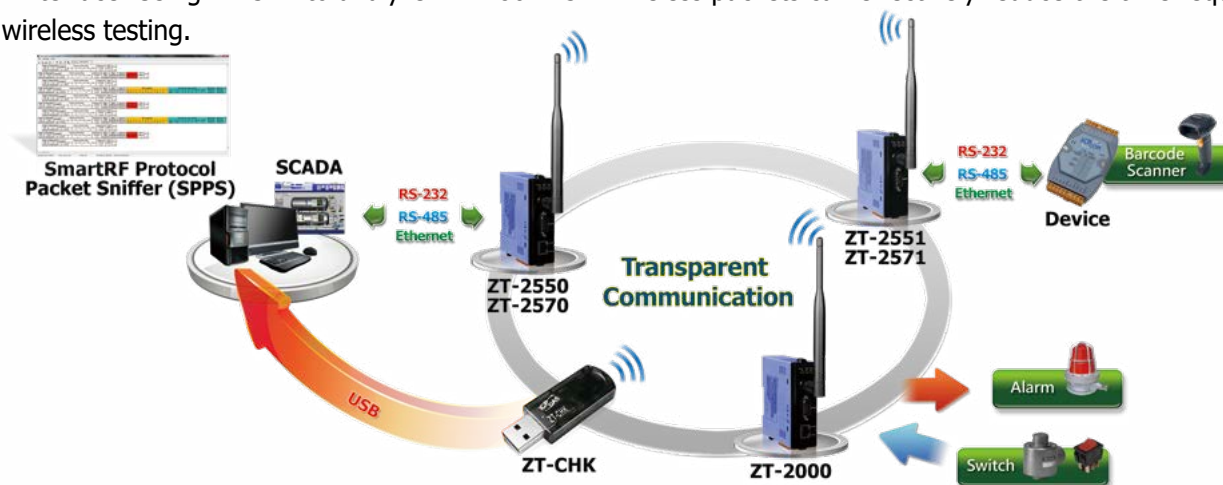
The ZT-255x and ZT-257x series modules support Ethernet (ZT-257x only), RS-232, RS-485, and ZigBee wireless signal conversion. The ZT-USBC module supports the USB interface and ZigBee wireless signal conversion. The design is to provide the ability to quickly set up a wireless network environment in an environment where it is difficult in wiring. Replaces wired communication with wireless transmission to save the cost of wiring and maintenance.



Model	Communication Interface	Module Type	Transmission Power	Antenna	Distance (LOS)
ZT-2550	1 x RS-232 、 1 x RS-485	Coordinators (Master)	11 dBm	2.4 GHz, 5 dBi Omni-directional	700 M
ZT-2551		Router (Slave)			
ZT-2570	1 x RS-232 、 1 x RS-485 、 1 x Ethernet	Coordinators (Master)			
ZT-2571		Router (Slave)			
ZT-USBC	1 x USB 1.1 & 2.0	Full function (master + slave)	3 dBm	2.4 GHz, PCB	60 M

# ZigBee Sniffer Module

ZigBee Sniffer Module with TI Software SmartRF Protocol Packet Sniffer (SPPS) captures and analyzes real-time data packets online in compliance with IEEE 802.15.4 standard. It can be easily installed and used on a PC via USB interface. Using ZT-CHK to analyze IEEE 802.15.4 wireless packets can effectively reduce the time required for wireless testing.

