

MICO-RACE

MICO-RACE wireless temperature measurement system uses advanced cloud technology, temperature data collected by each sensor from Ethernet or 3G router, and transfer to the cloud platform, and data management through highly reliable cloud servers. Users can access temperature and humidity monitor data at any time and place through a browser in PC or mobile phone.

MICO-RACE can connect producers, distributors and transport side, organic combination of cold-chain, fresh food, medical drugs and vaccines in all aspects of state monitoring, also consumers through the cloud service know the purchase of goods meets the cold fresh preservation standards.



Main Features

- Low cost wireless temperature and humidity metering device, designed as remote sensor unit and data receiver split located. Use **433MHZ** public band easy to build monitor network via multi-point monitoring network
- Maximum radio range: **2KM**(outdoor)
- Maximum 100 remote unit connect to router without repeater
- Standard **3000mAh** battery provide up to 3 million times data upload interval
- Use numerical types probe, do not need calibration
- Measurement accuracy up to **±0.2C** and **3%RH**(Depends on the sensor, standard is **±1C**)
- Built-in digital filter reduce interfere, support FHSS technology to prevent signal interference and substitution
- With wireless configuration feature, user can remote operate MRS remote sensor:
Data collect and transmit: User free to set temperature/humidity data sampling interval from 1sec to 10min, update interval from 1sec to 10h.
Alarm signal: MRS provide max 4 alarm threshold(2 channel high/low) and fluctuation limit alarm.
Battery monitor: With inside battery monitor, auto notice user before power run out.
- Data receiver MRR provide variety of communication type. with TCP/IP port, RS232/485 port even provide GPRS remote connection, allow user free to connect to local PC or WEB server



Typical applications

- Plug and Play data router can rely on wired Ethernet.
- Each temperature sensor coverage 10 to 20 square meters area of surveillance
- Sensor design in compact shape, can be easily installed in the warehouse walls, shelves and placed in high-place
- Strong signal penetration capability, suitable for a variety of environments
- Removable design capable network coverage to transit through the 3G network will transmit temperature data in real time to a remote cloud server
- Special power design suitable for any type of vehicle, connected to the cigarette lighter socket, do not need special modifications to the vehicle
- Miniaturized wireless sensors can be placed in a mobile incubator, medicines and food to ensure the full period temperature monitoring
- Optional extension wired probe, can be easily monitor refrigerators, cold storage temperature and other special places
- Optional precision PT100 temperature sensing probes, can achieve the highest resolution 0.1C, and expand measurement range up to 400C
- Excellent anti-interference, can be satisfied multiple sensor in one compact space


MICO-RACE in warehouse

MICO-RACE in trasport

MICO-RACE in distributor

Technical characteristics

Basic parameter:	
MRR unit aux	12V DC (Blue Jay provide 80~240VAC to 12VDC power adapter)
MRS unit aux	3.6V Industrial battery (standard 3000mA, optional 1000mA for mini size)
Working frequency	ISM: 434MHz
Transmit distance (test in 3dbi antenna)	Outdoor: 400m (No occlusion and interference)
	Indoors with walls: Max through 2X35CM concrete wall layer
	Indoors without walls: 50m diameter circular area
Temperature range:	
	Probe inside MRS body: -10~80C (1.0 / 0.5 accuracy)
	Probe with external cable: -20~120C (1.0 / 0.5 / 0.2 accuracy)
	Humidity: 0~99RH (3% accuracy)
	Support other range (use expansion module)
Communication	
Protocol	MicoRace_V6
Network structure	Forest and Nest

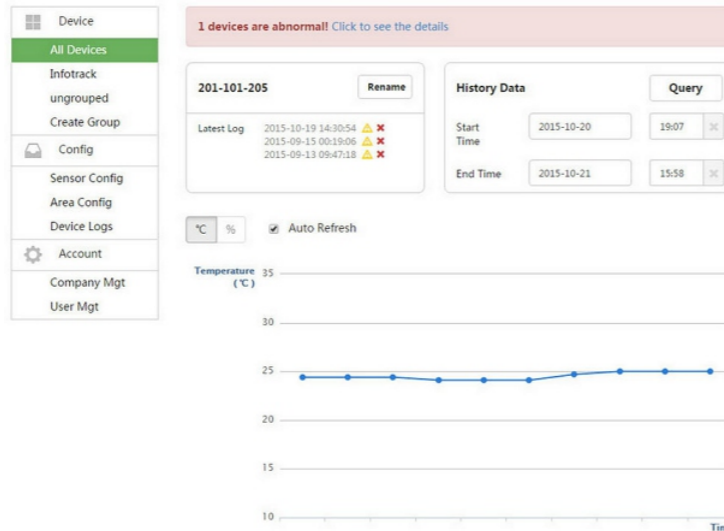
MICO RACE software

Micro Temp Cloud server

Cloud Server only for test, provide following function:

1. MRS sensor data display & record;
2. Remote change MRS upload interval & alarm trigger;
3. Every MRS sensor max 10000 lists record data.

