



The following documentation is an electronically-submitted vendor response to an advertised solicitation from the *West Virginia Purchasing Bulletin* within the Vendor Self-Service portal at ***wvOASIS.gov***. As part of the State of West Virginia's procurement process, and to maintain the transparency of the bid-opening process, this documentation submitted online is publicly posted by the West Virginia Purchasing Division at ***WVPurchasing.gov*** with any other vendor responses to this solicitation submitted to the Purchasing Division in hard copy format.

Header 12

[List View](#)**General Information** [Contact](#) [Default Values](#) [Discount](#) [Document Information](#)

Procurement Folder: 321520

SO Doc Code: CRFQ

Procurement Type: Central Master Agreement

SO Dept: 0803

Vendor ID: VS0000007588 

SO Doc ID: DOT1700000094

Legal Name: J.Q. & G. INC. CO.

Published Date: 7/20/17

Alias/DBA: J.Q. & G. INC. CO.

Close Date: 7/25/17



Total Bid: \$0.00

Close Time: 13:30

Response Date: 07/25/2017 

Status: Closed

Response Time: 13:21

Solicitation Description: 


Total of Header Attachments: 12

Total of All Attachments: 12



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

**State of West Virginia
 Solicitation Response**

Proc Folder : 321520

Solicitation Description : ADDENDUM_1: TRAFFIC SIGNAL PARTS & EQUIPMENT

Proc Type : Central Master Agreement

Date issued	Solicitation Closes	Solicitation Response	Version
	2017-07-25 13:30:00	SR 0803 ESR07241700000000249	1

VENDOR
VS0000007588 J.Q. & G. INC. CO. J.Q. & G. INC. CO.

Solicitation Number: CRFQ 0803 DOT1700000094

Total Bid : \$0.00

Response Date: 2017-07-25

Response Time: 13:21:41

Comments:

FOR INFORMATION CONTACT THE BUYER
 Mark A Atkins
 (304) 558-2307
 mark.a.atkins@wv.gov

Signature on File **FEIN #** **DATE**

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Pricing shall be completed on Exhibit A Pricing Pages	0.00000	LS	\$1.000000	\$0.00

Comm Code	Manufacturer	Specification	Model #
46161504			

Extended Description : TRAFFIC SIGNAL PARTS & EQUIPMENT:
Note: Vendor shall use Exhibit_A Pricing Page(s) for bid pricing.
If vendor is submitting a bid online, Vendor should enter \$0.00 in the Oasis commodity line.



Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

State of West Virginia
 Request for Quotation
 19 - Highways

Proc Folder: 321520

Doc Description: ADDENDUM_1: TRAFFIC SIGNAL PARTS & EQUIPMENT

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2017-07-20	2017-07-25 13:30:00	CRFQ 0803 DOT1700000094	2

BID RECEIVING LOCATION

BID CLERK
 DEPARTMENT OF ADMINISTRATION
 PURCHASING DIVISION
 2019 WASHINGTON ST E
 CHARLESTON WV 25305
 US

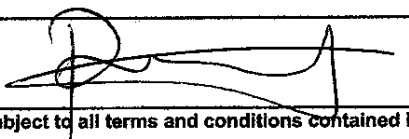
VENDOR

Vendor Name, Address and Telephone Number:

J.Q. & G. INC. COMPANY
 501-E Marshall Avenue SW
 Roanoke, VA 24016
 540.588.7625

FOR INFORMATION CONTACT THE BUYER

Mark A Atkins
 (304) 558-2307
 mark.a.atkins@wv.gov

Signature X 

FEIN # 47-5281963

DATE 07.24.2017

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

ADDENDUM_1: Is issued for the following:

1. To publish the Agency responses to the questions submitted by Vendors during the Technical Questioning period.

No other changes made.

INVOICE TO		SHIP TO	
DIVISION OF HIGHWAYS TRAFFIC ENGINEERING DIVISION 1900 KANAWHA BLVD E, BLDG 5 RM A550 CHARLESTON WV25305-0430 US		DIVISION OF HIGHWAYS TRAFFIC ENG. TSC - SIGNAL MAINTENANCE 180 DRY BRANCH DR CHARLESTON WV 25306 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Pricing shall be completed on Exhibit A Pricing Pages	0.00000	LS		

Comm Code	Manufacturer	Specification	Model #
46161504	<i>Varies by section please reference the Ex. A Pricing Sheet</i>		

Extended Description :

TRAFFIC SIGNAL PARTS & EQUIPMENT:

Note: Vendor shall use Exhibit_A Pricing Page(s) for bid pricing.

If vendor is submitting a bid online, Vendor should enter \$0.00 in the Oasis commodity line.

Vendor shall enter pricing into the Exhibit_A Excel page and must attach with bid.

See section 18 of Instructions to Bidders.

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Technical Questions due by:	2017-07-14

DOT1700000094	Document Phase Final	Document Description ADDENDUM_1: TRAFFIC SIGNAL PARTS & EQUIPMENT	Page 3 of 3
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ADDITIONAL TERMS AND CONDITIONS

See attached document(s) for additional Terms and Conditions

State of West Virginia
VENDOR PREFERENCE CERTIFICATE

Certification and application is hereby made for Preference in accordance with **West Virginia Code**, §5A-3-37. (Does not apply to construction contracts). **West Virginia Code**, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the **West Virginia Code**. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

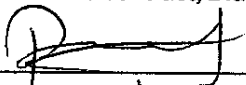
1. **Application is made for 2.5% vendor preference for the reason checked:**
 Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or**,
 Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification;
 Bidder is a resident vendor partnership, association, or corporation with at least eighty percent of ownership interest of bidder held by another entity that meets the applicable four year residency requirement; **or**,
 Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or**,
2. **Application is made for 2.5% vendor preference for the reason checked:**
 Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or**,
3. **Application is made for 2.5% vendor preference for the reason checked:**
 Bidder is a nonresident vendor that employs a minimum of one hundred state residents, or a nonresident vendor which has an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia and employs a minimum of one hundred state residents, and for purposes of producing or distributing the commodities or completing the project which is the subject of the bidder's bid and continuously over the entire term of the project, on average at least seventy-five percent of the bidder's employees or the bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years and the vendor's bid; **or**,
4. **Application is made for 5% vendor preference for the reason checked:**
 Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or**,
5. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
 Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or**,
6. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
 Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.
7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with West Virginia Code §5A-3-59 and West Virginia Code of State Rules.**
 Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) rescind the contract or purchase order; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: J.Q. S.G. INC. COMPANY

Signed: 

Date: 7/24/17

Title: PRESIDENT OWNER

*Check any combination of preference consideration(s) indicated above, which you are entitled to receive.

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: J.Q. & G. INC. COMPANY

Authorized Signature: [Signature] Date: 7/24/17

State of Virginia

County of Roanoke, to-wit:

Taken, subscribed, and sworn to before me this 24th day of July, 2017.

My Commission expires December 31, 2019

AFFIX SEAL HERE

GIOIA CUCCI NICELY
NOTARY PUBLIC
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES DEC. 31, 2019
COMMISSION # 7835181

NOTARY PUBLIC

[Signature]
Purchasing Affidavit (Revised 08/01/2015)

ATC-1000

Advanced Traffic Controller



The ATC-1000 is the first of the new ATC line of modularly-built, standards-based controllers from Peek Traffic. Designed for ease-of-use and easy adaptability, the ATC-1000 traffic controller features Peek's latest ATC engine board, a full line of communications options including multiple serial ports, multiple Ethernet ports, a USB firmware and memory port, and a range of I/O and D modules. The ATC-1000 controller uses NTCIP communications natively and is entirely compatible with Peek's IQ Central® traffic management system. Interchangeable I/O modules and D Modules allow the ATC-1000 controller to be utilized in the latest cabinets, but it will also work as a plug-in replacement in older, non-standards-based cabinets that currently house Multisonics, Traconex, LMD 40, LMD 9200 and HMC-1000 controllers, thus providing an upgrade path for older intersection control hardware.



