LUMISYS

BUILT FOR INTEGRATION

Installation Guide

Lumisys Telephone Override Module (LTOM)

obsolete

1025 Cobb Place Blvd Suite 100 Kennesaw, GA 30144 • 800-241-9173 • www.lumisys1.com

ATTENTION

This section serves as a notice of the immediate or potential dangers involved when working with the equipment described throughout this manual. Any person involved in installation, maintenance, or service of the equipment should first carefully examine the equipment and read the instructions contained in this manual to ensure that personal and/or equipment injury is avoided.

The following safety messages are commonly used in Lumisys documentation to alert of immediate or potential danger to life or property:

Hint Indicates a tip or trick to help you.

Note Indicates an important note.

DANGER! Indicates an immediately hazardous situation which, if not avoided, will result in death or serious injury.

WARNING! Indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

CAUTION: Used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, can result in personal or property damage. Failure to comply with proper handling of the Lumisys products may void your warranty

In addition, this symbol may appear in the margin of specific portions of text as a safety reminder. Applicable instruction steps will be listed beneath the symbol.

Disclaimer

The major components of this equipment have been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Instructions contained in this user's guide should be performed only by qualified persons in accordance with local and national codes. Lumisys® Lighting and its affiliates assume no responsibility for any consequences related to the improper use of this manual.

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LTOM

Parts List - Factory Assembled

Select Panel Type:

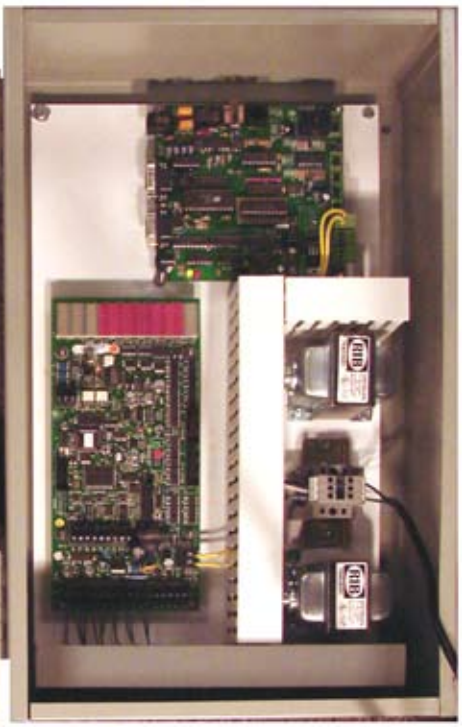
FACTORY ASSEMBLED PANELS*				
Part #	Description	Maximum Capacity	Panel Power	Standard Light Level Sensor Inputs
LTOM	Lumisys Telephone Override Module	510 User IDs	120 VAC	1

Ordering Example of Factory Assembled LTOM

Part #	Quantity
LTOM	1

Panel Cover

Panel Interior



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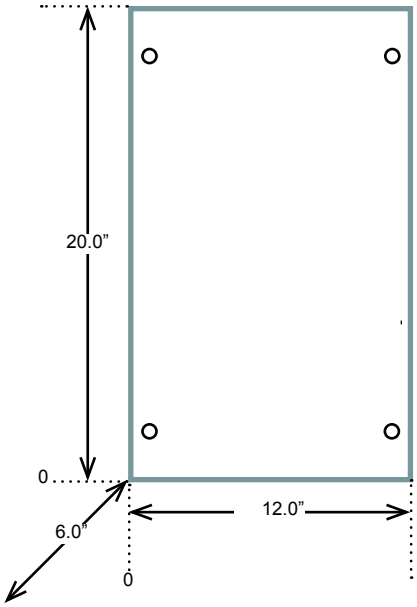
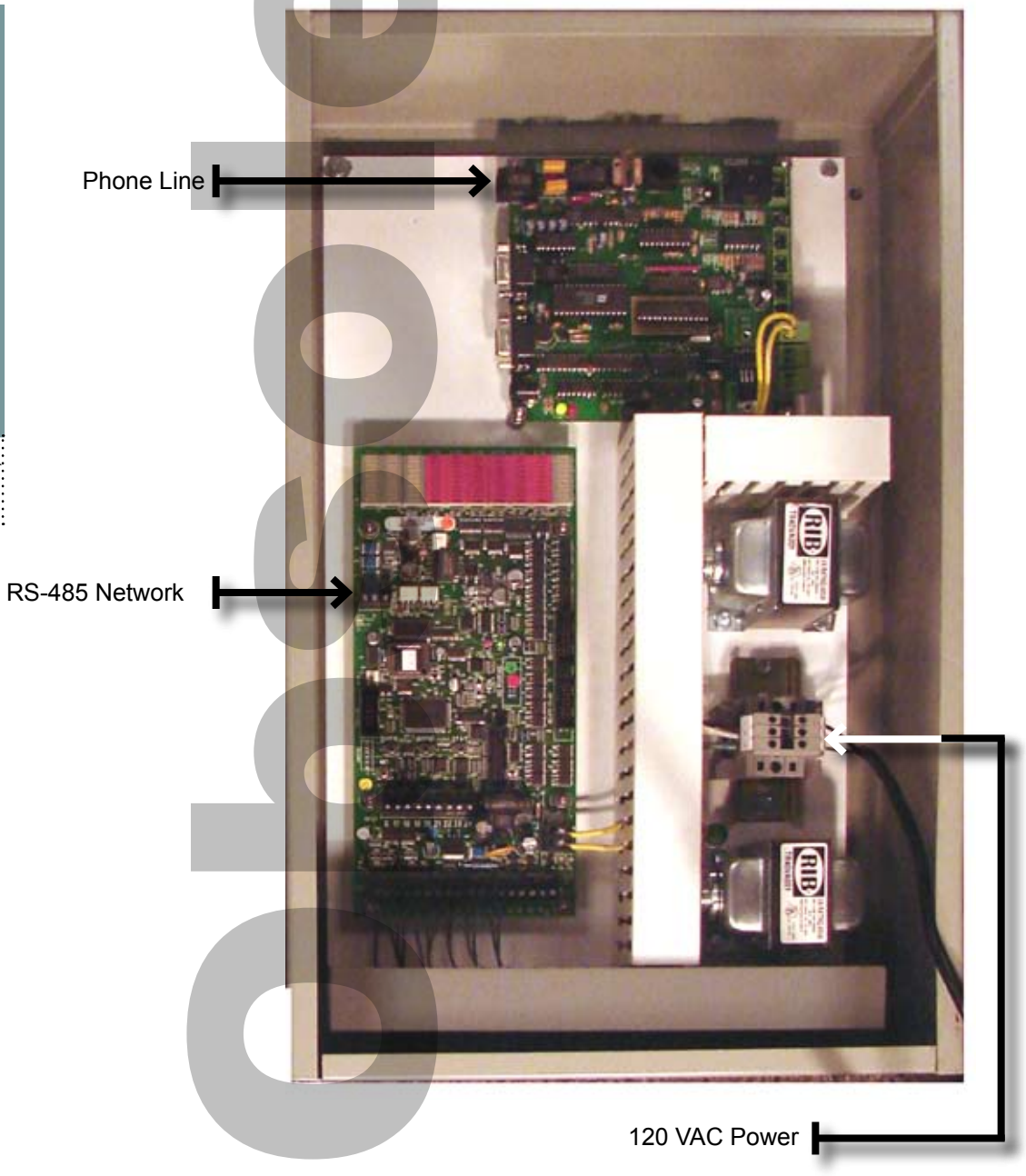
The Lumisys Telephone Override Module is Easy to Install

The Lumisys Telephone Override Module (LTOM) should be installed by a qualified electrician. The 30 lb unit must be properly anchored to a wall and holes drilled in the enclosure for incoming power, phone, and network wiring. Follow all local and National Electrical Code requirements.

