IOT SOLUTION PACKAGE FOR GREENHOUSE

daviteq

SKU: IOTPK-GRH

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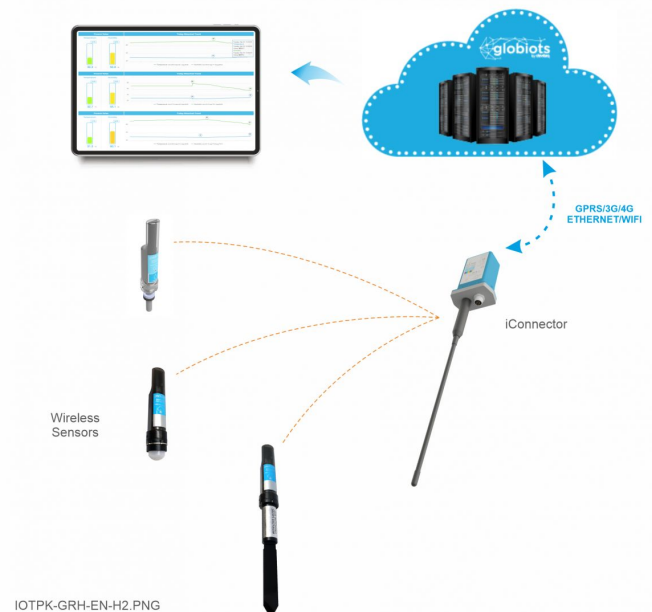IOTPK-GRH

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IoT solution package for greenhouse is a comprehensive solution (hardware and software) which applies IoT technology and Sub-GHz wireless technology to monitor environment parameters of plastic greenhouse, polyhouse, net house, shade house in smart agriculture applications. The system uses iConnector IoT gateway to collect data from Sub-Ghz wireless environment sensors and to transmit the data to on premise server or remote cloud server for storing, analyzing, reporting, alarm, monitoring and managing environment conditions in the houses. This solution package displays and automatically controls at site as an option and be expanded to monitor other parameters in the houses.

The IoT solutions package ensures optimal environment condition to keep plants healthy and prosperous. With this solution package, customer identify and handle timely causes of abnormal environment conditions as well as could save time, human and other resources. Moreover, the package monitors remotely, automatically, continuously, anywhere, anytime to make customer peace of mind and to optimize customer's return on greenhouse investment.

ANYWHERE, ANYTIME MONITORING
The system automatically collect data 24/7 and monitor from any place on any device (desktop, laptop, tablet)

TRUE WIRELESS SENSOR
Battery-operated wireless and wireless connection to gateway result in 100% wireless sensor

EASY UPGRADE AND EXPANSION
The system could be upgraded functions, reports and expanded monitoring scope

QUICK SYSTEM DEPLOYMENT
"True wireless" sensor and remote configuration make system deployment so simple

INVESTMENT OPTIMIZATION
Wireless technology reduce cable and wiring cost. Customized cloud technology optimizes software cost

FAST SYSTEM MAINTENANCE
Wireless sensor technology facilitates to check, identify, and troubleshoot problem quickly and simple

IoT SYSTEM DIAGRAM

GPRS/3G/4G
ETHERNET/WIFI

iConnector

Wireless Sensors

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SPECIFICATION

HARDWARE	
Wireless temperature, humidity sensor	Humidity 0 .. 100 %RH, +/- 2.0%, res 0.1%. Temperature -40 .. + 85 oC, +/- 0.2 oC, res 0.1 oC. Data speed: Up to 50kbps. Transmission distance, LOS: 1000m. Battery: 01 x AA 1.5-3.6VDC, up to 10-year operation, depends on configuration. Frequency Band: ISM 433 Mhz, Sub-GHz technology from Texas Instrument, USA. Security Standard: AES-128. Housing: Poly-carbonate, IP67.
Wireless soil moisture sensor	Frequency Domain Reflectometry technology, moisture 0 .. 100 %, acc +/- 3.0% , res 0.01%, temperature -30 .. + 70 oC, acc +/- 0.3 oC, res 0.1 oC, EC 0 .. 20 mS/cm, acc +/- 2.0% span, res 0.1 mS/cm, measurement volume Dia. 70mm x Height 70mm, wetted materials 316L SS & thermoplastic, sensor dimensions 71x45x16mm with probes 70mm and signal cable 2m, data speed up to 50kbps, transmission distance LOS 500m, internal antenna 3 dbi, battery 01 x AA 1.5, frequency band ISM 433Mhz, Sub-GHz technology from Texas Instrument, USA, housing poly-carbonate, IP68
Wireless ambient light sensor	Measurement range 0..83865.6, linearity 5% when the light is less than 40 lux, temperature drift 0.01% / oC when light intensity is about 2000 lux, data speed up to 50kbps, transmission distance LOS 500m, internal antenna 3 dbi, battery 01 x AA 1.5, frequency band ISM 433Mhz, Sub-GHz technology from Texas Instrument, USA, housing poly-carbonate, IP67
iConnector IoT gateway	Transmit data from different wireless sensors to cloud server or on premise server through 3G cellular network or Ethernet network or wifi network. Connect to the sensors using wireless RF 433 MHz. Connect maximum 35 wireless sensors and monitor up to 70 parameters. 2MB internal memory, power 7..48VDC, avg 200mA, IP 67. Optional: 2 relays and GPS
Server	Cloud server service or on premise server to install IoT Globiots software system. Server capacity depends on total monitored parameters, number of iConnector and expansion plan for near future. There are 3 types of server: 1. Daviteq's cloud server: suitable for monitoring from some parameters to some thousand parameters, operated and maintained by Daviteq's IoT system specialists, backup operation with high reliability. 2. Daviteq's industrial server: industrial standard, durable, reliable, fanless server, operated in tough environment, place in any location, three types of server: NANO server for maximum 1000 parameter monitoring, MICRO server for max 2000 parameters, MINI server for max 6000 parameters. 3. Customer's available server: suitable for big customer, monitoring for some hundred parameters and strict security policy.
SOFTWARE	
IoT Globiots software system	Collect and analyze data, visualize dashboard and report, notify alarm and event. Configure remotely system, iConnector, parameter, event, alarm, dashboard, report, and user authority. Send alarm, event by email, SMS. Push data to third-party software/application using API. Basic report as below: 1. Current environment status report 2. Historical trend for environment conditions during selected period 3. Alarm, event list reports during selected period