Specifications

Dimensions	14 3/4" Wide x 10 1/2" Deep x 10 1/4" Tall (375mm x 267mm x 261mm)
Weight	9 to 11 pounds (4 to 5 kg) depending on which I/O modules, D modules, and modem are installed
Power Requirements	89 to 135VAC 50/60Hz ± 3 Hz
Environment	-35°F to + 165°F -37°C to + 74°C (NEMA TS2-2003 specification) 0-95% relative humidity
Memory	16MB Flash memory standard 16MB SDRAM standard 32MB, 64MB SDRAM - optional 1MB SRAM
NTCIP Compliance	Traffic application software is NTCIP software compliant, ensuring easy integration into any NTCIP or ITS traffic control system.
Firmware Updates	Via USB port or via ATC Link Software

Operating System	Linux v2.6.2.0
Communi- cations	Connectivity is easily achieved using a variety of communications options: <ul style="list-style-type: none">● 5 serial ports; RS 485 support on one port (jumper selectable)● Two 10/100 Base-T Ethernet ports● 3000E compatible modem slot● Optional 2070 compatible modem slot with full modem control support● High-speed USB port

Intersection configuration programming interfacing is easily performed in the field, using the provided laptop computer interface software (ATC Link). ATC Link can be connected directly via either an ethernet or a serial cable, or it can be used to store the configuration on a portable USB "flash drive", which can then be downloaded to the device in the field in seconds. Or programming may be downloaded across a network via an NTCIP compliant central system, such as IQ Central.

Available D Modules

- ATC D Module
- Peek 3000E Closed Loop D Module
- LMD 40 D Module
- Traconex D Module
- Multisonics D Module

Available I/O Modules

- NEMA TS2 Type 1
- NEMA TS2 Type 2
- HMC-1000
- LMD 40



Peek Traffic Corporation
A Signal Group Company
5401 N Sam Houston Pkwy W
Houston, TX 77086
(281) 453-0200
www.peaktraffic.com

About Signal Group – covers a broad range of quality turnkey traffic control products and services. Signal Group products have helped to make motorists around the world safer and their travels more pleasant and efficient. This expertise, experience, and breadth of product lines has made Signal Group one of the most respected and recognized leaders in the traffic control marketplace. The information contained in this publication is presented for informational purposes only, and while every effort has been made to ensure its accuracy, the information is not to be construed as warranty or guarantee, express or implied, regarding the products or services described herein or their use or applicability. No license is granted by implication or otherwise to any of Signal Group's intellectual property. Signal Group reserves the right to alter or revise any of its products or published technical data related thereof at any time without notice. ©2012 Signal Group.

NEMA Cabinets



Peek Traffic has a full line of standard NEMA cabinets available. With interior customizable design to fit your traffic configuration needs. Our enclosures provide a protective, safe environment against rain, sleet, snow, dripping water, corrosion, hose down, splashed water, oil, coolant. These cabinets are designed to offer unparalleled protection no matter the conditions. It can fit power panels, field service terminal blocks, police panel switches, a variety of NEMA controllers and master controllers, conflict monitors, modems, load switches, flashers, transfer relays, detector racks, power supplies, video detection equipment, surge protection equipment, and power backup systems. Basically, tell us what you need, and we will tailor the cabinet to fit your requirements. This is what Peek Traffic has been doing for decades.

Features & Benefits

- 1/8" thick aluminum type 5052-H32, providing a strong and rigid construction
- UL approved enclosures (when required)
- Four "C" mounting channels on the side and rear walls, allowing versatile positioning of shelves and panels
- Completely double flanged door frame
- Provision for mounting forced air fan system, with a screened air exhaust opening under the roof overhang.
- Stainless steel external hardware
- Internal hardware is either stainless steel or cadmium plated, type II, Class I or equal
- Main door has stainless steel piano hinge, secured with stainless steel carriage bolts with nylock nuts.
- Main door lock is Corbin #1548-1 or equal
- Doors sealed with closed cell neoprene gaskets
- Fluorescent or incandescent light fixture
- Ground fault interrupt 115 VAC receptacle
- Thermostat and fan assembly
- Up to 16 position, swing down aluminum load bay with silk screened labeling on front and rear of panel
- Heavy duty terminal blocks
- Engineered precisely to agency specifications

Enclosure Type	Dimensions			Door Opening		Pad Mounting Pattern	
	H	W	D	H	W	W	D
M	50"	30"	16 1/2"	39 7/8"	27 3/4"	26 1/2"	13"
M36	50"	36"	16 1/2"	39 7/8"	33 1/4"	32 1/2"	13"
MSX	60"	30"	16 1/2"	49 7/8"	27 3/4"	26 1/2"	13"
MSX36	60"	36"	16 1/2"	49 7/8"	33 1/4"	32 1/2"	13"
P40	59"	40"	26"	49"	37 3/4"	30"	18"
P44	59"	44"	26"	49"	41 3/4"	40 5/8"	18 1/2"
R40	75 1/2"	40"	26"	65 1/2"	37 3/4"	30"	18"
R44	75 1/2"	44"	26"	65 1/2"	41 3/4"	40 4/8"	18.5"

Options

- Material options: 14 gauge stainless steel, 5052 alloy aluminum
- Shelving options
- Panels
- Optional Rack frame assembly
- Caltrans style stainless steel butt door hinges
- Finish options: stainless, powder coating in a variety of colors, anti-graffiti finishes, or mill finish
- Variety of lock and keying options

Equipment Options

You can select the equipment that will be used to populate your cabinet, if you choose to have us do so, with these types of equipment:

- Lights, fans, thermostats, air filters, & door switches
- Controllers and master controllers
- Conflict monitors
- Detectors and detector racks
- Load bays
- Police panels
- Power panels
- Maintenance panels
- Load switches, flashers, transfer relays
- Power backup systems



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 A Signal Group Company
 2906 Corporate Way
 Palmetto, FL 34221
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About Signal Group – covers a broad range of quality turnkey traffic control products and services. Signal Group products have helped to make motorists around the world safer and their travels more pleasant and efficient. This expertise, experience, and breadth of product lines has made Signal Group one of the most respected and recognized leaders in the traffic control marketplace. The information contained in this publication is presented for informational purposes only, and while every effort has been made to ensure its accuracy, the information is not to be construed as warranty or guarantee, express or implied, regarding the products or services described herein or their use or applicability. No license is granted by implication or otherwise to any of Signal Group's intellectual property. Signal Group reserves the right to alter or revise any of its products or published technical data related thereof at any time without notice. ©2012 Signal Group.

Communicator II

WIRELESS DATA TRANSCEIVER



The Communicator II™ is a high performance wireless data transceiver designed for industrial serial and serial to IP networks. The Communicator II enables long-range wireless connectivity at high bandwidths for robust and secure wireless communications for a broad set of fixed and mobile applications.

FUNCTIONALITY AND FLEXIBILITY

The Communicator II offers the capability and flexibility to meet a variety of wireless networking challenges. Available in 902-928 MHz and 2.4-2.4835 GHz frequencies, the Communicator II offers license-free operation in North America and many other locations around the world. Utilizing superior frequency hopping spread spectrum (FHSS) technology, the Communicator II provides long-range data transport with continuous throughput of up to 115 Kbps. Designed for functionality, the Communicator II offers the flexibility to provide point-to-point communications or more advanced multipoint and IP- bridged network applications.

Robust and highly reliable performance is achieved through superior low signal performance. Low power consumption and user-definable operating parameters provide optimal performance for a wide variety of applications.

The Communicator II's rugged enclosure, extreme temperature range and broad scale of voltage inputs make it the clear choice for many harsh industrial environments.

SCALABLE NETWORK SOLUTION

Used within an Intuicom wireless network, the Communicator II can meet the needs of both small and complex communication challenges.

Ease of integration, robust performance, an optional IP interface, and a strong set of support tools including real-time diagnostics provide for rapid deployment. Within an Intuicom Network, the Communicator II is typically used in conjunction with Intuicom's network server software as a network gateway base station or as a bi-directional repeater. The Communicator II may also be used for remote device interface in network architectures involving a single serial interface at the remote node.