Please ask our sales team for test account and start trial

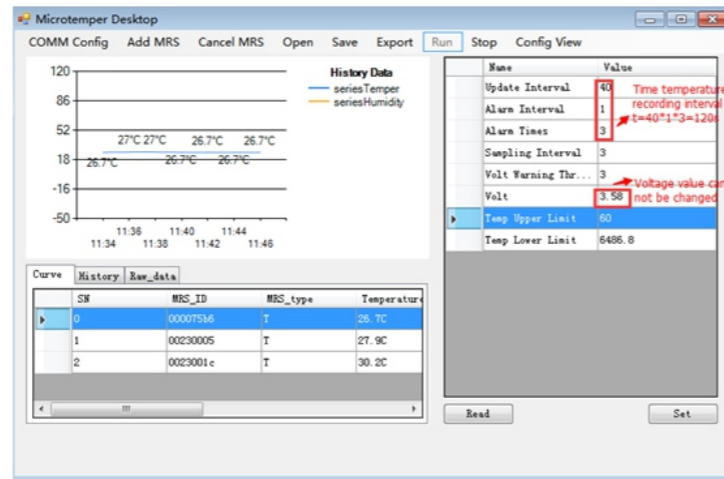


MTD software

Desktop software for single use network and configuration, provide following function

1. Provide each MRS sensor MAX 100 list record data
2. Provide signal detect and display function
3. Provide MRS and MRR advanced parameter configuration
4. Provide real-time curve drawing

This software free to all the client, please download from Blue Jay website



Typical wiring demo



MICO-RACE network mode

MICO-RACE provide two types networking mode, they are used in different applications, we named it Forest Network(FN) & Nest network(NN)

Forest Network

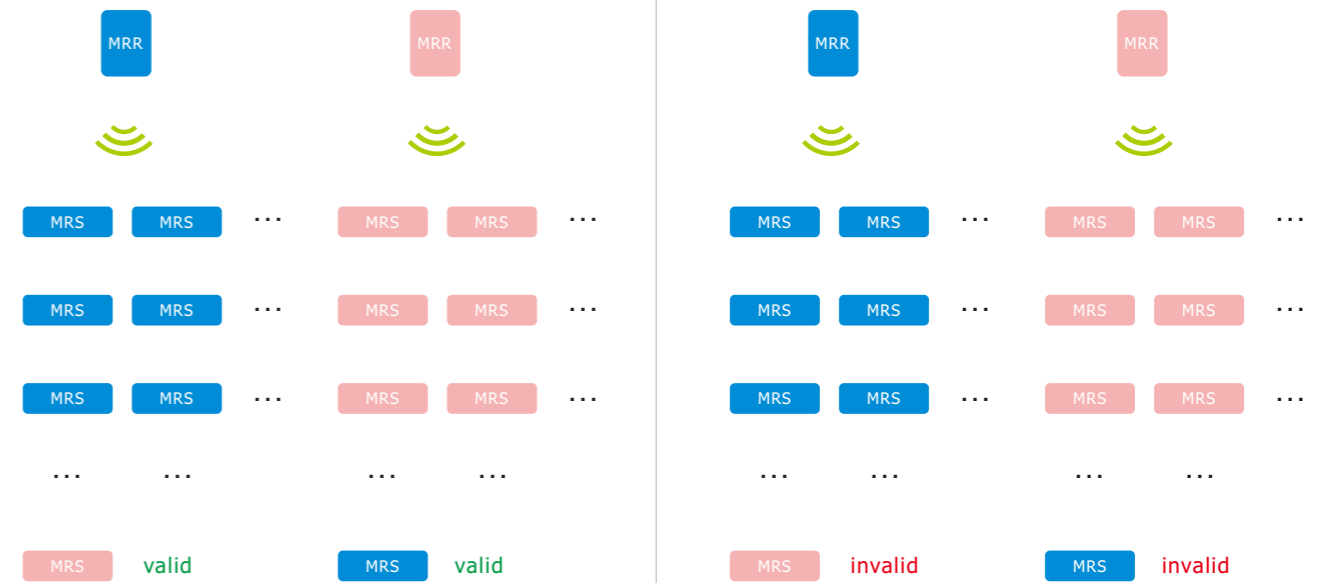
In Forest Network(FN), all the MRR have same data ID, mean MRS under FN can upload data to every MRR receiver.