IMPORTANT: Power, phone, and network wiring must **NOT** be run in the same conduit.





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How the Lumisys Telephone Override Module Works With a BAS

The Lumisys Telephone Override Module (LTOM) output is binary code in a form readable by the building automation system. This output is actually the lighting groups the BAS reads from a Lumisys lighting control panel. The difference is that the lighting groups are to be interpreted by the BAS as a binary code message rather than status of lighting zones.

Each of groups 1-12 represents a numeric value. These values form a code which must be interpreted by the BAS. The binary sum of groups 1-9 is the user's ID#. The binary sum of groups 10-12 is the hours of override requested (1-6) or 7=cancel the override.

The password is handled internally by LTOM, not the BAS.

Group	Decimal Value	Meaning
1	1	ID
2	2	ID
3	4	ID
4	8	ID
5	16	ID
6	32	ID
7	64	ID
8	128	ID
9	256	ID
10	1	Hours Override
11	2	Hours Override
12	4	Hours Override

As an example, when prompted by the LTOM, the user enters the correct password, an ID of 5 and hours override of 3 at the phone key pad. The LTOM translates these keystrokes into the correct output groups and the BAS reads these as point 1, point 3 for the ID and point 10, point 11 for the hours override. The BAS adds binary points 1 and 3 to get the decimal value of 5 for the user ID. Likewise, binary points 10 and 11 results in the decimal value of 3 for the requested hours of override.

The BAS must be programmed to implement the override on zone 5 for 3 hours. This can be handled anyway that the BAS integrator chooses. Typically, zone 5 would be mapped to a circuit in a Lumisys relay panel. Execution time will vary with your BAS method and is typically on the order of 30 to 60 seconds from hangup to lightings on.

The factory recorded message assumes a keypad entry of 7 (translating into binary points 10, 11, and 12 which add up to decimal value 7) will be used by the BAS to cancel override for the associated ID zone. However, the voice prompts can be customized by the end user to take on any meaning desired.

The network scanner card inside the LTOM enclosure is factory default set to RS-485 address 252; however, it can be set to any RS-485 address 1-255 as needed for the BAS by setting the rotary switches and rebooting the unit.

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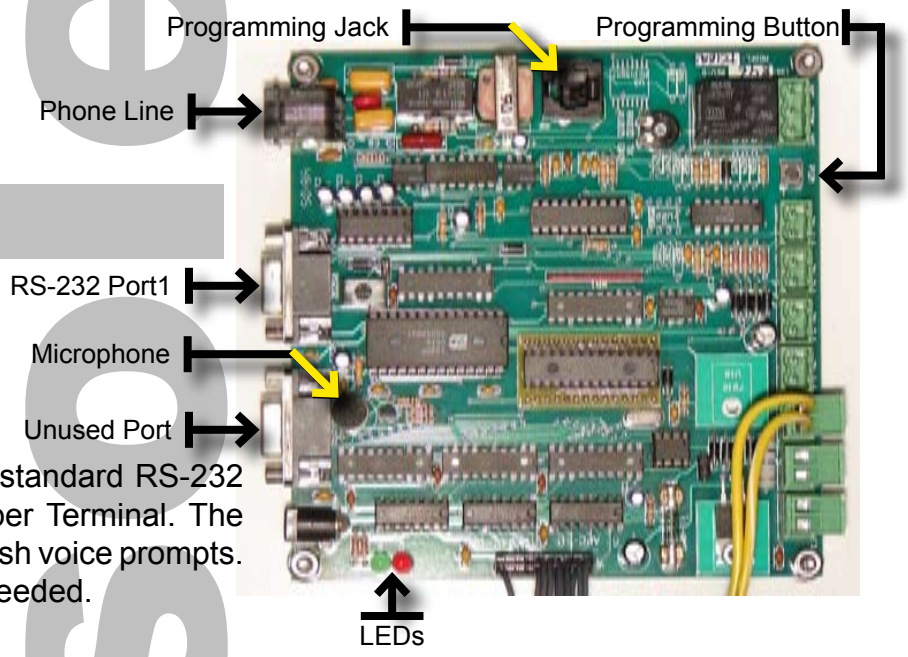
Configuration of the LUMISYS Telephone Override Module

Scanner Card

The LTOM scanner card is simply the Lumisys Panel Processor, LMB. LTOM can reside on the same network as the Lumisys lighting panels and is addressable 1-255 (Factory default address is 252). The address is changed either by the increment/decrement pushbutton or the rotary switches on the network scanner card. Use the push button on units manufactured in 2006 with LMB card. Use rotary switches on units manufactured in 2007 or later. Refer to current Lumisys processor documentation.

Modem



The Modem designed to be a user controlled interface to deliver over-ride data to a building automation system. Up to 510 zones can be controlled. There is also an administrator password that allows access to any zone. The output is in the form of 12 virtual points, that present data in a binary format to the automation system. Virtual Points 1-9 give the address information and Virtual Points 10-12 represent the number of hours. All user IDs and passwords are programmed using a standard RS-232 interface to a terminal program, such as Hyper Terminal. The LTOM comes from the factory with default English voice prompts. The end-user can re-record voice prompts if needed.

Programming

To program the LTOM, connect the RS-232 cable to a PC and run any standard terminal program, such as HyperTerminal. Set it to 9600,8,N,1 with flow control set to None or off. Set echo on.

Default Passwords are set at the factory and can be reset into the unit at any time. The default passwords are the same as the user ID, with an additional leading zero. For example, ID 123 has a password of 0123. Any existing passwords will be over-written by doing a default reset. To reset passwords to the defaults, enter *D on the terminal. You will be prompted RESET ALL PASSWORDS TO DEFAULT VALUES? Y(YES) N(NO) : . Enter a Y to reset, an N or any other character to cancel.

All existing passwords can be output to a file or displayed by entering *L for List. A list will display the first unit ID at the beginning of the line and then 4 passwords.

For example:

123- 0123 0124 0125 0126
127- 0127 0128 0129 0130 etc.

Discontinued

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To read the password assigned to any of the 510 unit IDs enter Rnnn where nnn is the unit ID.

For example:

To read the password assigned to unit ID 123, enter R123" a dash will appear on your screen and the current password for unit 123 will be displayed: R123-0123 followed by a carriage return and line-feed.

To assign a password to an ID, enter Wnnnpppp where nnn is the 3 digit ID number and pppp is the password. For example, to assign a password of 5678 to unit ID 400, enter W400- 5678 (the - will automatically be inserted after the ID number). The Unit ID must be between 000 and 511 and the password must be four numerals (no letters). If an ID or password is out of range, the error message will display: Invalid Entry, unit must be 000 to 511, Password a 4 digit number .

Administrator and Relay timing

Unit IDs 000 and 511 are reserved for special use. The password programmed into unit ID 000 is the administrator's. That password will be accepted for any unit ID code to allow control of that zone by the administrator. For example, if a password of 9876 is programmed into ID 000, and a password of 1234 is set for unit 200, then unit 200 can be controlled both by its own password 1234, and by the administrators password 9876.

