



LIGHTING CONTROL 101:
The Path to Sustainable Lighting

MACH-ProZONE™/MACH-ProAIR™
Version 8 Officially Released



www.reliablecontrols.com

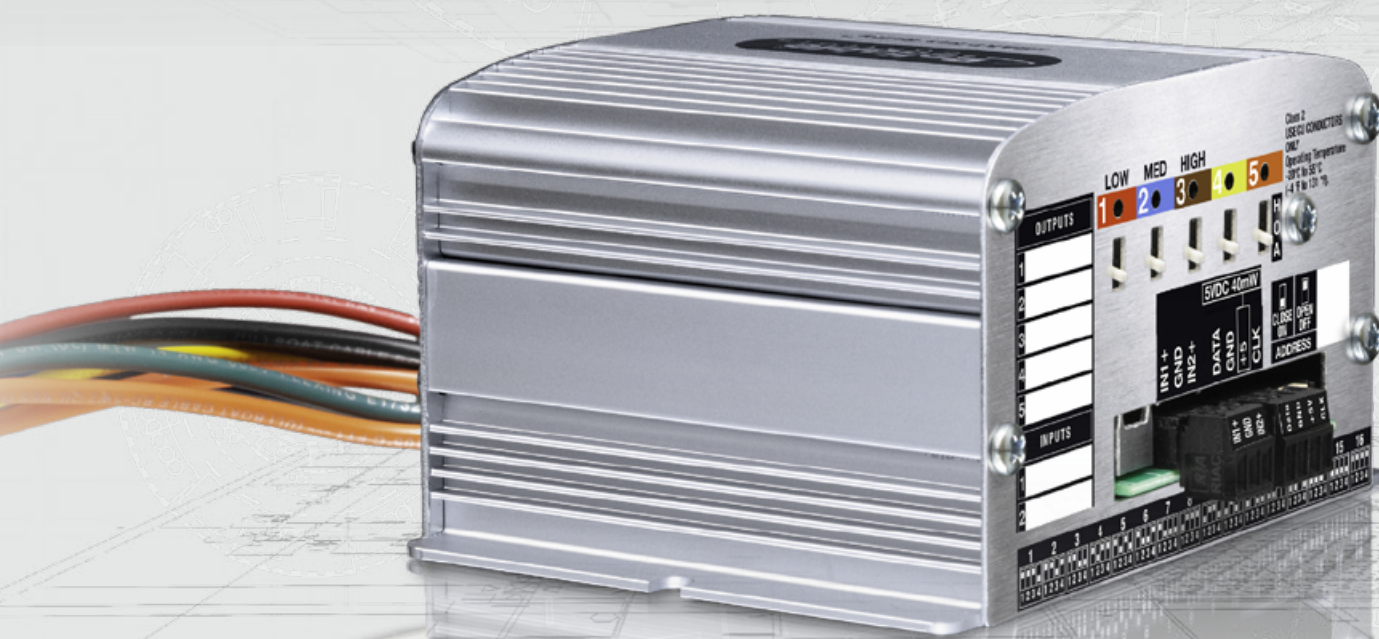
RUNtime

The Official Quarterly Newsletter of Reliable Controls® Corporation

Q3- 2019

SMART-Net™ Relay

Line Voltage Made Easy



Member of
BACnet
International

Reliable
controls

INTRODUCING SMART-Net RELAY

Connect to any SMART-Net Port

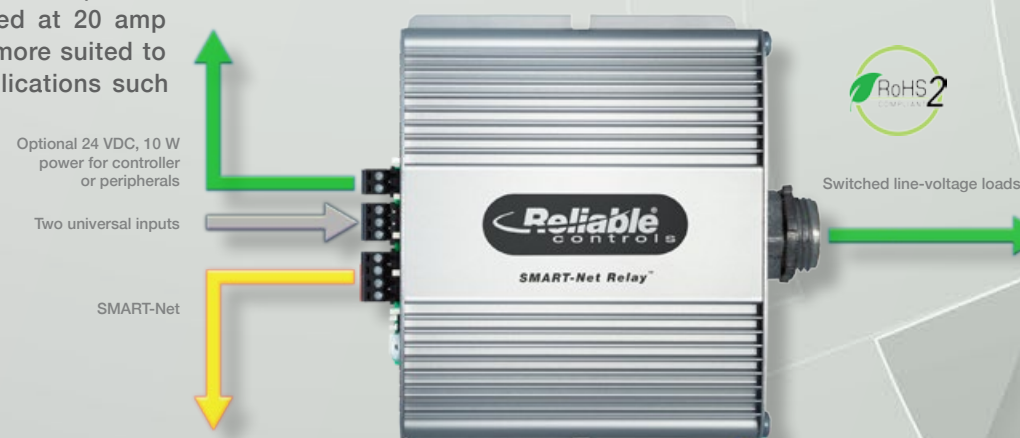
The Reliable Controls® SMART-Net Relay (SNR) provides controls contractors with a compact, multichannel, line-voltage relay solution that saves time and money. Designed to communicate on any SMART-Net network, the SMART-Net Relay can be configured with a three-speed fan control relay, a solid-state relay (SSR), or up to five individual 5A mechanical relays. The optional Hand/Off/Auto (HOA) switches with status LEDs make commissioning a breeze. Dry contact/thermistor inputs, 24 VDC power supply, and a convenient conduit cover make field installation and testing easy. Backed by the Reliable Controls industry-recognized five-year hardware warranty, the SMART-Net Relay delivers simple, flexible, and sustainable line-voltage control.