FN suitable for build large data collect network, generally used in MRS sensor frequent move from one place to another, typical application is Cold Chain Logistics.


Nest network

In Nest Network(NN), every MRR have a unique data ID, after grouped, MRS under NN can only upload data to specified MRR receiver.


NN suitable for build small or medium data collect network, or client want one place have multiple MICO-RACE sensor but data have different upload channel.




Blue Jay Technology provide free Cloud data record system for client test, and our cloud software is based on FN mode, that if no special requirement, in test order we always provide FN mode sensor and receiver. If you need NN mode, please contact Blue Jay Sales team before place your order.

Product Models



MRR-M-GPS
Support GRPS network, with GPS data update, 850/900/1800/1900Mhz, optional 2DI/2DO




MRR-M
Support GRPS network, 850/900/1800/1900Mhz, optional inside battery power supply




MRR-E
With TCP/IP port, standard 12V DC power supply, with DHCP function




MRR-R / MRR-SR
Optional RS-485/RS-232 sub-model
Optional signal repeater model




MRS-TH-W
Temp and humidity integrate type
Measure range: -20~85C, 0~99RH
Accuracy: ±0.5C / ±3%RH




MRS-T-WA
Probe with 1 Meter external cable
Measure range: -20~120C
Accuracy: ±1C



MRS-T-D
Probe internal install type
Measure range: -10~80C
Accuracy: ±1C



MRS-D-II
Water proofed type, IP 65
Measure range: -10~80C
Accuracy: ±1C

Other accessories


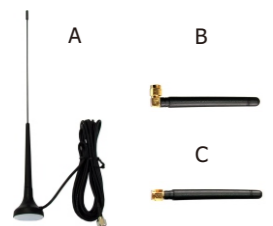
BJ-W2000 On-site display terminal

- 144x144x110mm(139x139mm hole size) panel mounting, large LCD display show receiver collected data.
- Build MRR receiver inside, work with max 12pcs MRS sensor.
- With 2 channel DO for external alarm circuit, especially suitable for electrical industry.
- Provide standard MODBUS-RTU protocol for temp data read.



MRS-ES Sensor for Electrical Switchgear

- The ribbon design for easy installation to power busbar.
- Green/Yellow/Red shell easy Identify different power phase line.
- Built-in 2400mAh battery support 2~4 year working time.



Enhancing Antennas

- Standard 3dbi, optional 7dbi
- Improve MICO-RACE indoor condition working performance
- RP-SMA male connector, style right angle or rob optional

Ordering Information

BJ-MRR - [1] - [2] - [3]

Series Name	Optional Type
[1] series code	E: TCP-IP Ethernet connection, RJ45 port M: GPRS wireless connection (850/900/1800/1900Mhz network) M-GPS: GPRS wireless connection, with GPS function R2: Series port connection, RS232 port(standard DB9 pin female) R4: Series port connection, RS485 port(DB9 pin - A,B,G terminal)
[2] Antenna style	A: Sucker antenna with 3m wire B: Angled type antenna C: Right angle type antenna
[3] Power Adapter	1: 100~240VAC to 12VDC adapter 2: 12V/24V vehicle power adapter

BJ-MRS - [1] - [2] - [3] - [4]

Series Name	Optional Type
[1] series code	T: Temperature detect type (1C accuracy) TH: Temperature & humidity detect type (0.2C & 3%RH accuracy)
[2] Probe type	W: With 1.5meters external wire WA: With 1.5meters external wire, probe connect by Air plugs D: Sensor inside MRS body (case attach the measured surface)
[3] Appearance style	1: 25*25*90mm aluminum case (IP60) 2: 84*58*34mm plastic case (IP65) 3: 40*40*20mm soft silicone case (IP65, only have D type probe)
[4] Antenna style	A: Sucker antenna with 3m wire B: Angled type antenna C: Right angle type antenna

Notes: measurement temp range depends on the probe type, please contact Blue Jay Sales Team for more details