APPLICATIONS

Whether providing data acquisition and control or real-time vehicle tracking, the Communicator II can support fixed or mobile communication needs. Some common commercial and industrial applications include:

- Scientific and Environmental Monitoring
- SCADA
- Telemetry
- Display signs
- Traffic signal control
- Security
- Vehicle data/tracking

To learn more about enabling wireless networking for your applications, contact us at: info@intuicom.com

FEATURES

- License-free operation
- Data throughput up to 115.2 Kbaud
- Long range operation (60+ miles)
- Full duplex communications
- Ability to operate in different modes including base station, repeater, slave and slave/repeater
- Low power consumption
- Network-wide diagnostics
- Rugged industrial enclosure

FEATURES OF INTUICOM WIRELESS DATA NETWORKS

- Available bundled with a variety of Intuicom products and solutions
- Network coverage ranges from facility to state-wide levels
- Optional TCP/IP data streams provide a standard interface
- Intuicom expertise for planning and design of wireless networks



Communicator II

WIRELESS DATA TRANSCEIVER

GENERAL SPECIFICATIONS

Enclosure	Ruggedized extruded aluminum with rubber traction bumpers	
Size	H: 53 mm (2.1") x W: 167 mm (6.6") x L: 105 mm (4.5")	
Weight	793 g (1.75 lbs.)	
Temperature Operating Range	-40° C to +75° C 100% full performance tested	
Connectors/Signals		
External Antenna	N Type Female, Professional installation only	
Data	DB9 (TXD, RXD, CTS, RTS, DTR, GND, Power), DCE	
Diagnostic	DB9 (TXD, RXD, GND, Power), DCE	
Power	2.1 mm x 5.5 mm jack	
Input Voltage	6-30 VDC (900 MHz), 9.5-30 VDC (2.4 GHz)	
Power Consumption (approximate) (max RF output power setting)	900 MHz at 12VDC:	2.4 GHz at 12VDC:
Sleep	5 mA	5 mA
Idle	21 mA	30 mA
Receive	86 mA	100 mA
Transmit (average)	250 mA	200 mA
Operating Modes	Point-to-Point, Point-to-Multipoint, TDMA, Base, Repeater, Slave, Slave/Repeater	

WIRELESS TRANSCEIVER

SPECIFICATIONS	900 MHZ	2.4 GHZ
Frequency Range	902-928 MHz	2.4-2.4835 GHz
Transmitter		
Output Power	100 mW to 1 W (+30 dBm)	20 mW to 500 mW (+27dBm)
Range, Line of Sight	60 Miles	20 Miles
Modulation	Spread Spectrum, GFSK, 115.2 Kbps or 153.6 Kbps	Spread Spectrum, GFSK, 115.2 Kbps or 153.6 Kbps
Occupied Bandwidth	230 KHz	230 KHz
Spreading Method	Frequency Hopping	Frequency Hopping
Hopping Patterns	15 per band, 105 total, user selectable	15 per band, 105 total, user selectable
Hopping Channels	50 to 112, user selectable	75 to 80, user selectable
Hopping Bands	7, user selectable	3, user selectable
Receiver		
Sensitivity	-108 dBm at 10 ⁻⁶ BER; -110 dBm at 10 ⁻⁴ BER	-108 dBm at 10 ⁻⁶ BER; -110 dBm at 10 ⁻⁴ BER
Selectivity	20 dB at fc ± 115 KHz; 60 dB at fc ± 145 KHz	20 dB at fc ± 115 KHz; 60 dB at fc ± 145 KHz
System Gain	140 dB	137 dB
Data Transmission		
Error Detection	32 Bit CRC, retransmit on error	32 Bit CRC, retransmit on error
Data Encryption	Substitution, dynamic key	Substitution, dynamic key
Maximum Throughput	115.2 Kbps*	115.2 Kbps*
Data Interface	RS232/485/422	RS232

*uncompressed throughput assuming 75% frequency availability, no repeaters
 Note: Specifications subject to change without notice

SG-1000

NEMA MMU2 and Conflict Monitor



Overview

Peek Traffic sets the new standard for NEMA Conflict Voltage Monitors and NEMA Malfunction Management Units with the Peek Double Diamond Series Monitors.

The Peek Double Diamond Series Monitors offer an improved display for the dynamic status display of each input on each channel.



Features

- Supports Flashing Yellow Arrow
- Exceeds both NEMA TS1-1989 functional and environmental requirements for a conflict monitor and NEMA TS2-2003 amendment for functional and environmental requirements for an MMU. USB port is an industry 1st.
- The large keyboard reduces menu steps and complexity in the data entry system and eliminates the clutter and confusion of multiple dip switches.
- Records high and low voltage conditions. Initially brought in Double Diamond, continued in SG-1000
- Voltage measurement and display of all signal indicators for each channel and color input for TS1/TS2
- 4 x 20 yellow OLED - fully operational over temperature without the need for backlight or contrast control
- Event log - downloadable to USB flash drive or to PC through USB device port or optional serial/Ethernet port
- User-friendly, menu-driven 16-key data entry system has tactile and audible feedback, eliminating the need for cumbersome dip switches
- Front panel USB device port optional EIA232, for printing the event log and all user settings and program card jumpers

Specifications

Event logging and Recording

Power Requirements	89 to 135V AC, 60Hz
Humidity Environment	0 - 95% non-condensing Meets NEMA environmental standards
Compatibility	NEMA TS-1 12 channel or NEMA TS-2 16 channel
Operating Temperature	-30°F to + 165°F(-40°C to + 80°C)

- Logs 200 events including reset
- Voltage log records outside of users thresholds
- Replay mode allows a user to view the last twenty GYR displays prior to a fault
- Real-time clock provides time and date stamp in each event to nearest second
- Logs complete channel status at time of fault
- Keyboard options allow separate printing of event log and unit settings
- Accepts remote commands to clear power failure counter, erase event log and set time for local clock

Additional Features

- 12 channel NEMA TS-1 and 16 channel NEMA TS-2
- Compatible with both NEMA TS-1 and TS-2 Standard compatibility programming cards
- Viewing of Port 1 RS-485 R-Y-G status in addition to field status of R-Y-G AC inputs
- Dedicated RESET button for simplicity
- Power failure counter logs up to 254 failures and can be reset by the user
- Selectable latch options for CVM and 24 volt faults
- Enhanced absence monitoring allows absence detection with Walk input
- Enhanced channel monitoring permits selectable color fault combinations
- Enhanced signal sequence monitoring feature is compatible with all NEMA controllers
- Individual channel absence timers
- DC input for remote flash command
- Non-volatile retention of fault status and logs; displays all channels and colors when power is restored



Peek Traffic Corporation
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(281) 453-0200
www.peaktraffic.com

About Signal Group – covers a broad range of quality turnkey traffic control products and services. Signal Group products have helped to make motorists around the world safer and their travels more pleasant and efficient. This expertise, experience, and breadth of product lines has made Signal Group one of the most respected and recognized leaders in the traffic control marketplace. The information contained in this publication is presented for informational purposes only, and while every effort has been made to ensure its accuracy, the information is not to be construed as warranty or guarantee, express or implied, regarding the products or services described herein or their use or applicability. No license is granted by implication or otherwise to any of Signal Group's intellectual property. Signal Group reserves the right to alter or revise any of its products or published technical data related thereof at any time without notice. ©2012 Signal Group.

Traffic Signals



Unique design and technological advantages make Peek Traffic Signals “Best in class”

Polycarbonate Signals

- Unaffected by scratches
- Impregnated color means that they never need painting
- Impervious to corrosive atmospheres
- One-piece doors, grooved.
- Simple alignment and positive locking in 5 degree steps
- Ribbed for structural stability
- Reinforced plates available
- Adaptable to span wire or mast suspension
- Universal vertical and horizontal ready mounting arrangement
- Exterior hardware in stainless steel available
- LED ready or equipped with reflectors
- Weather proof and dust tight one piece doors plus gasket
- Fifty percent lighter than aluminum

Aluminum Signals

- Equipped with exterior stainless steel hardware
- Doors and lens gaskets make the signal weather-proof and dust-tight
- Integral visor rims prevent leakage
- Available reflectors in Alzak ®
- The lamp receptacle can be rotated 360 degrees for filament alignment
- Integral locking rings included
- Adaptable for span wire, mast arm suspension, side pole or post top mounting

Specifications

Polycarbonate

Material	Ultraviolet-stabilized polycarbonate resin (having a minimum thickness of 0.100 inches), Stainless steel exterior hardware. Couplers are standard steel-zinc, but a stainless steel option is available.
Reflector	Snap-out assembly. Swing out frame. Lane control uses a standard reflector.
Lamp receptacle	Heat-resistant molded phenolic, Rotatable through 360°. Pre-wired with 26 #18 AWG 105 C type TEW color-coded leads with Quick-disconnect terminals
Wire opening between sections	Accommodates three 3/4" diameter cables
Terminal block	1-section 2-point 2-section 3-point 3-section 5-point 4-section 5-point 5-section 5-point and 5 point
Signal alignment	Integral 72-tooth serrated adjustable in 5 steps.
Weight	8 (200mm) LED-Ready Section = 1.85 lb (0.84kg) 12 (300mm) LED-Ready Section = 3.15 lb (1.43kg)
Overall dimension	8 (200mm) Section = 9.75 W x 10 H x 6.16 D 12 (300mm) Section = 13.5 W x 13.44 H x 6.44 D

One Year Limited Warranty.

Signal Group warrants* these products against manufacturing defects in materials and workmanship for one year from date of shipment from the Signal Group factory. Specific contracts and regional laws may vary or alter these terms. Signal Group products are protected by one or more U.S. and international patents.

* For specific warranty information, contact your local Signal Group product representative.

