



... the level & gas people

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Wireless Communication in Process Automation

Applications of Wireless

<p>Process Industries</p> <ul style="list-style-type: none"> • Tank level monitoring on mobile & computer. • Temperature profiles. • Utility plant alarms. • Remote operation of water pumps from mobile, computer & feedback in mobile. • Monitoring of fire fighting and safety systems. • Various parameters like temperature, pressure, flow and level on mobile as well on computer. 	<p>Oil & Gas</p> <ul style="list-style-type: none"> • Well head and pump monitoring system. • Pipeline pressure, flow and valve monitoring. • Pump/compressor station control system. • Monitoring of process parameters in oil gathering station. • Monitoring of concentration of combustible gas in the plant on mobile & computer. • Monitoring of fire at the flare outlet.
<p>Water Management</p> <ul style="list-style-type: none"> • Pump station control. • Water distribution. • Water leak detection • Tank monitoring level and security. • Water quality monitoring. • Early flood warning systems. • Operation of tubewells each scattered at long distance. • Automatic operation of valve at a particular time from mobile as well as from computer. 	<p>Environmental Monitoring</p> <ul style="list-style-type: none"> • Weather station monitoring. • Rain gauge & Wind direction. • Wind speed & Temperature. • Air pollution. <p>Electricity Distribution</p> <ul style="list-style-type: none"> • Monitoring of power poles. • HV feeder alarm fault monitoring. • Switch ON/OFF street light from mobile with timer.

Introduction

Automat has developed wireless device which enables sensors and actuators to communicate through wireless network using various technologies.

A. GPRS Wireless Gateway (Transceiver) Based Technology

B. 5.8 GHz Wireless Ethernet RTU Based Technology (Licence free frequency)

C. GSM Wireless Mobile Based Technology

A. GPRS Wireless Instrument/ GPRS Wireless Gateway(Transceiver) (600GPRC)

Wireless Gateway (Transceiver)-600GPRC belongs to the family of series 600 and effectively integrate, serial modbus devices to IP management system via GPRS. It is a powerful reliable tool for communication of modbus based field mounted instruments. Many industrial devices like PLC, I/O, Data Loggers etc. support RS485 modbus protocol.

Wireless Transceiver -600GPRC provide flexible solution for industrial application for monitoring & control of process parameters. 600GPRC is designed to operate in harsh environment and its enclosure is of aluminum alloy & suitable for weather proof, explosion proof & dust proof applications. This consist of serial port for modbus Data.

There is a provision for inserting SIM Card in SIM Card Holder. This plug & play solution is easy to install in a short time. Facility to store data in case of failure of mobile network.

The application of 600GPRC is to measure various process parameters like level, temperature, pressure & flow etc & also electrical parameters like Voltage, Current, KW, KWH, KVA, Power Factor. There is also a provision to operate control valves etc. from Computer. The analog data from process instrument is converted to digital data which is connected to serial port of wireless transceiver -600GPRC.

