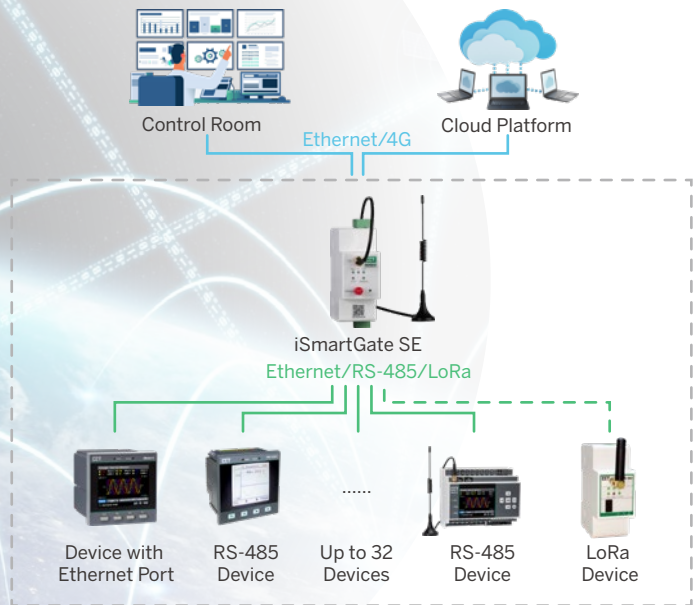# iSmartGate SE
Intelligent Gateway

Overview

iSmartGate SE is an intelligent Gateway that provides one 10/100BaseT Ethernet port, one RS-485 port, one built-in 4G module as well as one optional wireless LoRa port. Featuring with DIN-Rail mounting and compact construction, it is an ideal equipment that serves as a gateway to connect RS-485 and/or LoRa enabled devices to an IP-based Ethernet LAN over an Ethernet network or 4G network for any SCADA or Automation applications. With extensive protocols such as Modbus RTU, Modbus TCP, IEC 60870-5-104 (IEC 104), AnyPolling, etc., the iSmartGate SE facilitates access to various end devices, data storage and upload, and edge computing for efficient and reliable data management. It also supports Multicast Transmission, allowing simultaneous data push to multiple recipients. Further, the iSmartGate SE has been specifically designed with industrial automation in mind and therefore provides un-surpassed performance and reliability under the harshest industrial or commercial environments.

Features

- 1x10/100BaseT (RJ45) and 1xRS-485 are designed to withstand the harshest industrial environments
  - 1.5kV isolation protection for the Ethernet port
  - 15kV (contactless) & 8kV (contact) ESD protection and 3kV isolation protection for the RS-485 port
- One standard Built-in 4G LTE CAT4 modem
- One optional LoRa port with configurable ISM Bands for EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925
- Transparent Gateway between Ethernet port and RS-485/LoRa
- Data logging via Ethernet, RS-485 or LoRa
  - Maximum 32 downstream devices per iSmartGate SE
  - Real-time parameters logging, or configured to perform data logging from 1-minute to 60-minute intervals

- Data log push to external via Ethernet or 4G
  - Multicast Transmission, up to 2 cloud platforms
  - Extensive protocols support: Modbus TCP, IEC 104, Anypolling, TCP Client, etc.
  - Automatic IP assignment using DHCP and DNS domain name resolution
- Support creating virtual devices and performing calculations on virtual data
- Remote Configuration and Debugging using scanning QR codes
- Simple configuration via free software PMC-EasyCom
- Time Synchronization with an error of less than 0.5 seconds per day
- One-key Reset to Factory Default
- DIN-Rail Mounting
- Extended operating temperature

Typical Application Diagram

Control Room — Cloud Platform
Ethernet/4G

iSmartGate SE
Ethernet/RS-485/LoRa

Device with Ethernet Port — RS-485 Device — Up to 32 Devices — RS-485 Device — LoRa Device

Technical Specifications

Communication		
Ethernet Port	-	10/100 Mbps
	Protocol	TCP, UDP, HTTP
RS-485	Baudrate	300/600/1200/2400 /4800/9600/19200/38400 bps
	Data Bits	5, 6, 7, 8
	Stop Bits	1, 2
4G LTE CAT4 Modem		4G LTE: B1/B3/B5/B7/B8/B20/B28/B38/B40/B41
		3G DC-HSPA+/HSPA/UMTS: B1/B5/B8
		2G GSM: 900/1800 MHz
LoRa (Optional)	RF Range	860-935 MHz
	ISM Bands	EU863-870, RU864-870, IN865-867, US902-928, AU915-928, AS920-923 and AS923-925
	RF Output Power	18 dBm (Maximum)
	Receiver Sensitivity	-136 dBm (Maximum)
	Output Watts	0.03 (Typical)
	FCC Part 15C	Certified by TCB