Aluminium

Material	Die-cast aluminum alloy housing and door. Stainless steel exterior hardware. Couplers are standard steel-zinc, but a stainless steel option is available.
Finish	Electrostatically applied powder coat with five stage iron phosphate treatment.
Reflector	Snap-out assembly. Swing out molded frame. Lane control uses a standard reflector
Lamp receptacle	Heat-resistant molded phenolic, Rotatable through 360°. Pre-wired with 26 #18 AWG 105 C type TEW color-coded leads with Quick-disconnect terminals
Wire opening between sections	Accommodates three 3/4" diameter cables
Terminal block	1-section 2-point 2-section 3-point 3-section 5-point 4-section 5-point, 2-point 5-section 5-point 2, and 3-point
Signal alignment	Integral 72-tooth serrated adjustable in 5 steps.
Weight	8 (200mm) LED-Ready Section = 4.2 lb (1.9 kg) 12 (300mm) LED-Ready Section = 5.5 lb (2.5 kg)
Overall dimension	8 (200mm) Section = 9.75 W x 10 H x 6.16 D 12 (300mm) Section = 13.5 W x 13.44 H x 6.44 D

Poly and Aluminum signals are also available with LED ready
Weights do not include hardware modifications. Door only, no visors.



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A Signal Group Company
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Palmetto, FL 34221
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www.peaktraffic.com

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TC-18 SCALABLE TIME BASED CONTROLLER

ELTEC has been a leading provider of programmable time clocks used primarily in the traffic industry to control flashing beacons in school zones. Like the NTC-17E that precedes it, the TC-18 has 1 or 2 separately programmable relay outputs. It also includes an integral DC flasher. Complete programming from a keypad with easy to follow 'common sense wording' on the LCD screen allows on site testing and programming updates/changes.

The scalable TC-18 is easily upgraded to a TC-3000 IP addressable network time clock. The printed circuit board includes a socket to facilitate the addition of a 900 MHz spread spectrum radio. Upgrading is literally a snap! With the addition of the plug-in radio and an antenna, the TC-18 is capable of receiving programming from a computer through a gateway via spread spectrum radio.

The TC-18 provides a cost effective solution with minimal initial investment when updating existing clocks or new installations. Positioning for the future is now a reality. The TC-18 operates on either 120VAC or 12VDC (solar).

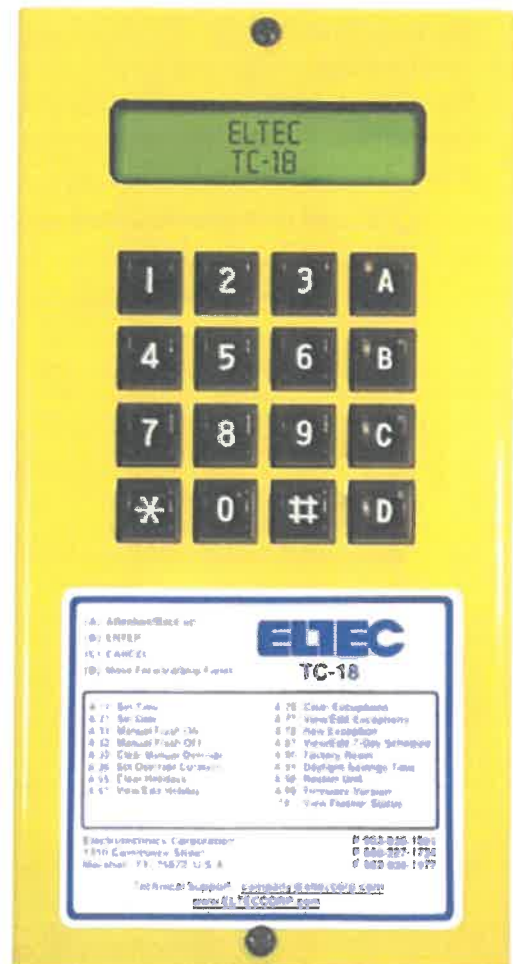
The optional Windows based DLPRO 18 software was developed for intuitive navigation. Each window uses virtual graphics with drop-down calendars and time tools with easy to understand programming screens.

APPLICATIONS

- School Zone Crossing Signals
- Park Lighting
- Changeable Message Signs
- Time Locks: gates & doors
- HVAC on/off Timing Function
- Pump Control

FEATURES and BENEFITS

- Upgradable to Network Based Time Clock (TC-3000)
- Operates on either AC or DC/Solar
- Built-in DC Flasher Circuit
- 1 or 2 Relay Outputs
- Keypad for Direct Programming
 - Alpha/Numeric Backlit LCD
 - Display Assisted Program Prompts
 - Military or AM/PM Time Options
- Computer Programmable with DLPRO 18 Software
 - Time Sync'd from Computer
- Programmable Manual Override Duration
- Schedules Stored in Non-Volatile Memory
- Minimum 7 Day Capacitive Backup
- Extremely Accurate Time Keeping (1± second/month)
- Mini USB Port
- Weekly Default Schedule: up to 6 daily intervals
- Holidays/No School days: up to 25
- Exception Days: up to 365
- Automatically Adjusts to Daylight Saving Time & Leap Year



DLPRO 18 SOFTWARE

ELTEC's DLPRO 18 software was developed for easy navigation. Each window uses virtual graphics with drop-down calendars and time tools (no commands) with straight forward programming screens. Software updates are emailed. The firmware is upgradable via the USB port. It runs on Windows 2000, XP, Vista, and 7 operating systems.

The DLPRO 18 software kit consists of a CD, user manual, a six foot USB cable for program transfer from computer to clock, and an AC power cord for easy in office programming.

DLPRO 18 Screen FEATURES

- Develop complete annual program including exceptions & holidays
- Print annual program for hard copy record & restoration in the event of a computer failure
- Drop down calendars and time tools for easy programming
- Status screen to view operation and programming updates
- Disable/Enable/Revised Daylight Saving Time

TC-18 SPECIFICATIONS

Dimensions*	8¼" H x 4¼" W x 1¼" D
Display	2 Lines x 16 Characters Alpha/Numeric LCD
Outputs	1 SPDT Rated at 16A/120 VAC
Back-up Power	Capacitive: 7 Days Minimum; 60 Days Typical
Input Voltage	6-22 VDC/85-264 VAC; 47-440 Hz
Power Required	2.5 Watts/200 mA
Temperature Range	-34° C to +74° C
Electrical Connection	CPC* with 48 inch Cable

*NOTE: add an additional 2 inches clearance to the bottom of clock dimensions for CPC connection.

For more information or a quotation, contact ELTEC or your local ELTEC Dealer.

ELECTROTECHNICS CORPORATION

1310 Commerce Street
Marshall, TX 75672

800-227-1734 903-938-1901 Fax 903-938-1977

sales@elteccorp.com

**Struthers-Dunn**

407 East Smith Street - Suite B

Timmonsville, SC 29161 US

Phone: (843) 346-4427 • **Fax:** (843) 346-4465**E-Mail:** info@struthers-dunn.com • **Web site:** www.struthers-dunn.com

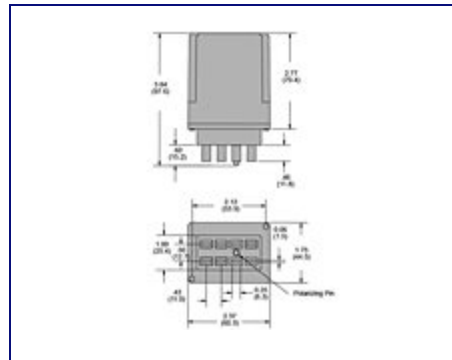
Item # 21ACPX-2/W21ACPXD-5-120VAC, 21/136 Series - Flash Transfer Special Purpose Relays

The 21 and 136 series flash transfer relays have a proven industry record of reliability. Their rugged design has allowed the products to be plugged in and left, for years of service. Recent changes in lighting techniques from incandescent to LED have prompted us to respond with a redesigned relay better suited for the low currents of LED lighting, but equally usable with tungsten lamps.