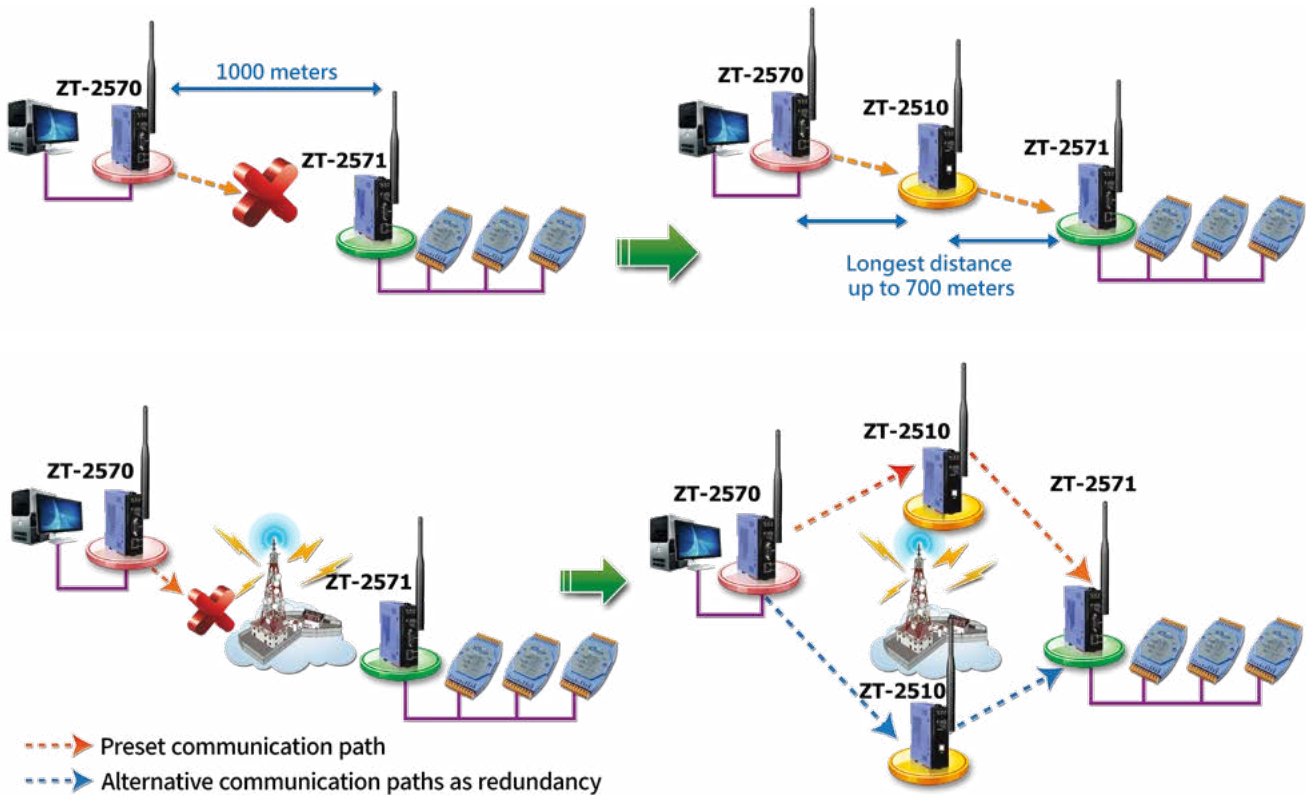


Model	Communication Interface	Module Type	Transmission Power	Antenna	Distance (LOS)
ZT-CHK	1 x USB 1.1 & 2.0	Sniffer	3 dBm	2.4 GHz · PCB	60 M