Unit ID 511 is reserved for the number of seconds that the Virtual Points will stay energized after a valid control command. The default value is 10 seconds. This value is changed by entering W511-nnnn with the new value. Valid values are 0001 - 0200 seconds. Anything over 0200 will set the timer for 200 seconds, 0000 will set it for 1 second.

Voice Prompts

There are 6 user programmable voice prompts. These can be re-recorded at any time using a standard telephone keypad. You must remove the top cover of the LTOM to access the programming jack, programming button and record microphone.

The six default messages are:

Message 1 - Please enter your user number followed by the # sign.
Message 2 - Enter your password followed by the # sign.
Message 3 - Enter the number of over-ride hours, one to six or a seven for off.
Message 4 - Thank you, your request has been submitted.
Message 5 - Invalid Entry, please try again.
Message 6 - Good bye.

These can be changed or re-recorded in another language by plugging in a standard telephone to the program jack. The program jack is the vertical RJ-11 inside the box. Press the PGM button, located on the rear edge of the board. The Green LED will turn off to indicate you are in program mode. Enter a 1-6 on the keypad for the message you want to record. When the red LED turns on, speak your new message into the microphone,

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located just behind the radio interface DB-9 jack. When finished, press the program button again and your new message will play back. Message 1 has 15 seconds available and all the other messages have 7.5 seconds of record time. If the pgm button is not pressed at the end of the message, the total time allotted for that message will elapse before exiting record mode. This will make the messages longer than needed and will slow down a user call-in session. For best results, press the pgm button at the end of your new message.

Operation

With the passwords programmed you can now set up the LTOM for operation. Plug in a standard telephone line to the front panel. Call the LTOM. It should answer on the first ring and play message 1, the greeting message. After the message ends, enter the three digit user ID or zone number you wish to over-ride. If the user ID is outside the 001-510 range, message 5 will play, Invalid entry, please try again. A # sign must be entered after the unit ID and password entries.

If the unit ID is valid, it will play message 2, to prompt you for your password. If the password matches either the one programmed for the zone or the administrator's, message 3 will play prompting you for the number of over-ride hours. Hours can be one through six with a seven being the off command. After a valid entry is decoded, the relays will turn on, message 4 will play acknowledging the request and message 6 goodbye will play before hanging up. Once the relays have been activated, the LTOM will not answer the phone line again until they have timed out and turned off. This is to avoid another caller from interfering with the previous request. As soon as the relays time out, the LTOM will begin answering the phone line again.

A telephone plugged into the programming jack can also be used to control the LTOM. This can be useful for local control and testing. With a standard POTS (plain old telephone system) phone line, a CPC signal is generated when the remote party hangs up. This signal is a break in the loop current, which is detected by the LTOM. That will cause it to hang up if the calling party terminates the call before completing the over-ride session, or a wrong number call is answered. If the LTOM is connected to a PBX system, the CPC signal is not always passed through. As a fail safe, the LTOM will automatically hang up after one minute of no DTMF activity. This will prevent the LTOM from staying off hook and the line being perpetually busy if a control session is not completed and no CPC signal is detected.

FCC Statement

1. UPON REQUEST ONLY, you must provide the following data to your telephone utility company (telco):
   (a) Notice of intention to install or permanently remove an FCC Part 68 registered device or system, and the *FCC registration Number, of the modem card, 3H9USA-2775/-AL-E

   (b) *The Ringer Equivalen ce (R.E.N.) n umber (see device label). Note that if several devices are connected to the same line, the R.E.N.'s must not add up to more than 5.0 {A or B}. This R.E.N. figure is important to your telco.

   (c) *The (USOC) jack type to be provided by the telco. Typically these will be RJ11C/W for single lines. *The *-flagged items above are noted on the equipment's FCC Compliance label.

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2. This device may not be used on telco-operated coin phone lines. Party lines & privately owned coin-phones are subject to local State regulatory policies, and possible additional State special requirements.

3. The telco has the right to make changes to their network which may affect the operation of your equipment, provided you are given adequate advance written notice to permit correct operation.

4. In case of operational problems, disconnect your unit by removing the modular plug from the telco's jack. If your regular phone (or other device or system) still works properly, your LTOM has a problem and must remain disconnected and (officiall y) serviced or retur ned for repairs. If upon the above disconnection your regular service still has problems, notify your telco that they may have a problem. Request prompt service at no cost to you the user. If a problem is found in premises wiring not telco-installed, you are subject to a service charge. If a fault is in telco-in stalled wiring, you may be subject to a service call charge.

5. Unless otherwise noted in the User's Manual, user may not under any circumstances (in or out of warranty) attempt any service, adjustments or repairs on this unit. It must be return ed to the factory or authorized U.S. service agency for all such work. Locations and phone numbers of factory or authorized U.S. service points are listed in this user's manual.

6. Special FCC rules apply to equipment connected behind a PBX or KTS.

The modem in this device complies with the limits for a class B digital device, pursuant to part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause har mful interfer-ence an d (2) this device must accept any interference received, including interference that may cause un-desired operation.

Modem Complies With Part 68, FCC Rules
FCC Registration Number 3H9USA-27751-AL-E
Ringer Equivalence 0.4A
Jack Type (USOC) RJ11C