The SMART-Net Relay complements any application where direct line-voltage control is required, allows you to effortlessly gain control of line-powered fan coil units, and provides a solution that connects to any MACH-System controller SMART-Net port.

The SMART-Net Relay also acts as an excellent input/output expansion product for any controller with little or no spare inputs or outputs.

Available in two product families:

- SMART-Net Relay, which has up to five single-pole, single-throw 5 amp 277 VAC relays, and two thermistor or dry contact inputs. In hotel HVAC designs, mechanical equipment often includes line-voltage-controlled fan coil units with a three-stage fan, one heat and one cool point, and a few additional status inputs.
- SMART-Net Relay 20A (SNR20A), which has up to four relays rated at 20 amp 347 VAC. The SNR20A is more suited to high-power switching applications such as lighting loads.



The SNR includes up to five relay outputs, and the SNR20A has up to four relay outputs.

The SMART-Net Relay has options for two auxiliary inputs and a line-powered class two 24 VDC 10 W supply to power the host controller. SSR heating control can be used to modulate electric reheat. Three-speed fan control is made possible with software and three mechanical relays. Optional HOA switches with status LEDs allow users to manually override the relay outputs for field commissioning and trouble shooting.

Features include:

- Direct line-voltage control without the use of low-voltage pilot relays.
- Connectivity to a SMART-Net port on any MACH-System controller using firmware released in January 2019 or later.
- Up to seven programmable objects using the SMART-Net device worksheet.
- SMART-Net network status LED is steady to indicate power and flashes to indicate SMART-Net data activity.
- A compact and robust extruded aluminum packaging design.
- Industry-recognized five-year warranty.
- CE and EN 60730-1 certifications (pending).
- Options for two thermistor or dry contact points, up to five zero-crossing relays at 5 A 277 VAC each, a conduit cover, a three-speed fan relay (which consumes three relay positions), SSR at 10 A 277 VAC, 24 VDC, 10 W power supply, and HOA slide switches for each relay with individual status LEDs.

The SMART-Net Relay Conduit Cover (-CC) comes with a 1/2" knockout and removable lid for access to the low voltage terminal blocks. The -CC option makes the entire product plenum rated, so it will protect your wiring connections in an attractive and highly durable aluminum enclosure.



The SMART-Net Relay makes wiring and control of line-voltage loads safe, easy, and cost effective.



Better by design™

LIGHTING 101:

Illuminating the Path to Sustainable Lighting

For more than 30 years, Reliable Controls has empowered synergistic optimization through management of the built environment—the human-made world where people work, live, and play. Many factors affect the health and welfare of building occupants, including thermal comfort, indoor air quality, security and safety, and the synergy between natural and artificial light. Each of these components can be controlled by automation systems that optimize the human experience. The intrinsic flexibility of the Reliable Controls MACH-System allows users to control these diverse systems beyond thermal comfort and energy management. When customers and dealers expressed a need for a more precise focus on lighting control, Reliable Controls worked to answer their call. In December 2018 Reliable Controls announced the release of the MACH-ProLight™ advanced BACnet® lighting controller, the world's first product to be listed and certified by the BACnet Testing Laboratory to achieve the BACnet Lighting Device profile. The MACH-ProLight integrates lighting control in a way that is sustainable for Reliable Controls Authorized Dealers and effective for optimizing the health and welfare of building occupants.

There are two fundamental methods for controlling lighting: binary (two states) and analog (continuously variable). The most common form is binary switching: turning lamps or fixtures on and off. Switching is likely the most familiar lighting control for the typical occupant of the built environment. Individual lamps, specific fixtures, areas of a floor, or an entire facility can be manually turned on or off according to personal preference or comfort and in response to strategies that may include:

- Task lighting.
- Energy management.
- Occupancy and vacancy.
- Scheduling.
- Daylight harvesting.
- Demand response.
- Integrated response.

The MACH-ProLight is specifically engineered to feature lighting relay driver outputs with a momentary pulse to manipulate industry standard single-coil (Panasonic, Douglas, etc.) and dual-coil (GE, Eaton, etc.) lighting control relays.

Typically, a facility with a lighting control system uses a combination of techniques and strategies to control lamp, fixture, and circuit switching to conserve energy and provide a healthy environment.

Complementary to turning lights on and off is the analog adjustment of light intensity over a specified range, called dimming. Manual dimming is often provided for personal comfort or visual aesthetic for things like task lighting and scene control. Automatic dimming can be used for daylight response, adaptive compensation, and energy conservation. Dimming techniques for lighting control include step dimming, bi-level switching, and continuous dimming.

