

Airsprint-1051N

4G/LTE IOT Gateway

Introduction

Airsprint-1051 is a cost effective all-in-one 4G/LTE IOT Gateway ideal for OEM applications where performance and compactness are key requirements. Ease of configuration for field engineers is ensured using an Android App connected over Bluetooth. Configurations can be sent over Whatsapp to be downloaded in the field. However configuration over the air thru MQTT and SMS is also available to ensure remote configuration. Inbuilt Totalisers are provided for Analog & Digital Pulse Inputs to cater to Flowmeter applications. Upto three Inputs can be configured for sending Alerts thru SMS based on Thresholds or can be sent at Periodic intervals thru SMS. Data is sent over 4G /LTE thru MQTT protocol to broker of choice.

Applications

- Genset Monitoring Water Flow Meter, Deep Borewell Level Monitoring
- Solar Panel Monitoring Energy Management
- Distribution, Power Transformers, RMU Machine OEE

Features

- 4 x Digital Inputs
- 2 x Analog Inputs
- 2 x Digital Outputs
- 10-30 VDC Aux Pwr
- RS-485 Communication interface
- Modbus RTU Protocol
- 4G/LTE Connectivity, Single SIM, MQTT Protocol



Remote Modbus Device /
Analog & Digital Process Parameters

Features	Description
Configuration	
Settings	Over Bluetooth using Android App, SMS, thru MQTT over Cloud
FOTA	Firmware update over 4G/LTE
SSL	SSL certificate download thru Bluetooth ,over 4G/LTE
2 x Analog Input	
Measuring Range	Scalable Linear to Engg Units
Alarm Threshold	Threshold setting for > ,< ,= . Alarm Trigger enables SMS and /OR MQTT payload
Totaliser	Analog Input Totaliser , Signal Conditioning for Flow :- Initial , Reset , Minimum
Periodic SMS	Periodic /Timed SMS for Instantaneous /Totalised Values
4 x Digital Inputs	
Type	Normal / Fast DI / Pulse input
Trigger	On High /Low/Both ; SMS upto 10 Numbers with Custom message, MQTT payload on Trigger
Fast DI	1 msec transient detection , SMS/MQTT trigger
Pulse Input	Upto 8000 Hz Pulse Count , Use Case : Pulse Type Watermeter I/P
1 x Modbus RS485	
Modbus Read	Upto 16 Slave ID with 16 registers each (Float ,Unsigned Integer , Long integer)
	Flexibly could have 1 Slave ID with 256 registers
Modbus Write	Write facility to 10 registers at a time in Modbus
2 x Digital Output	
Output Type	Latched Output / Pulse Output
	Pulse Output (Settable ON Time) . Use Case : Remote DOL Starter , FPI Reset
Status on Re-Power	Output can either fallback to Failsafe Condition or Restart with Keep Last State
TIME SYNC	
NTP	Configurable NTP time server for Time sync hourly
RTC	Inbuilt RTC with Battery backup
RTC Config	RTC time settable thru App in case Time Server is not accessible
SMS FEATURES	
Mobile Numbers	Send SMS to upto 10 Numbers
SMS Digital Event	SMS can be triggered on DI High / Low or Both ,Custom message for each DI High & Low
SMS Analog Event	SMS can be triggered on Analog Value >,< or = to a threshold value
SMS System Event	SMS on AC / Battery Mode , Battery Low
SMS Modbus Event	Upto 3 Modbus Parameters can be configured for SMS alert based on Analog Threshold setting
PERIODIC/TIMED SMS	A SMS can be sent on a Periodic Basis (Hourly/Daily) or on a Timed Basis (Time of Day), upto 3 parameter in message

