ALTA Wireless IoT Sensors Kit

Remote Real Estate

Kit Data Sheet

"Things" are talking.

ALTA Remote Monitoring Systems enable "things" to speak. Wireless sensors, gateways and software give a voice to the IoT (Internet of Things) and allow business-es to leverage data, protect resources & save money.

For example, "things" can speak up when conditions are met that indicate an asset is at risk. The Monnit ecosystem (50+ sensor types) detects changes in variables (such as a temperature, water presence, door position, electrical current and voltages) to employ an **autonomous wireless sensing** solution that protects your bottom line.

Kit Components

Sensors

Humidity
AA Battery, Scientific-grade (± 3% accuracy)

Motion
AA Battery, PIR, 16.4' sensor detection range

Open / Closed
Coin Cell Battery, 0.75" operational gap

Water Detect Plus
AA Battery, 3' lead wire / water detection probe

Gateway (choose from the following types)

3G Cellular (pictured in the kit above)
AT&T (USA), Rogers (Canada), w/ Battery Backup

Ethernet
100% Comprehensive - no PC or subscription req'd

Software

iMonnit Premiere Software
(45 days free trial,
basic version always free)

Accessories

Quick Start Guide, Mounting Hardware, Power supplies, Antennas

FAST System Setup

15 min. or less

Build an IoT sensor network in 15 minutes or less! Monnit IoT & RF experts are standing by to help you quickly establish your monitoring system.

Email: info@monnit.com, Phone: 801-561-5555, Web: www.monnit.com

The only 1000' / 10-yr. IoT Sensors Platform in the World

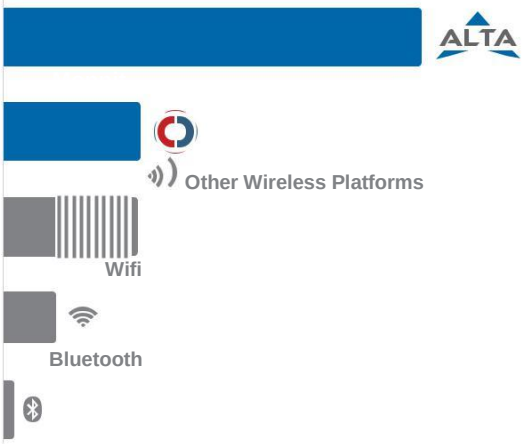
1000'+ Wireless Range
/ 10-yr. Battery Life

ALTA™
Monitoring. Things.

Enterprise-grade Performance

- 1,000+ ft. Wireless Range (through 12+ walls or ceilings, non line-of-sight)*
- Frequency Hopping Spread Spectrum (FHSS) / Interference Immunity
- Improved power management for longer battery life.** (10+ years on AA batteries or Industrial)
- Encrypt-RF™ Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages).
- Onboard data memory - up to 512 readings / sensor
  - 10 minute heartbeats = 3.5 days
  - 2 hour heartbeats = 42 days
- Over-the-air updates (future proof)
- Free iMonnit basic online monitoring and notification software (configure sensors, view data and set alerts via SMS text, email and/or voice calls)

* Wireless range my vary according to environment.
** Battery life determined by sensor reporting & other variables



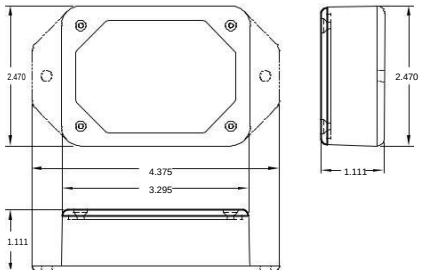
ALTA Wireless Humidity Sensor (AA)

The ALTA Wireless Humidity (RH) Sensor allows you to accurately monitor the relative humidity of the air within a room or enclosure.

- ♦♦ Measures relative humidity, temperature and dew point with high accuracy.

