Life Is On

eliwell™
by Schneider Electric

SOLUTIONS for Refrigeration
North America Catalog

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Introduction
Introducing Schneider Electric EcoStruxure™

Introducing Schneider Electric EcoStruxure™
Schneider Electric EcoStruxure™ is our open, interoperable system architecture and platform realizing the benefits of the Industrial Internet of Things, or IIoT, for our customers. This allows for the delivery of enhanced value and safety, reliability, efficiency, sustainability, and connectivity. It leverages advancements in IoT, mobility, sensing, cloud, analytics and cybersecurity to deliver innovation at every level. To date, EcoStruxure™ has been deployed in 450,000+ installations, with the support of 9,000 system integrators, connecting over 1 billion devices.

EcoStruxure™ brings all the innovation that makes up the IIoT into an architecture that can benefit you as an OEM. This allows you to more easily incorporate IIoT-based innovations into your machines to differentiate yourself from competitors and meet your customer's expanding need for connected solutions.

The EcoStruxure™ architecture is based on a three-tiered technology stack, bringing energy, automation and software together for you. The stack includes:
- **Connected Products –** Intelligent products that serve as the foundation for smarter machines, buildings and plants for incorporation into your machine designs.
- **Edge Control –** Control systems that enable simple design, commissioning, and monitoring requiring less complexity for you to manage.
- **Apps, Analytics and Services –** A full portfolio of hardware-agnostic software, apps, and analytics to enable optimization within your customer's existing system, avoiding a costly 'rip and replace' solution.

EcoStruxure™ for Retail Chains brings together Energy, Automation and Software technology into one integrated architecture resulting in a convergence specific to the refrigeration industry. This architecture brings together smart, connected products with monitoring capabilities and management software to help you design, build and maintain more efficient, cost-effective products.

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In addition to meeting customer demands for sustainability, we are bringing IoT-enabled systems and devices to retail industry to provide better planning and management, boost efficiency, prevent business loss, and create an engaging, unique shopping experience for customer with exciting in-store technology.

Building on 100+ years of Schneider Electric expertise and technology, EcoStruxure™ for Retail Chains makes the complex simple and ensures connectivity across your portfolio, giving you best-in-class refrigeration, environment, energy and security control across your assets. We offer a tailored view to provide relevant information to the store operator right through to the CEO. For example, operational costs are identified and managed proactively through IoT devices.

EcoStruxure™ for Retail Chains is an IoT architecture and platform which provides the bridge between the traditional store operations to cloud-based I.T applications, with the exponential shift towards IoT deployment, this ensures that operations are future proofed, and customers have the confidence that emerging technologies will be integrated seamlessly.

Business Continuity: Ensuring the business remains operational 24/7 and protecting the bottom line through loss prevention.

Operational Efficiency: Saving costs on staff by providing intelligent and connected systems for store operators. We aim to have a real-time platform to reduce staff work load so they can concentrate on serving customers.

Customer Experience: Providing a comfortable, engaging environment to boost customer satisfaction and increase revenue. With IoT's help, also an opportunity to engage in-store technology to bring the customer experience to the maximum level, such as beacons to notify customers about promotions.

Energy & Sustainability: Delivering IoT-based, multi-store analytics and reporting systems to the supermarket industry, helping brands to achieve sustainability KPIs and meet environmental regulations.

Improve sustainability, efficiency and traceability in your operations

EcoStruxure™ program results

Environmental sustainability
Reduce carbon and water footprint

Operational efficiency
Eliminate the Energy Waste from your facility

Total cost of ownership
Reduce capital and operating expenditure needs

Flexibility and brand promise
Meet consumer demand with the right products at the right time

Machine safety and consumer information
Protect both consumer and shareholder value

EcoStruxure™ Machine Advisor for OEMS self-contained equipment, to follow up equipment's during warranty period

EcoStruxure™ Facility Expert for Integrators or store owner to optimize efficiency in Small Stores and Restaurants

EcoStruxure™ Building Operation for OEMs or integrators to optimize operation cost in Supermarkets

EcoStruxure™ Augmented Operator Advisor for service teams (OEMs, integrators) to simplify maintenance in supermarkets

Refrigeration Control
From Self-Contained Equipment...

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Small Stores

- Convenience, discount and liquor stores
- Mostly self contained cases & cold boxes
- Trend for RDMC to improve maintenance
- Restaurants & food service

Schneider Electric

EcoStruxure™ Machine Advisor
EcoStruxure™ Facility Expert
- Monitoring and remote maintenance
- Cloud based

Self Contained Cases
- Full line offering from optimized to performance
- Propane with variable speed compressor

Condensing Units
- Medium and Low temperature

Reach-In Cases
- Anti-sweat control
- Lighting control

Refrigeration Control
...To supermarket Architectures

Neighborhood & Large Stores

- Neighborhood stores, warehouse clubs
- Compressor racks, remote cases & cold boxes
- Ideal for multi-site applications

Schneider Electric

EcoStruxure™ Building Operation
- Local & remote monitoring and maintenance
- Instant alarming, 24/7 service
- Energy management

Small systems
- HFO - HFC
- Rooftop formats

CO2 racks
- Transcritical
- Booster and Parallel Compression
- Remote Condenser

Remote cases
- Trend towards decentralized systems
- EEV control

Cold rooms
- EEV control

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Solutions for Small Stores
Connected any time, anywhere

Industry Challenges

- **ENERGY COSTS:** With increasing energy costs, it is paramount to improve energy efficiencies of refrigeration equipment running 24/7.

- **GOVERNMENT REGULATIONS:** Increasing regulatory demands with DOE 2017, EPA, Energy Star and California Title 24 on efficiencies, refrigerants, and insulating materials.

- **REFRIGERANT REQUIREMENTS:** With the EPA ban of common refrigerants and the need to improve efficiency, new refrigerants such as R290 and CO_2 are becoming more prevalent.

- **COMPETITIVENESS IN A CHANGING MARKETPLACE:** New strategies and technologies are emerging to meet new challenges, all while achieving a quick ROI.

Schneider Electric
EcoStruxure™ Facility Expert
for Chain Maintenance Managers

Schneider Electric
EcoStruxure™ Machine Advisor
for HVAC/R OEM

Router
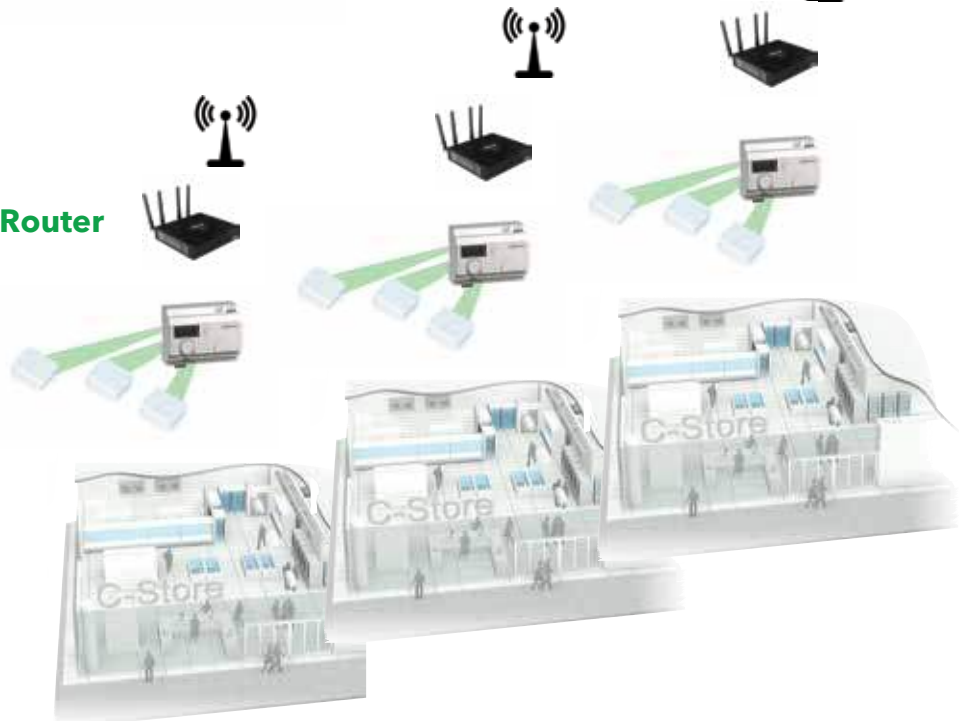
EWSense
- Temperature, humidity and CO_2 acquisition v wireless sensors.

The Right Controller for Every Application

For self-contained and warming equipment

Features

Modicon M171O
- Fully customized solutions

RTN 400SM
- Controller for variable speed compressor

RTN 400
- For connectable cases
- Semi-customizable modular controller and keypad system

User Interfaces
KDT – KDEPlus - ECPlus
- Touch user interfces

Mid-Temp
Models 961/971

Low-Temp
Model 974

EWPlus EO Smart
- Enhanced energy savings with self-learning requires less set-up and commissioning

EWPlus EO
- EW Plus with enhanced algorithms saving up to 39% over electro-mechanical and 19% over traditional controls

EWPlus
- Versatile cooling and heating applications, display colors, with energy saving features for DOE 2017

nEW
- Cost effective replacement for electro mechanical controls with energy saving features for DOE 2017

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EcoStruxure™ for Small Stores

Ensuring your business is always running efficiently

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Schneider Electric **EcoStruxure™ Machine Advisor**

Internet Router

BACnetIP

Modbus

RTN400

KDEPlus

EWSense Gate

TM172

EWSense Gate

EWSense Temp

Humidity & CO$_2$ Sensor

Altivar

EWSense Temp

Humidity & CO$_2$ Sensor
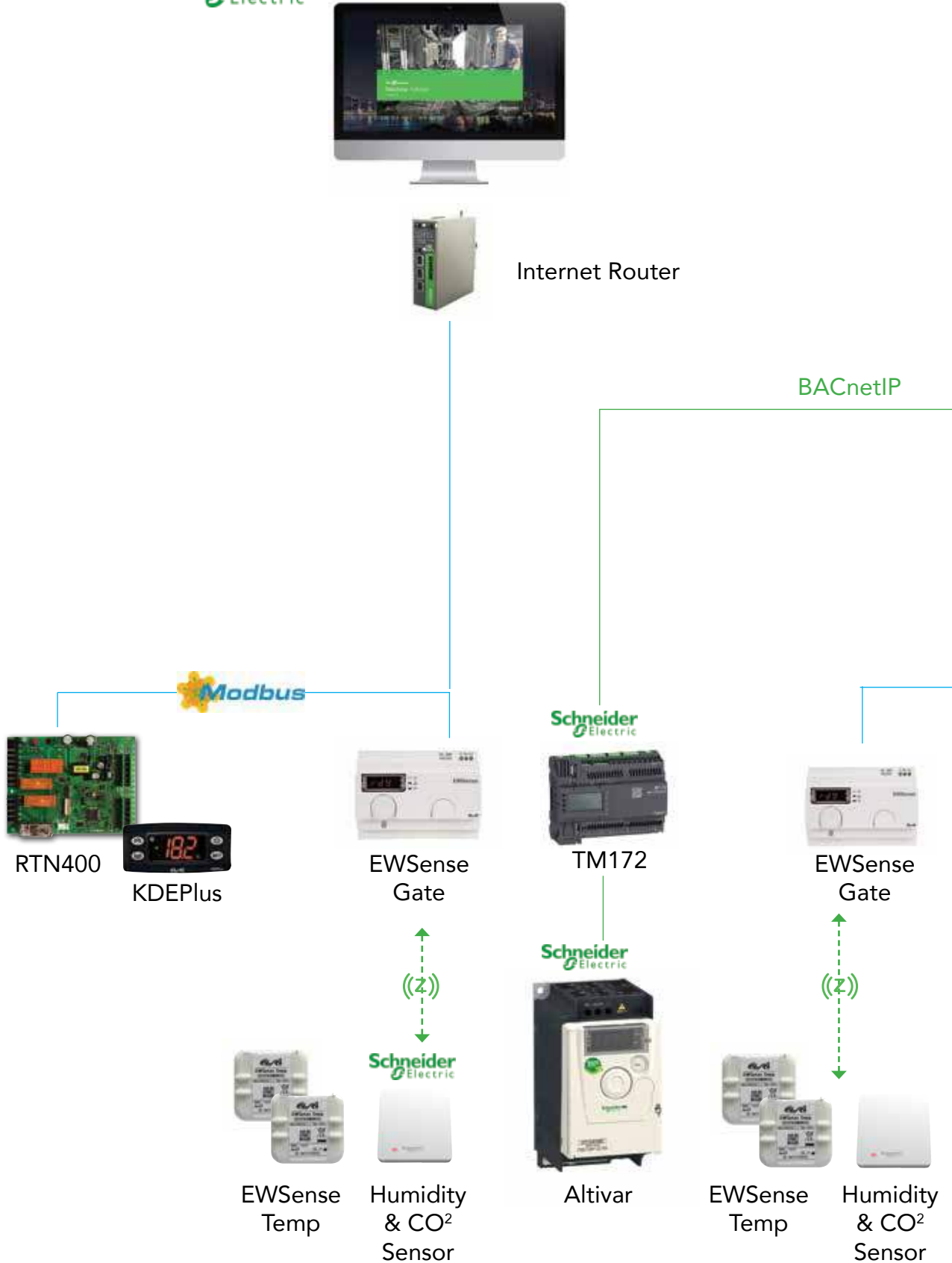
*Coolers, Freezers,
Self-Contained Equipment & Hood Management*

