F-ICB100

Four-Faith 让万物更加智慧
Bringing Intelligence Across All Beings

F-ICB100 TECHNICAL SPECIFICATION

Version	confidential
V1.0.0	

F-ICB100 is an smart MCB (Miniature Circuit Breaker), which integrates the functions of communication, control, current, voltage, leakage, temperature and power monitoring, realized real-time monitoring, warning, leakage detection and protection of 220V/380V power lines. It has high short circuit capacity. It can provide 1 / 2 / 3 / 4P products, which is widely used in general power supply system, unattended areas, substation and other scenarios.

Topology

SCADA system/APP

Wired network/Modbus TCP

F-ICB100   F-ICB100   F-ICB100

WiFi
Configure via WIFI hotspot

Gateway

RS485/MODBUS-RTU
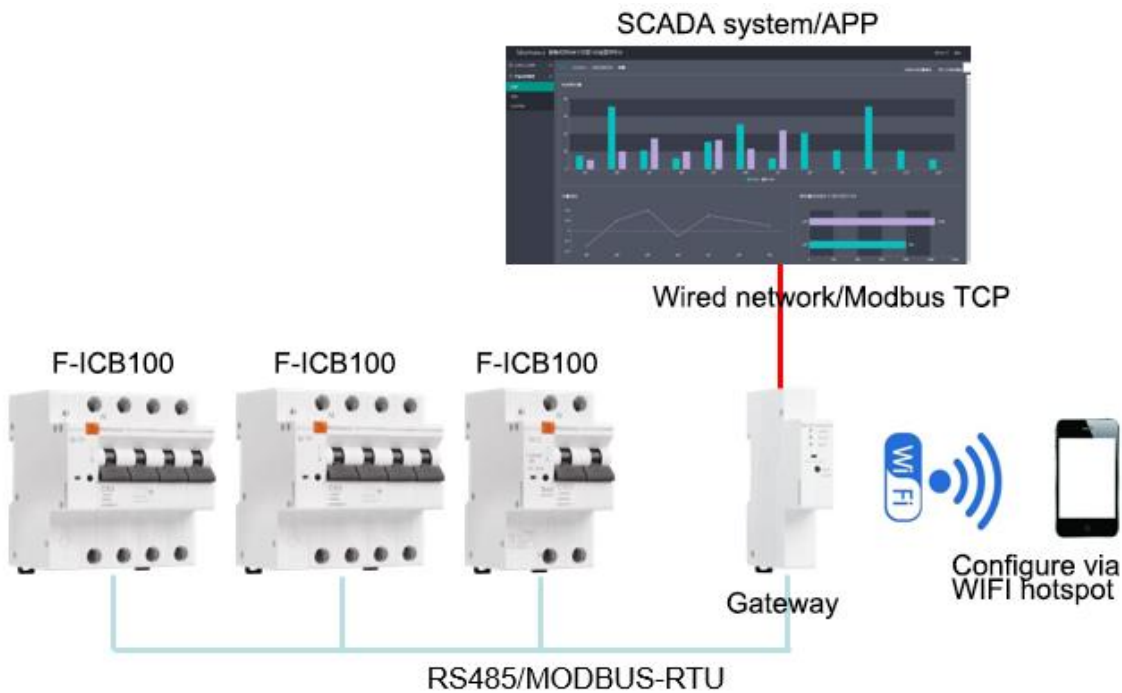
Industrial application

◆   The high performance industrial wireless module is adopted

◆   The high performance industrial 32-bit CPU is adopted

◆   The ABS material shell is adopted and the width of shell is standard 1P(18mm),   Using guide rail installation design.

◆   Support wide power input (DC 5 ~ 36V)

Stable and reliable

◆   The complete anti dropping mechanism is adopted to ensure the terminal is always online

◆   The power interface has built-in reverse protection, over-voltage and over-current protection

◆   The LAN interface has built-in 1.5kV electromagnetic isolation protection

◆   The RS485 interface has built-in 15kV ESD protection

◆   The SIM / UIM card interface has built-in 15kV ESD protection

◆   Lightning protection for antenna interface (optional)

Main function

◆   Supporting 4G/WiFi/Lora/lorawan/NB-IoT and cable transmission (only choose one)

◆   It can provide 1/2/3/4P products, leakage protection function can be selected

◆   Optional single-phase 220V or three-phase 380V monitoring

◆   0.02s open circuit protection in case of short circuit

◆   Support current, voltage, temperature, leakage and power monitoring

◆   Support current, voltage, temperature, leakage, power threshold alarm ,open circuit design