Up to 10-Year Battery Life

- ♦♦ AA Battery Powered



Technical Specifications

Supply Voltage		2.0 - 3.8 VDC (3.0 - 3.8 VDC Using Power Supply) *
Current Consumption		0.2 µA (Sleep Mode) 0.7 µA (RTC Sleep) 570 µA (MCU Idle) 2.5 mA (MCU Active) 5.5 mA (Radio RX Mode) 22.6 mA (Radio TX Mode)
Operating Temperature Range (Board Circuitry and Batteries)		-18°C to 55°C (0°F to 130°F) using alkaline -40°C to 85°C (-40°F to 185°F) using lithium **
Optimal Battery Temperature Range (AA)		+10°C to +50°C (+50°F to +122°F)
Power Options		1.5V AA batteries (included) Line-power w/ AA battery backup option available
Humidity Sensor	Accuracy	± 3% under normal conditions (10% - 90% RH) ***
	RH Operating Range	0 – 100% RH ***
	RH Response Time	8 sec (tau 63%) ***
Wireless Range		1,000+ ft. (through 12+ walls or ceilings / non line-of-sight)
Security		Encrypt-RF™ (256-bit key exchange and AES-128 CTR)
Integrated Memory		Up to 512 sensor messages
Weight		3.7 Ounces
Certifications		900 MHz product FCC ID: ZTL- G2SC1 IC: 9794A-G2SC1

Industry Canada

* Hardware cannot withstand negative voltage. Please take care when connecting a power device.
** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.
*** View charts contained in the verbose version of the product's datasheet at Monnit.com.

Click here for complete data sheet

Principle of Operation

HUMIDITY

The ALTA Wireless Humidity (RH) Sen-sor allows you to accurately monitor the relative humidity of the air within a room or enclosure.

Measures relative humidity, tempera-ture and dew point with high accuracy.

Options & Add-ons

Power Options

- ♦♦ AA Battery
  - ◊◊ Line Power (optional, w/ AA backup)
- ♦♦ Coin Cell Battery (smaller form factor)
- ♦♦ Industrial (replaceable lithium)
  - ◊◊ Solar (optional, w/ Lithium battery backup)

Durability Grades

- ♦♦ Industrial (Outdoors, weather & shock proof casing)
- ♦♦ Commercial (Indoors, AA and Coin Cell)

Operating Frequencies

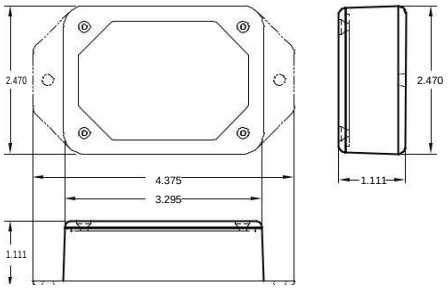
- ♦♦ 900 MHz

ALTA Wireless Motion Sensor (AA)

The wireless motion detection sensor uses an infrared sensor to accurately detect movements made by people, animals or other things within 16.4 ft (5 m) range.

Up to 10-Year Battery Life

- AA Battery Powered

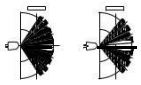


Technical Specifications		
Supply Voltage		2.0 - 3.8 VDC (3.0 - 3.8 VDC Using Power Supply) *
Current Consumption		0.2 µA (Sleep Mode) 0.7 µA (RTC Sleep) 570 µA (MCU Idle) 2.5 mA (MCU Active) 5.5 mA (Radio RX Mode) 22.6 mA (Radio TX Mode)
Operating Temperature Range (Board Circuitry and Batteries)		-18°C to 55°C (0°F to 130°F) using alkaline -40°C to 85°C (-40°F to 185°F) using lithium **
Optimal Battery Temperature Range (AA)		+10°C to +50°C (+50°F to +122°F)
PIR Motion Sensor	Detection Range	16.4 ft (5 m)
	Reted Consumption Current (Standby)	Typical: 170 µA, Max: 300 µA
	Warmup Time	30 Seconds
Wireless Range		1,000+ feet (through 12+ walls or ceilings / non line-of-sight)
Security		Encrypt-RF™ (256-bit key exchange and AES-128 CTR)
Integrated Memory		Up to 512 sensor messages
Weight		3.7 Ounces
Certifications		900 MHz product FCC ID: ZTL- G2SC1, IC: 9794A-G2SC1

Industry Canada

* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.