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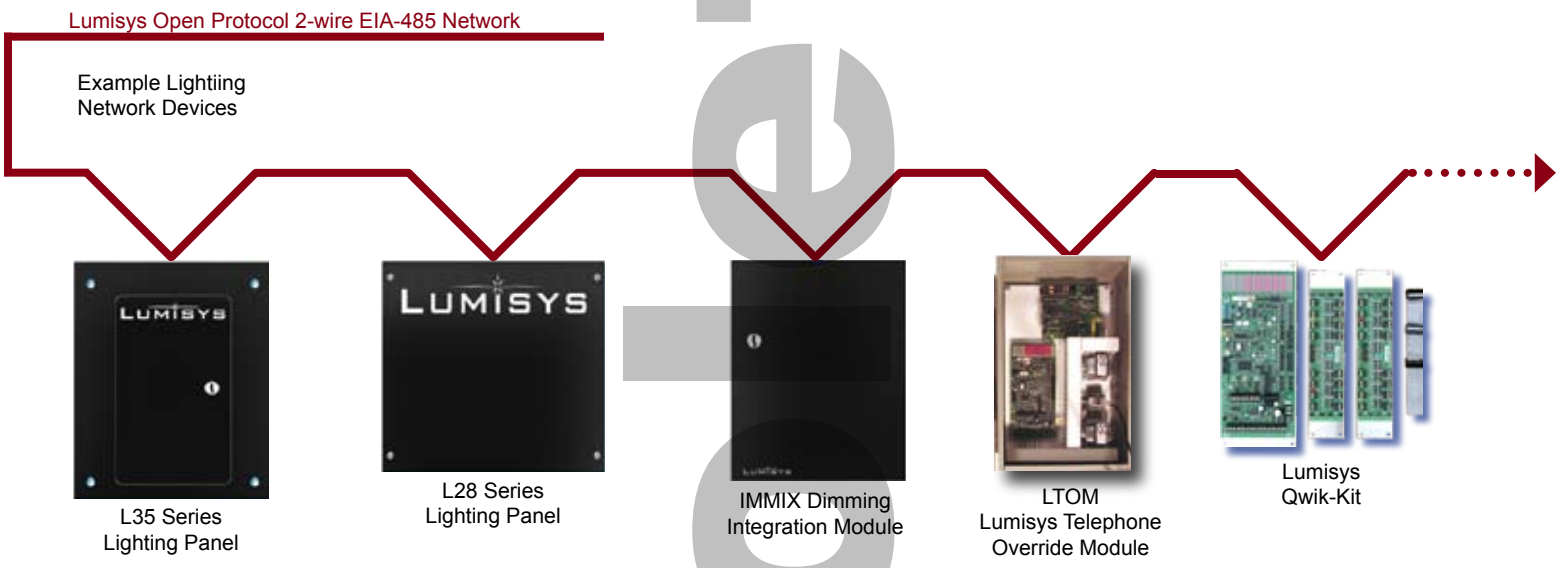
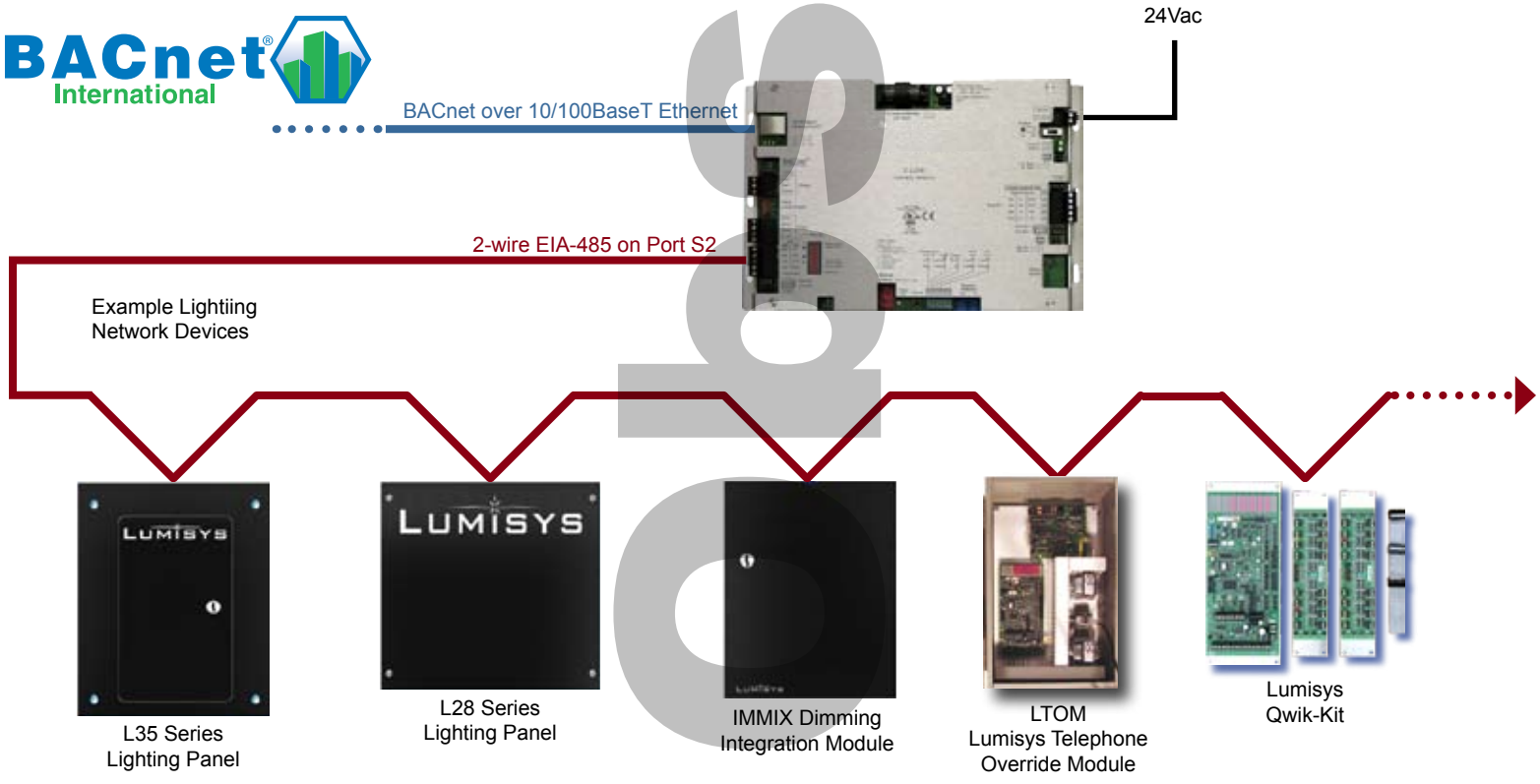
Wiring Applications