EcoStruxure™ for Restaurants

Ensuring asset protection and a cozy, welcoming ambiance for guests

EcoStruxure™ Facility Expert

Internet Router

Automation Server

Q4-2019 Smart Link

Q4-2019

SE8000IP

RTN400   SE8000   IEM3155

I/O   Presence/Door Sensor

Power Tag Energy/Electrical Distribution - IOT

CO2, Humidity, Temperature   EWSense
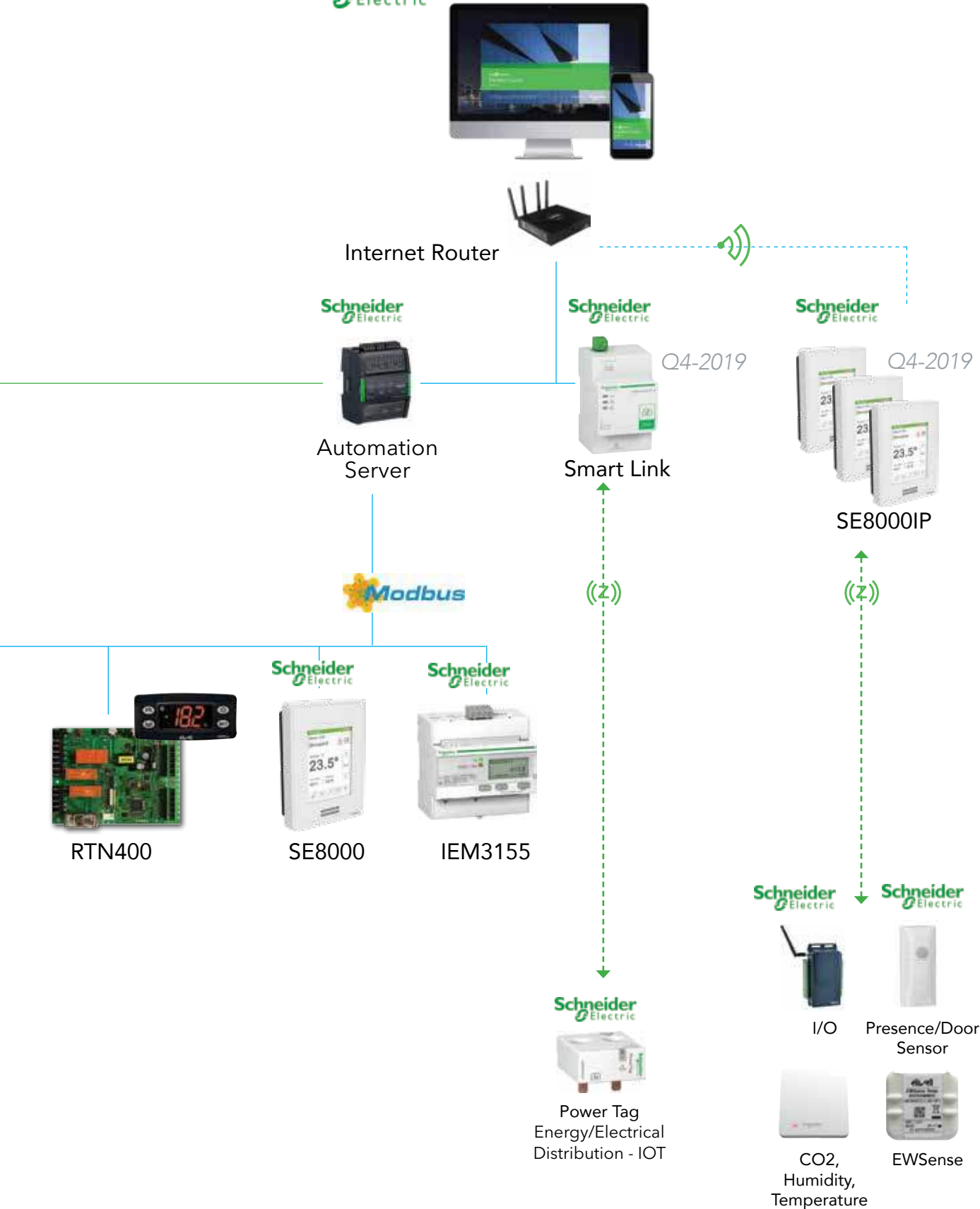
Complete mini-BMS including refrigeration, lighting, HVAC and electrical distribution

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nEW
Replace electromechanical

- Installation made easier with rapid connectors and frontal mounting
- Front panel and connections protected from water

Applications

The **nEW** series is the standard Eliwell solution for large production volumes. Thanks to the flexibility of the platform and the library of available functions, **nEW** is the best solution for manufacturers who are looking for an innovative solution with the advantages of electronic control and at the same time easy to install and use.

Common features

Direct load management up to 2Hp	Use of factory screw connectors for quick, versatile hookup
Universal power supply switching from 100 to 240Vac 50/60Hz in a single model	Copy cards which can be used for quick programming

Model	Application	Notes
nEW 961	Static units	2Hp power relay for compressor piloting
nEW 971	Ventilated units	2Hp relays, 1 defrost output
nEW 974	2Hp relays, 1 configurable output	2 Hp/1.5Hp* relay, defrosting output and fans

* depending on the model

Our low cost parametric control replacement for any simple electro mechanical control adds visual display, reliable industry load switching relays and more parametric options to choose from

EWPlus Series

Versatile applications with energy saving features for DOE

- Display with large digits and coloured icons, to understand operating status easily
- Simple, intuitive menus for fast learning
- Suited for applications with hydrocarbons
- ENEC/UL Certifications (check on the device label)

Applications

The **EWPlus** series includes flexible, modern design controllers for plug-in refrigerated counters.
Thanks to platform versatility and a library of available functions, Eliwell is the best answer for manufacturers seeking custom solutions for energy saving requirements and simplification of production processes.

Common features

Direct load management up to 2Hp and power supply of 230Va or 115Va
Use of removable/faston/screw connectors for quick, versatile hookup
Unicard USB for customizing even small lots
Industrial packaging 60 pieces

Model	Application	Notes
EWPlus 961	Static units	2 Hp power relay
EWPlus 971	Ventilated units	2Hp relays, 1 configurable output (defrost/fans/lights/alarm/stand-by)
EWPlus 974	Ventilated units	2Hp relays, 2 configurable outputs (defrost/fans/lights/alarm/stand-by)

- Variety of display colors
- Complete management of compressor, lights, defrost, fans and alarms
- Energy savings realized with R290, smart defrost, evaporative fan duty cycle and economy mode
- Moisture protection with front panel gasket and back cover
- Direct control of compressors up to 1 HP
- Customized OEM branding
- Factory friendly connections, programming, and barcodes

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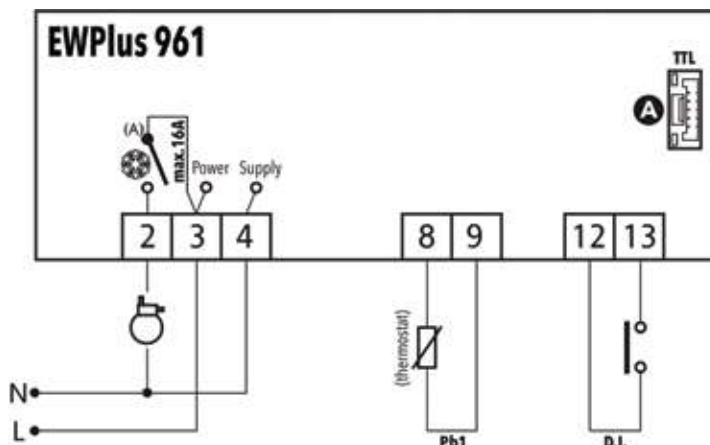
EWPlus EO Series

High energy saving solutions

- Advanced control algorithms contribute to **energy saving up to 39%*** with no modification of counter structure needed
- Self-adaptation of the energy saving functions based on the conditions of use of the refrigerator
- The product is **compatible with the new ecological refrigerants R290, R600**, in compliance with IEC 60079-15-2005
- Optimized temperature management when switching from night to day mode
- No supplementary sensors needed thanks to the **virtual door switch**
- Management of a 2nd compressor on the basis of a differentiated temperature threshold and a delay
- Advanced algorithms for defrost management on the 2nd evaporator
- Voluntary certification: ENEC/UL (check on device label)
- **4 easily selectable configurations** pre-loaded in a single controller
- **Internal RTC** (depending on model)

Applications

The **EWPlus EO** series controllers are designed to combine high energy savings with maximum ease of installation and use, easily applicable also replacing prior series controllers.
Thanks to platform versatility and a library of available functions, Eliwell can design custom solutions for energy saving requirements and simplification of production processes.

Common features

Direct load management up to 2 Hp and power supply of 230V~ or 115V~
Integrated protection of loads against voltage fluctuations controllable by parameter
Use of removable/faston/screw connectors for quick, versatile hookup
Unicard USB for customizing even small lots
Industrial packaging 60 pieces

Model	Application	Notes
EWPlus 961 EO	Static units	2Hp relay, 1 analogue input, 1 digital input
EWPlus 971 EO	Ventilated units	2 Hp relay, 2 configurable outputs (defrost/fans/lights/alarm/stand-by), 2 analogue inputs, 1 digital input
EWPlus 974 EO	Ventilated units	2Hp relay, 3 configurable outputs (defrost/fans/lights/alarm/stand-by) 2 analogue inputs, 1 digital input
EWPlus 978 EO	Ventilated units	2Hp relay, 4 configurable outputs (defrost/fans/lights/alarm/stand-by), 2 analogue inputs, 1 digital input
EWPlus 974 EO Smart Control	Ventilated units	2Hp relay, 3 configurable outputs (defrost/fans/lights/alarm/stand-by) 2 analogue inputs, 1 digital input
EWPlus 978 EO Smart Control	Ventilated units	2Hp relay, 4 configurable outputs (defrost/fans/lights/alarm/stand-by), 2 analogue inputs, 1 digital input

LOW ENERGY CONSUMPTION

39%
Energy savings

EWPlus EO

20%*
Energy savings

Electronic controllers

0%

Electromechanical controllers
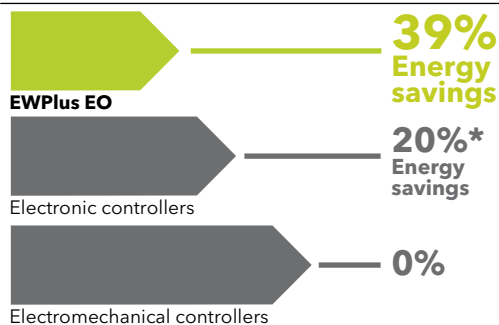
HIGH ENERGY CONSUMPTION

*energy saving certified by the independent laboratory INTERTEK

Longer-lasting components

- Protection of compressor against voltage fluctuations thanks to incorporated low and high voltage detector LVD (patent in the registration process).
- Advanced control algorithms for long-lasting performance with no need to modify counter structure.

EWPlus EO

EWPlus 978

Solutions for double evaporator and double compressor

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- Solution for combined counters, double evaporator or double compressor
- Compact solution for control of small mono-blocks
- Suited for applications with hydrocarbons

Applications

The **EWPlus 978** series controllers are designed to combine high energy savings with maximum ease of installation and use, easily applicable also replacing prior series controllers.
Thanks to platform versatility and a library of available functions, Eliwell can design custom solutions for energy saving requirements and simplification of production processes.

Common features

4 configurable output relays for double compressor control and single or double defrost
Power supply 120V
Unicard USB for customizing even small lots

Model	Application	Notes
EWPlus 978	Combined counters	Single or double compressor
	Monoblocs	Single or double evaporator
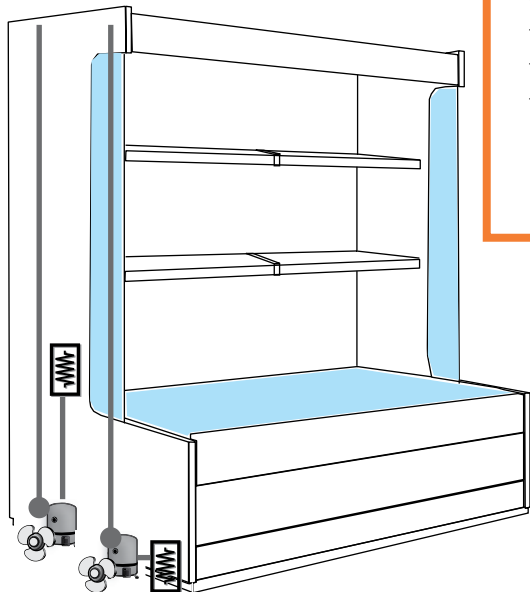
Application examples

In a combined cold case, **EWPlus 978** can manage the double compressor with:

- delayed compressor start/initiation

- ignition based on differentiated temperature threshold and delay

In this case, the controller can manage the set sequence or rotation between two compressors.

It can also manage double defrosting:

- delayed

- with independent defrost end temperatures

- with common defrost time-out

EWPlus 978

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KDE-KDT-ECPlus Series User Interfaces

User interfaces for RT family

ECPlus   KDEPlus

KDT (horizontal)   KDT

- **ECPlus**, **KDEPlus**: compatible with controllers in the RT series
- **KDT**: keyboard with touch technology, compatible with controllers in the RT series
- **KDT (horizontal)**: customizable for OEM solutions

Applications

KDEPlus is a user terminal for integral display and programming of controllers for remote and plug-in refrigerated cabinets.
Each power board can be connected to a single keyboard and, if required, to an ECPlus module for remote display by means of the special connector.
The remote **ECPlus** display can be used to view displayed date from up to 325' away, differentiating it from the data displayed on KDEPlus terminals.

The **KDT** keyboards, made using backlit screen-printed plexiglass, can be used to carry out all procedures currently offered by membrane and standard 32x74 keyboards, but with a perfectly smooth and easy to clean surface, combined with a modern look and the natural feeling of touch-sensitive keys with light and sound feedback. The special construction of the keyboards, with its glued-on installation option, offers reduced installation times, precise positioning and a protection rating of IP65. The simplicity of the KDT keyboards stems from Eliwell's experience in studying solutions for design and installation simplification.