AGRICULTURE SUB-GHZ WIRELESS SENSORS

Ambient Humidity

Soil Moisture

Ambient Light

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iCONNECTOR IoT GATEWAY

CELLULAR VERSION

ETHERNET VERSION

WIFI VERSION

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CURRENT ENVIRONMENT CONDITION REPORT

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ENVIRONMENT CONDITIONS HISTORICAL REPORT
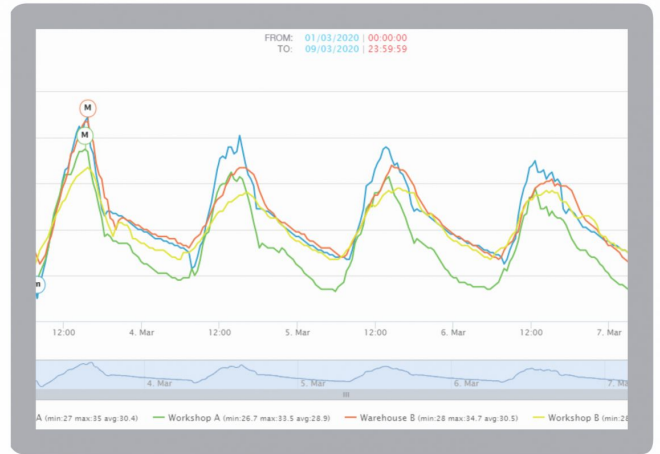
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ALARM, EVENT LIST REPORT

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REPORTS ON MOBILE DEVICE (SMARTPHONE, TABLET)

Dashboard
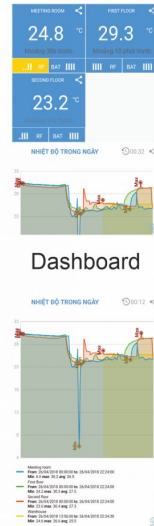
Alarm List

Historical chart

Event list

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ORDERING INFORMATION

ITEM CODE	DESCRIPTION
STANDARD PACKAGE	
i. WIRELESS SENSORS	
WS433-M12F	Wireless Sensor Transmitter 433Mhz, compatible with all DULP sensor modules, AA 1.5VDC battery, IP67
ATH-11	Compact ambient Humidity & Temperature Sensor DULP module, M12-male connector
WS433-SMT-02	Wireless Soil moisture and EC sensor 433Mhz, IP67/IP68, sensor cable 2m
WS433-AL-01	Wireless ambient light sensor 433Mhz, AA 1.5 - 3.6VDC battery, IP67
II. iCONNECTOR IoT GATEWAY	Select one of following iConnector
STHC-ISG02DB-WS433-CL-04	iConnector 3G Dual Band*, integrated wireless co-ordinator, RS485 ModbusRTU
STHC-ISGWF-WS433-CL-04	iConnector WiFi*, integrated wireless co-ordinator, RS485 ModbusRTU
STHC-ISGETH-WS433-CL-04	iConnector Ethernet, integrated wireless co-ordinator, RS485 ModbusRTU
III. SERVER AND SOFTWARE	Select one of server + software or software only or cloud server
ISV-NANO-0100	Industrial NANO Globiots Server included software, 0100 parameters, upgradable to 1000 parameters
ISV-MICRO-0300	Industrial MICRO Globiots Server included software, 0300 parameters, upgradable to 2000 parameters
ISV-MINI-0500	Industrial MINI Globiots Server included software, 0500 parameters, upgradable to 6000 parameters
CS-PREGLOBIOTS-0100	Premium Globiots software package, 0100 Parameters, upgradable to unlimited***
CS-CLOUDGLB-01Y-00XX	CloudGlobiots subscription for 1 year operation, excluded SMS package
IV. ACCESSORIES	
2M-FM12CAB4x0.25	M12 4pin Female connector with control Cable Cu/PVC/OS/PVC 4x0.25mm2, L=2m, Rohs, Shield 80%
SIMMOBI-3G	Mobifone Data SIM CARD, only SMS receiving mode. Only use with iConnector 3G
SIMMOBI-10K-01Y	12-month data plan for SIM CARD, GPRS/EDGE/UMTS/HSPA. Only use with iConnector 3G
OPTIONS	
AA-ALKALINE-E91	AA Alkaline Energizer E91 battery
CONTROLER-GH	Greenhouse controller with screen for automatic control
WS433-DI-12	Wireless 2 Digital inputs with dry-contact of voltage input max 3.3VDC, battery AA 1.5VDC
WS433-RL-12	Wireless relay module with 02 x SPDT relay, 5.0A@250VAC, IP67, power supply 8..50VDC
CO2-01	CO2 DULP module. Use with WS433-M12F
WS433-CL-04	Wireless co-ordinator, external antenna, RS485 ModbusRTU
CS-PREGLOBIOTS-0050	License for additional parameters of Premium Globiots software, 0050 Parameters, No SMS
PWR-24-2-1	12VDC/2A power adapter 110/220VAC with M12-female connector
CS-SMSVIE-MBF	SMS notification package, 100 SMS in Vietnam