Features

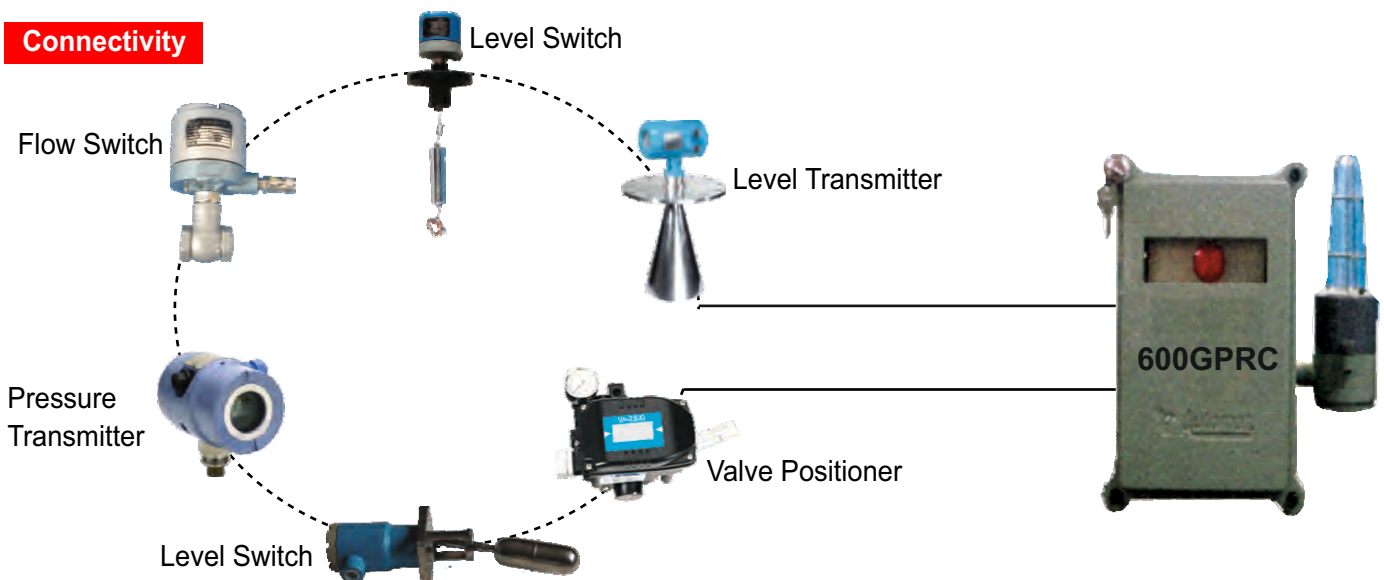
- GPRC600 works with GPRS enabled SIM Card
- Remote antenna can be provided in locations where network is weak.
- Facility to store data in case of failure of mobile network.
- Graphical, Tabular presentation and trend monitoring along with alarm management.
- Alarm & status handler (notifications via SMS, E-mail)
- Data logging with graphical trend graphs
- Easy configuration using onboard web pages.
- Communication from analog / digital Transmitter to Transreceiver can be done by Rs232 or Rs485 Port.



Specifications

Power Supply	24 V DC	Distance	Unlimited.
Power consumption	1-5W	Text on Mobile	Possible
Temperature	-20 to 55°C	Mounting	Wall /2"Pipe
Humidity	5 to 85% RH	Mobile Selection for Msg.	Possible
GSM / GPRS	Supports GSM	Communication of SMS	Possible on Crossing Set Point
Ethernet	10/100mbit/s	Humidity	10 to 90% (Non condensing)
Serial Port # 1	Rs232 upto 115.2 kbit/s	Electrical connection	½" NPT (dual cable entry)
Serial Port #2	Rs485 upto 115.2 kbit/s	Mobiles for communication	10 Nos.
Network	GSM	GSM / GPRS	Supports GSM Quadrand Band freq. 850/900/ 1800/1900MHz
Communication	COM1- Programming Port Rs232 COM2 - GSM Port	Time for communication	30 Sec. (per Mobile depending upon Network Strength)
Electrical classification	a) Weather proof IP 66 b) Explosion proof IIA, IIB		

Connectivity



B. 5.8 GHz Wireless Ethernet RTU (600ET & 600ER) Communication with Line of Sight

The Wireless Transmitter provides flexible solution for industrial application for monitoring and controlling of process parameters like level, flow, pressure, temperature etc.

The Data Transmitter along with Wireless Transreceiver 600ET and 600ER provide flexible solution for industrial application. Data Transmitter is designed to operate in harsh environment and its enclosure is of aluminum alloy & suitable for weather proof, explosion proof & dust proof applications. This is a standalone device, is plug & play solution

& easy to install in a short time . Sealed electronic plug & play module eliminate inter-connecting wires which helps for easy maintenance, replacement & servicing.

The application of Data Transmitter along with Wireless Transreceiver 600ET & 600ER is to receive Analog/Digital (on/off) Process Parameters from Field and communicate to Customer Device like PLC, DCS, Computer etc. by wireless communication.