Technical data	Horizontal KDT	Vertical KDT	KDEPlus	ECPlus
Casing:	Polymethylmethacrylate (PMMA) front panel	Polymethylmethacrylate (PMMA) front panel	PC+ABS UL94 V-0 resin casing, polycarbonate window, thermoplastic resin keys	Body and window in polycarbonate
Dimensions:	front panel 7.1" x 1.6", depth 0.06"	front panel 3.4" x 5.3", depth 0.06"	front panel 2.9" x 1.3", depth 1.2"	front panel 1.9" x 1.1", depth 0.6"
Installation:	panel mounting, can be set for a distance of up to 325', with 5.9" x 1.2" drilling template	panel mounting, can be set for a distance of up to 325', with 2.6" x 4.7" drilling template	panel-mounting, with 2.8" x 1.1" (+0.2/-0.1") drilling template	panel mounting with 1.8" x 1" (+0.2/-0.1") drilling template
Display:	3 digits+sign, 8 coloured icons colours can selected from: amber/red/blue/white 6 capacitive touch keys	3 digits+sign, 8 coloured icons colours can selected from: amber/red/blue/white 6 capacitive touch keys	with decimal point ° 3 digits + sign	with decimal point ° 3 digits + sign
Display range:			see power board	see power board
Connections:			• screw terminals for low voltage connection • JST for ECPlus display connection	• screw terminals for low voltage connection • JST for KDWPlus or KDEPlus user terminal connection
Power supply:			from power board	from power board
Power consumption:			-	-
Ambient operating temperature:			23...130°F	23...130°F
Ambient storage temperature:			-22...185°F	-22...185°F
Ambient operation and storage humidity:			10...90% RH (non-condensing)	10...90% RH (non-condensing)

Adaptive Defrost

Defrost cycle starts if one of the following conditions happens:
- The cumulative compressor operation time (dit parameter) has elapsed since the last defrost (with dit≠0);
- compressor has been switched on continuously for dtt time;
- The evaporator temperature drops below the dSS threshold (without delay);
- The evaporator temperature falls below the dynamic threshold, with active compressor

The dynamic threshold is determined in the following way:
- The temperature measured by the evaporator probe is stored at the end of the first compressor state cycle after a defrost cycle. At the power-on is stored the temperature measured by the evaporator probe at the end of the first compressor state cycle;
- An offset is substract, dOS parameter

RTN400 Series
Connectable controllers for self contained equipments

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- Connectible through Modbus
- Single or dual compressor control
- Advanced resistance defrost
- Evaporator fan control in Night&Day mode
- Fixed duty-cycle frame heater control
- Pre-programmed, easy-to-select configurations.
- Adaptive control for variable speed compressors

Applications

RTN400 are compact controllers for plug-in and remote cabinets with thermostatic valve control.

RTN400 controllers are compact and stand out for the high-performance and high flexibility they offer through energy-saving algorithms and the direct control of compressor and fans.

RTN400 SM provides energy savings in supermarkets and commercial food distribution and storage applications; it is suitable for the control of EMBRACO VNEU and SECOP CCD variable speed compressors, obtaining maximum performance through a control algorithm with self-learning of operating parameters. It also combines optimised defrost cycle management, dewpoint-based heating and anti-condensation element modulation and cold room set point modulation, with automatic identification of open/closed operational time bands.

RTN400 controllers can be interfaced with **KDEPlus** and **KDWPlus** keyboards and with the **ECPlus** display module. It's important to note here that this control can be used with no display as well, a trend starting to take hold by many OEM's.

Features

Power boards in compact bare box (121x92mm)	
5 temperature probes and 1 configurable digital input	

Model	Application	Notes
RTN400	Supermarket counters	Bare board with fast power connections, faston type
RTN400 SM	Supermarket counters with variable speed compressor	Bare board with fast power connections, faston type
KP00Q1S0 of the Modbus adaptor	RS485 Plug-in module	Modbus serial adaptor to EcoStruxure™
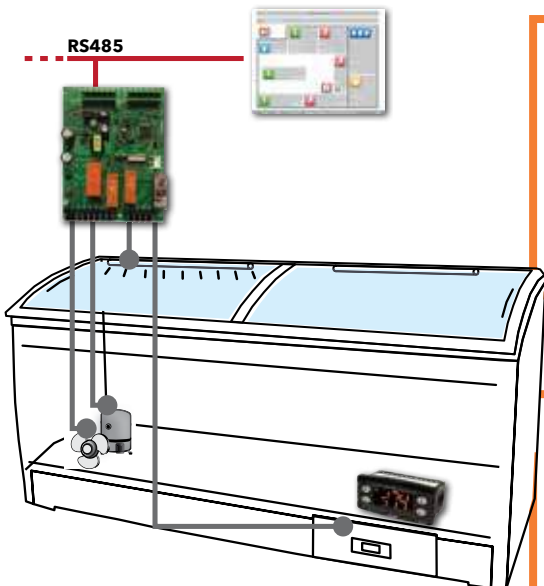
RS485

Application examples

In a **plug-in counter**, RTN400 is used to control compressor, lights and fans connected to a monitoring system via RS-485 network (the optional board is needed for RS-485 connectivity).

RTN400

Plug-in R290 tank with variable speed compressor

RTN 400 SM can control all aspects of the application, including compressor, fans, lights and defrosting.

The innovative self-learning algorithm for control of variable speed compressors significantly reduces the time required for commissioning, ensuring maximum energy efficiency in all conditions and a longer motor life.

The advantages of this type of application are:

- Smaller compressor
- Reduced refrigerant charge
- Continuous control of cooling capacity
- Fewer compressor start-ups and consequently longer compressor life

RTN400 SM

Selection guide for self-contained controllers

Applications					Energy Efficiency*	Outputs	Inputs			User Interface	Characteristics
Medium Temp	Low Temp	Dual Compressor	Warming	Dispenser / Beer Tap		Relays[3,4] @ 120Vac	DI	NTC Probes	Power	Display Color	Connections (Power + Inputs)
						1 Output					
√	√				NN	1 - 16FLA (1HP)	1	1	100-240Vac	red	Spade + RAST
√	√		√[2]		NN	1 - 16FLA (1HP)	1	1	120 or 240Vac	amber, red, blue[7]	Spade + Plug
				√	NNN	1 - 16FLA (1HP)	1	1	120 or 240Vac	amber, red, blue[7]	Screw Terminal
						2 Outputs					
√	√		√[1]		NN	1 -16FLA 2 - 3A (2FLA)	1	2	100-240Vac	red	Spade + RAST
√	√		√[1]		NN	1 - 16FLA (1HP) 2 - 8A (4FLA)	1	2	100-240Vac	red	Spade + RAST
√	√				NN	1 -16FLA 2 - 5A (2 FLA)	1	2	120 or 240Vac	amber, red, blue[7]	Spade + Plug
√	√				NN	1 - 16FLA (1HP) 2 - 8A (4FLA)	1	2	120 or 240Vac	amber, red, blue[7]	Spade + Plug
						3 Outputs					
√	√		√[1]		NN	1 - 16FLA (1HP) 2 - 8A (4FLA) 3 - 5A(2FLA)	1	2	100-240Vac	red	Spade + RAST
√	√	√			NN	1 - 16FLA (1HP) 2 - 8A (4FLA) 3 - 5A (2FLA)	1	2	120 or 240Vac	amber, red, blue[7]	Spade + Plug
√	√	√			NNN	1 - 16FLA (1HP) 2 - 8A (4FLA) 3 - 5A (2FLA)	1+16	2+16	120 or 240Vac	amber, red, blue[7]	Spade + Plug
√	√				NNNN	1 - 16FLA (1HP) 2 - 8A (4FLA) 3 - 5A (2FLA)	2	2	120 or 240Vac	amber, red, blue[7]	Screw Terminal
						4 Outputs					
√	√	√			NN	1 - 10FLA 2 - 8A (4FLA) 3 - 5A (2FLA) 4 - 5A (2FLA)	1+16	2+16	120 or 240Vac	amber, red, blue[7]	Phoenix Plug-In
						5 Outputs					
√	√	√			NNN	1 - 16FLA (1HP) 2 - 8FLA (1/2HP) 3 - 8A (4FLA) 4 - 8A (4FLA) 5 - SSR[5]	1+5[6]	56	100-240Vac	amber, red, blue, white[7]	Spade + Screw Terminal

★★   Evap. fan cycling, reduced setpoint mode, smart defrost

★★★   Advanced algorithms, dmande defrost, modulating defrost

★★★★   Advanced self-learning algorithms

Selection guide for self-contained controllers

Options / Acces.[11]				Models[13]	Standard Part Number *(Blue Display, 120 VAC)
Plexiglass Cover	Rear Cover Drip Guard	Front Panel Gasket	Bezel Color Options		
Y	Y	Incl[12]	red	nEW 961	NW17DIHMCEF80
Y	Y	Y	Gray, Silver	EW Plus 961	EW17DIHMB9C80
Y	Y	Y	Gray, Silver	EW Plus 961 EO	Contact Sales
Y	Y	Incl[12]	red	nEW 971	NW22DIHMBGF80
Y	Y	Incl[12]	red	nEW 971-SPDT	NW29DIHMBGF80
Y	Y	Y	Gray, Silver	EW Plus 971	EW22DIHMC9C80*
Y	Y	Y	Gray, Silver	EW Plus 971-SPDT	EW29DIHMC9C80*
Y	Y	Incl[12]	red	nEW 974	NW2EDIHMBGF80
Y	Y	Y	Gray, Silver	EW Plus 974	EWF4DLHMC9M99*
Y	Y	Y	Gray, Silver	EW Plus 974 EO	EW2EDIGMC9C80*
Y	Y	Y	Gray, Silver	EW Plus 974 EO Smart	Contact Sales
Y	Y	Y	Gray, Silver	EW Plus 978	Contact Sales
			Custom Graphics	RTN (Control Module)	Contact Sales
				Cusomizable KDT (User Interface Module)	Contact Sales
				KDE (Std. User Interface)	KDE400E006080

1 Display values up to 199°F
2 Display values up to 230°F
3 Suitable for hydrocabons; IEC 60335-2-89 for GWT & flammable gas; use of relay with wash tight variants (bubble test 33.5 IEC 60079-15)
4 Assignable relays on all models
5 Open Collector output to drive external SSR
6 Input used as either DI or probe
7 Standard option is blue, other colors available as custom part number
8 When remote display is used, external communications are not available; contact sales for remote display and buzzer options. All models have factory communications interface and some have external Modbus capabilities; contact sales.
9 Requires gasket as a separate item, responsibilty of customer to ensure IP rating in the application
10 Factory purposes only
11 All products can be custom branded and factory pre-programmed
12 Gasket is already integrated with the plastics
13 cUR and NSF certified

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VARIABLE SPEED DRIVES

SENSORS

ELECTROMECHANICAL

EWSense

Wireless system for Temperature, humidity and Co2 monitoring

EWSense Gate

EWSense Temp

EWSense Temp

((z))

Humidity & Temperature Sensor
Schneider Electric

CO² Sensor
Schneider Electric

EWSense Temp

Humidity & Temperature Sensor
Schneider Electric

CO² Sensor
Schneider Electric

C-Store
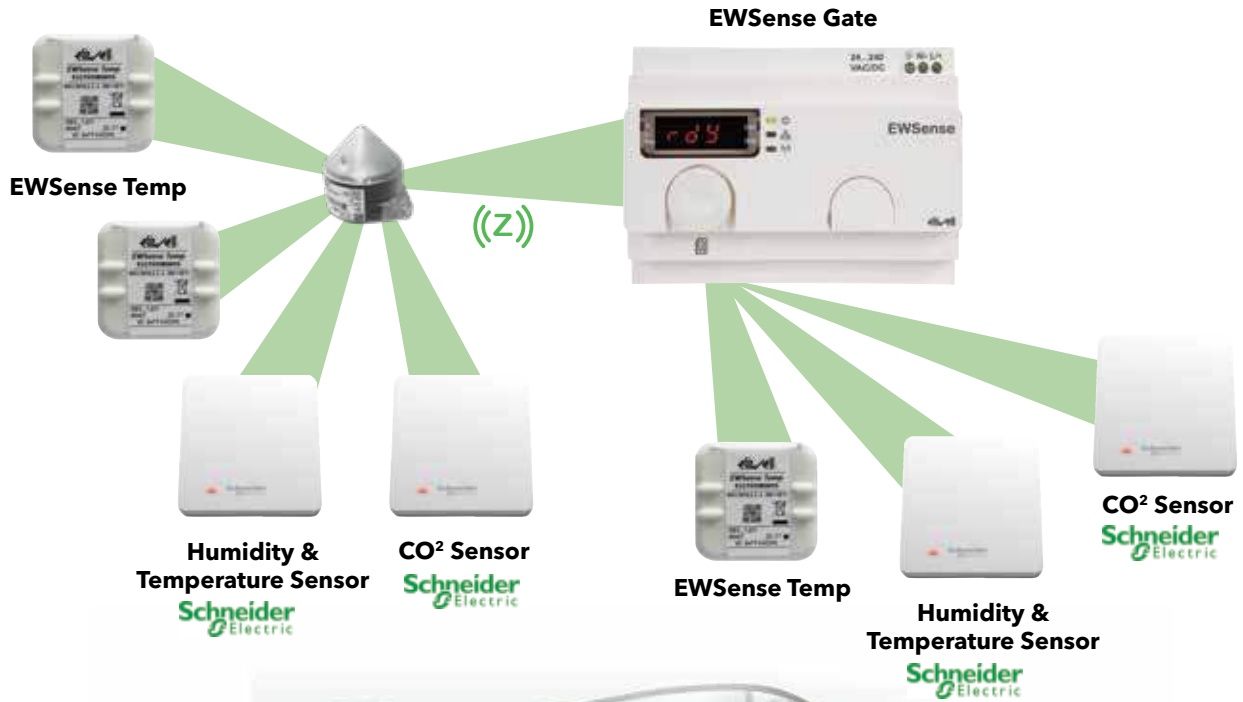
EWSense Temp - wireless temperature sensor
- Food Zone installation material: NSF
- Metering range: -22°F to 131°F, Transmit interval: 2 minutes, 2 years life, battery powered sensor
- Max transmit distance: 300' (line of sight)
- Mounting / Dimension: Adhesive / 1.58" x 1.54" x 0.65"
- Mounting options: Plastic tie, Velcro, Metal plate with screw

EWSense Repeater - wireless signal repeater module
- Power Supply: 24V...240Vac/dc
- Max transmit distance: 300' (line of sight)
- Typical transmit distance: 30'
- No configuration needed

Humidity Sensor
- Wireless CO2 sensor with room temperature and humidity
- Wireless sensor with room temperature & humidity

EWSense

Wireless system for temperature, humidity & CO² monitoring

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Codes	Descr.	Notes
ESG0010700	EWSense Gate ZBRN12	ZigBee receiver with RS-485 Modbus/RTU serial port
ESARJC200	EWSense 2 x RJ45 serial cable 3.3'	Kit with 2 cables with RJ45 connector for RS-485 serial connection
ESST1010800	EWSense Temp	ZigBee Green Power wireless temperature sensor
ESR0012700	EWSense Repeater ZBRA12	16' Cable
ESST010B0400	4 x EWSense Temp	Kit of 4 EWSense Temp sensors
ESAMPL000	EWSense Metal Plate KIT x4	Kit for panel fixing with metal plates for 4 EWSense Temp
SED-TRH-G-5045	Temperature and Humidity Sensor	
SED-CO2-G-5045	CO-2, Temperature and Humidity Sensor	

Applications

EWSense is a wireless system for measuring the temperature of food storage and processing equipment and rooms. The wireless and battery-operated sensors make the system extremely easy to install; they can also be replaced, avoiding the need to periodically re-calibrate the system. The EWSense Temp sensor is made from plastic, suited to food-grade environments with protection rating IP65 and measures the ambient temperature where it is installed between -22°F and 131°F for over 2 years, thanks to the integrated battery and the ZigBee 3.0 Green Power wireless communication.