Additional contact configurations and coil options are available

See Data sheet for additional info. **Please**

[+ more](#)



[Specifications](#) | [Contacts](#) | [Coil](#) | [Timing](#) | [Dielectric Strength](#) | [Temperature](#) | [Life Expectancy](#) | [Miscellaneous](#)

Specifications

Series	21
Contact Arrangement	XBX - (2 form C - DPDT)
Coil Voltage	120 VAC

Contacts

Contact Configuration	DPDT
Contact Material	Silver Alloy
Contact Rating	30 A

Contact Rating 120 / 240VAC Resistive	30 A
Contact Rating 28VDC Resistive	30 A
Motor 120VAC 1 Phase	1 hp
Motor 240VAC 3 Phase	2 hp
120VAC Tungsten	20 A
Contact Resistance, Initial	100 milliohms max at 6VDC

Coil

-

Coils Available	AC and DC
Nominal Coil Power	2.4 VA
Input Voltage Tolerance - AC	75% to 110% of nominal
Input Voltage Tolerance - DC	70% to 110% of nominal
Drop-out voltage	10% of nominal
Duty	Continuous

Timing

-

Operate Time (max)	20 ms
Release Time (max)	20 ms

Dielectric Strength

-

Across Open Contacts	500 Vrms
Between Mutually Insulated Point	1500 Vrms
Insulation Resistance	10,000 Mohms min at 500VDC

Temperature

-

Operating	-34 to 74 °C -30 to 165 °F
Storage	-40 to 105 °C -40 to 221 °F

Life Expectancy

-

Electrical (full load)	200,000
Mechanical (no load)	5,000,000

Miscellaneous

-

Mounting Position	Any
Enclosure	Clear Polycarbonate
Weight	7.2 oz 205 g



Adding New Pulse Radios to Existing 5000 Series Radio Systems Using a Back-to-Back Repeater

Advisory ID: TBCC2016-04

Public Release: 04/02/2016

Products Involved: Model 5100S/R, 5200S/R, 5170, 5171 & 5070

Summary

To extend your legacy 5000 Series network a back-to-back repeater site is needed as a take off point for the rest of your Pulse system. This set-up involves a 5000 series radio and a Pulse radio to be connected with a RS232 Y-cable to the local controller in your traffic cabinet. This set-up allows for transparent communications between controllers across Pulse and 5000 Series products.

Introduction

As new and better technologies become available, the 5000 Series, due to age, are naturally beginning to reach the end of their service life. All 5000 Series radios can be replaced with the equivalent Pulse product. This advisory bulletin will describe how to integrate Pulse and 5000 Series products to extend legacy networks.

Symptoms

When deploying Pulse equipment into a legacy 5000 Series network the end-user may have difficulty getting the two platforms to interact with each other wirelessly, even though the proper Radio and Network settings have been configured.

Cause

Due to enhancements to over-the-air protocols over the years, the Pulse Series of products are not directly backwards compatible with legacy 5000 Series equipment. To overcome this technological transition a "back-to-back" repeater is needed.

Resolution

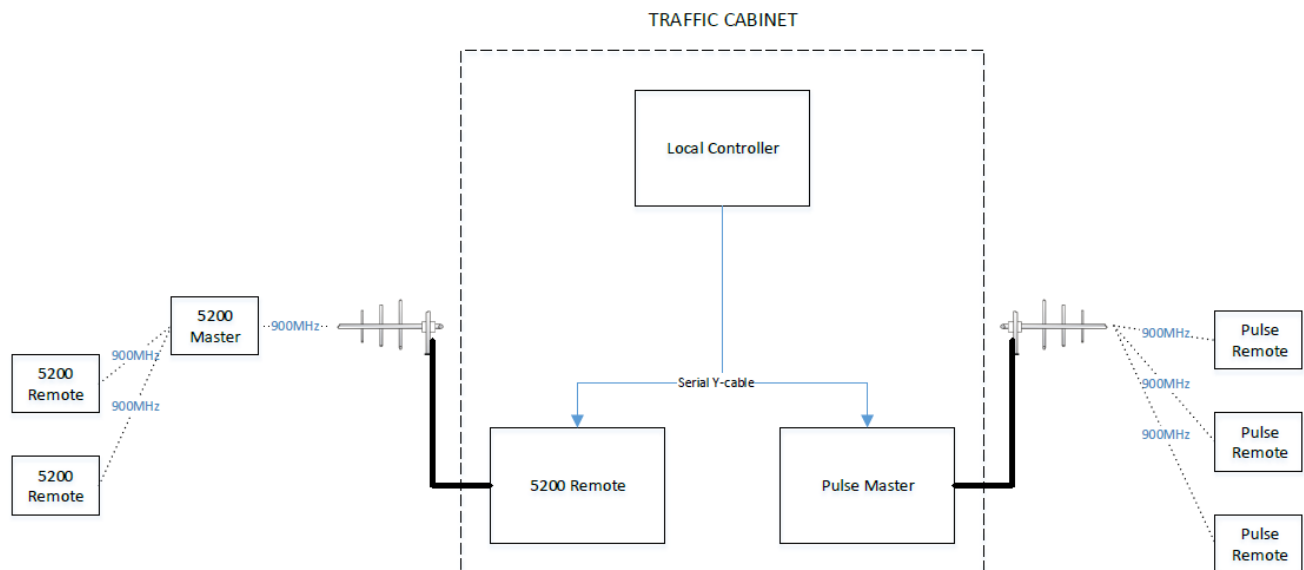
A back-to-back repeater is used as a take off point for all new Pulse radios being added into the legacy 5000 Series system allowing data to flow transparently between both platforms.

To set up a back-to-back repeater, follow these steps:

1. Find a suitable remote site in the existing legacy 5000 series system to convert to a back-to-back repeater:
 - This site must be close, with good height and line-of-sight to the new proposed Pulse radio site.
 - This legacy remote 5000 series site must have strong communications back to the 5000 Series Master Radio
2. When planning for the Back-to-Back radio site you will need the following:
 - Two sets of antennas & RF cables. Yagi antennas are recommended to avoid RF interference. **Avoid using Omni antennas for this.**
 - Three feet of vertical separation is **required** between the Yagi antennas.
 - Pulse Series radio.
 - RS232 Y-Cable.

NOTE: PLEASE CONTACT ENCOM TO GET PIN CONFIGURATION FOR THE Y-CABLE; BE SURE TO PROVIDE INFORMATION ON WHAT TYPE OF LOCAL CONTROLLER IS BEING USED IN YOUR CABINET.

3. Connect the legacy 5000 Series radio and Pulse radio to your local controller per the diagram below.



4. Select the Hop Pattern on the new Pulse Master radio
 - Select the Hop Group (odd or even) that is different from the Hop Pattern being used in the legacy 5000 Series network to avoid RF interference. This can be done using PulseLink.

NOTE: FROM THIS POINT ON CONTROLPAK MUST BE USED TO MANAGE ALL 5000 SERIES RADIOS WHILE PULSELINK WILL BE USED TO MANAGE AND MONITOR ALL PULSE SERIES RADIOS.

EXHIBIT A Pricing Pages

CRFQ 0803 DOT1700000094						UNSPC	Unit	Extended
Item Number	Estimated Quantity	Unit of Measure	Description	CODE	Price	Cost		
SECTION 1								
1	20	ea	Siemens Eagle Traffic Controller M50 Series or Equal	46161504	#####	\$	44,000.00	
2	10	ea	Siemens Eagle Master Traffic Controller M50 Series or Equal	46161504	#####	\$	22,000.00	
3	30	ea	Repairs of Siemens Eagle Traffic Controllers or Equal	46161504	\$ 500.00	\$	15,000.00	
4	1	ea	Eagle Traffic Signal TS2 Pole Mounted Signal Cabinet or Equal	46161504	#####	\$	7,000.00	
5	1	ea	Eagle TS2 Ground Mounted Traffic Signal Cabinets or Equal	46161504	#####	\$	7,500.00	
Section 1 Grand Total							\$	95,500.00
SECTION 2								
6	20	ea	Econolite Cobalt ATC Traffic Signal Controller or Equal	46161504	#####	\$	50,000.00	
7	10	ea	Econolite Master Signal Controller or Equal	46161504	#####	\$	25,000.00	
8	20	ea	Repair of Econolite Traffic Controller or Equal	46161504	\$ 500.00	\$	10,000.00	
9	1	ea	Econolite TS2 Pole Mounted Signal Cabinet or Equal	46161504	#####	\$	7,000.00	
10	1	ea	Econolite TS Ground Mounted Signal Cabinet or Equal	46161504	#####	\$	7,500.00	
Section 2 Grand Total							\$	99,500.00
SECTION 3								
11	10	ea	Iteris RZ4 Vehicle Detection Camera or Equal	46161504	#####	\$	88,200.00	
12	5	ea	Repair of Iteris RZ4 Video Detection Camera or Equal	46161504	\$ 500.00	\$	2,500.00	
13	10	ea	Iteris Vehicle Detection Card or Equal	46161504	#####	\$	37,122.00	
14	10	ea	Repair of Iteris Video Detection Card or Equal	46161504	\$ 500.00	\$	5,000.00	
Section 3 Grand Total							\$	132,822.00
SECTION 4								
15	10	ea	Autoscope Vehicle Detection Video Camera or Equal	46161504	#####	\$	88,200.00	
16	10	ea	Repair of Autoscope Vehicle Detection Camera or Equal	46161504	\$ 500.00	\$	5,000.00	
17	10	ea	Autoscope Vehicle Detection Cards or Equal	46161504	#####	\$	37,122.00	
18	10	ea	Repair of Autoscope Vehicle Detection Cards or Equal	46161504	\$ 500.00	\$	5,000.00	
Section 4 Grand Total							\$	135,322.00
SECTION 5								
19	1	ea	Wavetronix Smart Sensor Matrix Vehicle Detection Radar or Equal	46161504	#####	\$	5,995.00	
20	1	ea	Wavetronix Smart Sensor"Advance" Matrix Vehicle Detection Radar or Equal	46161504	#####	\$	6,435.00	
21	10	ea	Wavetronix Smart 2-Channel Detection Card or Equal	46161504	\$ 442.75	\$	4,427.50	
22	5	ea	Wavetronix 4-Channel Vehicle DetectionCard or Equal	46161504	\$ 494.50	\$	2,472.50	
Section 5 Grand Total							\$	19,330.00