Lighting accounts for a significant portion of the energy consumption in facilities, representing approximately 17 percent of all electricity consumed in commercial buildings in the United States. While this is down from approximately 38 percent in 2003, there are still substantial opportunities for energy conservation in the integrated management of facility lighting. A significant opportunity for energy conservation is the decrease in initial costs of LED technologies. Despite this, 78 percent of all US commercial floor space is lit by standard fluorescent bulbs. Reducing the energy consumed for lighting reduces the impact of the facility on the planet while simultaneously reducing the financial burden on the organization—a win for both the planet and for profit.

Line-voltage control uses devices that interrupt the AC power circuit that feeds a fixture, or manipulate the lighting load. Manual line-voltage control can be provided through traditional means such as toggle-style lighting switches, phase-control dimmers, photocells,

occupancy sensors, time clocks, and twist timers. These devices are generally employed in place of an automatic lighting control system; although, in some operations they can be complementary to lighting applications. For example, line-voltage devices are sometimes embedded as a component of a fixture or wired either directly to the fixture or into the power circuit that feeds it.

Low-voltage lighting control systems use extra low-voltage devices to provide control of, and sometimes power for, lamps, fixtures, and luminaires. In the most common applications, extra low-voltage devices such as switches, photosensors, and occupancy sensors provide extra low-voltage signals to a lighting controller. The lighting controller, and sometimes the low-voltage devices themselves, then toggle a lighting control relay or controllable circuit breaker. Low-voltage lighting control systems are comparable to direct digital control systems with low-voltage inputs and outputs that control line-voltage electrical (in this case, rather than mechanical) systems.

Lighting controllers can be programmed to execute a desired control (akin to a sequence of operation in direct digital control), to control multiple circuits in zones or scenes, to provide operator interface for the lighting system, to perform data logging and analysis, and to deliver interoperability with other systems in a sustainable facility.

Operators can disperse lighting controllers throughout a facility at the fixtures or luminaires to be controlled. With this strategy, sometimes referred to as room control or distributed control, the controllers often provide switching and/or 0-10 VDC dimming commands directly to luminaires, dimming ballasts, or line-voltage relay packs installed near the fixtures in a single space.

Lighting controllers can also be located within lighting control panels (e.g., plant controllers in a mechanical room). The panels house line-voltage lighting control relays that command and control the line-voltage circuits that feed the fixtures and luminaires. In this strategy, sometimes referred to as panel control or central control, the lighting controller directly commands panel-mounted lighting relays.

The MACH-ProLight advanced lighting controller supports distributed room control models, with the controllers installed in or adjacent to the space to be controlled. In panel control schemes, the controllers can be retrofitted into existing lighting control panels or installed into new ones. Reliable Controls offers fully assembled and wired UL Listed lighting control panels. The MACH-ProLight brings all the inherently simple, flexible, and sustainable benefits of a MACH-System controller to a lighting application, including universal, selectable inputs and outputs and a freely programmable database.



MACH-ProLight™
Advanced Lighting Controller

Universal outputs on the MACH-ProLight provide for standard 0-10 VDC continuous dimming and are engineered to automatically detect, and inherently support, both sourcing and sinking signals. Step dimming and bi-level switching can also easily be achieved with the MACH-ProLight using lighting control relays or low-voltage luminaires.

The MACH-ProLight is not only a BACnet Building Controller (B-BC) but also the world's first BACnet Lighting Device (B-LD) to be tested and certified by the BACnet Testing Laboratories. The MACH-ProLight was carefully engineered to be better by design™, particularly in the technology of low-voltage lighting control.



Digital low-voltage, or networked, lighting controls are rapidly growing in the lighting control marketplace. Rather than using discrete extra low-voltage hardware inputs and outputs, these systems use a communication bus, or network, to communicate between luminaires, controllers, and field devices.



and interference from electronics can impair the reliability of wireless signals. Wireless lighting control devices are typically low-powered, with limited signal strength and range. Battery-powered devices introduce regular maintenance requirements.

Many lighting control system designs are a combination of lighting control technologies. This includes low-voltage control that utilizes wireless sensors or switches or, a combination of low-voltage and line-voltage lighting control.

EnOcean® Transceiver

In 2011, Reliable Controls embraced EnOcean technology for energy-harvesting wireless communication with field devices. In October 2018 the EnOcean Transceiver (ET) was released to complement the MACH-ProLight controller in wireless lighting and indoor environmental applications. Like the SMART-Sensor™ EnOcean Accesspoint, the ET is designed to mount in the space for greater wireless signal integrity. However, the ET and the MACH-ProLight controller introduce a physical layer with significantly more performance than SMART-Net. The wireless device density is increased from 18 points to 21 devices. The MACH-ProLight and ET provide a compelling solution for wireless lighting control in appropriate applications.



The intrinsic flexibility of the MACH-ProLight makes it an ideal hybrid lighting control solution. It is low-voltage and designed to be installed locally or in a central panel. As a B-LD and B-BC controller, the MACH-ProLight is superbly positioned to communicate with different integrated facility systems. The MACH-ProLight is designed to be deployed at the edge, physically at the fixture or luminaire, allowing it to serve as a hybrid-networked lighting control system. Additionally, the MACH-ProLight supports the EnOcean Transceiver as a key component of a wireless lighting control system.