◆   According to the threshold set low voltage and over-voltage warning ,open circuit design

◆   Support Manual putter control，support app/Web terminal management

◆   Support remote leakage self-test and regular leakage self-test

◆   Support timing control, timing On-off and regular self inspection

◆   Alarm indicator, equipment status indicator and network connection indicator

◆   Support remote time calibration and local RTC function

◆   Support remote upgrade, remote configuration, WiFi configuration and local wired configuration

◆   Domestic top fire-proof material, ensure complete flame retardant; silver Moving and static contact, high-grade arc extinguishing material structure

● **Cellular Specification**

Item	Content
Cellular Module	Industrial cellular module
Standard and Band	Support：FDD-LTE、TD-LTE、CDMA2000 1xEV-DO、WCDMA、TD-SCDMA、CDMA1X、GPRS/EDGE Option: Single-module, dual-module, All-Modes Support GSM phase 2/2+ Support GPRS class 10，class 12（option）
Bandwidth	FDD-LTE：Download speed 100Mbps，upload speed 50Mbps TD-LTE：Download speed 61Mbps，upload speed 18Mbps WCDMA：Download speed 42Mpbs，upload speed 5.76 Mbps TD-SCDMA：Download speed 4.2Mbps，upload speed 2.2Mbps CDMA2000 1xEV-DO Rev. A：Download speed 3.1Mbps，upload speed 1.8Mbps GPRS/EDGE：171.2kbps/384kbps
TX power	<24dBm
RX sensitivity	<-109dBm

● **NB-IoT Specification**

Item	Content
Standard and Band	B5：850MHz B8：900MHz B20：800MHz
Bandwidth	100bps~100Kbps
TX power	23±1dBm
RX sensitivity	<-129dBm

● **LoRa Specification**

Item	content
Standard and Band	410MHz - 441MHz，1000KHz，advice 433±5MHz， 433.0Mhz default
Indoor/Urban Range	1km
Outdoor Range Line-of-Sight Range	3.5km
TX power	100mW
Bandwidth	6 level, 0.3、0.6、1.0、1.8、3.1、5.5Kbps
RX sensitivity	＜-140dBm

● **WIFI Specification**

Item	Content
Standard and Band	Support IEEE802.11b/g/n standard
Bandwidth	IEEE802.11b/g：54Mbps（max） IEEE802.11n：144Mbps（max） 20MHz/40Mhz （optional）
Security	WEP、WPA、WPA2 etc，WPS（optional）

TX power	15±2dBm
RX sensitivity	<-72dBm@54Mbps

hardware system

Item	Content
CPU	Industrial 32bits Communication CPU
FLASH	16MB
DDR2	128MB

interface type

Item	Content
LAN	1 10/100 Mbps WAN port(RJ45), auto MDI/MDIX, 1.5KV magnetic isolation protection
Serial port	1 RS232(or RS485/RS422) port, 15KV ESD protection Data bits: 5, 6 ,7, 8 Stop bits: 1, 1.5(optional), 2 Parity: none, even, odd, space(optional), mark(optional) Baud rate: 2400~115200 bps
Indicator	"Online"、"System"、"Alarm" etc
Antenna	Cellular: 1 Standard SMA female interface, 50 ohm, lighting protection(optional) WIFI: 2 Standard I-PEX interface, internal antennas
SIM/UIM	Standard 3V/1.8V user card interface, 15KV ESD protection
Power	Standard 3-PIN power jack, reverse-voltage and overvoltage protection
Key	long press 10s make the MCU return to its original factory default settings、 Press 1s to add MCU function

power supply

Item	Content
Standard Power	DC 12V/1.5A
Power range	DC 5～36V

physical character

Item	Content
Housing	ABS material shell, guide rail installation design, the width of shell is standard 1P (18mm)
Dimensions	90*66*18mm
Weight	75g

environmental limits

Item	Content
Operating Temperature	-35～+75℃
Storage Temperature	-40～+85℃
Operating Humidity	95%

● product model

Model	Description	Cellular Module	LAN	WIFI	LoRa	SIM	RS485
F-ICB100	smart MCB	/	1	2	/	/	1
F-ICB100-L	LTE smart MCB	1	1	2	/	1	1
F-ICB100-NB	NB-IoT smart　MCB	1	1	2	/	1	1
F-ICB100-LR	LoRa smart　MCB	/	1	2	1	/	1