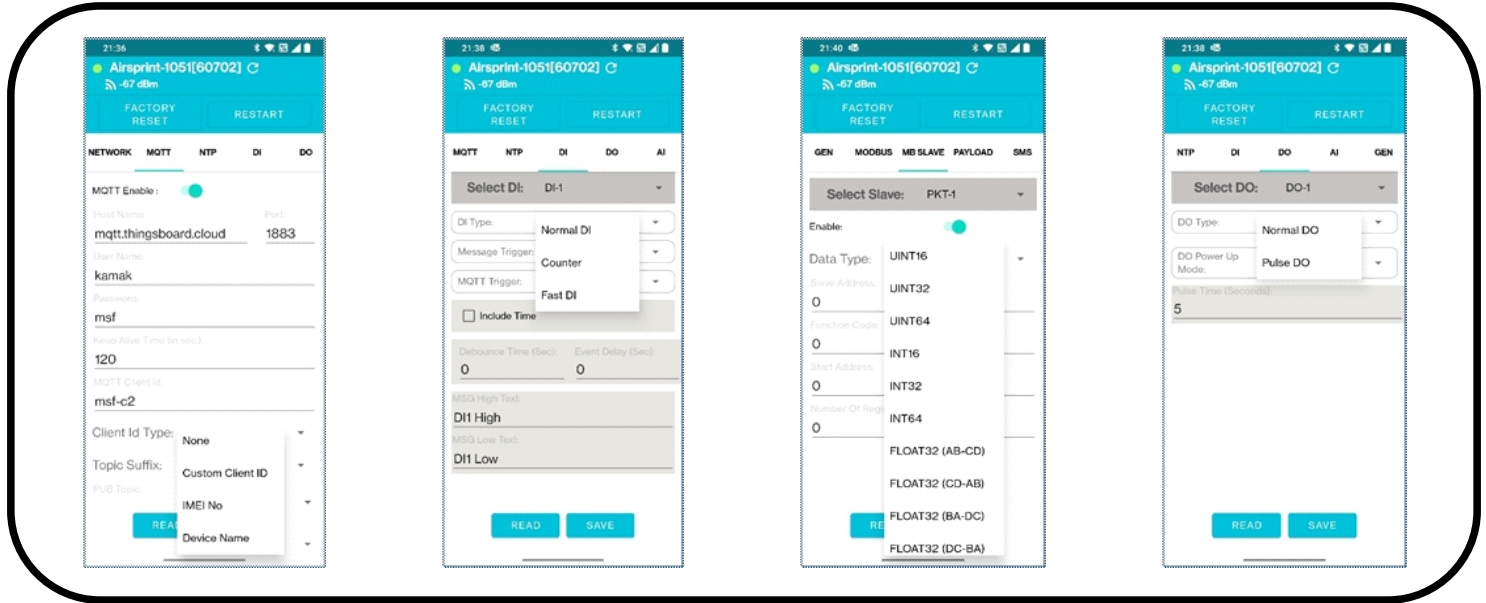
Number of Events	Maximum 3 Events (Trigger & Timed Combined)
MQTT/ MQTTS PAYLOAD	
MQTT/MQTTS	Configurable Broker IP, Port No., User Name, Password, Client ID, Topic Name
Timestamp	Configurable Timestamp : Text or Epoch (secs, msecs)
Custom Key values	Additional key value add on like Device Name , Signal Strength
Payload Format	MQTT Payload : JSON {Thingsboard Compatible }
Payload Interval	MQTT Periodic Interval settable (secs) , Minimum : 10 secs
Payload Trigger	MQTT Payload immediate Publish based on EVENT
Topic Format	Topic Name can be configured to end with IMEI Number / Device Name / Client ID
SIM	
Number of SIMS	Single Micro SIM , Push to Lock type Metal SIM Socket
SIM Type	10 Digit Data SIM and 13 Digit M2M SIM
Carriers Supported	Airtel, Vodafone, Reliance JIO and BSNL 4G /LTE

Specifications

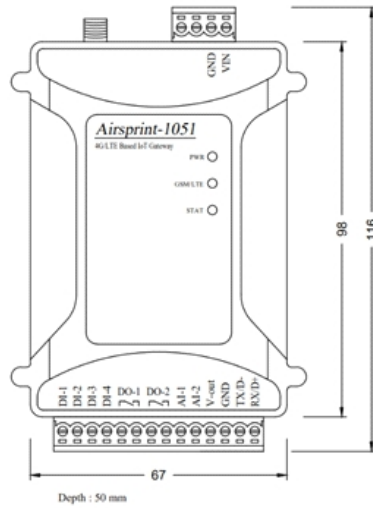
Hardware	
CPU	ST Microelectronics Arm® 32-bit Cortex®-M4 CPU with FPU, 48 MHz Internal Clock
RAM, FLASH MEMORY	64KB SRAM , 256 KB Flash Memory
Digital Inputs	4 x Optoisolated Digital Inputs (5000V isolation) , Common Ground
Analog Inputs	2 x Analog Inputs (12 bit ADC with inbuilt calibration)
Digital Outputs	2 x Relay Output (Potential Free Contact 5A 30VDC , 5A 250 VAC)
Hardware Restart	Watchdog Timer
Visual Indication	3 x SMD LED's for Power Status , GPRS & Server Connected , Modbus Comm
RS485	RS485 Transceiver Enhanced ESD Specifications: ±15kV IEC61000-4-2 Air Discharge, ±8kV IEC61000-4-2 Contact Discharge ,Current-Limiting and Thermal Shutdown for Driver Overload Protection
Antenna	SMA(F) for Antenna Connection . 5dbi Magnetic antenna with 3 mtrs antenna cable with SMA (M) at the other end provided.
Component Temp. Rating	-40 °C to 85 deg C
Pulse Input	Upto 8000 Hz Pulse Count , Use Case : Pulse Type Watermeter I/P
2 x Analog Input	
Measuring Range	Scalable Linear to Engg Units
Alarm Threshold	Threshold setting for > ,< ,= . Alarm Trigger enables SMS and /OR MQTT payload
Totaliser	Analog Input Totaliser , Signal Conditioning for Flow :- Initial , Reset , Minimum
Periodic SMS	Periodic /Timed SMS for Instantaneous /Totalised Values
4 x Digital Inputs	
Type	Normal / Fast DI / Pulse input
Trigger	On High /Low/Both ; SMS upto 10 Numbers with Custom message, MQTT payload on Trigger
Fast DI	1 msec transient detection , SMS/MQTT trigger
Pulse Input	Upto 1000 Hz Pulse Count , Pulse Type Watermeter I/P
Modbus RS485	
Interface	RS-485;isolated
Baudrate	1200 ~ 115200 bps
Data format	N ,8,1
Protocol	Modbus RTU
Max. Modules on same bus	16 with 16 parameters each (UINT,FLOAT ,LONG)
Power	
Input Range	+10- 30 VDC
Battery	Optional : Inbuilt 11.2 VDC Li-ion Battery with and external 12 V ,2A Charger adapter .
Power Consumption	24 W
Mechanical	
Dimensions (W x H x D)	80 x 120 x 50 mm
Cable Length	-
Battery	-
Installation	Wall Mount ; Optional DIN Rail Adaptor
Termination	Removable Screw Terminal
Environment	
Operating Temperature	-25 to 75 degC