Click here for complete data sheet

Principle of Operation

The wireless motion detection sensor uses an infrared sensor to accurately detect movements made by people/animals within 16.4 ft (5 m) range. The Wireless Motion Detection Sensor detects motion and movement using infrared technology. When the sensor detects movement it communicates with the iMonnit Online Sensor Monitoring and Notification System. Notifications can be set up through the online system to alert the user when motion has been detected.

Options & Add-ons

Power Options

- AA Battery
  - Line Power (optional, w/ AA backup)
- Coin Cell Battery (smaller form factor)
- Industrial (replaceable lithium)
  - Solar (optional, w/ Lithium battery backup)

Durability Grades

- Industrial (Outdoors, weather & shock proof casing)
- Commercial (Indoors, AA and Coin Cell)

Operating Frequencies

- 900 MHz

ALTA Wireless OPEN / CLOSED Sensors

The ALTA Wireless Open / Closed Sensor uses a magenetic switch to detect when a door or window is opened or closed. The position of the contact provides the system data that can be purposed for applications such as access control, occupancy monitoring, energy management, etc.

Data Sheet (short version) click here for long version

Technical Specifications

Supply Voltage		2.0 - 3.8 VDC (3.0 - 3.8 VDC Using Power Supply) *	
Current Consumption		0.2 µA (Sleep Mode) 0.7 µA (RTC Sleep) 570 µA (MCU Idle)	2.5 mA (MCU Active) 5.5 mA (Radio RX Mode) 22.6 mA (Radio TX Mode)
Magnet Contact	Magnetic Switch	SPST, gold under -plating with Deactivated Rhodium outer-plating (capable of 50 million activations)	
	Operational Gap	Up to 0.75”	
	Wire Leads	22 gauge / 15 inch length	
	Magnet	Alnico magnet / Weatherproof, high-impact ABS plastic covering with self-adhesive backing	
	Temperature Range (Magnet)	-15° to 160°F (-25° to 70°C)	
Wireless Range (900 MHz)		1,000’+ (through 12+ walls or ceilings / non line-of-sight)	
Security		Encrypt-RF™ (256-bit key exchange and AES-128 CTR)	
Integrated Memory		Up to 512 sensor messages	
Certifications	Industry Canada	900 MHz product - FCC ID: ZTL- G2SC1 IC: 9794A-G2SC1 UL Listed (Industrial): UL508-4x specifications (File E194432)	

Power Options / Form Factors	AA Batteries	Coin Cell	Industrial 3.6V Lithium (1800 mAh capacity)
Operating Temperature Range (board circuitry + batteries) **	0° to 130°F (-18°-55°C) alkaline, -40° to 185°F (-40° - 85°C) lithium	20° to +140°F, (-7° - 60°C) **	-40° to +185°F (-40° - 85°C)**
Optimal Operating Temperature Range (batteries) **	+10° to +50°C (+50° to +122°F)		-40° to +85°C (-40° to +185°F)
Weight	3.7 oz.	0.7 oz.	4.7 oz.
Enclosure	High impact ABS Plastic	High impact ABS Plastic (w/ PinchPower enclosure)	IP65, NEMA 4X, CE, sealed, weather & shock proof
Dimensions (click #s to view dimensional drawings)	4.375” x 2.470” x 1.120”	2.000” x 1.125” x 0.875”	3.701” x 2.316” x 1.378”

* Hardware cannot withstand negative voltage. Please take care when connecting a power device.
** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

Solar-Powered Option (available with “Industrial” version only)

Solar Panel: 5VDC / 30mA (53mm x 30mm)

Charging Temperature Range: 0° to 45°C (32° to 113°F)

Max. Temperature Range: -20° to 60°C (-4° to 140°F)

Rechargeable Battery (Included): 600 mAh / >2000 Charge Cycles (80% of initial capacity)

Principle of Operation

The ALTA Open / Closed Sensor uses an external magnetic switch to detect the presence or removal of a trigger magnet. When the sensor detects that the magnet is removed or returned, it sends the information to the iMonnit Online Sensor Monitoring and Notification System. The data is stored in the online system and can be reviewed and exported. Notifi - cations can be setup through the online system to alert the user when a magnetic source is present or not present - with the ability to specify notifications within time-of-day parameters.