Wireless lighting control replaces a dedicated hard-wired extra low-voltage signal for transmitting control data and commands between field devices and controllers or luminaires. Signals are transmitted using radio frequencies or other wireless technologies. Sensors and field devices can be integrated into an embedded luminaire or communicate to a controller that in turn controls the fixture or luminaire via wired or wireless transmission. Stand-alone field devices are often powered by batteries

and/or energy-harvesting technologies such as EnOcean. Common communication protocols for wireless control systems include EnOcean, ZigBee, and other proprietary technologies.



In appropriate applications, wireless lighting control can provide flexibility with lower installation burdens and infrastructure, particularly in existing applications where wiring can be prohibitive or where space is limited, such as in open offices. As with many technologies, there are trade-offs. Increasing radio frequency signal saturation, wireless device density,

Manual lighting control allows occupants to control light naturally, with shades and blinds, or artificially. Manual control ranges from single light switches and dimmers to banks of switches and circuit breakers. For small-scale applications, manual control alone is often the most cost-effective solution. However, even in complex facilities, manual control is complementary to automation as it plays an important role in the human experience, empowering occupants to influence their environment. Occupant-controlled lighting tailored to individual needs has considerable potential for enhancing personal well-being, workplace satisfaction, and employee retention.

Manual control is complementary to automated lighting control from an energy-savings perspective as well. Providing occupant control of light levels through switches, dimmers, workstation controls, and preset scene controls can generate about 30 percent savings in lighting energy consumption.

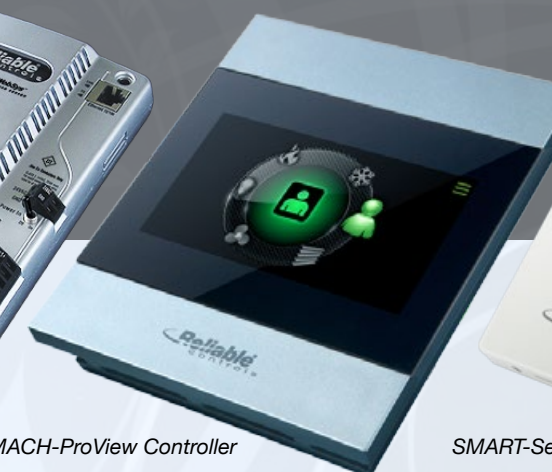


Lighting control relays, such as the Panasonic WR-6161 featured in the Reliable Controls lighting control panel, use momentary contacts to turn connected fixtures on or off. This design means manual devices such as wall switches and switch stations can be easily installed parallel with the controller output to allow for manual and automatic control integration. Monitoring the present status of the lighting control relay then becomes necessary for accurate management and control. The MACH-ProLight supports monitoring the status of the WR-6161 relay series automatically via the output circuit. For other lighting control relay types, such as the GE RR9 and Eaton BABRSP, operators can use the universal inputs of the MACH-ProLight to monitor relay status. The universal inputs and outputs allow occupants to control and influence their own environment. Shades, blinds, and artificial lights can be controlled through continuous dimming, step dimming, and bi-level switching.

When it comes to providing manual interaction with a lighting control system, a wide array of Reliable Controls solutions can empower occupants of a sustainable facility to take control of their local environment. The MACH-ProView™, SPACE-Sensor™, and SMART-Sensor series present excellent opportunities for local, integrated occupant environmental control. The myControl® mobile app, and Browser User Interface (BUI) for RC-WebView® and the MACH-ProWeb™ bring manual control to the occupant at their workspace or on the go.



MACH-ProWebSys Controller



MACH-ProView Controller



SMART-Sensor EPD



SPACE-Sensor EnOcean

Lighting control occupancy strategies are a common energy-conservation measure to automatically manipulate light levels. Occupancy-based strategies alone can result in an significant lighting energy reduction (up to 24 percent). The intrinsic synergy between simplicity and efficacy make occupancy-based control a common feature of lighting control and energy standards.

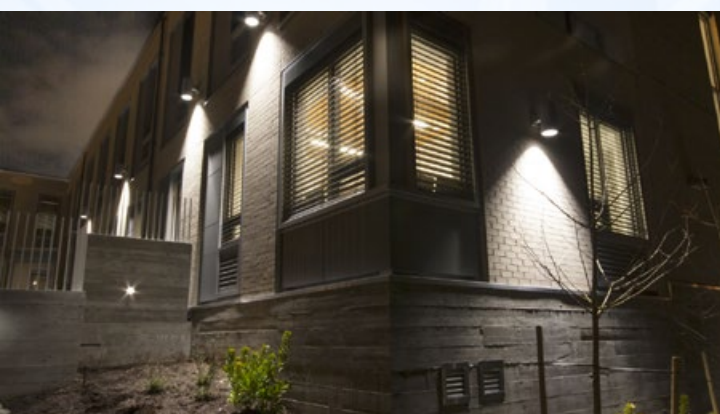
Occupancy lighting control strategies generally fall into three categories. "Manual on" is one of the most common strategies, where occupants manually turn on lights as required, and vacancy sensors automatically turn off lights when the space is vacated. "Partial on" strategies use occupancy sensors to automatically control lights to a preset partial level (e.g., 50-75 percent) when occupancy is detected, and then, occupants have the option to

manually increase the light level as needed. This strategy is commonly used for safety in corridors, in occasionally occupied spaces, and for lamps that do not turn on immediately. "Full on" strategies use occupancy sensors to bring lights on to their full brightness when occupancy is detected.