Introduction

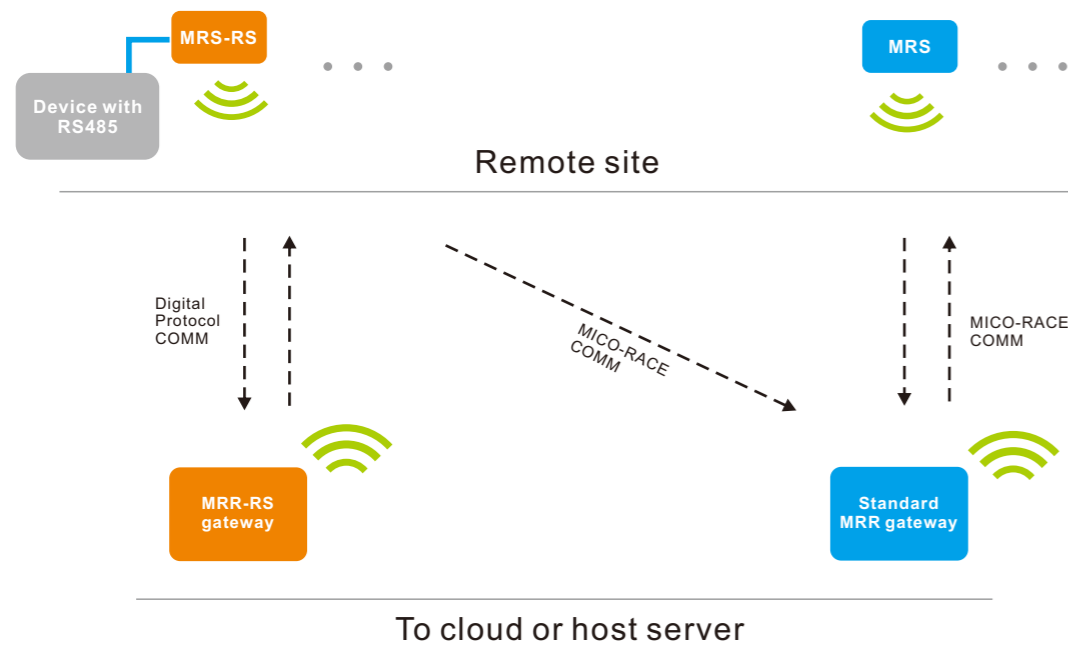
MRR-RS and MRS-RS expansion module are design for supplement application of MICO-RACE system. In some project need use various data sensors, MRS-RS provide RS485 port, can support most digital transducer. use 5Vdc aux power that do not need power adapter, and can add DC-DC converter for work with any dc power line. Compatible with various communication protocols

MRR-RS is on site command transmitter, use for MODBUS and other query-answer protocol. It have Ethernet and Series port optional, can use standard MRR receiver remote configuration, plug and play design suit any project.

Features

- Free to build wireless network with any device have **RS-485** port
- **Maximum radio range: 2KM(outdoor)**
- 5Vdc AUX, optional DC-DC converter for any power line voltage in automatic control system
- Built-in digital filter reduce interfere, support **64 groups** remote unit prevent signal interference and substitution
- Each group **maximum 16 wireless remote unit** without repeater
- Provide Ethernet/GPRS/Serial port gateway for different project

MICO-RACE Typical networking



Hardware specification

Basic parameter:

MRR unit aux	12V DC (Blue Jay provide 80~240VAC to 12VDC power adapter)
MRS unit aux	5V DC (Blue Jay provide 80~240VAC to 5VDC power adapter)
Working frequency	ISM: 434MHz
Channel	64 groups, free to change groups setting via configuration software
Transmit distance (test in 3dbi Omni directional antenna @9.6kbps)	Outdoor: 800m@10dbm/10mW; 2km@17dbm/50mW Indoors with walls: 2X35CM reinforced wall layer @ 10dbm/10mW; 5X35CM reinforced wall layer @ 17dbm/50mW

Communication

Protocol	Refer to original products
Network structure	Star networks, wireless broadcast, simulate RS485 bus

Wireless chip parameter:

Launch power	Adjustable:7dbm~16dbm (1mW~50mW)
Launch current	24mA@10dbm/10mW, 60mA@17dbm/50mW
Receiver sensitivity	-118dbm @2.4 kbps/ -115dbm @9.6 kbps -110dbm @20 kbps/ -100dbm @256 kbps
Wireless rate	2.4~256 kbps (default 20kbps)

Product Models



MRR-E-RS
With TCP/IP port
Provide DHCP function.



MRS-RS
Remote data transmit unit;
RS-485 port connect other device
for wireless connection to MRR



MRR-R-RS
With RS-485/RS-232 connection
Suit for industrial automation upgrade



MRR-M-RS
Support GPRS network,
850/900/1800/1900Mhz,
optional inside battery power supply