The EWSense Gate receiver manages up to 60 sensors positioned in a radius of 300 feet (line of sight), indicatively 33 feet in standard installations. The RS-485 Modbus/RTU line allows monitoring systems to acquire temperature date, signal level and battery level, for full system diagnostics.

Common features

Low-consumption ZigBee Green Power wireless communication
Up to 60 EWSense Temp sensors for each EWSense Gate receiver

Technical data	EWSense Gate	EWSense Temp	EWSense Repeater
Dimensions (in.)	4.37 x 3.89 x 2.74" (LxHxD)	1.57 x 1.54 x 0.65" (LxHxD)	3.6 x 3.6 x 2.5
Installation	on DIN Omega bar support	Gluing on flat surface with double sided tape (supplied)	Wall
Power supply	24V…240Vac/dc	Integrated battery, not replaceable. Duration more than 2 years of operation.	24V…240Vac/dc
Connectivity	RS-485 for connection to TelevisSystem monitoring and systems based on ModBus protocol ZigBee 3.0 receiver	ZigBee 3.0 Green Power Standard IEEE 802.15.4 transmitter Frequency: 2,405 GHz Distance: 300' (in free field)	ZigBee 3.0 Green Power Standard IEEE 802.15.4 transmitter Frequency: 2,405 GHz Distance: 300' (in free field)
Protection rating	---	IP 65	IP 65
Measurement range	---	-22°F … 131°F	-----
Measurement accuracy	---	±0.6°F	-----

Wiring diagrams

EWSense Temp

EWSense metal plate

mm - in.
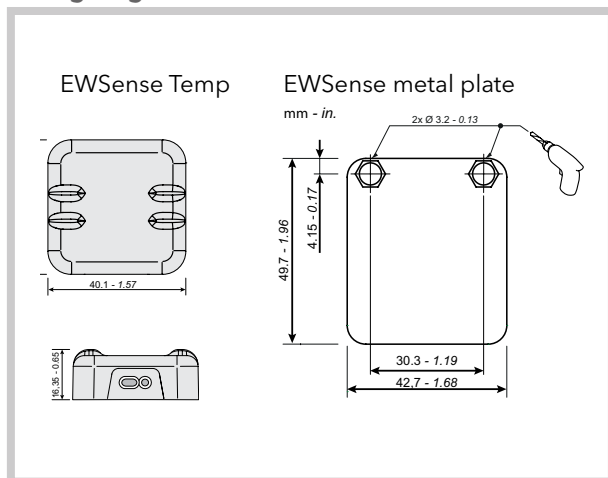
Humidity Sensor	
Dimensions	3.26" x 2.85" x 0.72"
Operating temperature	32°F to 122°F
CO² accuracy at NTP	±60ppm +3% of reading (400-2,000ppm range)
CO² measurement pressure dependency	0.13% of reading per mm Hg (normar atmospheric conditions of ~100Kpa)
CO² resolution at NTP	±20ppm at 800ppm
Transmission protocol	Zigbee 3.0 Green Power (encrypted, bi-directional
Transmission range	Up to 328' free field 66' to 98' indoor
Protection	IP20

Schneider Electric EcoStruxure™ Machine Advisor

Digital service platform for machine builders
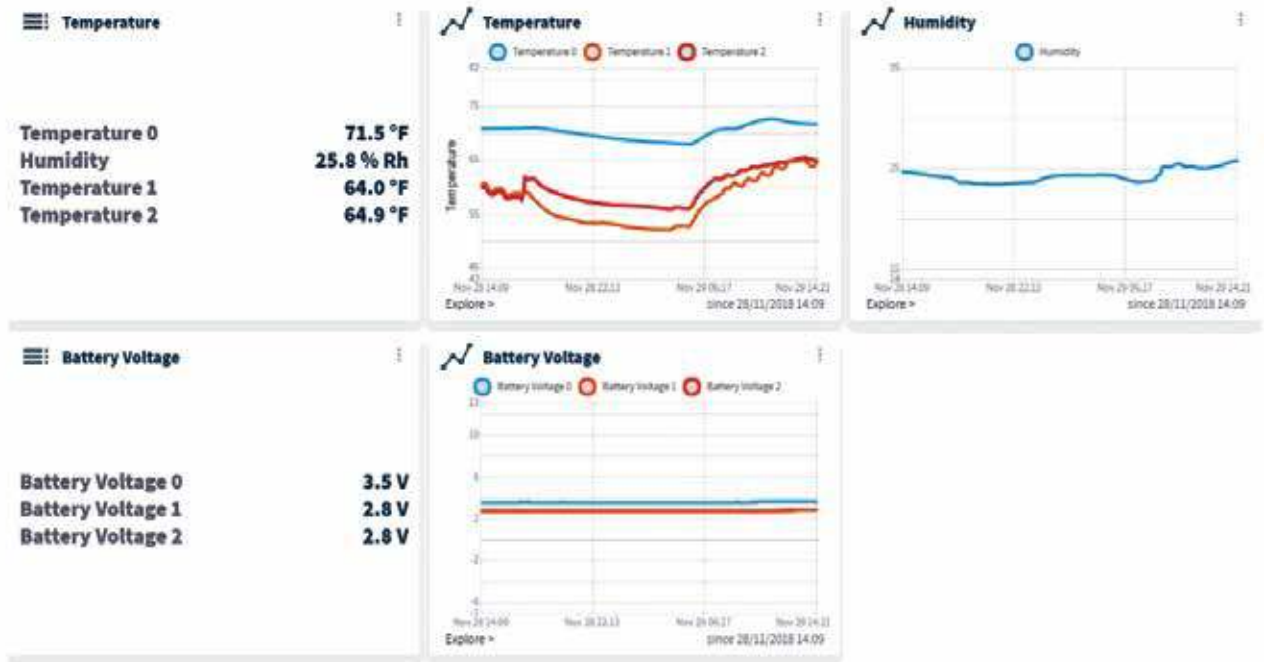
EcoStruxure™ Machine Advisor is a digital, cloud-based services platform for remote accessing operating machines. It enables machine builders to provide new services to machine operators for each installed machine in any production site worldwide. The machine builder can now support the machine operator by creating the optimum framework conditions for perfect and reliable machine operation.

Building on its deep expertise in the OEMs segment, Schneider Electric's EcoStruxure™ Machine Advisor offers new levels of efficiencies and growth by turning data into key insights for machine builders. It provides a fully connected framework for reliable machine operation through three key functionalities:

- **Track:** OEMs can visualize the location of all their machines, with real-time access to documentation and history, such as bill of materials, manuals, maintenance logs and task management schedules.
- **Monitor:** The cloud-based software allows OEMs to collect and visualize machine data in real time, giving a comprehensive analysis of Overall Equipment Effectiveness (OEE), widgets for performance against key KPIs and other trends, and dashboards to monitor machine availability and output quality.
- **Fix:** A service enabled by a mobile app to facilitate maintenance and operations with contextual information, the help of step-by-step procedures and remote expertise by leveraging augmented reality. Furthermore, Fix provides remote access to the engineering software in the cloud enabling service technicians to use "Software-as-a-Service" to always have the right version and libraries by hand.

Schneider Electric EcoStruxure™ Facility Expert

Optimizing the operational cost for chain maintenance managers

EcoStruxure™ Facility Expert provides an integrated, IoT-based platform, fully adapted to retail chains projects that optimizes business continuity, improves operational efficiency, energy consumption and comfort of customers, at once.

Whether used on PC, smartphone, tablet, online or offline, EcoStruxure™ Facility Expert offers a collaborative technology that remains you connected to equipment and stores involving very simple information sharing, remote monitoring and control across your portfolio that helps stores owners and their contractors to:

Optimize operations
- Reduce over-spend thanks to maintenance plan, task manager and task reminders to ensure and organize maintenance
- Speed up troubleshooting: access equipment log history and doc repository, prepare intervention and get on-field support from colleagues if needed
- Automate your manual readings (positive/negative temperatures) and generate reports in a single click to ensure traceability, regulations compliance and reduce administrative tasks

Gain control on energy consumption
- Monitor energy 24/7 to point out equipment, zone and usage deviations and identify contributors to peak consumption
- Settle targets and parameters to avoid utility penalties and be alerted in case of overconsumption
- Evaluate performance: benchmark all your sites, compare to local scales, meet energy standards (ISO 50001, LEEDS, NABERS), monthly score cards
- Costs monitoring

Provide comfortable environment for customers
- Remote control of connected thermostat: On/Off, setpoints, mode selection, operation sequence, compressor auxiliary interlock
- Control and modify your schedules from anywhere, anytime
- Monitor comfort (temperatures, humidity, CO_2 level) of your sales areas

Reduce business interruption losses
Wireless technology delivers enhanced protection on your key assets with minimal interruption to business.

- Monitor and localize all your equipment (cold room, chillers, rooftops, built-in fridges)
- Be alerted in case of equipment breakdown or malfunction
- Diagnose remotely and repair faster with alarms details

*Monitor equipment:
electrical, refrigeration, HVAC*

Monitor energy consumption

Monitor comfort

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Eliwell™ TelevisAir

RTN400 Wireless tool for Service team

Model	Application
ADBT4200000000	DONGLE BTLE 4.2 BASIC AIR
ADBT4200001000	DONGLE BTLE 4.2 DATALOG AIR

TelevisAir is the wireless service tool for the RTN controller installed on self-contained equipment's such as:•

• Bottle cooler
• Drink dispenser
• Ice cream freezer
• Display cabinet

It is based on the following pillars:

• BTLE (Bluetooth Low Energy) Dongle
• Eliwell AIR APP
• TelevisAir Cloud

TelevisAir Cloud Service

END USER SERVICE
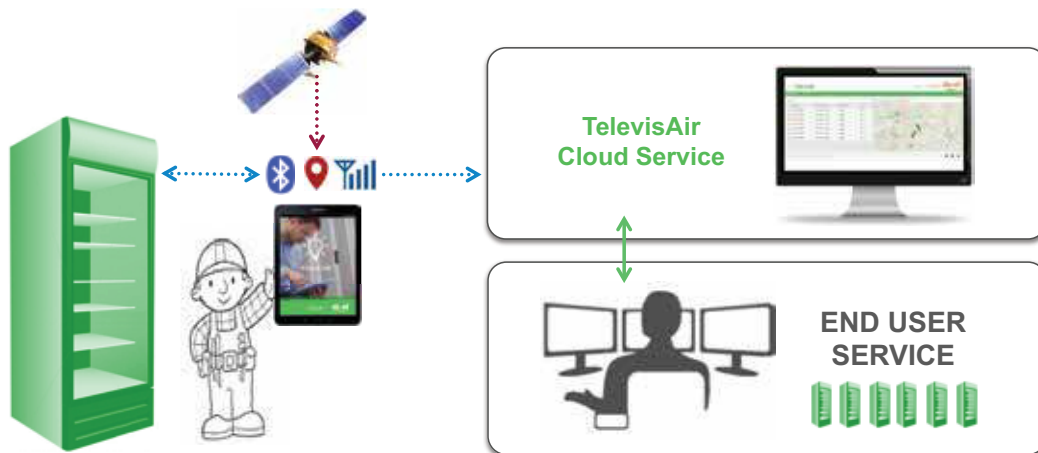
BTLE Dongle Basic
The BTLE (Bluetooth Low Energy) Dongle is an accessory to be plugged into the TTL port of the Eliwell RTN400 controller to implement Bluetooth communication

BTLE Dongle Datalog
BTLE Dongle version equipped with a local memory storage

Eliwell AIR APP
Available for Android and iOS operating systems, offers the following features:
• Smart local interface with the controller
• Verify the status of the controller and its operating variables
• Operate the controller functions and parameters from the smart device
• Download and upload the parameters through the smart device
• Download the data stored in the BTLE Dongle Datalog to the smart device
• Synchronize with TelevisAir CLOUD the GPS location and the data stored in the BTLE Dongle Datalog

TelevisAir CLOUD
CLOUD portal providing, upon service activation:
• Display the location and general status of the cooler network
• Access the individual cooler data and trends
• Activate threshold alerting messaging for each operating variable of the cooler

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TM172P Datalogger Application

Thru Wifi or BMS in a store/restaurant by service team

Model	Application	Notes
TM172PGD18R	Datalogger	See all communication capabilities hereunder

- Monitor the status of the coolers, adjust Archive data locally (SD card /USB) HACPP
- Local access with phone/ tablet to web server thru Wifi
- Embedded connection to building management system

No. of I/Os	Input Channels	Output Channels	Embedded Communications Ports	Display	References
18	2 Digital Inputs 2 High Speed Counters Dry Contact 8 Analog Inputs (configurable by pair) 8 NTC or PT1000, or PTC, or 0-20mA. or 4-10 mA, or hOhm, or daOhm, or Digital Input	6 Digital Outputs 1 SPDT Relay 1A 2 SPST 3A with the same common 1 SPST 3A 2 SPST 3A with the independant common Optional 2 SSR with independent common for TM172PDG18S only 2 Analog Outputs 2.0-10V, or 4-20mA, or PWM (2kH, 24V)	1 Ethernet 1 Micro SD 1 CAN expansion bus 2 RS 485 1 USB (type A) 1 USB Mini-B 1 Communication Port 1 uSD Card Slot	Remote Display (optional) Built-in Display 128x64 LCD with backlight	TM172PBG18R TM172PDG 18R TM172PDG18S

Innovative Solutions for Supermarkets

Optimize your total cost of operations

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Industry Challenges

- **ENERGY COSTS:** With increasing energy costs, it is paramount to improve energy efficiencies of refrigeration equipment running 24/7.

- **GOVERNMENT REGULATIONS:** Increasing regulatory demands with DOE 2017, EPA, Energy Star and California Title 24 on efficiencies, refrigerants, and insulating materials.

- **REFRIGERANT REQUIREMENTS:** With the EPA ban of common refrigerants and the need to improve efficiency, new refrigerants such as R290 and CO_2 are becoming more prevalent.