Lumisys Open Protocol



BACnet over Ethernet



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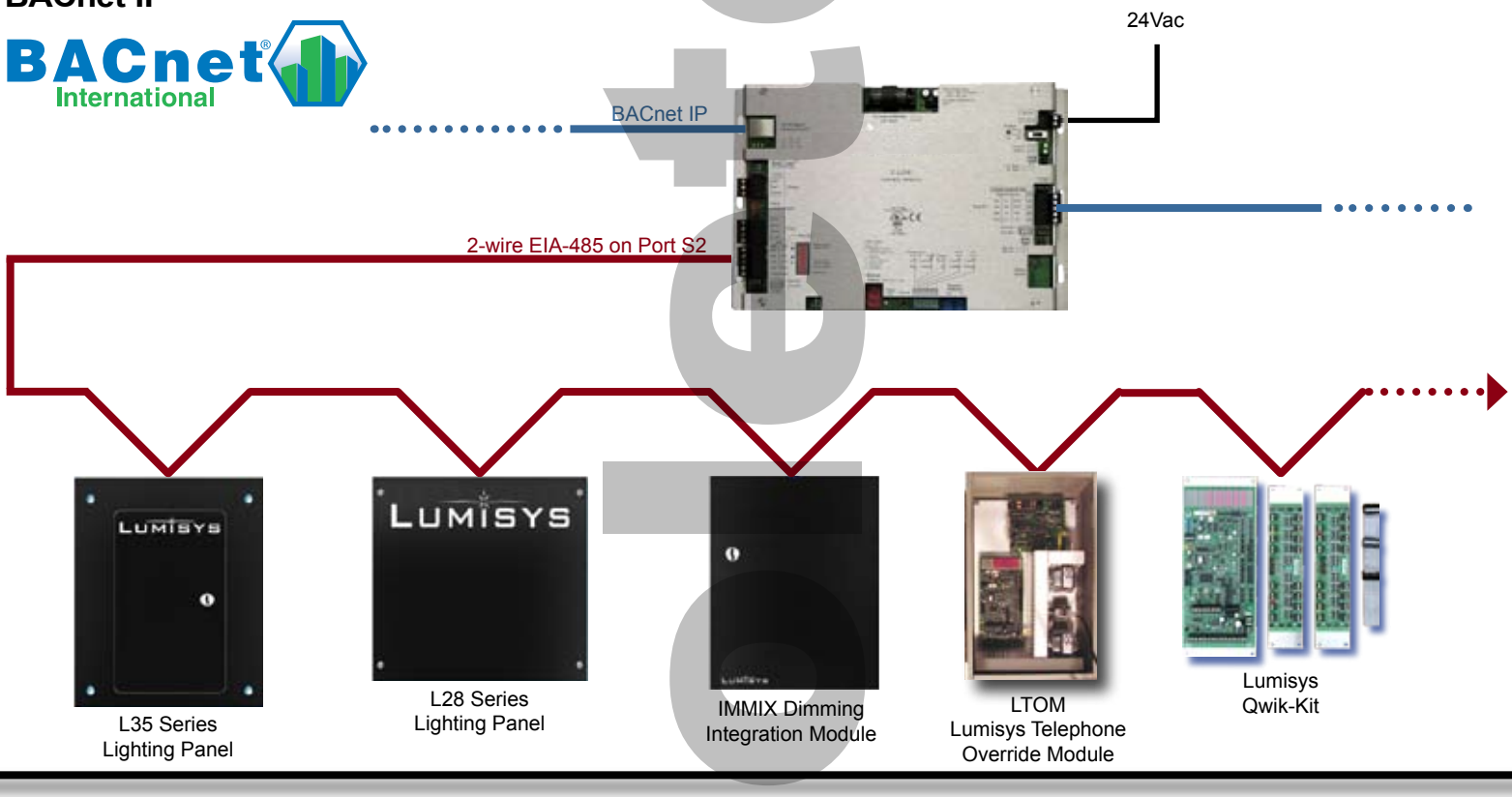
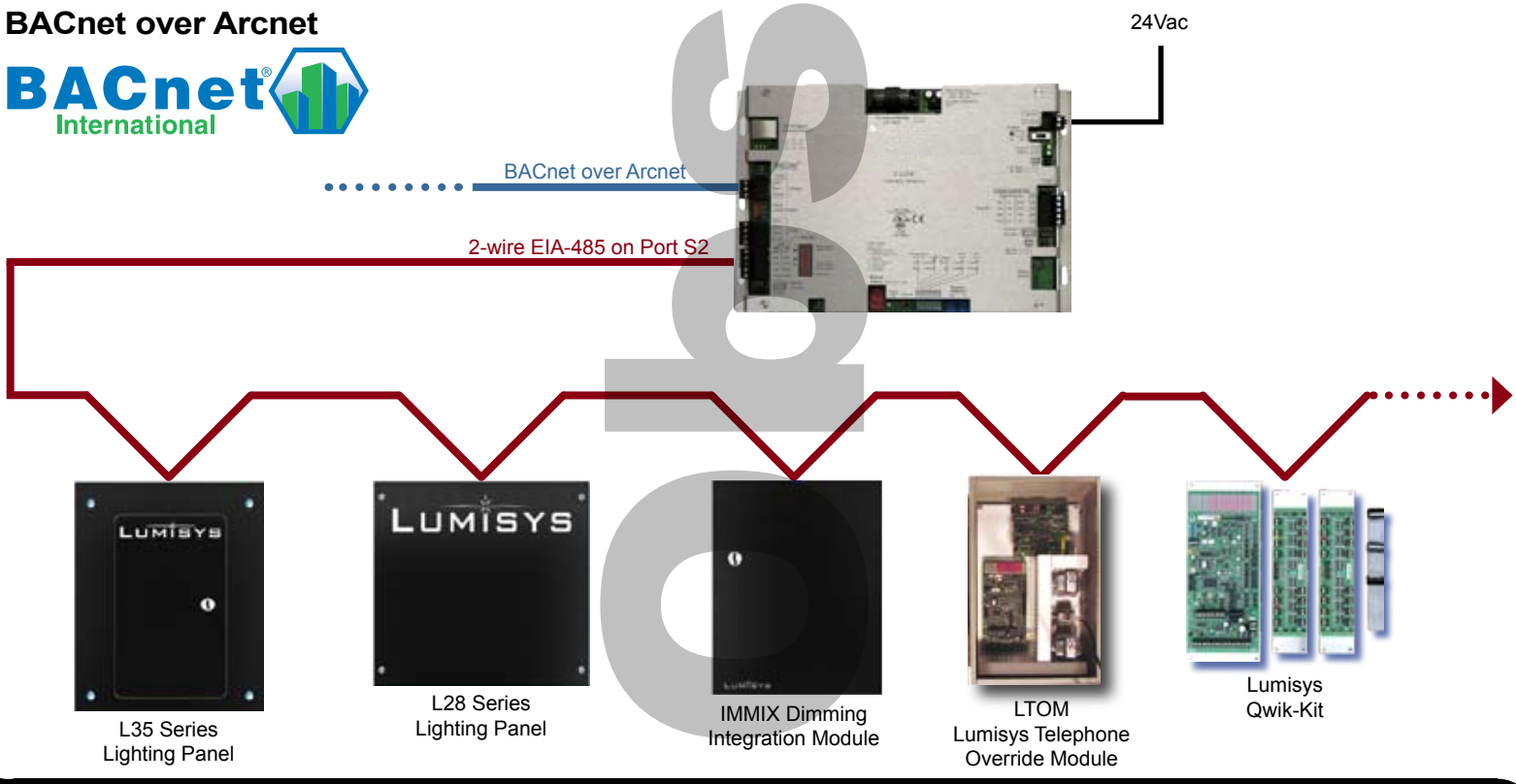
BACnet IP