			SECTION 6					
23	1	ea	Smart Micro Universal Medium Range Radar (UMRR) "Stop Bar"+Vehicle Detection Radar	46161504	No Bid	#VALUE!		
24	1	ea	Smart Micro Universal Medium Range Radar (UMRR) "Stop Bar"+ Advance Vehicle Detection Radar	46161504	No Bid	#VALUE!		
25	10	ea	Smart Micro Vehicle Detection Radar Controller Interface Card or Equal	46161504	No Bid	#VALUE!		
			Section 6 Grand Total			#VALUE!		
			SECTION 7					
26	30	ea	TOMAR Preemption Control Systems Detectors or Equal	46161504	No Bid	#VALUE!		
27	20	ea	TOMAR Preemption Control Systems Detection Cards or Equal	46161504	No Bid	#VALUE!		
28	15	ea	Repair of TOMAR Preemption Control Systems Detection Cards or Equal	46161504	No Bid	#VALUE!		
			Section 7 Grand Total			#VALUE!		
			SECTION 8					
29	30	ea	Traffic Signal Conflict Monitor	46161504	\$ 600.00	\$ 18,000.00		
30	15	ea	Traffic Signal Malfunction Management Unit	46161504	\$ 600.00	\$ 9,000.00		
31	30	ea	Traffic Signal Bus Interface Unit	46161504	\$ 210.00	\$ 6,300.00		
32	150	ea	Green LED Signal Lamp	46161504	\$ 29.66	\$ 4,449.00		
33	150	ea	Yellow LED Signal Lamp	46161504	\$ 29.66	\$ 4,449.00		
34	150	ea	Red LED Signal Lamp	46161504	\$ 26.56	\$ 3,984.00		
35	60	ea	Green Arrow LED Signal Lamp	46161504	\$ 30.79	\$ 1,847.40		
36	60	ea	Yellow Arrow LED Signal Lamp	46161504	\$ 29.61	\$ 1,776.60		
37	20	ea	Red Arrow LED Signal Lamp	46161504	\$ 30.79	\$ 615.80		
38	30	ea	LED Pedestrian Signal Head with Housing	46161504	\$ 141.19	\$ 4,235.70		
39	5	ea	Three -head LED Traffic Signal Enclosure	46161504	\$ 330.00	\$ 1,650.00		
40	5	ea	Five - head LED Traffic Signal Enclosure	46161504	\$ 650.00	\$ 3,250.00		
41	30	ea	Audible Pedestrian Push Button	46161504	\$ 900.00	\$ 27,000.00		
42	50	ea	TS1 Cabinet Power Supply	46161504	\$ 809.60	\$ 40,480.00		
43	15	ea	TS2 Cabinet Power Supply	46161504	\$ 809.60	\$ 12,144.00		
44	5	ea	Time Clocks	46161504	\$ 471.00	\$ 2,355.00		
45	50	ea	56K Wired Modems	46161504	#####	\$ 99,100.00		
46	20	ea	Flash Transfer Relays	46161504	\$ 100.00	\$ 2,000.00		
47	5	ea	Solar Flasher Controller	46161504	\$ 230.00	\$ 1,150.00		
48	5	ea	Solar Flasher Motor Unit	46161504	\$ 300.00	\$ 1,500.00		
			Section 8 Grand Total			\$ 245,286.50		
			SECTION 9					
49	40	ea	4G/LTE Wireless Modems	46161504	\$ 620.00	\$ 24,800.00		
			Section 9 Grand Total			\$ 24,800.00		
			SECTION 10					
50	20	ea	ENCOM Radio Transceivers or Equal	46161504	#####	\$ 73,944.00		
			Section 10 Grand Total			\$ 73,944.00		
			SECTION 11					
51	10	ea	Intuicom Radio Transceivers or Equal	46161504	#####	\$ 22,600.00		
			Section 11 Grand Total			\$ 22,600.00		

The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall Grand Total cost by section as shown on the Pricing Pages. Each section shall be evaluated independently and award shall be made to multiple vendors if needed.

IL6-P3 LED 8" and 12" Traffic Signal Module Incandescent Look Ball

The most energy efficient ITE-compliant traffic signal modules leading the LED Industry Since 1992

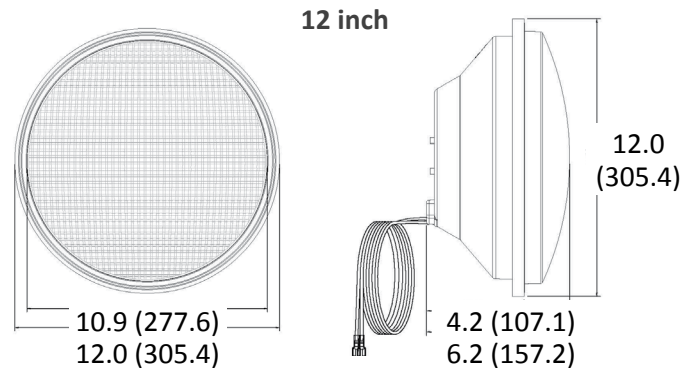
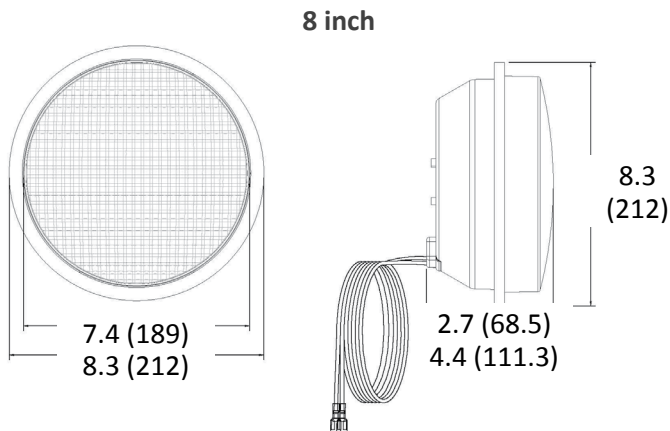
With over 7,000,000 units installed globally



Superior Performance and Reliability

- Unique masking options available
- Intertek ETL verified
- Meets and/or exceeds all ITE standards ITE VTCSH LED Circular Signal Supplement dated June 27, 2005
- More energy efficient than previous model
- Easy installation into existing signal housings
- Patented innovative optical technology
- Wider viewing angle and enhanced uniformity
- Maintains 70% of the initial lumen intensity after 100,000 hours of operation
- Overmolded electrical connectors provide fully-weatherized seal
- Excellent moisture and dust resistance
- Utilizes constant current source to maintain consistent light output
- Superior thermal management
- Environmentally friendly
- 5-year limited warranty







Mechanical Dimensions [in(mm)]



IL6-P3/P2 Series LED 8” and 12” Traffic Signal Module Incandescent Look Ball

Model Specifications and Ordering Options

Operating Temperature: -40°F to 165°F (-40°C to 74°C)	Turn-On/Turn-Off Time: < 75msec
Operating Voltage: 80 - 135Vac	Turn-Off Voltage: > 35Vac
Power Factor: > 0.90	Total Harmonic Distortion (THD): < 20%

	Model Number and Color	Wattage Drawn	Voltage	Dominant Wavelength	Maintained Intensity (cd) Min.	Standard
IL6-P3	8 inch ball					
	TSL-08R-LX-IL6-A1-P3 	6	80-135Vac	626	165	ITE 2005/ETL/Caltrans
	TSL-08Y-LX-IL6-A1-P3 	6	80-135Vac	589	410	ITE 2005/ETL/Caltrans
	TSL-08G-LX-IL6-A1-P3 	6	80-135Vac	500	215	ITE 2005/ETL/Caltrans
	12 inch ball					
	TSL-12R-LX-IL6-A1-P3 	6.2	80-135Vac	626	365	ITE 2005/ETL/Caltrans
	TSL-12Y-LX-IL6-A1-P3 	9.7	80-135Vac	589	910	ITE 2005/ETL/Caltrans
	TSL-12G-LX-IL6-A1-P3 	6.7	80-135Vac	500	475	ITE 2005/ETL/Caltrans

Notes:

- 1 Tinted lens standard, clear lens optional. When ordering clear lens, please add “-CLR” to model number. Both tinted and clear lens are Intertek ETL Verified.