- **TOTAL COST OF OWNERSHIP:** With increasing complexity and format evolution in supermarkets, simplicity and ease of maintenance enables quicker ROI

Management & monitoring

TelevisGo

Compressor racks

EWCM 400 PRO   EWCM 9000 PRO-HF   Altivar

Cold rooms

M172 Cold Box Application

Cabinets

RTN 400

Energy metering

Power Meter

Wireless monitoring

EWSense

Enterprise BMS

Centralized energy management & maintenance

EcoStruxure™ for Building Operation

Compressor Rack Managers Product Range

Scalable from simple condensing unit to CO2 transcritical Racks

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Features

CO2 Transcritical racks booster & parallel compression

Medium to large compressor racks HFC / HFO refrigerants

Small racks inverter & digital scrolltype compressors, CRii type compressors

Small racks inverter & digital scroll type compressors

Title 24 Condensing Unit

Condensing units

EWCM 9000 PRO-HF /CO2T
- CO2 transcritical booster (2 circuits)
- CO2 transcritical PC (3 circuits)
- Up to 8 + 8 + 4 compressor
- Inverter modulating compressors
- Modulating / steps gas cooler fans
- HP & FG valve control
- 2x heat recovery including pumps
- Oil management
- Modbus/RTU, Modbus/TCP, CAN connectivity
- Programmable application baseline extendable with Web server and Bacnet

EWCM 9000 PRO-HF / HFC-HFO
- Programmable application baseline
- Up to 2 circuits
- Up to 8 + 8 compressors
- Inverter modulating compressors
- Modulating / steps condenser fans
- Common condensation option
- Cascade system (stepper valve)
- Floating HP / LP
- Secondary fluid pump management
- Full diagnostic
- Modbus/RTU, Modbus/TCP, CAN connectivity
- Web server - Bacnet

EWCM 400P PRO /STD
EWCM 400D PRO /STD
- Single circuit
- Control on pressure
- Up to 4 compressors w/ up to 4 steps
- Digital Scroll / Inverter modulation
- Modulating / steps condenser fans
- Floating HP

EWCM 436D PRO /CRii
- Single circuit
- Up to 4 compressors
- CRii modulation – up to 3 heads
- Modulating / steps condenser fans
- Floating HP

TM172P
- Single Compressor with up to two unloaders
- Floating Head Pressure Control
- Modulating Evaporator/Condenser Fans
- Regulation
- Embedded web server•

TM171O
- Programmable application baseline
- Single circuit
- Modulating fans
- Floating HP

Architecture of Large Store

Refrigeration control and remote maintenance

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EcoStruxure™
Augmented
Operator Advisor

Eliwell™ TelevisGo
Web Interaction

Internet Router

IP

TelevisGo
Web Interaction

TelevisGo

Modbus

EWCM 9000 PRO-HF

TM172

TM172

TM172

RTN400

EWSense Gate

Altivar Drive

SFlex Drive

Altivar Drive

XVD

RTN400

Wireless
monitoring

| Compressor Racks | Remote Condensers | Condensing Units | Cold Boxes | Plug-in Controllers | Plug-in Temperature Monitoring |
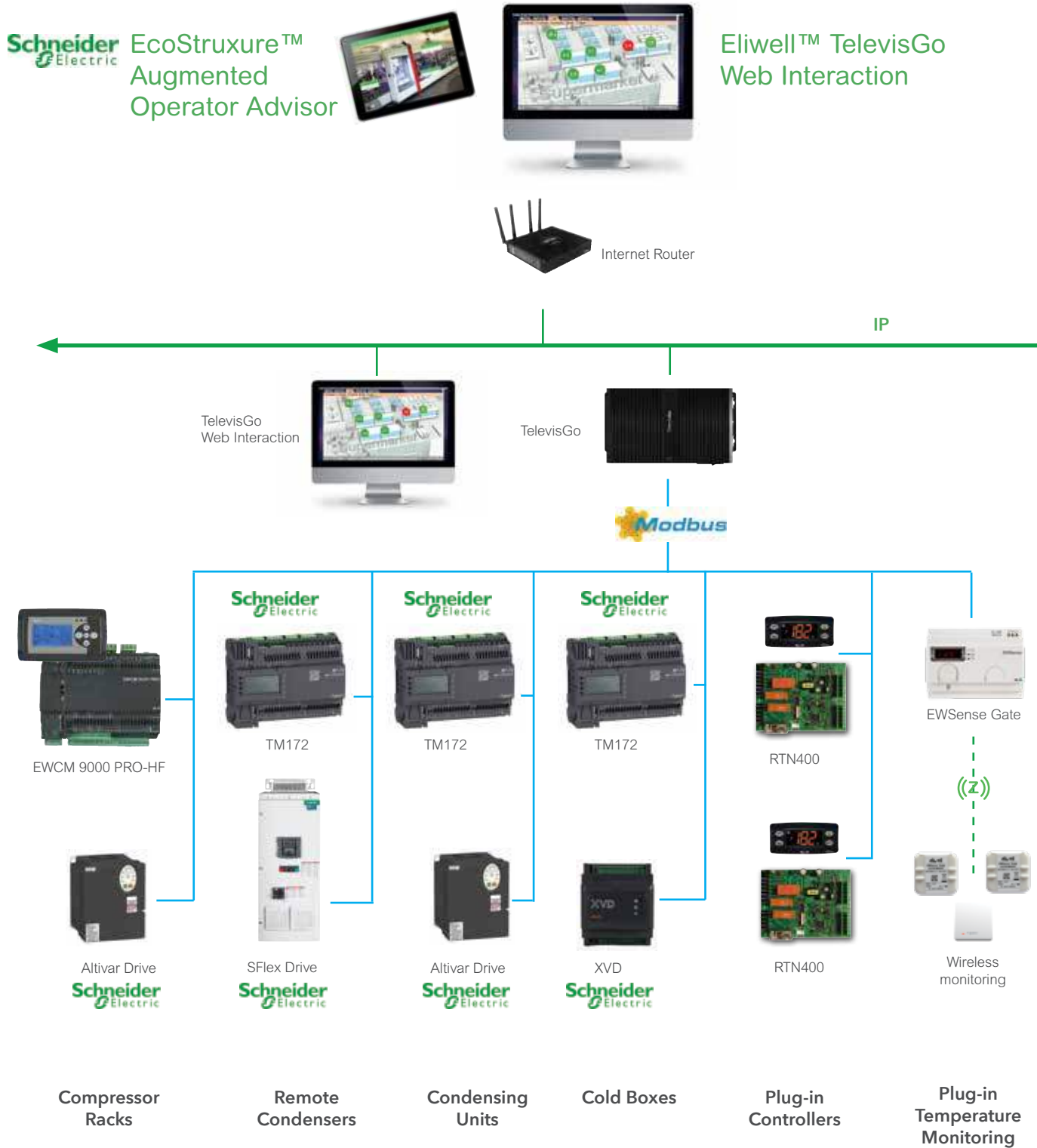
Refrigeration Control and Remote Maintenance

Architecture of Large Store
Complete building and energy management

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EcoStruxure™
Building Operation

Internet Router

IP

Automation Server

Bacnet IP

MP-C

MP-V

TM172

HVAC & Lighting

Automation Server

Multimeter

SE8000

Inverter

NSX

Electrical Distribution & Metering

MPM

SE8000

Wireless Sensors

SPC Web

Smartcard

Pelco Wireless Server

Security Intrsion Video

Electrical Distribution, Air Conditioning, Security

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TM171O Condensing Unit Application

Improve efficiency & allow connectivity
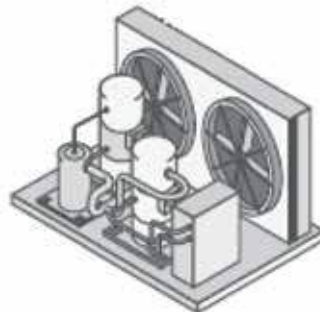
Model	Application	Notes
TM171OFM22R	Condensing Unit	With Condensing Unit Application

Multiple parameter configuration levels

Refrigerant types, sensor configuration, pressure or temperature, units of measure (°F/PSI, °C/bar)

Compressor Management

Compressor type ,digital control of 1 compressor with or without unloader

algorithms: cut-in / cut-out, PID with VSD, low pressure or temperature control , offsets

Increase compressor life, bump start, min & max run times, fault operations, pump down time

Fans Management

Control of up to 2 condenser fans based on HP, evap. fan control different controls strategies

Defrost

Type: interval time, time of day, demand defrost, defrost delay / cycle initiation, display information,

defrost heater duty cycle

Historical data

Compressor operations, fan operations, alarms

Alarm codes & fault operations

Compressor # of fault retries, min/max case temperature, min/max pressures independent of external safety controls

Field diagnostics mode, RTU Modbus open protocol

| No. of I/Os	Input Channels	Output Channels	Embedded Communications Ports	Display	References
22	6 Digital Inputs 5 Configurable Analog Inputs (configurable by pair) 3 NTC or Digital Input, or 0-20mA. or 4-10 mA, or 0-10V, or 0-5V, or 0-1V or Digital Inputs	6 Digital Outputs 3 SPST 3A with the same common 2 SPST (2A, 230Vac) with the independent common 1 Open Collector 5 Analog Outputs 2 Open Collector for 12V PWM/PPM 3.0-10V	1 LAN Expansion Bus 1 RS 485 1 Lan Expansion Bus	Built-in Display	TM171OFM22R

Wiring diagrams

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SENSORS
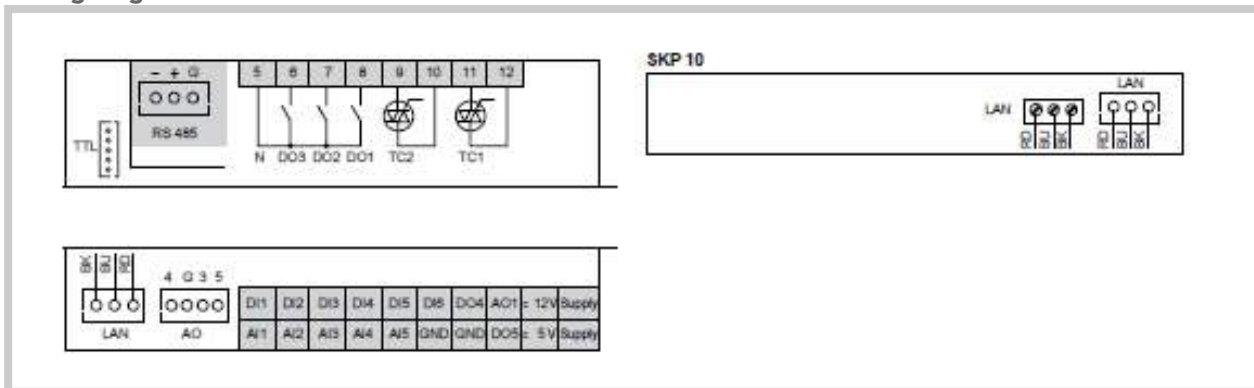
ELECTROMECHANICAL

EWCM 400D PRO

Parametric compact controllers for compressor racks

Codes	Descr.	Notes
EPDT1PCR24U0A	EWCM 436D PRO CC /A-CRII KIT W/CABLES	CRii compressor – 4 DIN – 2 embedded SSR
EPDT1PSTD4U0A	EWCM 436D PRO CC /A-STD KIT W/CABLES	Digital scroll/inverter – 4 DIN – 2 embedded SSR
EPD01PSTD4U0A	EWCM 455D PRO CC /A-STD KIT W/CABLES	Digital scroll/inverter – 4 DIN – external SSR
EPE01PSTD4U0A	EWCM 455P PRO CC /A-STD KIT W/CABLES	Digital scroll/inverter – flush mount – external SSR
EP55000004U0A	EXP 455D PRO CC KIT W/CABLES	4 DIN expansionModule for digital scroll/inverter

Applications

The new series of controllers for EWCM 400D PRO compressor racks are designed to manage small central cooling units with capacity modulation plus two-step or inverter modulation for condensation fans. The range of models manages modulation for CRii, Digital Scroll and Inverter compressors andis available in both flush mount and DIN rail mount The floating condensation management according to the external temperature conditions completes the characteristics offering energy saving features.

Common features

Control of compressor racks up to 4 compressors and condenser fans	Energy saving with floating condensation
Modulation of the capacity for CRiiseries compressors up to 3 valves	RS-485 serial and Modbus RTU open supervision protocol
Two-step or inverter fan control	

Technical data

I/O	**EWCM 400D PRO**	**EWCM 455D PRO**	**EWCM 455P PRO**	**EXP 455D PRO**
	Description			
Analogue Inputs	3 configurable analogical, clean contact digital, NTC inputs 2 voltage/current analogue configurable inputs, clean contact digital inputs			
Digital Inputs	6 clean contact digital inputs			
Analogue outputs	TC1, TC2: TRIAC 3 A - 230 Vac output TRIAC high voltage 1 PWM analogue output (2) low voltage (SELV) 2 analogue outputs 0 ... 10 V, low voltage (SELV) 1 analogue output 0 ... 10 V / 4 ... 20 mA / 0 ... 20 mA, low voltage (SELV)	2 PWM analogue output (2) low voltage (SELV) 2 analogue outputs 0 ... 10 V, low voltage (SELV) 1 analogue output 0 ... 10 V / 4 ... 20 mA / 0 ... 20 mA, low voltage (SELV)		
Digital outputs	3 relay outputs 2 A - 230 Vac 2 low voltage open collector outputs (SELV)	5 relay outputs 2 A -230 Vac 1 low voltage open collector outputs (SELV)		
Connectivity	TTL programming port for MFK, DMI, UNICARD			–
Clock	Present			–
Power consumption	12 ... 24V~ not insulated			