Get IoT Started
801-561-5555
info@monnit.com
www.monnit.com

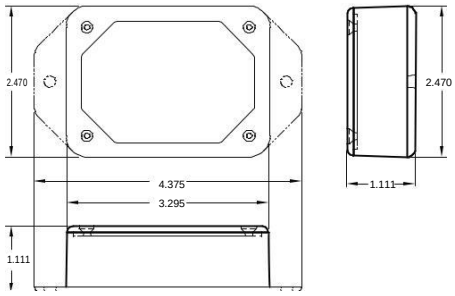
ALTA Wireless Water Detect Plus Sensor (AA)

Sensor immediately detects presence or non-presence of water.

- ♦♦ 3 ft. lead wire / water detection probe
  - ♦♦ Mounting tabs for positioning at set level above floor to prevent false positives

AA Battery Powered

- ♦♦ Up to 10-Year Battery Life



Technical Specifications

Supply Voltage		2.0 - 3.8 VDC (3.0 - 3.8 VDC Using Power Supply) *
Current Consumption		0.2 µA (Sleep Mode) 0.7 µA (RTC Sleep) 570 µA (MCU Idle) 2.5 mA (MCU Active) 5.5 mA (Radio RX Mode) 22.6 mA (Radio TX Mode)
Operating Temperature Range (Board Circuitry and Batteries)		-18°C to 55°C (0°F to 130°F) using alkaline -40°C to 85°C (-40°F to 185°F) using lithium **
Optimal Battery Temperature Range (AA)		+10°C to +50°C (+50°F to +122°F)
Water Detect Plus Sensor	Probe Wire Length	3 ft. (36 in.)
	Probe End	2 prong conductive detector
	Detection Wires	High Impedance
Wireless Range		1,000+ ft. (through 12+ walls or ceilings / non line-of-sight)
Security		Encrypt-RF™ (256-bit key exchange and AES-128 CTR)
Integrated Memory		Up to 512 sensor messages
Weight		3.7 Ounces
Certifications FC Industry Canada		900 MHz product FCC ID: ZTL- G2SC1, IC: 9794A-G2SC1

* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

Principle of Operation

WATER DETECT

The ALTA Wireless Water Detection Plus Sensor detects when water is present by completing the circuit between the two prongs at the end of the water probe. When water is present the sensor will immediately turn on the RF radio and trans-mit the data to the wireless gateway and iMonnit Online Sensor Monitoring and Notification System, allowing the user to immediately receive an SMS text or email alert. The sensor can be configured to detect both the presence and non-presence of water.

Options & Add-ons

Power Options

- ♦♦ AA Battery
  - ◊◊ Line Power (optional, w/ AA backup)
- ♦♦ Coin Cell Battery (smaller form factor)
- ♦♦ Industrial (replaceable lithium)
  - ◊◊ Solar (optional, w/ Lithium battery backup)

Durability Grades

- ♦♦ Industrial (Outdoors, weather & shock proof casing)
- ♦♦ Commercial (Indoors, AA and Coin Cell)