BACnet over Arcnet



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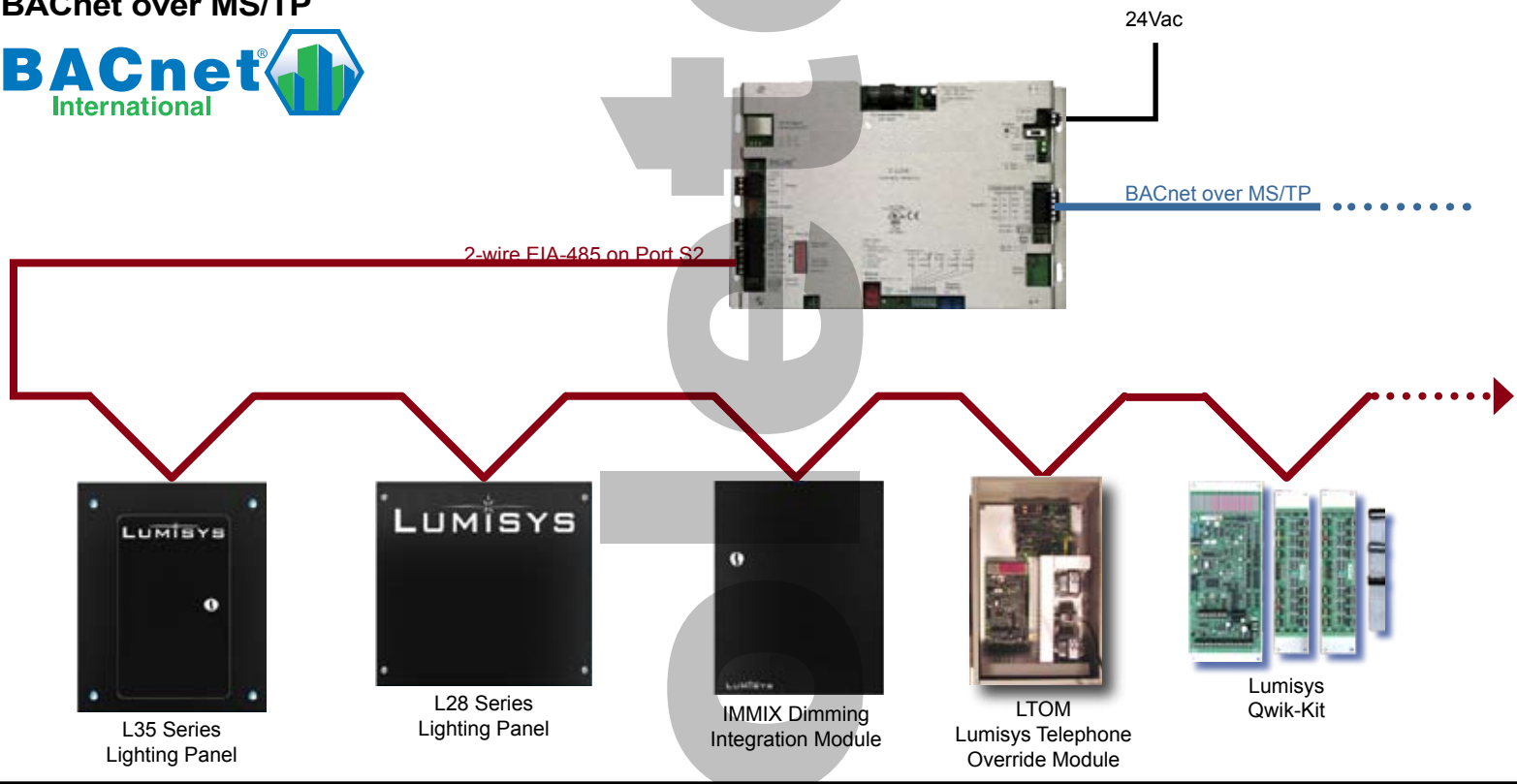
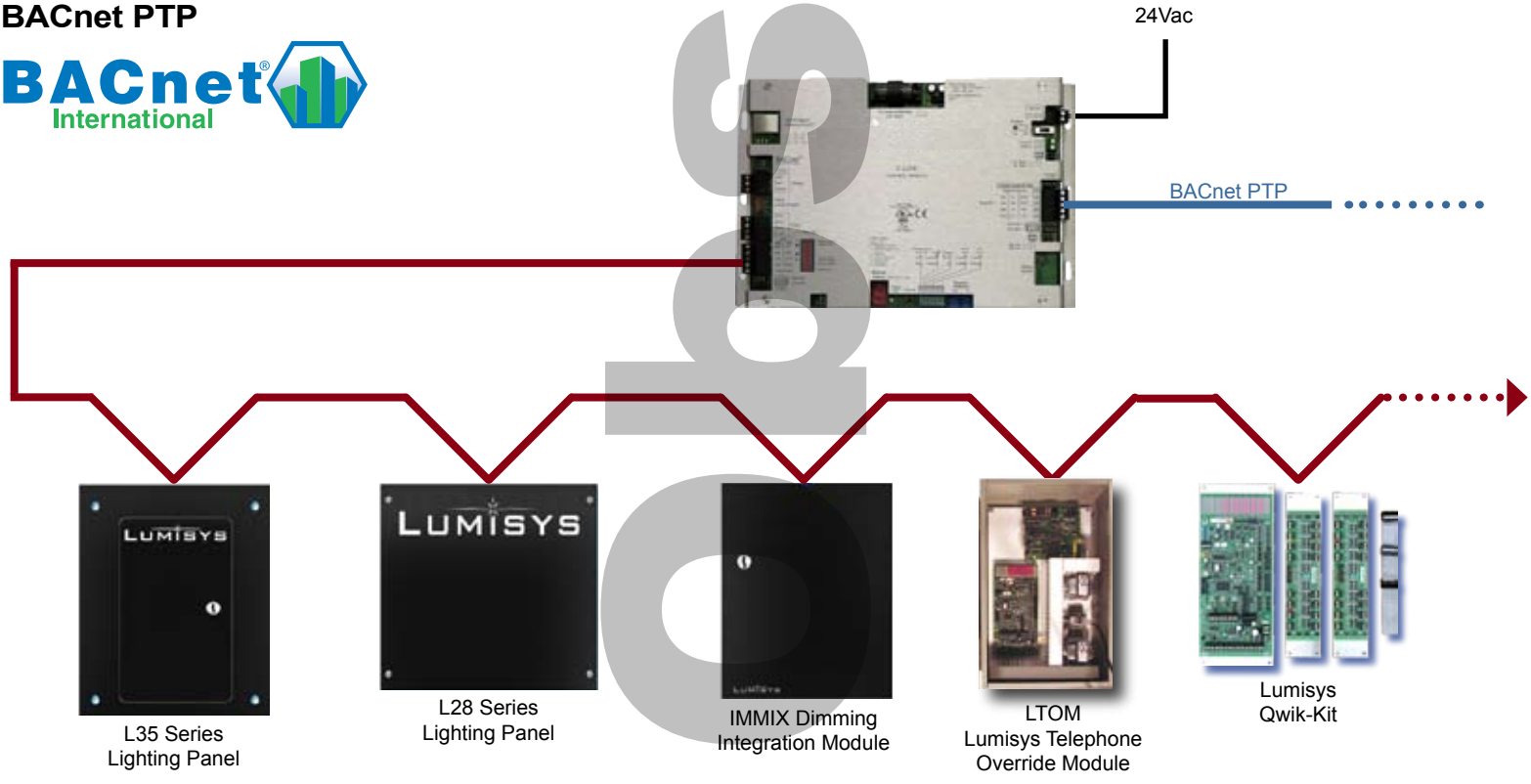
BACnet over MS/TP



BACnet PTP



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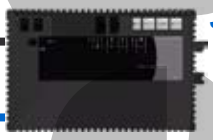
N2 / Metasys

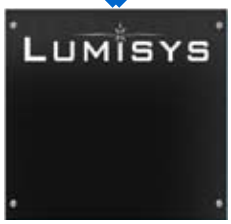
Ethernet IP / BACnet or N1

Johnson Controls N2 BUS

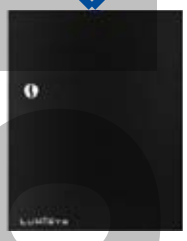


Johnson Controls NCM, NAE or NIE
Network Control Module or
Network Application Engine

L35 Series
Lighting Panel

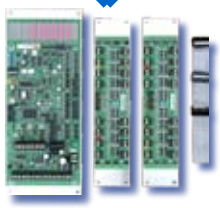


L28 Series
Lighting Panel



IMMIX Dimming
Integration Module

LTOM
Lumisys Telephone
Override Module



Lumisys
Qwik-Kit

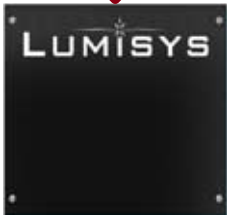
SBT / The APOGEE System

LAN / WAN / TCP-IP

Lumisys 2-wire EIA-485 Network

Siemens Building Technologies
MBC with Open Processor
or Power MEC
} with Lumisys Driver

L35 Series
Lighting Panel



L28 Series
Lighting Panel

IMMIX Dimming
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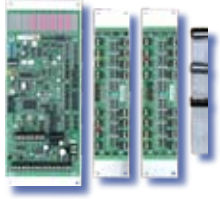