Wiring diagrams
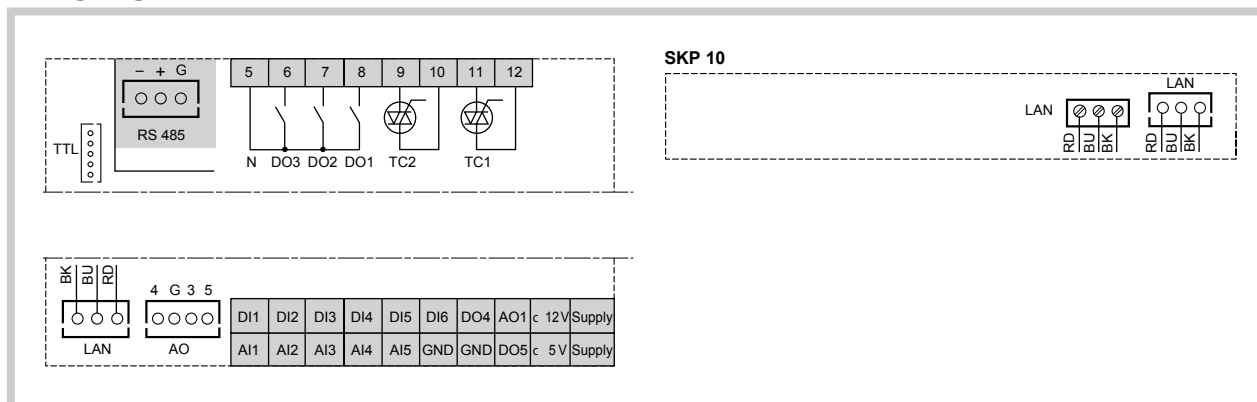
TM172 Condensing Unit Application "Title 24"

Compliant with California Title 24

Model	Application	Notes
TM172P...	Condensing Unit	With Condensing Unit Application

Enhanced Control Methodology to meet the requirement of California Building Energy Efficiency Standards Title 24:

- Floating Head Pressure Control
  Continuously variable speed condenser fans serving a common condenser high side in unison with reset table condensing temperature in response to ambient dry-bulb temperature.
- New Energy Saving options for parameterized Evaporator Fan control

Features:

- Complete Schneider Electric solution for both hardware and software
- Implemented control methods for multi-evaporator applications.
- Embedded web server and Remote Display for easy accessibility.
- Multiple network solutions: Modbus/Ethernet/BACnet/LONworks
- Superheat regulation for evaporators

Multiple configuration levels
Refrigerant types, Sensor configuration, Pressure or temperature, Units of measure (°F/PSI, °C/bar)
Condenser and Evaporator Fans Management
Support ECM fan motor controls, VSD controls
Defrost
Activation type: interval time, time of day, demand defrost, Defrost delay / cycle initiation, Display information, Defrost type: Air defrost, Electrical heater
Historical data
Fan and Compressor operations, Alarms, Historical temperature/pressure readings.
Alarm codes & fault operations
Min/max case temperature, Min/max pressures independent of external safety controls
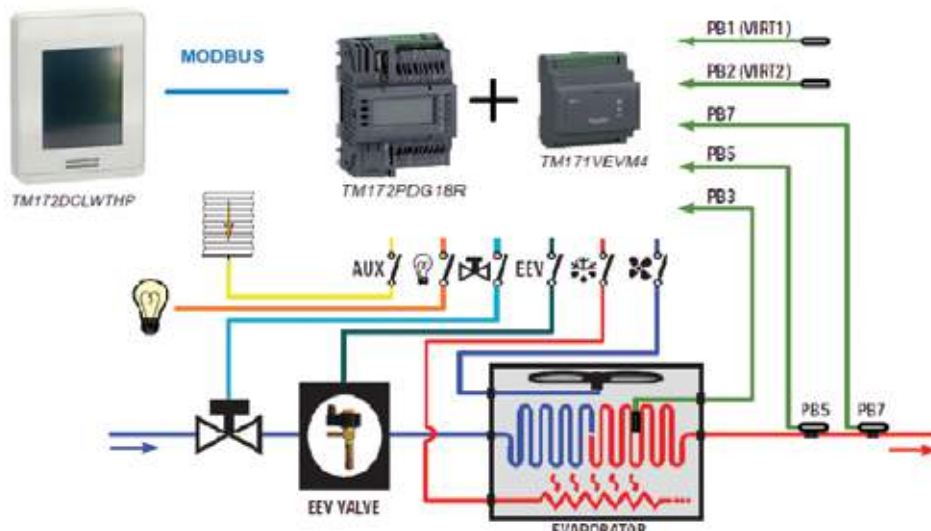**Compressor**
Compressor with up to 2 unloaders, Multiple Refrigerant Types supported

TM172 for Case- Cold Box Control

Optimal control and asset management

Model	Application	Notes
TM172PDG18R		
TM172PDG28R	Evaporator Cold Box Control	IO Expandable configuration for multiple evaporator application
TM172PDG42R		

Main Features:
- Expandable I O configuration for multi-evaporator applications.
- Remote Display for easy a ccessibility.
- Multiple network solutions: Modbus/Ethernet/BACnet/Lonworks
- Super heat regulation

Multiple configuration levels
Refrigerant types, Sensor configuration, Pre ssure or te mperature, Units of measure (F/PSI, C/bar)

Fans Management
Support ECM fan motor controls, VSD controls

Defrost
Activation type : interval time, time of day, demand defrost, Defrost delay / cycle initiation, Display information,
Defrost type : Freewheel/Air defrost, Electrical heater

Historical data
Fan operations, Alarms, Historical te mperature/pressure readings.

Alarm codes & fault operations
Mi n/max case temperature , Min/max pressures independent of external safety controls

No. of I/Os	Input Channels	Output Channels	Embedded Communications Ports	Display	References
18	2 Digital Inputs 2 High Speed Counters Dry Contact 8 Configurable Inputs (configurable by pair) 8 NTC or PT1000, or PTC, or 0-20mA or 4-10 mA, or hOhm, or daOhm or Digital Inputs	6 Digital Outputs 1 SPDT Relay 1A 2 SPST 3A with the same common 1 SPST 3A 2 SPST 3A with the independent common Optional 2 SSR with independent common for TM172PDG18S only 2 Analog Outputs 2.0-10V, or 4-20mA or PWM (2kH, 24V)	1 Ethernet 1 Micro SD 1 CAN expansion bus 2 RS 485 1 USB (type A) 1 USB Mini-B 1 Communication Port 1 uSD Card Slot	Remote Display (optional) Built-in Display 128-64 LCD with backlight	TM172PBG18R TM172PDG18R TM172PDG18S

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EWCM 9000 PRO-HF HFC-HFO

Programmable controller with single and double circuit compressor rack

Code	Descr.	Notes
EPAS1FCHA5U0	EWCM 9000 PRO - HF 42D SSR CC /HFC-HFO	With integrated display and SSR output
EPK0100000U0	EVK PRO DISPLAY /GR CC	Remote Display
TM172E28RCC1	M172 Opt. & Perf. expansion 28 I/Os CC	
TM171EP14RCC1	M171 Perf. expansion 14 I/Os CC	

Applications

EWCM 9000 PRO - HF HFC – HFO is a programmable controller with an application baseline suitable to control traditional compressor racks with single and double circuit; inverter and digital scroll compressor modulation; staged or inverter modulated condenser fans. The library includes defrost management and efficiencyalgorithms such as Floating condensation management. The basic library provided by Eliwell allows for the development times to be reduced thanks also to the debugging systems, simulation and diagnostics, even remotely, that can be found in the SoMachine HVAC software suite. Furthermore, Eliwell has a team specialised in supporting the developers and a network of partners capable of assisting clients in devising customised solutions.

Features

Controller freely programmable with SoMachine HVAC	Expandable up to 12 modules and 2 remote keyboards
Basic library for single and double circuit compressor rack	Modbus/RTU, Modbus/TCP, CAN, Web server/http connectivity
Diagnostic and simulation tools	

Technical data	EWCM 9000 PRO-HF / HFC-HFO	Expansion 14 I/O	Expansion 28 I/O	EVK PRO
Dimensions	5.7" x 4.3" front panel, depth 2.4"	2.8" x 3.4" front panel, depth 2.4"	2.8" x 3.4" front panel, depth 2.4"	7.5" x 3.8" front panel, depth 0.4", total depth 1.4"
Power supply	24 Vac / 20...38 Vdc	24 Vac / 24 Vdc	24 Vac / 20-38 Vdc	24 Vac / 24 Vdc
Power consumption	35 VA / 15 W	16 VA / 7 W	24 VA / 15 W	5W
Analogue inputs	12 configurable inputs: NTC -40..275°F DI NTC -58..230°F PT1000 -325..1560°F PTC -67..300°F 0-20 mA 4-20 mA 0-10 V 0-5 V 0-5 V ratiometric	4 configurable inputs NTC -40..275°F DI NTC -58..230°F PT1000 -325..1560°F PTC -67..300°F 4-20 mA 0-10 V 0-5 V	16 configurable inputs NTC -40..275°F DI NTC -58..230°F PT1000 -325..1560°F PTC -67..300°F 0-20 mA 0-10 V 0-5 V 0-5 V ratiometric	-
Digital inputs	10 SELV +24 V ac/dc opto isolator inputs 2 rapid opto isolator inputs, up to 2 kHz	4 safety extra low voltage SELV	4 SELV + 24V ac/dc opto insulator inputs up to 2kHz	-
Analogue outputs	4 outputs 0-10 V 2 configurable outputs 0-10 V 4-20 mA Open Collector	2 x 0-10V	2 configurable outputs 0-10 V 4-20 mA Open Collector	-
Digital outputs	8 3 A SPST +250 V a.c. relays 2 1 A SPDT +250 V a.c. relays 2 SSR x 0.5 A +240 V c.a.	3 3 A SPST +250 V a.c. relays 1 1 A SPDT +250 V a.c. relays	10 3 A SPST +250 V a.c. relays	-
Display	128x64px backlit graphic LCD 4 status LEDs	-		128x64px backlit graphic LCD 3 status LEDs
Connectivity	CAN Bus of expansion 2 RS 485 protocol Modbus RTU serials 1 USB type A (Host) Mass Storage (FAT32) 1 mini USB type B (Device) for PC connection 1 Ethernet port 10 Modbus/TCP protocol	CAN Bus of expansion	CAN Bus of expansion	CAN Bus of expansion
Memory	MicroSD expansion slot for diagrams up to 16GB	-		-

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CO2 Transcritical System

Control solution with transcritical CO2 booster / parallel compression application

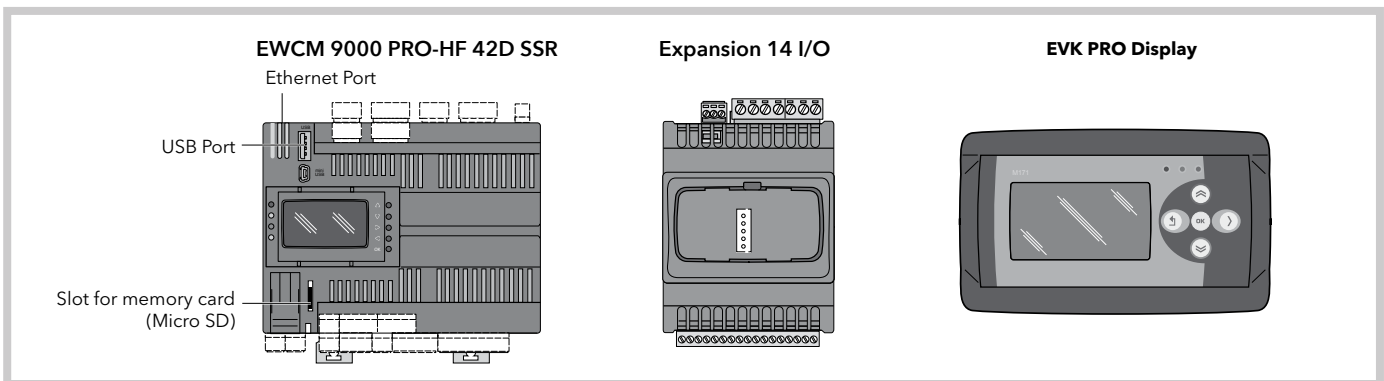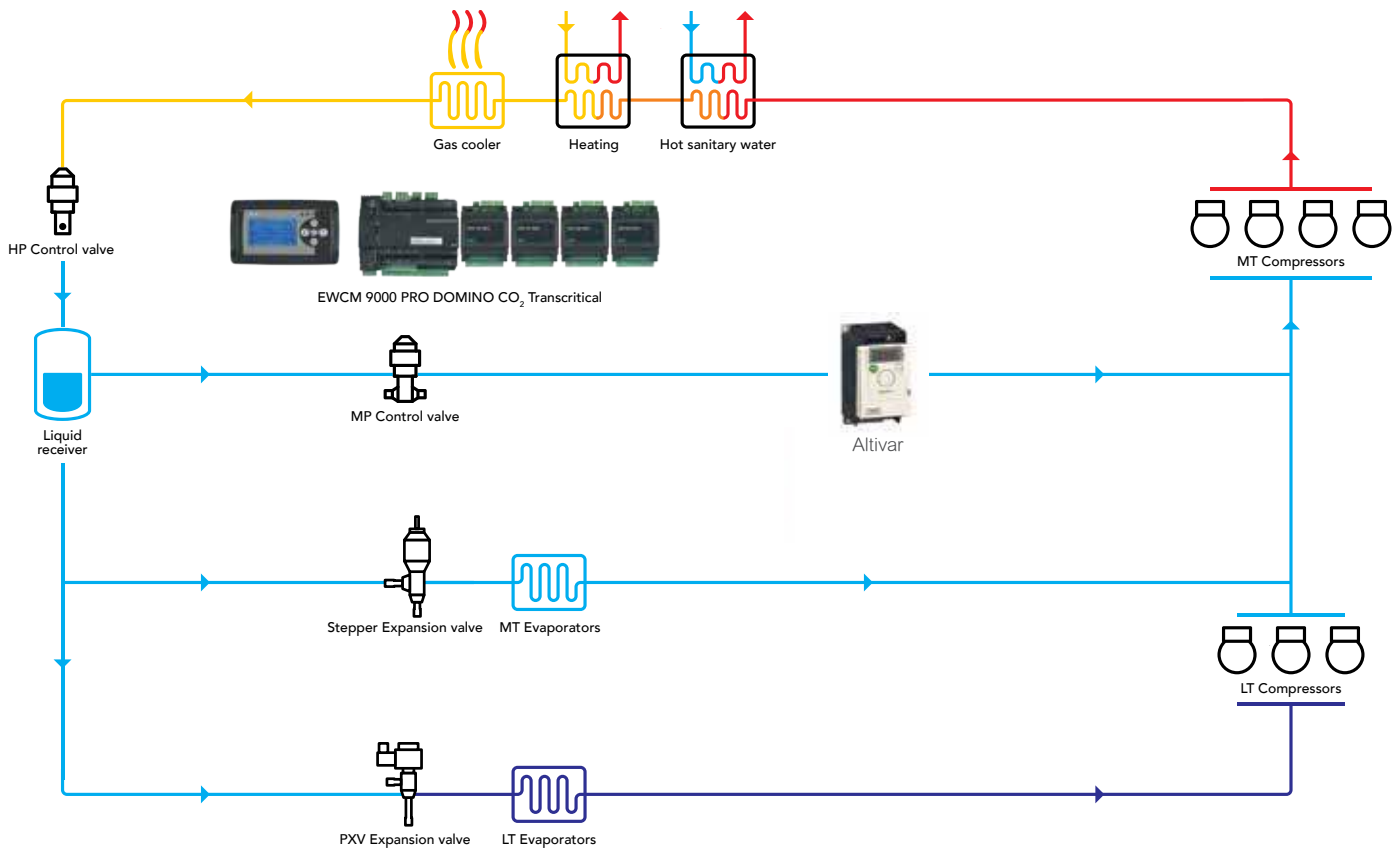| Code	Descr.	Notes
EPAS1FCTA5U0	EWCM 9000 PRO-HF 42D SSR CC /CO2T	w/integrated display & SSR output
EPK0100000U0	EVK PRO DISPLAY /GR CC	Remote Display
TM171EP14RCC1	M171 Perf. expansion 14 I/Os CC	Expansion module 14/ I/O

Applications

EWCM 9000 PRO-HF allows for the controller to be adapted to specific needs thanks to the options of integrating and changing the applicative controller software. The FREE Studio development tool allows for all the controller's maximum performance to be taken advantage of, re-configuring the I/O and making the most of the vast field connectivity and that of the system found on the controller The basic library provided by Eliwell allows for the development times to be reduced thanks also to the debugging systems, simulation and diagnostics, even remotely, that can be found in the FREE Studio system Furthermore, Eliwell has a team specialised in supporting the developers and a network of partners capable of assisting clients in devising customised solutions.