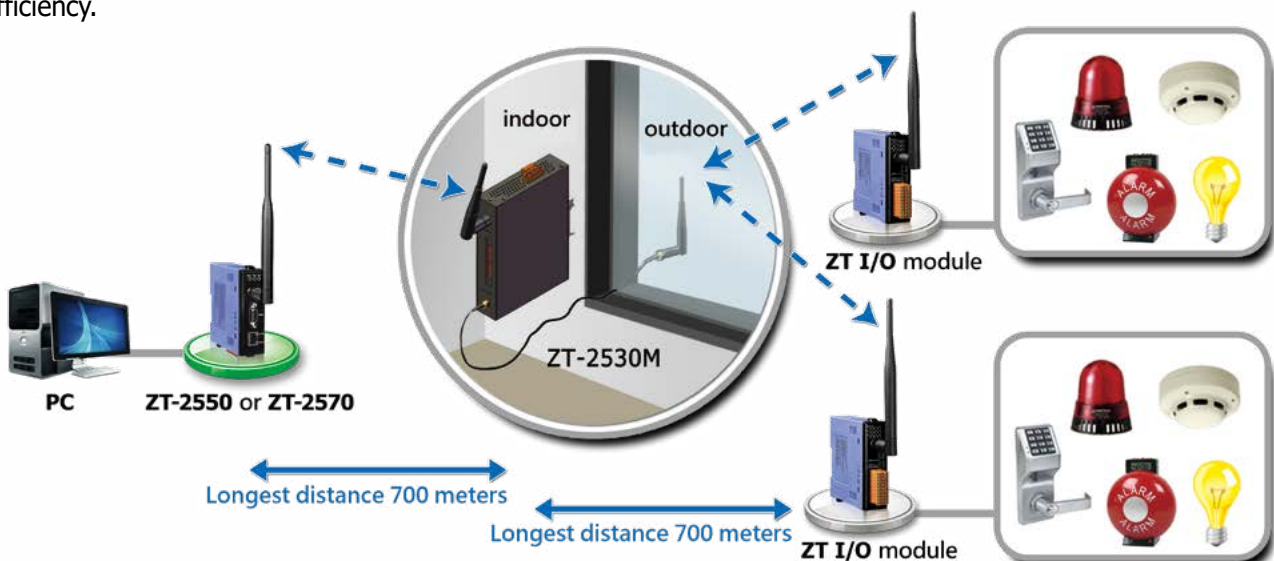
# ZigBee Repeater

ZT-2510 is a repeater for extending the communication distance and range of ZigBee networks. It also avoids physical barriers between wireless devices.



# ZigBee Bridge

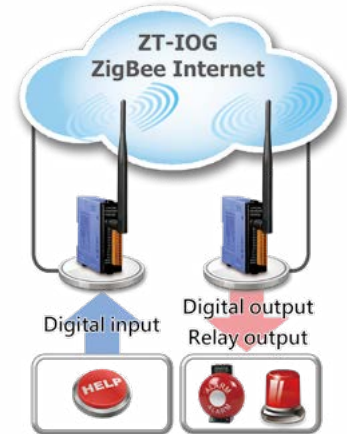
ZT-2530M is a Bridge used to connect two different ZigBee networks. It can be full hardware configuration, and be used to bridge the communication between indoor and outdoor units or divide complex network to enhance efficiency.



# ZigBee I/O Group Module

The ZT-20xx-IOG is a series of automation controllers that do not need to be programmed and handle wireless interference. It can quickly create, monitor, and manage I/O Pair-connection through Decentralized DIO channels. Suitable for wireless I/O pairing applications that require multiple I/O points and a large communication range, but where wiring is difficult.

Model	Channels	Module Type	Transmission Power	Distance (LOS)
<b>ZT-2043-IOG</b>	DO x 14	Open Collector (700mA, Sink)	11 dBm	700 M
<b>ZT-2053-IOG</b>	DI x 14	dry/wet contact (Sink/Source)		
<b>ZT-2055-IOG</b>	DI x 8 DO x 8	DI: dry/wet contact( Sink/Source) DO: Open Collector (650mA, Sink)		
<b>ZT-2060-IOG</b>	DI x 6 DO x 4	DI: wet contact (Sink/Source) DO: Relay (5A@250VAC/30VDC)		