Occupancy and vacancy sensors for lighting control typically use passive infrared or ultrasonic technology or a combination of the two (dual technology). Passive infrared sensors detect body heat in motion and when occupants cross sensing zones. They are ideal for detecting motion within line of site of the sensor. Ultrasonic sensors emit high-frequency radio waves into a space and monitor the change in frequency as they are reflected back to the sensor by bodies in motion. Ultrasonic sensors do not require line

of site and are ideal for spaces with partitions (restrooms, open offices, etc.). Dual-technology sensors utilize both passive infrared and ultrasonic technologies. In large spaces, the sensing zones should overlap by ≥ 20 percent.

Organizations often automate light levels on a schedule. For example, lights can be turned on, off, or adjusted based on the time of day. Lighting schedules are common in open and public spaces as well as those intermittently occupied on a routine basis. Automatically modifying light levels throughout the day to more closely mimic natural light can improve human experience. Periodically brightening lights for 30 minutes in the early morning (e.g., before 09:30) and early afternoon (e.g., before 1:00 p.m.) helps occupants combat built environment fatigue and boosts productivity. Occupant satisfaction is even higher when they can manually override scheduled lighting controls.



Exterior LED lighting at Reliable Controls

Time-of-day scheduling for a zone, facility, or enterprise is just one advantage of Reliable Controls technology. Integrating schedules with other strategies such as local manual overrides, adaptive response, and occupancy is simple with the interoperability and freely programmable nature of the MACH-ProLight. The MACH-ProLight also introduces the BACnet Binary Lighting Output. This standard object includes an integrated blink warn sequence. Automatically turning lights off when a space is occupied can be dangerous and potentially jarring to occupants. Once blink warn is enabled, when the programming in an a MACH-ProLight commands the Binary Lighting Output to transition off, rather than immediately turning off the lights, it blinks the connected lamps and fixtures, momentarily turning the lights off and back

on. This momentary blink notifies occupants that the lights will soon be extinguished. If they wish to extend operation, occupants can initiate an override through a button on the wall, the myControl app, or the BUI. If an occupant initiates an override, the lights remain on for a preset period. If an occupant does not initiate an override, after a preconfigured delay, the lights turn off as scheduled. All this functionality is built in to the Binary Lighting Object without any programming.

Daylight harvesting (daylighting or daylight response) is a lighting control strategy that automatically responds to available natural light. Using a light-level sensor (photosensor or photocell), a lighting control system can reduce the fixture lighting levels through switching or dimming in response to natural light. When natural light levels exceed the illumination required for a task or for comfort, integrating

shade and/or blind control to minimize glare and diffuse direct sunlight improves human experience. In many cases daylight harvesting improves occupant health and welfare by balancing the synergy between natural and artificial light while reducing energy consumption by up to 28 percent.

Task tuning (institutional tuning or high-end trim) is a strategy that involves reducing lighting levels for individual spaces to the minimum illuminance recommended by the Illuminating Engineering Society. Many spaces, particularly in commercial offices and facilities, are overlit. Deploying a task tuning strategy can lower energy costs by up to 36 percent without negatively impacting occupant comfort. A space-by-space approach allows for the illumination to be reduced in unessential areas and maintained in critical and task-oriented workspaces.

Reliable Controls Authorized Dealers can leverage their knowledge and experience to encourage organizations to use the MACH-ProLight for an ideal built environment. Adaptive daylight harvesting is analogous to the thermal environment control we have provided since the 1980s. If a designer, owner, or application engineer can dream up an adaptive response strategy, the MACH-ProLight stands ready to implement it.

Correlated color temperature is a metric that defines the appearance of a lamp or fixture's light. Correlated color temperature is expressed in degrees Kelvin and correlates to the color of a black body reference source (e.g., iron) when heated to a specific temperature. Warm-appearing light is at the lower end of the temperature scale; candlelight measures about 2000°K, and a soft white incandescent bulb measures about 2700°K. Neutral white light generally ranges from 3000–4000°K. Cool white light begins at 4000°K and pure white light at 6500°K. Modern LEDs can exceed lighting temperatures to provide nearly any color. Color tuning refers to manipulating the color of a luminaire for a specific application. Full-color tuning that encompasses the entire color spectrum is less common and mostly used for theatrical and architectural lighting control. Warm dimming can mimic the effects and sensation of warmth from an incandescent lamp. White-color tuning is more commonly available and can be utilized to adjust the color intensity of a luminaire generally across the white temperature range (2700–5000°K). White-color tuning is growing in popularity for its ability to improve occupant satisfaction, productivity, learning, and even healing.