Power Supply (L/+, N/-)	
Standard	95-250VAC/DC, 47-440Hz
Optional	12-36VDC
Burden	≤3W

Protection	
ESD Protection	8kV (contactless) & 6kV (contact)
Isolation Protection	3kV for RS-485 1.5kV for Ethernet Port

Environmental Conditions	
Operating Temperature	-25°C to +70°C
Storage Temperature	-40°C to +85°C
Humidity	5% to 95% non-condensing
Atmospheric Pressure	70kPa to 106kPa

Mechanical Characteristics	
Unit Dimensions	36x65x90mm
Mounting	DIN-Rail Mounting

EMC Compatibility

CE EMC Directive 2014/30/EU (EN 61326: 2013)

Electrostatic Discharge	EN 61000-4-2: 2009
Radiated Fields	EN 61000-4-3: 2006 +A1: 2008 +A2: 2010
Fast Transients	EN 61000-4-4: 2012
Surges	EN 61000-4-5: 2014 +A1: 2017
Conducted Disturbances	EN 61000-4-6: 2014
Magnetic Fields	EN 61000-4-8: 2010
Voltage Dips and Interruptions	EN 61000-4-11: 2004 +A1: 2017

Emission Tests	
Limits and Methods of Measurement of Electromagnetic Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	EN 55011: 2016
Electromagnetic Compatibility of Multimedia Equipment-Emission Requirements	EN 55032: 2015
Limits for Harmonic Current Emissions for Equipment with Rated Current ≤ 16 A	EN 61000-3-2: 2014
Limitation of Voltage Fluctuations and Flicker in Low-Voltage Supply Systems for Equipment with Rated Current ≤ 16 A	EN 61000-3-3: 2013
Emission Standard for Residential, Commercial and Light-Industrial Environments	EN 61000-6-4: 2007 +A1: 2011

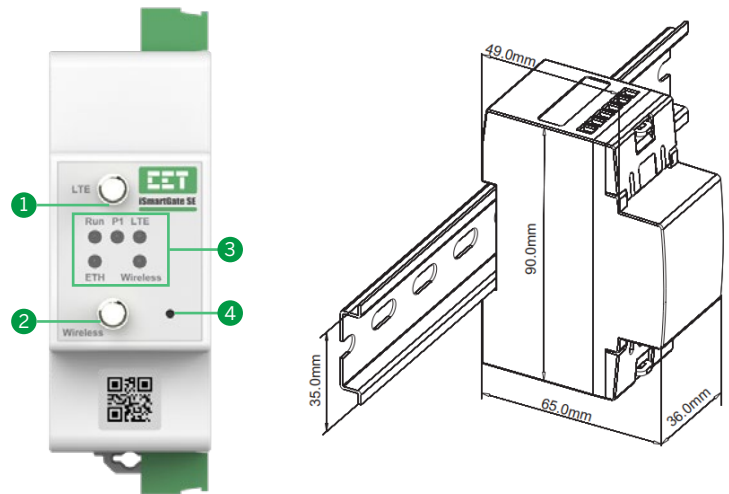| Mechanical Tests	
Free Fall	IEC 60068-2-31: 2008
Vibration	IEC 60068-2-6: 2007
Shock	IEC 60068-2-27: 2008

Standards of Compliance

Safety Requirements	
Audio/Video, Information and Communication Technology Equipment-Part 1: Safety Requirements	IEC 62368-1: 2018

Ordering Information

Product Code						Description
iSmartGate						
Basic Function	SE					Modous TCP/RTU Gateway and Transparent Gateway
Wire Comm.		T101				1x10/100BaseT +1xRS-485
Wireless Comm.			G1			4G +LoRa
			GN			4G
Power Supply				2		95-250 VAC/DC
				B		12-36 VDC
Language					E	English
iSmartGate	- SE	- T101	- G1	- 2	E	iSmartGate-SE-T101-G1-2E (Standard Model)

Dimensions and Terminal Diagram

1. LTE: 4G Antenna Interface
2. Wireless: LoRa Antenna Interface
4. Reset Key

3. LED Indicators
   - Run- Device Running Status
   - P1- RS-485 Comm. Status
   - LTE- 4G Comm. Status
   - ETH- Ethernet Comm. Status
   - Wireless - LoRa Comm. Status

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