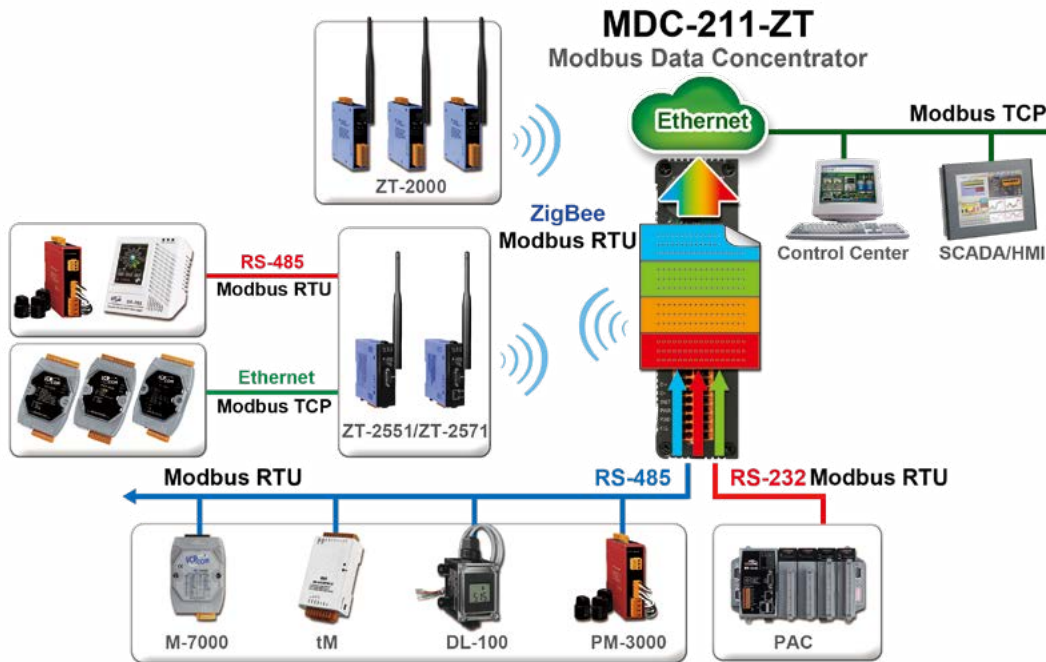


# ZigBee I/O Module

Model	Channels	Module Type	Transmission Power	Distance (LOS)
<b>ZT-2005-C8</b>	AI x 8	10 K thermistor (temperature measurement range: -40 ~ 105 ° C)	11 dBm	700M
<b>ZT-2015</b>	AI x 6	Pt100 · Pt1000 · Ni120 · Cu100 · Cu1000		
<b>ZT-2017</b>	AI x 8	±10 V, ±5 V, ±1 V, ±500 mV, ±150 mV or -20 ~ +20 mA (External 125 Ω resistor required)		
<b>ZT-2017C</b>	AI x 8	-20 ~ +20 mA, 0 ~ +20 mA or +4 ~ +20 mA		
<b>ZT-2018/S</b>	AI x 8	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5V, ±20 mA, 0 ~ 20 mA or 4 ~ 20 mA , Thermocouple (J, K, T, E, R, S, B, N, C, L, M, LDIN43710)(External 125 Ω resistor is required for current input)		
<b>ZT-2024</b>	AO x 4	0 ~ +10 VDC, -10 ~ +10 VDC, 0 ~ +5 VDC, -5 ~ +5 VDC, 0 ~ +20 mA, +4 ~ +20 mA		
<b>ZT-2026</b>	AI x 4 AO x 2	AI: ±10 V / ±5 V / ±1 V / ±500 mV / ±150 mV / -20 ~ +20 mA AO: ±10 VDC / ±5 VDC / 0~10 VDC / 0~5 VDC		
	DI x 2 DO x 2	DI: wet contact (Sink) , DO: Open Collector (700mA, Sink)		
<b>ZT-2042</b>	DO x 8	4 x PhotoMOS Relays (1A@60VDC) 4 x Open Collector (700 mA, Sink)		
<b>ZT-2043</b>	DO x 14	Open Collector (700mA, Sink)		
<b>ZT-2052</b>	DI x 8	wet contact (Sink/Source)		
<b>ZT-2053</b>	DI x 14	dry/wet contact (Sink/Source)		
<b>ZT-2055</b>	DI x 8 DO x 8	DI : dry/wet contact (Sink/Source) DO: Open Collector (650mA, Sink)		
<b>ZT-2060</b>	DI x 6 DO x 4	DI: wet contact (Sink/Source), DO: Relay (5A@250VAC/30VDC)		
<b>tZT-P4C4</b>	DI x 4 DO x 4	DI: wet contact (Source), DO: Open Collector (700mA, Sink)	300M	

# ZigBee Modbus Data Concentrator

MDC-211-ZT Modbus data concentrator with Ethernet, ZigBee Wireless, RS-232 and RS-485 communication interfaces, can link the Modbus RTU devices to the Ethernet network. It can read the data of Modbus RTU device according to the user-defined command table, and integrate the data of different Modbus RTU devices into the format of the continuous address so that the remote monitor host can connect to MDC-211-ZT from Ethernet to access the data of multiple Modbus RTU devices at once. Through MDC-211-ZT's Modbus data centralized management function, as well as the Ethernet network convenient link and the communication ability, it can quickly establish a stable remote monitoring system, simplify the complexity during the process of data acquisition operation, reduces the Ethernet network traffic load, and enhances the system efficiency.