Standard Conformance

- FCC Compliant for Electrical Noise
- MIL-STD-810F Moisture Resistant
- MIL-STD-883 Mechanical Vibration
- NEMA TS2 Section 2.1.6, 2.1.8, Transient Voltage Protection over 2000V
- IEC 1000-4-5, 3KV, 2 ohm source impedance
- ANSI/IEEE C62.41-2002; IEC 61000-4-12, 6KV, 200A, 100KHz ring wave

ITE VTCSH Compliance - LED Circular Signal Supplement – July 1, 2005

• Conditioning	ITE 6.4.2	• Luminous Intensity	ITE 6.4.4.1-4
• Mechanical Vibration	ITE 6.4.3.1	• Chromaticity	ITE 6.4.4.6
• Temperature Cycling	ITE 6.4.3.2	• Current Consumption	ITE 6.4.6.1

+ ROUTERS & GATEWAYS

SmartFlex™

LTE & LAN ROUTER ... more power, more features, more ideas

PRODUCT FEATURES

- Powerful CPU and enhanced memory to support high demand customer applications
- Extended operational temperature range from -40 °C to +75 °C
- 10-60 VDC operated with transient and reverse polarity voltage protection
- Flexible Port options, such as 3-port Switch, Ethernet and RS232/422/485 serial ports with isolation
- GPS and GLONASS support
- MicroSD card holder
- Low power consumption mode for solar and battery power applications
- Optional industrial grade WiFi
- PoE PD, PoE PSE, In/Out, USB Host
- Advanced security features



B+B SMARTWORX

Powered by

ADVANTECH

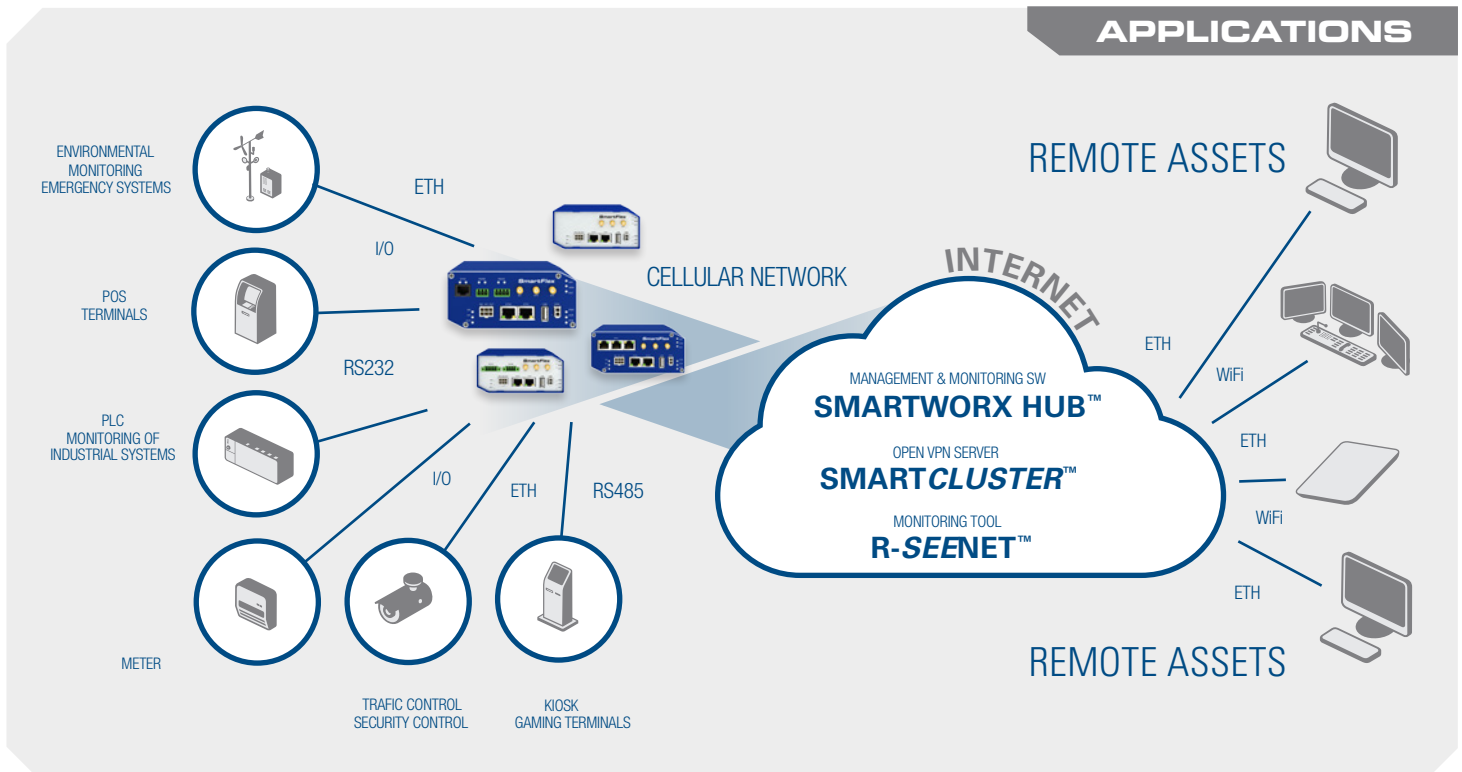


SmartFlex™

LTE & LAN ROUTER ... more power, more features, more ideas

The **SmartFlex™** cellular router provides secure Internet connectivity for devices and LANs via the cellular networks. It can be used to provide automatic wireless failover for wired networks, wireless connectivity for devices in remote locations where cable connections are impractical, and wireless connectivity for mobile assets. With upload speeds of up to 50 Mbit/s and download speeds of up to 100 Mbps, the **SmartFlex™** provides ample bandwidth, even for applications that require video.

APPLICATIONS



LEADING THE INDUSTRY

The **SmartFlex™** is designed and manufactured for use in tough environmental conditions. Specifications include wide operating temperature ranges from -40 to +75 °C (-20 to +60 °C LTE450 module). It accepts input voltage ranges from 10 V DC to 60 V DC and is equipped with sleep mode for reducing electrical consumption

The **SmartFlex™** places intelligence out at the network edge with an extremely powerful Cortex A8 CPU at 1GHz, 256 MB flash memory, 512 MB RAM and 128kB M-RAM, providing full support for LTE (long Term Evolution) speeds and applications. A secure Web interface allows users to configure and manage the **SmartFlex™** from remote locations. The router can also upgrade its configuration and firmware from the operator's central server, allowing for simultaneous mass reconfiguration of every router on the network. Users may insert Linux scripts and they can create multiple configurations for the same router. Users may switch from one configuration to another at any time.

The flexible **SmartFlex™** can be configured to suit any application. The standard configuration includes 2 Ethernet ports with 2 independent LANs/IP addresses. The standard configuration also includes 1 USB host port, 1 microSD card holder, 2 SIM card holders for automatic failover to an alternate service provider, 2 binary inputs (I/O), 1 binary output (I/O) and onboard GPS. An optional built-in WiFi module is also available, with industrial grade operating temperature ranges from -40 to +75 °C (-20 to +60 °C LTE450 module). Further optional boards available: 3x ETH (the router can be configured with up to 5 total Ethernet ports and 3 independent LANs/IP addresses) or ETH - RS232 - RS485 (isolation strength up to 2.5kV) or RS232 - RS485 (isolation strength up to 2.5kV) or RS232.

The **SmartFlex™** supports real time data encryption and the creation of VPN tunnels using IPsec, OpenVPN and L2TP. It supports DHCP, NAT, NAT-T, DynDNS, NTP, VRRP, control by SMS, and numerous other functions, as well as additional software like SmartCluster VPN Server and R-SeeNet.