Storage Temperature	-30 to 80 degC
Ambient Relative Humidity	0 95% RH, non - condensing

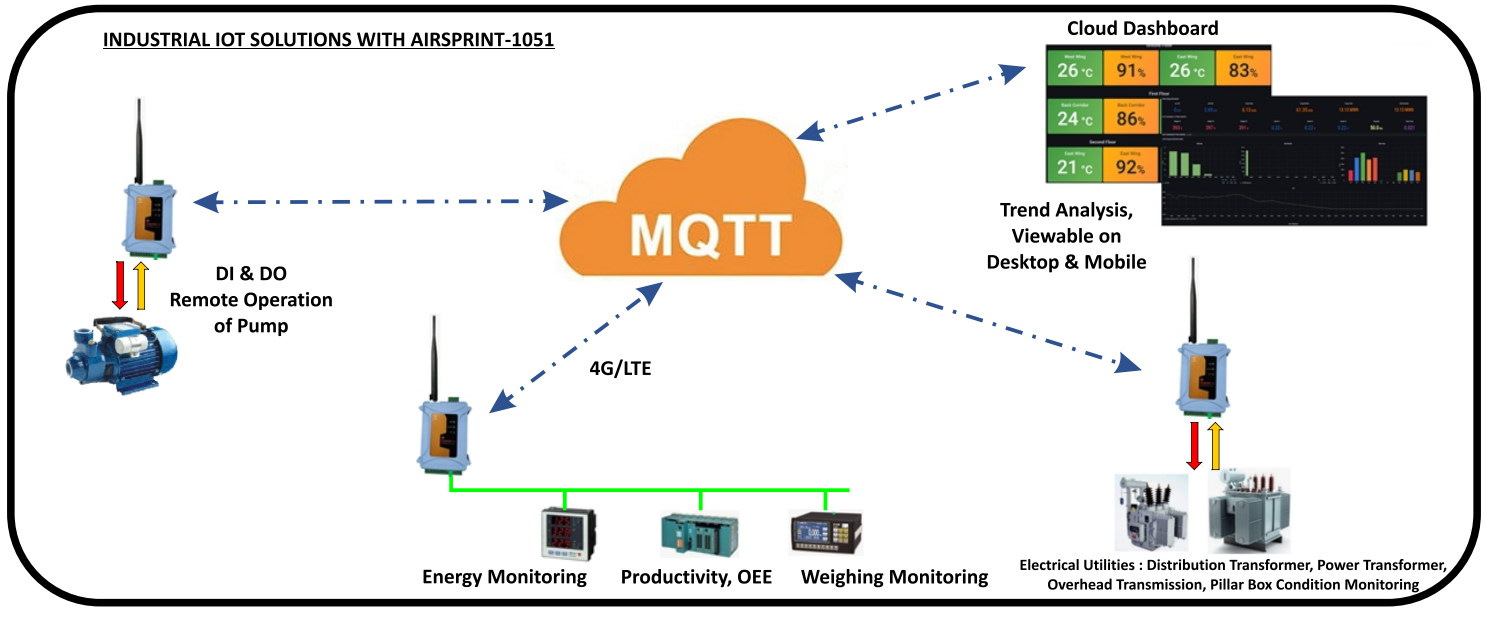
Configuration Software



Dimensions in mm



Use Case Schematic



Ordering Info:-

1. Airsprint-1051 : 4G/LTE IOT Gateway with 4 x DI, 2 x AI , 2x DO , Modbus 485 Aux Pwr: 10-30 VDC
2. Airsprint-1051-1 : 4G/LTE IOT Gateway with 4 x DI, 2 x AI , 2x DO , Modbus 485 , Inbuilt Li-ion Battery Backup Aux Pwr: 12 VDC , 2A Adaptor I/P : 230 VAC



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