Features

Management of 2 circuits up to 8 compressors	Expandable up to 12 Expansion 14 I/O modules
Parallel booster/compression management up to 4 compressors	Up to 2 optional remote displays
Management of modulating condensation fans	

Gas cooler   Heating   Hot sanitary water

HP Control valve

EWCM 9000 PRO DOMINO CO$_2$ Transcritical

MT Compressors

Liquid receiver

MP Control valve

Altivar

Stepper Expansion valve   MT Evaporators

LT Compressors

PXV Expansion valve   LT Evaporators

EWCM 9000 PRO-HF 42D SSR   **Expansion 14 I/O**   **EVK PRO Display**

Ethernet Port

USB Port

Slot for memory card (Micro SD)

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TM171VEV

EVV Stepper System

Code	Description
TM171VEVM4CC1	EEV Driver, Autonomous & Modbus CC

Applications

The driver for the proportional motorized valve M171 EEV Driver is designed to optimize energy efficiency and the refrigerated utilities performance. Its wide compatibility with refrigerants and with the valves on the market, whether unipolar or bipolar, makes this product particularly flexible.

Features

Container	PC+ABS UL94 V-0 plastic resin casing
Usage time	23...130°F
Storage temperature	-4...185°F

Technical data

	TM171VEV
Dimensions:	2.75" x 3.42" frontal panel, depth 2.42"
Installation:	on DIN Omega bar support
Analogue inputs:	2x NTC/Pt1000/4...20mA/0-5VC/0-10VC*
	2x NTC/Pt1000
Digital inputs:	2 voltage free
Connections:	• TTL (Keyb) for connection to Unicard/MFK/DMI
	• TTL for Televis/Modbus connection
	• RS485 for connection Televis/Modbus
Digital outputs:	1 SPST: N.O. 5A 250V~
	1 Open Collector 12VC max 100mA
Accuracy:	better than 0.5% of end of scale
Resolution:	0.1°C
Power supply:	24V~/C ±10% 50/60 Hz
Power consumption:	30VA / 25W

STEPPER valve compatibility*

Models	Brand
SXVB 24V Bipolar	Eliwell
ETS50 12V Bipolar, ETS100 12V Bipolar	Danfoss
EX5 24V Bipolar, EX6 24V Bipolar, EX7 24V Bipolar, EX8 24V Bipolar	Alco
SER(I) G, J, K, B, C, D 12V Bipolar	Sporlan
SER 1.5 TO 20 12V Bipolar	Sporlan
SEI-30 12V Bipolar, SEI-50 12V Bipolar	Sporlan
SEH 12V Only bipolar model	Sporlan

*if using other valves, contact Eliwell Technical Support

Wiring diagram
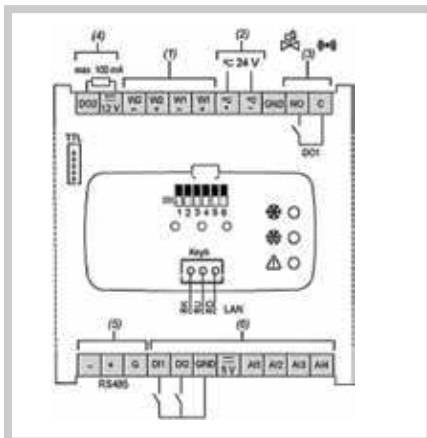
EEV Stepper System

EVV Stepper System

| Codes	Descr.
EVD4A31BS21U0	V910 V3 EEVD STEP VALVE 24V RS485 CC

Applications

The V910 driver for motorized electronic valve control is designed for excellent control of heat exchangers in cascade systems with CO2, HFC and HFO refrigerants. Its flexible configuration makes it ideal for the control of hot gas bypass systems, compressor supply temperature / pressure and liquid subcooling.

Features

Container	PC+ABS UL94 V-0 plastic resin casing
Working Temperature	23...130°F
Storage temperature	-4...185°F
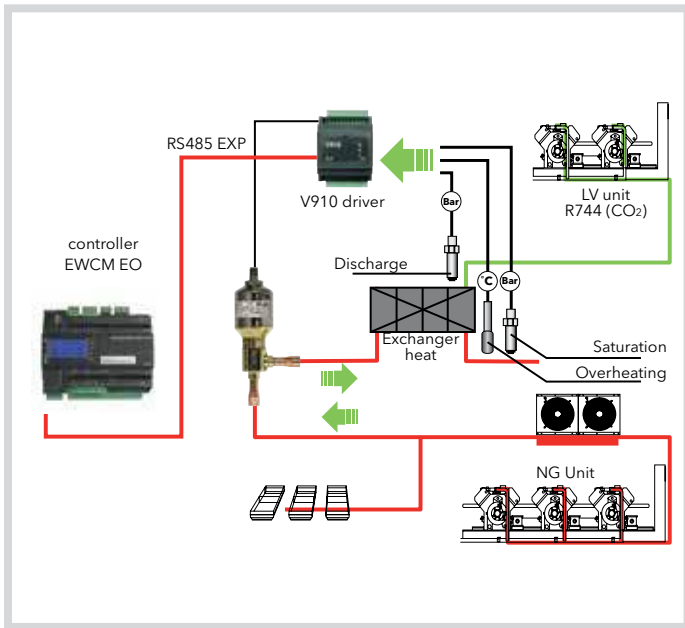
Modbus connected solution

The high-precision PID control of the V910 module can be controlled by EWCM 9000 PRO-HF series controllers through the serial port dedicated to share real-time configuration and the heat exchanger control status.

Solution for dual heat exchanger

V910 is designed also for operation independent from the central controller, thus providing the option for configurations with multiple heat exchangers in series or parallel to provide better power modulation and greater safety thanks to a redundant configuration.

Compatible Valves

Brand	Model	Reference document
DANFOSS	models ETS 50 / ETS 100	RK0YG302 dated 04/2007
SPORLAN	models SER / SERI / SEI / SEH	Bulletin 100-20-1 dated 05/2004
ALCO	models EX4 / EX5 / EX6 / EX7 / EX8	A3,5,008,5 dated 07/2004

Wiring diagram

Eliwell™ TelevisGo

Monitoring and maintenance system via web

Model	Description	Application
TGOCSE2H1U00K	TelevisGo SSD NA /224 KIT SerialAdapter	up to 224 controllers
TGOCSE601U00K	TelevisGo SSD NA /60 KIT SerialAdapter	up to 60 controllers
BT111124	PowerAdapter TelevisGo DC 100/240V 12V 5A 60W NA	spare power supply unit
SAT1AMM100000	SAT1AMM100000	spare / additional serial line,includes RS-232 cable

Applications

TelevisGo is a family of devices to monitor, control and manage installations from a distance.

The product is based on a PC Embedded standard platform to offer calculation power, data filing space with solid state disc (SSD) and easy system expansion using standard peripherals available on the market.

The Off-Line Configuration function is used for even faster installation and the repetition of settings on other plants.

Data recording and alarm management

- Recording temperature / pressure / humidity / digital inputs and outputs / functional statuses
- Recording alarm conditions and sending a signal by email and SMS

Energy reports

- Connection to energy meters with MODBUS protocol
- Dashboards dedicated to the real time and historic display of energy consumption
- Graphic display of energy consumption combined with the functional parameters of the system

Graphic display of the system

- Display and access to data and parameters of the controllers by means of a freely configurable graphic interface
- HTML interface accessible by most browsers for PC, tablet and smartphone (Internet Explorer, Mozilla, Firefox)
- The graphic interface can be planned off-line with the tools freely available for download from the site **www.eliwell.com**

Web connectivity

- All TelevisGo functions are accessible in remote mode with a web browser
- It is possible to access all the historic and real time information and to interact with each controller connected to the system to change its parameters and activate the functions
- The complete management of TelevisGo is included (configuration, updating, restarting of the device)
- TelevisGo can be connected to the Internet with ADSL, 3G or 4G connections, or by configuring the LAN/WAN network to which the device is connected

Activity automation

- Automation of recurrent activities such as switching the lights on and off for energy saving
- Periodic sending by e-mail of detailed reports in PDF format
- Periodic transfer of data to centralized systems for performance analysis

Algorithms and Expandability with IEC 61131

- System extensions with new Plug & Play algorithms installable from the web interface
- Algorithms for management of floating evaporation, faulty pressure probe backup and distribution of the dewpoint for energy saving functions
- System for the development of new algorithms for distributed management of the installation based on EcoStruxure™ Machine Expert - HVAC with standard languages IEC 61131

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Eliwell™ TelevisGo
Monitoring and maintenance system via web

Features

For the end user	• recording of HACCP temperatures
	• information on energy consumption
	• complete, easy to use system
	• open, expandable system
For the maintenance technician	• compact, reliable, ready-to-use system
	• intuitive user interface easy to learn
	• alarm signalling via email and SMS, with priority configuration
	• remote web access for diagnostics and control
	• dedicated devices for maintenance: device parameters, controls, detailed diagnostics and recording of all functional statuses
	• complete remote system updating via web: software, languages, controller drivers
	• devices for offline configuration and quick modification of settings

For supermarket chains and system integrators
- solution can be scaled to suit the size of the installation
- instruments for off line configuration, plant cloning and configuration modification in series
- compatibility with third-party Modbus devices: energy measurement and HVAC controls
- XML protocol open:
  - data sent periodically (push function)
  - transmission of data and alarms as they occur
  - real-time data acquisition
  - querying of data and alarm history
  - execution of commands / modification of controller parameters in remote mode
  - SOCKS protocol integrated for routing of TCP and UDP communications

Technical Data

Technical Data	TelevisGo 10 / 30 / 60 / 224
User interface:	from web browser
Browsers supported:	• Internet Explorer 7 or later
	• Mozilla Firefox 3.5 or later
	• Google Chrome 16.0.x or later
User language interfaces pre-loaded:	IT – EN – FR – DE – ES – PT – PL – NL – RU – CN
Operating System:	MS Windows 7 Embedded
Power supply:	12VC with external power supply
	100...240V~ ±10%
Power consumption:	10W max
Connections:	4 USB ports
	2 RS-232 ports (for analogue modem or GSM)
	2 RS-232 ports (for **Serial**Adapter)
	1 Ethernet port (LANRJ45)
	VGA monitor connection
	PS2 keyboard connector

Management & monitoring

TelevisGo

Compressor racks

EWCM 400 PRO   EWCM 9000 PRO-HF   Altivar

Enterprise BMS

Centralized energy management & maintenance

EcoStruxure™ Building Operation

Cold rooms

M172 Cold Box Application

Cabinets

RTN 400

Energy metering

Power Meter

Humidity/ Temperature monitoring

EWSense

Schneider Electric EcoStruxure™ Building Operation & Eliwell™ TelevisGo

Seamless integration for greater productivity in your supermarket

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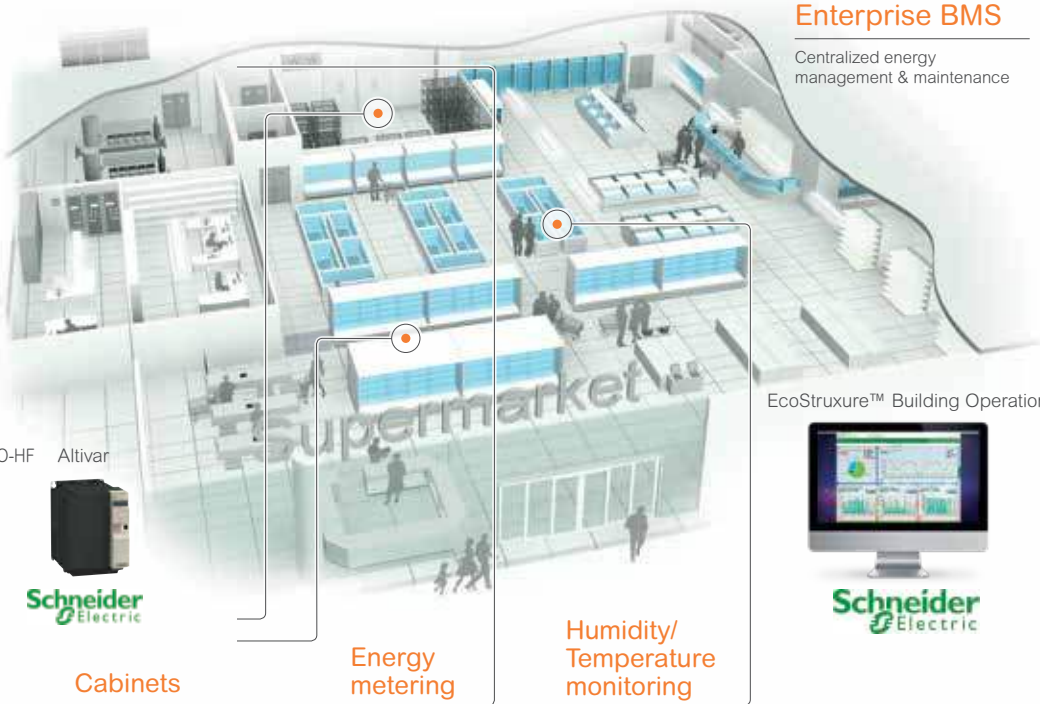
EcoStruxure™
Building Operation

SmartX Server

Today's smart retails require simple integration across systems, access to the latest IoT devices and comprehensive safety solutions. With an open and secure software integration framework, EcoStruxure™ Building Operation allows collaboration across complex third-party systems to create innovative solutions. It supports standard open protocols, and includes BTL certifications across the system's SmartX hardware and software. This helps integrate connected products and create future-proof architecture for retails, restaurants, and supermarkets. EcoStruxure™ Building Operation securely facilitates the exchange of data from Schneider Electric and third-party energy, lighting, HVAC, refrigeration (Eliwell offer), fire safety, security systems.