In early 2017 Reliable Controls announced its support and compliance with the OpenADR protocol, an open and standardized way for electricity providers and system operators to communicate demand response (DR) signals with each other and customers using a common language. This allows power-using devices to be turned off during periods of high demand. The OpenADR protocol has already encouraged Reliable Controls customers to participate in energy and cost-saving automated demand response (ADR) initiatives with participating utilities. Apart from ADR, the flexibility of Reliable Controls and the MACH-ProLight controller enables Reliable Controls Authorized Dealers to satisfy a wide range of demand response control requirements, including plug load and load preservation. Integrating lighting and temperature control in a sustainable facility results in a reduction in lighting, plug load, and HVAC energy consumption in compliance with energy standards like California Title 24.



The health of a built environment is critical to the overall well-being of the people it protects because of the amount of time spent indoors and the positive or negative influence of buildings on health. An improved built environment increases cognitive performance, satisfaction, and productivity while reducing absenteeism. For decades, through key values that include sustainability and environmental stewardship, Reliable Controls has fostered the synergistic optimization of people and property through management of the built environment and the expectations of occupants. We choose to operate according to business metrics that encompass a

triple bottom line: people, planet, and profit. This philosophy helps us realize the financial benefits of sustainable business while making decisions that are better for the environment, our extended team, and our customers. This business philosophy leverages the synergy rather than trade-offs between social, environmental, and financial performance.

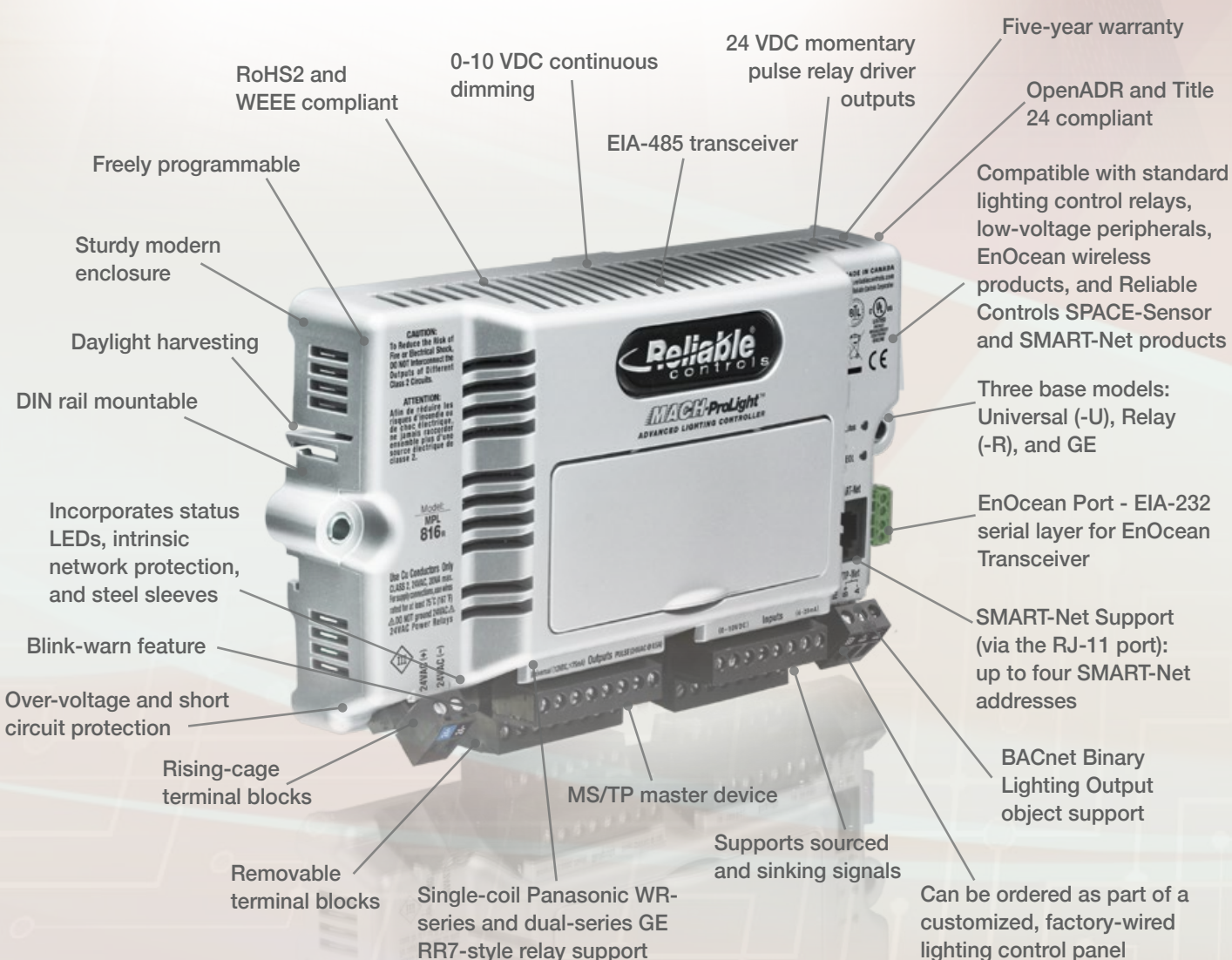
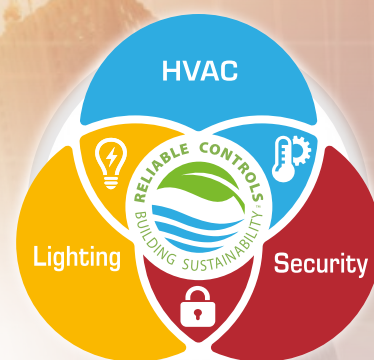
The MACH-ProLight is simply the latest example of how together, Reliable Controls and Reliable Controls Authorized Dealers are

ideally positioned to ensure that our organizations and the organizations we serve, our people and the people for whom we care, as well as the planet we all inhabit, will prosper. With or without new lighting technologies and industry standards, we have the power to counter the energy demanded from a growing need for lighting. Together, we can illuminate the path to sustainable lighting for generations to come. Together, we can be people and technology you can rely on.