TECHNICAL SPECIFICATION

Power, Consumption, Environmental, IP cover

Power supply	10 – 60 VDC (2-Way Molex connector)
Power consumption – Idle / Average / Peak / Sleep Mode	2.5 W / 4W / 11 W / 10 mW
Temperature range – Operating / Storage	-40 to +75 °C / -40 to +85 °C
Temperature range LTE450 – Operating / Storage	-20 to +60 °C / -40 to +85 °C
Humidity – Operating / Storage (non condensing)	0 to 95 % / 0 to 95 %
Cold Start	-35 °C
Operating Altitude	2000 m / 70 kPa
Ingress Protection Rating	IP30

Cellular module parameters

	SR303 - EMEA	SR305 - NAM	SR306 - APAC & LATAM	SR307 - LTE450
LTE	Bit rate 100 Mbps (DL) / 50 Mbps (UL) Supported frequencies: 800/900/1800/2100/2600 MHz	Bit rate 100 Mbps (DL) / 50 Mbps (UL) Supported frequencies: 700/700/850/AWS (1700/2100)/1900 MHz	Bit rate 100 Mbps (DL) / 50 Mbps (UL) Supported frequencies: 800/900/1800/2100/2600 MHz	Bit rate 100 Mbps (DL) / 50 Mbps (UL) Supported frequencies: 450/800/1800/2600 MHz
WCDMA	Bit rate 42.0 Mbps (DL) / 5.76 Mbps (UL) Supported frequencies: 900/1800/2100 MHz	Bit rate 42.0 Mbps (DL) / 5.76 Mbps (UL) Supported frequencies: 850/AWS (1700/2100)/1900 MHz	Bit rate 42.0 Mbps (DL) / 5.76 Mbps (UL) Supported frequencies: 850/900/1900/2100 MHz	Bit rate 42.0 Mbps (DL) / 5.76 Mbps (UL) Supported frequencies: 900/2100 MHz
GPRS/EDGE	Bit rate 237 kbps (DL) / 59.2 kbps (UL) Supported frequencies: 900/1800 MHz	Bit rate 236 kbps (DL) / 59.2 kbps (UL) Supported frequencies: 850/900/1800/1900 MHz	Bit rate 236 kbps (DL) / 59.2 kbps (UL) Supported frequencies: 850/900/1800/1900 MHz	Bit rate 236 kbps (DL) / 59.2 kbps (UL) Supported frequencies: 900/1800 MHz

WiFi - 802.11 a/b/g/n, AP or Client modes

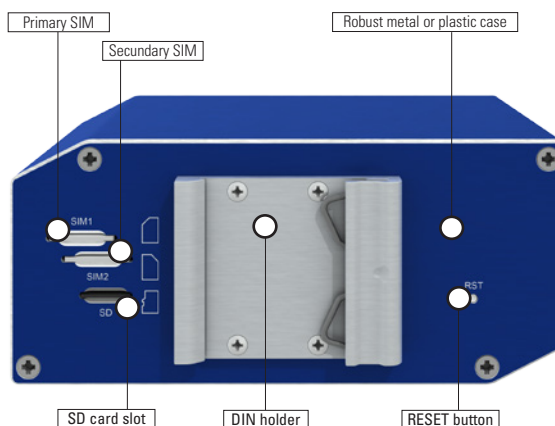
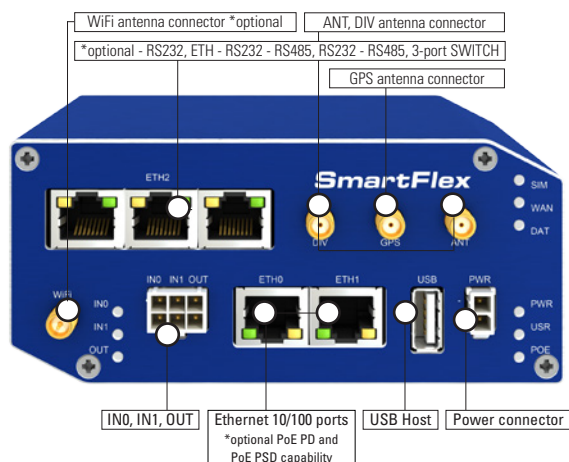
Supported WiFi band 2.4 GHz, 5.4 GHz	Number of clients: 10
Encryption: None, WEP, TKIP, AES	Authentication: Open, Shared, WPA-PSK, WPA2-PSK
5 GHz supported channels – 36, 40, 44, 48, 52, 56, 60, 64, 149, 153, 157, 161, 165	
2.4 GHz supported channels – 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14	

Industry Certifications & Approvals

Radio for general LTE	ETSI EN 301 511 v9.0.2, ETSI EN 301 908-1 v5.2.1, ETSI EN 301 908-2 v5.2.1, ETSI EN 301 908-13 v5.2.1
Radio for LTE450	ETSI EN 301 908-1 v6.2.1, ETSI EN 301 908-13 v6.2.1, ETSI EN 301 489-24 v1.5.1
Emissions/ Immunity	IEC 61000-6-2:2005, ETSI EN 301 489-1 v1.9.2, EN 55022:2010
Safety	EN 60950-1:06 ed.2 (not Hazardous Locations), EN 62311:2008
Vehicle	E8
Environmental	RoHS, RoHS2, REACH, WEEE
Approvals	PTCRB, R&TTE, CE, FCC, IC, UL Carrier Approval: AT&T

Mechanical

Plastic or metal case with plastic or metal DIN rail	
Enclosure Dimensions	87x30x127mm (150mm including wall month sides)
Weight Plast/Metal	170 g/375 g



Router SmartFlex is compatible with:

R-SEENET

SMARTCLUSTER

SMARTWORX HUB™

Features	
Network and Routing	DHCP Server, , DHCP Client, NAT/PAT, VRRP, Dynamic DNS client, DNS proxy, VLAN, QoS, NTP Client/ Server, IGMP, BGP, OSPF, RIP, SMTP, SMTPS, SNMP v1/ v2c/ v3, Backup routes, PPP, PPPoE, SSL, Port Forwarding, Host Port Routing, Ethernet Bridging
Security	HTTPS, SSH, VPN tunnels, SFTP Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering)
VPN tunnelling	Open VPN client and server and P2P, L2TP, PPTP, GRE, EasyVPN, DMVPN IPSec with IKEv1 and IKEv2
Configuration	Web server, SSH, Four configuration switchable profiles, Automatic configuration update from server Backup configuration, Restore configuration
Firmware Management	Automatic firmware update from server, Locally via LAN and USB or remotely OTA (HTTP, HTTPS), Over-the-Air software updates, Over-the-Air cellular module update from FW
Diagnostic	One CLICK report – current configuration / factory identification / system log / kernel log / reboot log / routing table, Remote diagnostics possible via SSH
Status	Network Status, DHCP Status, IPSec Status, Statistics history for last 60 days
Log	System Log, Reboot Log, Kernel Log
Controlling and diagnostic	SMS, SNMP v1/v2c/v3, Statuses, Log
Event Engine	StartUp script & Up/Down script (Bash), Digital Input, Network Parameters, Data Usage, Timer, Power, Device Temperature. Report Types: RAP, SMS, email, SNMP Trap, TCP (csv, xml, binary)
Support and Warranty	3 years warranty, Free device software upgrades, Optional warranty extension
Other	Support of IPv6

Ports, LED, Antennas	
Up to 5x ETH ports	RJ45, 10/100 Mbps
SIM	2 Mini SIMs (2FF) (rear panel)
LED Indicators	PWR, DAT, WAN, ETH, SIM, USR, POE, IN0, IN1, OUT
3x ANT - ANT, DIV, GPS (no for LTE450 model)	SMA connectors
WiFi antenna - *optional	R-SMA connector
USB	USB Host connector 2.0
I/O	6-Way Molex connector – 2x binary input, 1x binary output
SD Card	1x Micro SD Card slot (rear panel)
RST	RESET button (rear panel)
*optional 3-port SWITCH	3x RJ45, 10/100 Mbps
*optional ETH - RS232 - RS485	RJ45, 4pin terminal block, 3pin terminal block connectors – Isolation up to 2.5 kV
*optional RS232 - RS485	5pin terminal block, 4pin terminal block connectors – Isolation up to 2.5 kV
*optional RS232	RJ45
*optional LAN version of router - without cellular module	3x RJ45 SWITCH, 10/100 Mbps, no cellular module

PoE Parameters	PoE PD	PoE PSE
Input voltage range	42.5 – 57 V	44 – 57 V, 65 W
Power available	25.50 W	2x 25.50 W (ETH0, ETH1)
Maximum current	600 mA	
Insul. Strength	1.5 kV from the router	none
Standards IEEE 802.3at-2009 (PoE+) and IEEE 802.3af-2003 (PoE) supported. Cabling needed is Category 5, up to 12.5 Ω. It is possible to use a passive PoE injector.		



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