Lumisys
Qwik-Kit

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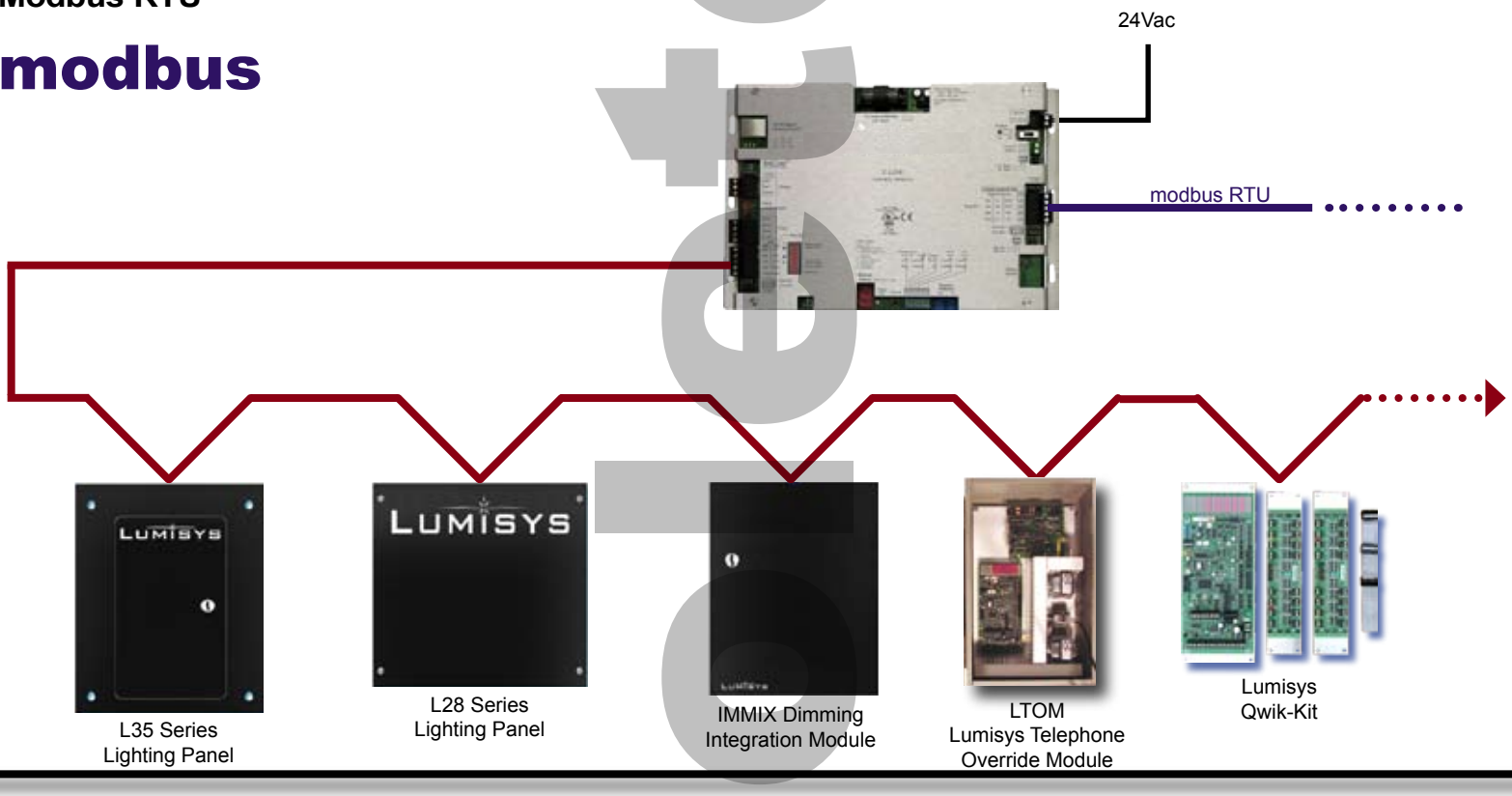
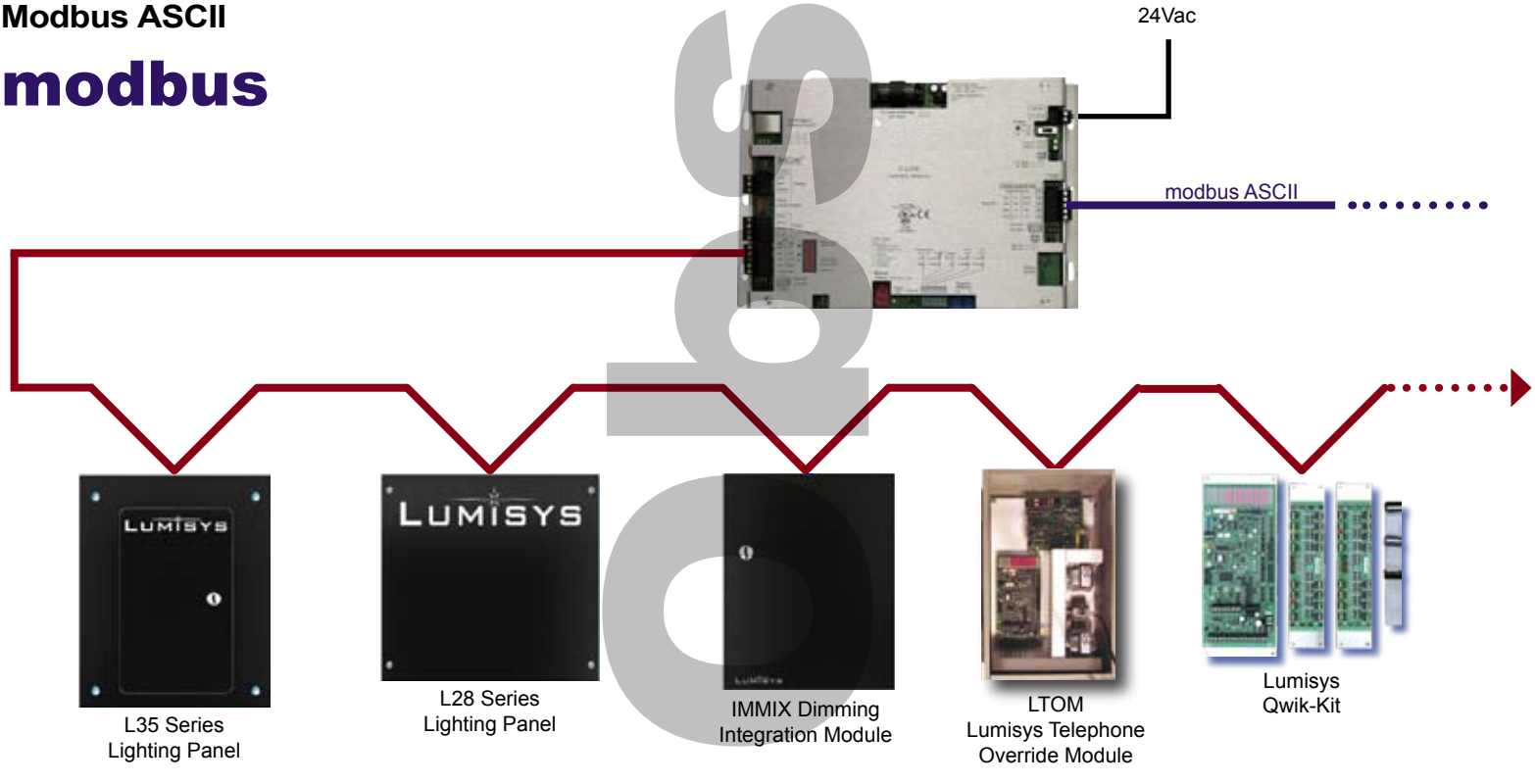
Modbus RTU

modbus



Modbus ASCII

modbus



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Terms and Conditions of Sale

AGREEMENT OF SALE: Acceptance by Lumisys, (hereinafter "Seller") of any order, placed for the goods described on the Acknowledgment, Invoice or Sales Contract hereof shall be subject to Seller's Standard Terms and Conditions of Sale and is conditioned upon the Buyer's acceptance of these Standard Terms and Conditions of sale as stated on this Sales Contract.