Operating Frequencies

- ♦♦ 900 MHz

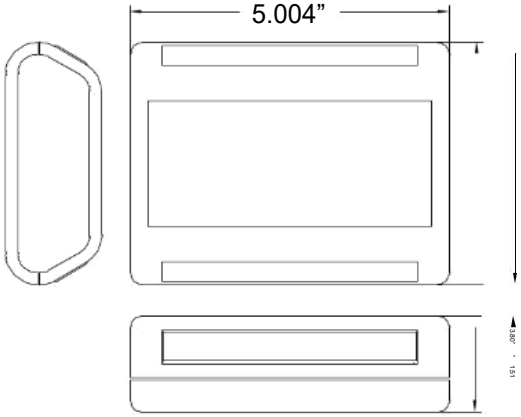
ALTA 3G Cellular Gateway

True plug & play, no hassles for Internet configuration setup

No PC required for operation

Low-cost cellular service packages

Local status LEDs with transmission and online status indicators



Technical Specifications

Cellular	
Carriers Support	AT&T (USA), Rogers (Canada)
Cellular Technology	UMTS Frequency Range: 850 / 1700 / 1900 MHz
Antenna	Connector: SMA Gain (dBi): 1.5
SIM Card Compatibility	Mini-SIM (2FF) 25 mm x 15 mm x 0.76 mm
Power	
Input Power	5.5 VDC @ 2.5 A
Optional Battery Backup	Battery Type: Rechargeable Lithium Polymer
	Battery Duration: Up to 24 hours
	Battery Cycle Life: 500 times
Mechanical	
LEDs	Cellular Status LED, Online Status LED, Sensor Network Status LED
Device Memory:	50,000 sensor messages (Sensor messages will be stored in the event of Internet outage and transferred when connection is restored)
Enclosure	ABS
Dimensions	5.004 x 3.8 x 1.51 in.
Weight	7 ounces
Environmental	
Operating Temperature	-10 to +70 °C (14 to 158 °F)
Storage Temperature	-20 to +85 °C (-4 to 185 °F)
Wireless	
Wireless Range	1,000+ ft. (through 12+ walls or ceilings / non-line-of-sight)
Security	Encrypt-RF™ (256-bit key exchange and AES-128 CTR)
Certifications Industry Canada	FCC: ZTL- G2SC1, FCC: RI7HE910 IC: 9794A-G2SC1 and IC: 5131A-HE910

Principle of Operation

The ALTA Cellular Gateways are based on the latest Dual-band CDMA and 3G wireless protocols and come integrated with Monnit’s wireless access point network (WAN) for use with all Monnit wireless sensors.

The ALTA Cellular Gateway is an advanced all wireless M2M gateway that enables fast time-to-market solutions for a wide range of M2M and partner applications as well.

Options & Add-ons

Carriers

- ♦♦ CDMA
  - ◊◊ Sprint
  - ◊◊ US Cellular
- ♦♦ 3G
  - ◊◊ AT&T (USA)
  - ◊◊ Rogers (Canada)

Protocol

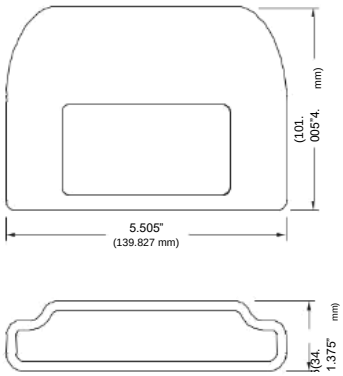
- ♦♦ Cellular
  - ◊◊ CDMA
  - ◊◊ 3G
- ♦♦ Ethernet
- ♦♦ USB

Operating Frequency

- ♦♦ 900 MHz

ALTA Ethernet Gateway

The ALTA Ethernet gateway allows your ALTA Wireless Sensors to communicate with the iMonnit™ Online Wireless Sensor Monitoring and Notification System without requiring a PC. Simply plug this device into any open network port with internet connection and it will automatically connect with online servers. With the graphical iMonnit software, you can easily configure your network, view collected sensor data and set alarms through SMS or e-mail.