Features

- Sealed Pluggable Electronic Modules saves inter-connecting wires
- 32 Bit Processor
- This transmitter can operate with Computer/SCADA software or without Computer
- There is a facility for data logging/graph/alarm & historical data.
- There is a facility for inbuilt communication failure.
- Upto 90% installation and commissioning saving over traditional cable based solution.
- Any sensor or device with analog digital output can be directly connected to 600ET
- Intelligent Quos Priority is given to voice/video for seamless streaming.
- Scalability High capacity and capability.
- Long Distance Capable of high-speed, carrier-class links.
- Latency multiple feature dramatically reduce noise.



Specifications of Antenna for Point to Multipoint Communication (Model No. - 600ER)

Range	5Km/30Km Line of Sight
Dimensions Lx Wx H	799 x 90 x 65 mm (Mount Included)
Weight	820g (Mount Included)
Networking Interface	(1) 10/100 Ethernet Port
Enclosure	Outdoor UV Stabilized Plastic
Frequency	5.8 GHz
Gain	13 dBi
Wind Survivability	200 km/h(125 mph)
Wind Loading	12lb @ 100mph
Mounting	universal Pole Mount, Rockent M Bracket, and Weatherproof RF Jumpers included

For Example 5.8 GHz Connectivity

Analog & Digital Signal from & to Reclaimer, Stacker & Control Room through Wireless Communication

Model No-600ER
Omni Antenna

Model No-600ET
Point to P Antenna

Reclaimer

Stacker



Control Room



ANALOG & DIGITAL
INPUT/OUTPUT



Specifications of Antenna for Point to Point Communication (Model No. - 600ET)

Range	5Km/30Km	Output Power	25dBm
Dimensions	370 x270x 260mm	Max. Power Consumption	3W
Weight	1.452kg	Power Supply	24V, 0.5A PoE Adapter (Included)
Networking Interface	10/100 Ethernet Port	Wind Survivability	200 km/h(125mph)
Enclosure	Outdoor UV Stabilized Plastic	Wind Loading	34.7 N @ 200km/h
Frequency	5.8Ghz	Operating Temperature	-30 to 70°C
Gain	23 dBi	Operating Humidity	5 to 95% Noncondensing

C. GSM Wireless Mobile Instrument (Model 600 GSM)

Wireless Transreceiver 600-GSM is Integral unit, which belong to the family of series 600 and effectively integrate, process instruments for communication. It is independent system & is a powerful reliable tool for communication to mobile units and gives command to field Instruments.

Wireless Transreceiver 600GSM provide flexible solution for industrial application for monitoring of process parameters. 600-GS is designed to operate in harsh environment and its enclosure is of aluminum alloy & suitable of weather proof, explosion proof & dust proof applications. This is a standalone device, is plug & Play solution & easy to install in a short time.

The application of 600-GSM has got the functions to receive Digital ON/OFF signals as well as analog signal from Process Instrument. It can also operate relay by sending SMS from Mobile

Sealed electronic pluggable module eliminate inter connecting wires which helps for easy maintenance, replacement & servicing.

This low-cost, high performance, robust "all-in-one" design for several different application

Possibility of Other:- Wireless Communication Technologies

1. RFID upto 15 Meters.
- 2.Communication of Process Parameter Through Lorawan Technology

Features

- 600-GSM Transreceiver works on GSM network. This is equipped works with SIM Card.
- Up to 90% installation & Commissioning cost saving over traditional cable based solution
- SMS message interval can be set to repeat from 3 minutes to 24 hours..
- Facility for repeat message at set interval.
- Repetition of one message on particular mobile can be programmed.
- The communication status is available on LED provided with the instrument.
- SMS communication to mobiles phone is within 60 seconds depending upon Network.
- Transreceiver 600-GSM receives AI or DI Signal for communication to mobile.



Specifications

Network Transreceiver input	GSM AI (Analog Inputs Digital (ON/OFF) Inputs DO (Digital Output)	Temperature Humidity Electrical connection Electrical classification	60°C 5 to 85%RH ½" NPT (dual cable entry) a) Weather proof IP 66 b) Explosion proof IIA, IIB
Power Supply Text on Mobile No of Mobile for Communication	24 V DC Possible 10 Nos. or more	Mounting Distance	Wall /2" Pipe Unlimited.
Simcard Time of communication	Supports GSM Quadrand Band frequencies 850/900/1800/1900MHz Within 60 Sec. per Mobile depending upon Network Strength		

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