people & technology
you can rely on™

The MACH-ProLight controller is a native BACnet device with a dual BTL Listing, not only as a B-LD but also as a B-BC. Fully embracing the BACnet Standard ensures the MACH-ProLight is forward compatible, and allows broad interoperability between devices.

The form factor of the MACH-ProLight makes it ideal for panel or central control, room or distributed control, wireless control, and hybrid control strategies. Consider what the MACH-ProLight brings to the modern sustainable facilities and built environment professionals.



MACH-ProZone/MACH-ProAir VERSION 8

Technology, better by design

New version 8 firmware and hardware for the MACH-ProZone (MPZ) Rev E and MACH-ProAir (MPA) Rev F controllers adds significantly more memory, resulting in almost double the available programming code space, an increase in the number of BACnet objects to 160, and more than double the available Trend Log space. In addition, the previous TRIAC outputs have been replaced with solid-state relays (SSRs) to provide the capability of switching 24 VAC or 24 VDC at currents from less than 1 mA to 0.5A.

For backward compatibility, version 7 MPZ and MPA Panel Files can be directly restored to a version 8 MPZ or MPA without any conversion.

Two levels of database protection are supported in version 8. The current database is preserved for up to 72 hours after power loss. After that, an image of the database preserved in Flash memory is utilized. The Flash memory is backed up every 24 hours, and the -C models preserve the database for one year.

MACH-ProZone Rev E and MACH-ProAir Rev F ship with BACnet protocol revision 16, the most up-to-date revision of the international standard. We would like to communicate some exciting key features that help fulfill three eRequests.

Version 8 Features:

CBAS space increased from 8,500 bytes to 16,000 bytes.

Total objects increased from 128 to 160.

Provides database and Trend Log retention over an OS-Send without performing a panel file backup and restore.

Provides increased Trend Log memory from 117 KB to 250 KB.

Provides protocol communications that adhere to BACnet Revision 16.

Provides 72-hour retention of Trend Log and Runtime Report data.

Runtime reports are now automatically enabled for all binary points.

Provides new SSRs (replacing TRIACs), which can now switch from 24 VAC or 24 VDC at 0.5 amperes.



PEOPLE YOU CAN RELY ON

Training: The Reliable Way

Department Profile

To earn and sustain the reputation for having the most satisfied customers in the industry, it is crucial that Reliable Controls provides engaging, accurate, and timely training. Every year we see exciting new hardware, software, and capabilities added to the Reliable Controls system, and training is the key to realizing their full benefits. As our Authorized Dealer network continues to grow, Reliable Controls is dedicated to providing training in innovative and modern formats to engage customers around the world. Our work is never done, and we wouldn't want it any other way.

We currently offer a variety of training formats, including classroom courses, manuals, interactive eLearning modules, and videos. We are always investigating new ideas and technologies for learning, such as software simulations and games. Our instructors and

eLearning developers work closely together to make our online training the best it can be. You can provide feedback on every course. Many people are pleasantly surprised when they get a follow-up email on feedback they provided.

Our training instructors have long been in high demand for Authorized Dealer and customer training. We have begun to extend the reach of our training instructors by broadcasting live, instructor-led courses via the internet. These distance-learning courses allow students to work with Reliable Controls software and devices from anywhere in the world. This allows us to present more instructor-led courses per year while avoiding energy-intensive air travel and shipping. These courses are currently available to our Authorized Dealer network, but we plan to extend this platform to customers in the future.



The Training team (left to right): Terry Bell (Senior eLearning Developer), Nathan Wilson (Manager of Training), David Brunsdon (Training Instructor), Jenny Wagner (Training Administrator), and Eric Rehn (Training Instructor - USA).

coaching

TRAINING

seminar

workshop



Reliable Controls is dedicated to training not only our Authorized Dealers but also the people who use our products every day. In the past this training was largely delivered in classrooms, which meant only a small number of courses could be conducted per year and often required customers to travel. We needed to find a better way.

For those who would like to take their knowledge to the next level, we are happy to offer the Reliable Controls Operator Certification Program. When enrolled in this program, you can access eLearning exams, request registration for classroom courses, track certification status on the myProfile page, and print out a certificate for your current level. Talk to your local Reliable Controls Authorized Dealer to enroll.



OPERATOR — eLearn everything from the basics of building automation systems, the MACH-System, RC-Studio® basic and advanced operations, and more.

You can now access on-demand training through the Customer Support Center on the Reliable Controls website. In the Training section of the Customer Support Center, you will find a growing list of short, topical videos that cover the basics of the building automation industry, our products, and common software operations. These videos are available free of charge to anyone with access to the Reliable Controls Customer Support Center.