Model	Comm. Interface	Module Type	Transmission Power	Antenna	Distance (LOS)
<b>MDC-211-ZT</b>	1 x RS-232 1 x RS-485 1 x Ethernet 1 x ZigBee	Modbus TCP (Server) Modbus RTU (Master/Slave)	11 dBm (Up to 19dBm)	2.4GHz, 5 dBi Omni-Directional	700 M

## Management Utility

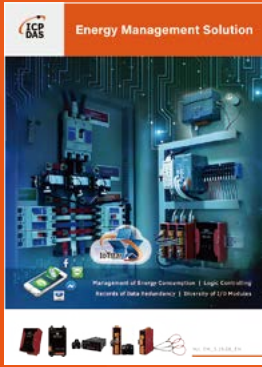
MDC-211-ZT provides a simple, friendly Web interface (UI), users can login the MDC-211-ZT Web page via a Web Browser to set up and real-time detect the MDC-211-ZT for the communication status and update frequency of each Modbus RTU command.



ID	Number	Remote	MDC-211-ZT	Status
	#006	[40000:40003]	[40000:40003]	GOOD
06	#014	[41000:41000]	[40006:40009]	ILLEGAL DATA ADDRESS
	#015	[40000:40007]	[40010:40017]	ILLEGAL DATA VALUE
	#017	[40000:40003]	[40022:40025]	DISABLED
07	#016	[40000:40003]	[40018:40021]	TIMEOUT

## Accessories

Optional	Description
<b>External Antenna</b>	ANT-8/ANT-15: 2.4 GHz External Antenna, RP-SMA Male (Plug)
<b>External Cable</b>	3S001-1/3S003-1/3S005-1/3S008-1: RP-SMA Male to RP-SMA Female



## Energy Management Solution

- InduSoft SCADA Software
- Smart Power Meter Concentrator
- Smart Power Meter
- True RMS Input Module
- TouchPAD Devices - VPD Series



## Industrial IoT

## IIoT Product

- IoTstar : cloud management software
- UA-5200 : communication server
- WISE series : IIoT host
- iCAM series : IP camera
- MQ-7200M series : MQTT I/O module
- Sensors : temperature, humidity, CO2, PM2.5,...



## Industrial Fieldbus

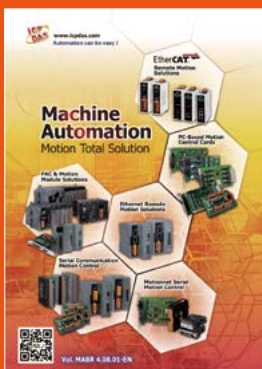
- RS-485
- Industrial Ethernet
- Profinet
- CAN bus
- CANopen
- Devicenet
- J1939
- PROFIBUS
- HART
- Ethernet/IP
- BACnet



## UA Series IIoT Cloud Solution

## IIoT Cloud Solution - UA SERIES : IIoT Communication Server

- Built-in OPC UA Server Service
- Built-in MQTT Broker Service
- Support Logic Control IFTTT
- Support IoT Cloud Platforms Connection and IoTstar Cloud Management
- IIoT Factory Application of MES
- Pumping Station IoT Application
- BA Smart Building IoT Application
- Robotic Arm Co-operation Application



## Machine Automation

- Motionnet Solutions
- EtherCAT Motion Control Solutions
- Ethernet Motion Control Solutions
- Serial Communication Motion Control Solutions
- PC-based Motion Control Cards
- PAC Solutions - Motion Modules



## Smart Building Smart Home Automation

## Smart Building, Smart Home Automation

- Video Intercom & Access Control
- Touch HMI - TouchPAD Series
- Smart Lighting Control
- Energy Saving - PM/PMC Series
- Environmental - DL/CL Series
- Motion Detector - PIR Series
- Wi-Fi Wireless - WF Series
- Infrared Wireless - IR Series
- ZigBee Wireless - ZT Series
- IIoT Server & Concentrator
- LED Display - iKAN Series



## TouchPAD HMI Solutions

- Introduction
- TPD/VPD Products Series
- Video Intercom & Access Control Series
- TPD/VPD Application



## PC-based I/O Boards

## PC-based I/O Boards

- PCI Express Bus Data Acquisition Boards
- PCI Bus Data Acquisition Boards
- ISA Bus Data Acquisition Boards