Technical Specifications

Ethernet	
Ethernet Types	Standard, POE
Antenna	Connector: SMA Gain: 5.0 dBi (900 MHz Product) 3.0 dBi (868 and 433 MHz Product)
Hardware	10/100 Ethernet Controller
IEEE Standard Compliance	802.3-2002
Operation:	Full- and Half-Duplex
Cross-Over Correction	Automatic MDI/MDI-X
Addressing	Pre-programmed MAC Address
Host Address	t1.sensorsgateway.com
Default Port	3000
Protocols Supported	UDP, DHCP, TCP, SNMP, MODBUS
Cable Connector	Cat 5
Device Memory	16,000 sensor messages (Sensor messages will be stored in the event of Internet outage and transferred when connection is restored)
Power	
Power Supply	5.5 V AC adapter or 5.5 V Power-Over-Ethernet adapter *
Mechanical	
LEDs	H/W status, iMonnit connection status, sensor data activity
Enclosure	ABS plastic
Dimensions	4.0 in x 5.5 in x 1.375 in (139.85 mm x 101.75 mm x 34.95 mm)
Weight	12.6 ounces
Environmental	
Operating Temperature	-10 to +70 °C (14 to 158 °F) **
Storage Temperature	-20 to +85 °C (-4 to 185 °F)
Wireless	
Wireless Range	1,000+ ft. (through 12+ walls or ceilings, non line-of-sight)***
Security	Encrypt-RF™ (256-bit key exchange and AES-128 CTR)
Certifications FC Industry Canada	900 MHz product - FCC ID: ZTL- G2SC1 and IC: 9794A-G2SC1.

* Hardware cannot withstand negative voltage. Please take care when connecting a power device.
** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.
*** Actual range may vary depending on environment.

Data Capturing Options - Data collected by the Ethernet Gateway from the sensors in the network can be accessed when these interfac-es are turned on. Multiple interfaces can be active at the same time. All interfaces require that the Ethernet gateway be set to a Static IP address. (By default, the unit uses DHCP). The following data capturing options are supported:

SNMP Poll and Trap Interface • MODBUS TCP Interface • Real Time TCP Interface

Durability Grades

Commercial Grade

If not specified as “Industrial Grade”, all ALTA sensors are commercial grade and are designed for applications in ordinary environments (normal room temperature, humidity and atmospheric pressure). Do not use these sensors under the following conditions as these factors can deteriorate the product characteristics or cause failures.

- Corrosive gas / De-oxidizing gas (chlorine, hydrogen sulfide, ammonia, sulfuric acid, nitric oxides, etc.)
- Volatile or flammable gas
- Dusty conditions
- Under low or high pressure
- Wet or excessively humid locations
- Places with salt water, oils chemical liquids or organic solvents
- Where there are excessively strong vibrations
- Other places where hazardous conditions exist

Use these product within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality.

Industrial Grade

Type 1, 2, 4, 4X, 12 and 13 NEMA Rated Enclosure

ALTA Industrial sensors are enclosed in reliable, weatherproof NEMA rated enclosures. Our NEMA rated enclosures are constructed for both indoor or outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose directed water).

- Safe from falling dirt
- Protects against wind blown dust
- Protects against rain, sleet, snow, splashing water, and hose directed water
- Increased level of corrosion resistance
- Will remain undamaged by ice formation on the enclosure

Options & Add-ons

Sensor Power Sources

AA Battery

AA battery powered sensors are commercial grade and are ideal for indoor sensor networks. AA sensors are able to achieve up to a 10-year battery life.

Line Power (w/ AA Battery Backup)

AA battery powered sensors can be upgraded to support line-powered operations.

Coin Cell Battery

Coin cell battery powered sensors offer the smallest form factor of all power options. Coin cell sensors are able to achieve up to a 5-year battery life.

Industrial Lithium Battery

Industrial sensors are powered by a replaceable lithium battery. Industrial sensors are ideal for indoor sensor networks. Industrial sensors are able to achieve up to a 10-year battery life.

Solar

Industrial Grade Sensors can be upgraded to support solar powered operations.

RF Operating Frequency

In North America, ALTA wireless products operate using the license-free 900 MHz ISM band. Contact Monnit regarding products requiring 868 MHz, 433 MHz or 920 MHz operating frequencies.

For more information about our products or to place an order, please contact our sales department at info@monnit.com or 801-561-5555.

Visit us on the web at www.monnit.com.

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Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.

Как с нами связаться

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