TERMS OF CONTRACT: Any terms or conditions of the Buyer's order which are inconsistent with these Standard Terms and Conditions shall not be binding on the Seller and shall not be considered applicable to the sale or shipment of goods covered by this Acknowledgment, Invoice, or Sales Contract. PRICES: Prices are subject to change to the extent permissible under applicable federal law. Sales contracts which call for delivery in the future will be billed at prices in effect at the time of shipment. Shipping weights shown are approximate and subject to change without notice. Seller shall notify buyer of any significant changes in weight.

SHIPMENT AND PAYMENTS: All prices are F.O.B. Seller's plant in Kennesaw, Georgia. No freight is allowed on any shipments. Shipments and deliveries hereunder shall at all times be subject to the approval of Seller's Credit Department. Seller may, at any time, require payment in advance or satisfactory security or guarantee that invoices will be promptly paid when due. If Buyer fails to comply with any terms of payment, Seller, in addition to its rights and remedies but not in limitation thereof, reserves the right to withhold further deliveries or terminate this Agreement, and any unpaid amount thereon shall become due immediately. Terms of payment shall be as set forth on the face hereof. Unless approved by Seller, all overseas shipments shall require prepayment by wire transfer or an irrevocable letter of credit from Buyer.

FORCE MAJEURE: Delays or defaults in delivery by Seller of the goods covered by this Sales Contract shall be excused as Force Majeure so far as the same is caused by fire, strikes, accident, war, natural disasters, acts of God, terrorism, explosions, death, vandalism, armed robbery, theft, breakage of machinery, governmental regulation, or any other events which were unavoidable or caused by events which are beyond the reasonable control of Seller. In no event shall Seller be liable for any consequential, special, or contingent damages on account of any default or delay in delivery from any Force Majeure event. If any Force Majeure event occurs which may affect Buyer's goods, Seller shall give prompt oral and written notice of its Force Majeure declaration to Buyer within 7 days or as soon as is practicable.

NON-CANCELLATION: Orders are not subject to suspension, reduction, or cancellation, except on terms that will indemnify Seller against loss. SPECIFICATIONS: Seller relies on specifications and other data furnished by the Buyer, architect, contractors, and/or consulting engineer in all phases of the work covered by this Acknowledgment, Invoice or Sales Contract. Seller shall be responsible to check quantities only. Alterations, changes in specifications, approval of samples, and/or changes in delivery shall not be binding upon Seller unless approved by Seller in advance. In the event Buyer asks Seller to perform design or engineering work for any and all phases of the work covered by this Acknowledgment, Invoice or Sales Contract, Seller shall not be responsible for any damages claimed by the Buyer as a result of alleged errors or defects in such design or engineering work except for gross negligence on the part of Seller.

WARRANTY AND LIMITATION OF LIABILITY: Seller warrants that the goods supplied by it have been manufactured in accordance with its standard manufacturing practices, are non-defective and conform to the contract or catalog description for such goods. Except as stated herein, Seller makes no express warranty with respect to goods supplied by it and Seller makes no implied warranties of suitability or fitness for any particular purpose. Unauthorized or unapproved modifications or alterations of such goods without the express written approval of Seller shall void all warranties and indemnities granted herein. To satisfy its indemnity and warranty obligations, Seller will, at its sole option, credit, repair or replace, any goods supplied by it which its examination shall disclose to its satisfaction are defective in workmanship or material, and are returned to it within two years from the date of shipment. Any claim not made within this period shall be conclusively deemed waived by Buyer. Seller shall not be liable for any consequential, special, incidental, punitive or contingent damage or expense arising directly or indirectly from any defect in its goods or from the use of any defective goods or otherwise arising out of this Contract or any purchase order. The remedies set forth herein shall constitute the exclusive remedies available to Buyer for Seller's indemnity and warranties and are in lieu of all other remedies that would otherwise be available to Buyer.

Warranty and technical support on Lumisys products are only available after payment has been received in full.

RETURNS: Material returned for credit is subject to a 10% restocking charge. Freight or other costs incurred in restocking will be added. Returns resulting from errors by the Seller will not be subject to the charge. Returned materials shall be received in condition for resale as new equipment to qualify for credit. Returned materials must be returned to the Seller within 30 days of receipt and shall only be accepted with prior authorization.

SELLER RESERVES THE RIGHT TO SUBSTITUTE MATERIALS USED IN CONSTRUCTION OR EQUIPMENT SOLD PROVIDED SAID SUBSTITUTION DOES NOT MODIFY THE OPERATIONAL CHARACTERISTICS OF THE EQUIPMENT SOLD.

THESE TERMS OF SALE MAY BE MODIFIED WITHOUT NOTICE. THE TERMS OF SALE IN EFFECT AT THE TIME OF SALE SHALL APPLY. THE SELLER AS REFERRED TO IN THE TERMS OF SALE IS Lumisys.

CLAIMS: Claims for shortages of goods or for mistakes or errors in billing must be presented within forty-five (45) days from the date of goods; and must state the packing slip number and container number applicable to the claim. Any claim not so presented shall be conclusively deemed waived.

TAXES: Any federal, state, local or government tax or charge on the sale, shipment, or installation of the goods covered by the Acknowledgment, Invoice or Sales Contract, shall be added to the price and paid by Buyer or, in lieu thereof, the Buyer shall furnish Seller with tax-exemption certificates acceptable to the taxing authority. Buyer agrees to reimburse and save Seller harmless from all such state and local taxes, including interest and penalties thereon, which may at any time be payable to any governmental unit with respect to the sale of any goods covered by this Acknowledgment, Invoice or Sales Contract.

CREDIT BALANCE: Any credit memos granted to Buyer from Seller arising out of returned goods or other circumstances, which are not subsequently requested or applied to the purchase of other goods from Seller within twelve months from the date credit was granted, shall become the property of Seller.

APPLICABLE LAW: All questions arising out of this Acknowledgment, Invoice or Sales Contract, which shall be deemed a Georgia contract, shall be governed by the laws of the State of Georgia. Venue for any disputes arising out of this agreement shall be in Georgia. All disputes arising out of this agreement shall be resolved in the following fashion: the parties shall first engage in good-faith negotiation. If the parties are unable to settle their claims through good-faith negotiation, the parties shall attempt to resolve their dispute through mediation by an agreed upon mediator. Lastly, if mediation fails, the parties shall be subject to binding arbitration by an agreed upon arbitrator who is a member of the American Arbitration Association. The prevailing party in any arbitration or other legal action arising out of this agreement, and/or these terms and conditions of sale, shall be entitled to indemnification of all its attorneys' fees, litigation expenses, and costs from the losing party.

EXCLUSIVE TERMS: This Acknowledgment, Invoice or Sales Contract, which includes these Standard Terms and Conditions, shall constitute the final and binding contract between the parties and shall take precedence over any other terms and conditions from the Buyer. Any changes or deviations from this Acknowledgement, Invoice or Sales Contract must be in writing and mutually agreed to by Buyer and Seller.

LIMITATION FOR SUITS: Any controversy or claim arising out of, or relating to, this Acknowledgment, Invoice or Sales Contract, or the breach thereof, must be commenced within two (2) years after the cause of action accrued.

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Due to continuous product improvement, Lumisys reserves the right to change product specifications without notice.