TECHNICIAN SALES OPERATOR			
Current Status: Level 1			
Level 1: Building Automation System Basics			
BAS-1000	What is a Building Automation System?	✓	June 26, 2018
BAS-1010	HVAC Resources	✓	June 26, 2018
BAS-1020	BAS Point Types	✓	June 26, 2018
BAS-1030	BACnet Introduction	✓	June 26, 2018
BAS-1040	Devices and Networks	✓	June 26, 2018
BAS-EXAM	Level 1 Exam	✓	Jun 26, 2018
Level 2: The MACH-System			
MS-2000	MACH-Pro Controller Family	Available	
MS-2005	MACH-System Wiring	Available	
MS-2010	SMART Sensors	Available	

my
Certificate

Operator tab in the personal myProfile page: Shows current status level and the ability to print your certificate.

TRADE SHOWS

Visit Reliable Controls at these upcoming trade shows:

2019 CHES Conference
September 22-24, 2019
Saskatoon Arts & Convention Centre,
TCU Place
Saskatoon, Saskatchewan, Canada

CHES SCISS

CANBERRA - AIRAH Tradeshow
September 25, 2019
Exhibition Park
Canberra, Australia



Australian Institute of
Refrigeration, Airconditioning
and Heating

ADELAIDE - AIRAH Tradeshow
October 17, 2019
Adelaide Entertainment Centre
Adelaide, Australia



Australian Institute of
Refrigeration, Airconditioning
and Heating

Vancouver Island Economic Summit
October 23-24, 2019
Vancouver Island Conference Centre
Nanaimo, British Columbia, Canada
Booth #123



National Facilities Management Trade Show
November 13-14, 2019
Orange County Convention Center
Orlando, Florida, USA
Booth #924

BUILDING OPERATING MANAGEMENT'S
NFMT ORLANDO

WELCOME TO NEW DEALERS

New Reliable Controls Authorized Dealers



L&H Airco LLC
Rocklin, California, USA
www.lhairco.com



Automated Building Systems, Inc. - MA.
Marlborough, Massachusetts, USA
www.absddc.com



Winona Controls
Caledonia, Minnesota, USA
www.winonacontrols.com

**Chengdu Fast Automation
Control Equipment Co., Ltd.**

Chengdu Fast Automation Control
Equipment Co., Ltd.
Chengdu, Sichuan, China



Plug Smart - SW Ohio
Cincinnati, Ohio, USA
www.plugsmart.com



DEFIRE BANGLADESH

Defire Bangladesh
Dhaka, Bangladesh
www.defirebd.com



Midwest Maintenance & Mechanical Inc.
Golden Valley, Minnesota, USA
www.midwestmaint.com



PD Serv Pte Ltd
Yangon, Lanmadaw Township, Myanmar

Reliable Controls sales, installation, service, and support are all performed by a growing network of independent, factory-trained Authorized Dealers. Each dealer is committed to the green building controls industry and to providing total customer satisfaction.



MV YWAM PNG MEDICAL VESSEL

PAPUA NEW GUINEA

HEALTH CARE

OVERVIEW

The Youth With A Mission (YWAM) Papua New Guinea (PNG) medical vessel is a 60-meter passenger cruise ship with an on-board dental clinic, surgical theater, and laboratory that provides access to healthcare services, supplies, and support to rural health workers and hundreds of remote villages every year. Built in Western Australia in 1999, the MV YWAM PNG was refitted as a training and medical ship that accommodates 130+ volunteers.

PROJECT DETAILS

Reliable Controls Authorized Dealer Austec Building Automation Pty Ltd. successfully completed this retrofit project with network architecture consisting of a MACH-ProWebCom controller and four MACH-ProPoint expansion modules. An MS/TP MACH-ProView controller was installed in the plant room for local technician access and adjustment of values with a graphical interface made available to the bridge via Ethernet.

Mechanical equipment controlled on the vessel includes two circulating chilled-water pumps and two condenser-water pumps that use seawater to cool the coils.

Prior to the retrofit, the ship's existing programmable logic controllers were failing and overdue for an upgrade. The tropical conditions made the crew uncomfortable when the chiller was not operational. During the retrofit, the plant was not in working order and was undergoing maintenance. Furthermore, the Reliable Controls Authorized Dealer had a strict mandate to complete the job while the ship was in port so it would be ready for a scheduled departure. This all proved to be quite a challenge. Reliable Controls and Austec Building Automation Pty Ltd. are very pleased to have played an important role in retrofitting this vital vessel for Papua New Guinea.

To learn more about projects using Reliable Controls® visit
www.reliablecontrols.com/projects/overview



PROJECT TYPE:

Retrofit

INSTALLATION TYPE:

Chiller

TOTAL AREA:

900 m² (9,687.52 ft²)

PROTOCOL:

BACnet

POINTS:

61

EQUIPMENT INSTALLED:

1 MACH-ProWebCom™
 4 MACH-ProPoint™
 1 MACH-ProView™ LCD

RELIABLE CONTROLS DEALER:

Austec Building Automation Pty Ltd.