EcoStruxure™ Building Operation server is the core of the system and performs key functionality, such as control logic, trend logging, and alarm supervision.

A complete and secured IP backbone architecture
Backed by advanced cybersecurity and supports industry standard and IP-based open protocols to facilitate the secure exchange of data and analytics between critical systems from Schneider Electric and third-party providers (IP addressing, TCP communications, DHCP, DNS, HTTP/HTTPS, NTP , SMTP or SMTPS, SNMP…).

Open building protocol support
Support for open standards. The Enterprise Server can natively communicate with the most popular standards for buildings: BACnet, LonWorks, and Modbus.

Global view of the system / Centralized alarms and data management
The entire site, can be accessed and configured through the Enterprise and SmartX servers, are collected by the Enterprise Server for centralized logging, display, and management. Users can also view event logs and trend logs from multiple servers.

Manage alarms, users, schedules, and trend logs. Data from the Enterprise Server can be delivered directly to the user or to other EcoStruxure™ BMS servers and field devices throughout the site or enterprise.

Seamless integration of Refrigeration System
Easy integration of TelevisGo Eliwell refrigeration monitoring system with IP connectivity and pre-configured "widgets" for refrigeration equipment. Dedicated service tool for refrigeration engineers with TelevisGo web interaction. On site HACCP recordings up to 1 year and automated reports for food preservation sent to inbox.

Eliwell™ TelevisGo

Schneider Electric EcoStruxure™ Augmented Operator Advisor

Real-time information at your fingertips

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Real-time information at your fingertips

EcoStruxure™ Augmented Operator Advisor combines contextual and local dynamic information for mobile users, enabling them to experience a fusion of the physical, real-life environment with virtual objects.

Reduce downtime
Open electrical cabinet doors virtually.

Speed up operation and maintenance
Find information faster with immediate access in the field to real-time data, user manuals, instructions, diagrams, etc.

Reduce human errors
Locate the right equipment and guide operators step-by-step to complete maintenance procedures.

Download and try it now
- Visit the App Store or Google Play Store and download the EcoStruxure Augmented Operator Advisor app to your tablet
- Open the app, then log into "Demo" mode (no username or password required)
- Click "Sample" then select the demo Water Plant or Wood Machine, then click 'Scenes' and the start button
- Point the application at the selected image above and points of interest will automatically appear on the screen

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Variable Speed Drives

For code compliance and more energy efficiency

VFD control of motors for pumps, fans and compressors is increasingly a requirement in specification and government regulations. Altivar 212 drives enable you to ensure compliance with requirements and optimize the energy efficiency of the system.

- With a structured programming menu system,the Altivar 212 enables fast commission of pumps,fans, and scroll compressors.
- Tested and certified by AHRI standard 1210 (IP) the Altivar 212 drives provide high efficiency and low harmonic performance

AHRI CERTIFIED®
www.ahridirectory.org

Variable Frequency Drives
ANSI/AHRI Standard 1210

Altivar 212 and S-Flex models certified by AHRI for efficiency.

Scroll Compressor Control
Adapted to all types of motors
Induction, BLDC and PM
Dedicated Functions
- Pre-start management on "RUN"
- Periodic oiling cycle management
- Low speed operation oiling management
- Oil injection valve management for high-speed running

Asset Protection Functions
- STO (ATV320)
- Overload avoidance
- Overpressure/overtemperature avoidance
- Casing heating for condensation avoidance

Pump & Fan Control
- Plug and start on basic applications
- More energy efficient motor control
- Compact low harmonic
  ~ TDHi <35% (ATV212)
- 98% efficiency

Operating Functions
- Embedded PID regulator
- Damper control and feedback
- Sleep/Wake
- Catch-on-the-fly

Variable Speed Drives

Selection guide Schneider Electric ATV 212, 320, 630, SFlex

Step 1: Select your application	**Compressors**	**Scroll, Rotary, Reciprocationg**	**Scroll, Rotary**	**Scroll, Rotary**	**Screw, Centrigugal**
	Pumps	**All**	**Centrifugal**	**Centrifugal**	**All**
	Fans	**All**	**All**	**All**	**All**

Step 2: Select your motor type	**Motor Type**	BLDC, Induction, PM	BLDC, Induction, PM	BLDC, Induction, PM	Induction, PM
	Motor HP Range	Up to 15kW - 20Hp	Up to 75kW - 100Hp	Up to 75kW - 100Hp	Up to 800kW - 1,000Hp
	Voltage, Phase	240V 1ph-3ph, 480V 3ph 600V 3ph	240V 3ph, 480V 3ph	240V 3ph, 480V 3ph	240V 3ph, 480V 3ph 600V 3ph

Step 3: Select your features		**Basic**	**Compact Low Harmonic**	**Packaged Bypass**	**Optimum (Premium)**
		STO Modbus IP20	Scroll advanced functions Bacnet, Lon, modbus IP21, IP55, UL type 1	ATV212 features Bypass 2 or 3 contactors Full text keypad UL type 12	Advanced application functions Bacnet, Modbus, Ethernet IP Graphic keypad IP21, IP55, UL type 1

Step 4: The right drive for your application		**ATV320**	**ATV212**	**S-Flex**	**ATV630, ATV650**

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S-Flex Enclosed Drive

For outdoor applications

The S-Flex drive revolutionizes harmonic mitigation with its innovative reduced harmonic technology (RHT). Achieved within the diode capacitor and power conversion section of the variable frequency drive, eliminating the need for a line reactor or bus reactor
- Higher equipment efficiency
- Reduced equipment cost
- Fewer points of electrical failure
- Smaller enclosure size
- Lighter weight
- Horsepower range:
• 1 – 40 hp at 208 VAC and 230 VAC
• 1 – 100 hp at 460 VAC
• Optional three-phase AC line reactor for line transient protection and even further line harmonic reduction S-Flex drive uses an Altivar 212 drive power converter with RHT and an IGBT inverter with pulse-width modulated output
• Optional LCD text keypad
• Built-in communication: Modbus, BACnet®, Metasys® N2, APOGEE® P1 communication capability, and options for LonWorks®,
• Smoke purge override and fan damper control in both adjustable frequency controller (AFC) and bypass modesof operation
• Simple Hand/Off/Auto and VFD/ByPass selector switch for operational mode control

• Optional drive input disconnect switch provides an input line power disconnect switch between the main power disconnect and the power converter
• Optional line contactor provides an electrically interlocked line contactor between the main power disconnect and the power converter
• Power-on mode red LED indicator
• Bypass mode green LED indicator
• Terminal block for customer's control connections
• Full-voltage bypass contactors
100 kA SCCR and full voltage bypass
Square D circuit breaker for disconnect and overcurrent protection
Available in Type 1, 12 and 3R enclosures
Conduit knockouts on bottom of the enclosure for quick and easy wiring

TM172P for Condenser Control

Peak performance and maximum energy savings

Are you getting peak performance and maximum energy savings with your Refrigeration System?

With Eliwell's Floating High Pressure Algorithm you'll wring out additional energy savings while delivering peak performance in you refrigeration equipment.

Lower high pressure at the compressor
+
Lower condensing temperature at the condenser
Energy $s Saved!
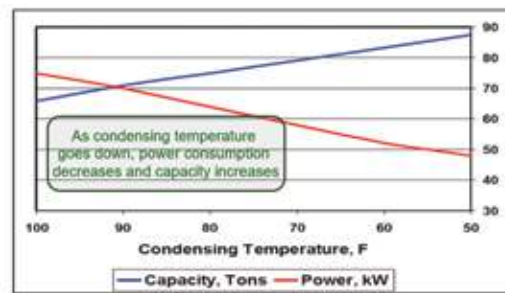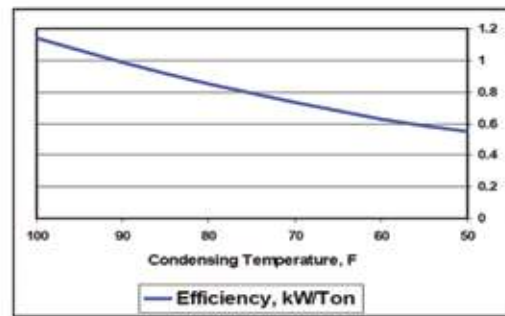
Optimize Performance & Energy Usage with M172P - Floating High Pressure Control

Main characteristics

Optimum efficiency regardless of outdoor air temperature
Compliance with Energy specifications for new and existing cooling and refrigeration existing equipment
Precise control of condensers fan with VSD or contactors
Variable High pressure control according to outside air temperature evolution

Control fan motors frequency and/or on/off state
Smooth and efficient operation with floating high pressure control by reducing stress on the compressor
Reduce short cycling of the compressor

Customer benefits / Performance
- Machine energy consumption reduction by average of 20%
- Machine condenser noise level reduction
- Extended machine life – reduced life cycle cost.

Modcon 172

S-Flex Enclosed VSD

ATV-122 VSD

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NTC, PTC & TC Probes

NTC semi-conductor temperature probes

NTC Probes

Codes	Descritpion	Tip material	Tip dimensions	Cable type	Isolation	level of protection	Operating temperature	Length	Connector	Control Family
PB691151	NTC 1.5m IP67 6X15 PVC tip -50+110°C black JST	Thermoplastic rubber	6x15 mm	Thermoplastic Rubber	1500 Vac	IP67	-50..120 °C	1.5 Meters	JST	EWPlus-RTN
PB691301	NTC 3.0m IP67 6X15 PVC tip -50+110°C black JST							3.0 Meters		EWPlus-RTN
PB691150	NTC 1.5m IP67 6X15 PVC tip -50+110°C Black							1.5 Meters	Ferrules	any w/screw connection
PB691300	NTC 3.0m IP67 6X15 PVC tip -50+110°C Black							3.0 Meters		any w/screw connection
PB8DED11502C0	NTC 1.5m IP68 5x20 TPE tip -50+110°C Grey	Thermoplastic rubber	5x20 mm	Thermoplastic Rubber (ext) Poly-propilene (int)	2000 Vac	IP68	-50..110 °C	1.5 Meters	Ferrules	any w/screw connection
PB8DED1150BC0	NTC 1,5m IP68 5x20 TPE tip -50+110°C Grey RAST								RAST	nEW
PB8DED1150CC0	NTC 1,5m IP68 5x20 TPE tip -50+110°C Grey JST								JST	EWPlus-RTN
PB8DED13002C0	NTC 3.0m IP68 5x20 TPE tip -50+110°C Grey							3.0 Meters	Ferrules	any w/screw connection
PB8DED1300BC0	NTC 3.0m IP68 5x20 TPE tip -50+110°C Grey RAST								RAST	nEW
PB8DED1300CC0	NTC 3.0m IP68 5x20 TPE tip -50+110°C Grey JST								JST	EWPlus-RTN
PB8DAE11502C0	NTC 1,5m IP 68 6x20 -50+110°C GRIGIO	Stainless steel AiSi 304	6x20 mm					1.5 Meters	Ferrules	any w/screw connection
PB8DAE1150BC0	NTC 1,5m IP68 6x20 SS tip -50+110°C Grey RAST								RAST	nEW
PB8DAE1150CC0	NTC 1.5m IP68 6x20 SS tip -50+110°C Grey JST								JST	EWPlus-RTN
PB8DAE1300BC0	NTC 3,0m IP68 6x20 SS tip -50+110°C RAST							3.0 Meters	RAST	nEW
PB8DAE1300CC0	NTC 3.0m IP68 6x20 SS tip -50+110°C Grey JST								JST	EWPlus-RTN
PB8TPD4150BE0	NTC 1.5m 6x25 PVC tip -50+110°C RAST	Thermoplastic rubber	6x25 mm	Thermoplastic Rubber	1500 Vac		-50..105 °C	1.5 Meters	RAST	nEW
PB8TPD4300BE0	NTC 3.0m 6x25 PVC tip -50+110°C RAST							3.0 Meters	RAST	nEW
SN8DEP12002C0	Food Probe simulator, 2M cable, -50+110°C	Thermoplastic rubber	⌀110 mm	Thermoplastic Rubber (ext) Poly-propilene (int)	2000 Vac		-50..110 °C	2.0 Meters	Ferrules	any w/screw connection
SN8DEP15002C0	Food Probe simulator, 5M cable, -50+110°C							5.0 Meters	Ferrules	any w/screw connection

PTC probes

Codes	Descritpion	Tip material	Tip dimensions	Cable type	Isolation	level of protection	Operating temperature	Length	Connector	Control Family
PB7S0A1500	PTC 6X40 1.5m SILICONE	Stainless steel AiSi 304	6x40 mm	Silicone	2000 Vac	IP67	-50..120 °C	1.5 Meters	Ferrules	M172 EWCM 9000
PB7S0A3000	PTC 6X40 1.5m SILICONE							3.0 Meters		

Pt1000 probes

Codes	Descritpion	Tip material	Tip dimensions	Cable type	Isolation	level of protection	Operating temperature	Length	Connector	Control Family
PB9S0A2500	PT1000 6X40 2.5m SILICONE	Stainless steel AiSi 304	6x40 mm	Silicone	2000 Vac	IP67	-50..200 °C	2.5 Meters	Ferrules	M171,M172 EWCm, EEV Driver

Humidity & Temperature Sensors

Monitoring and managing asset performance

References

Designation	Use / Applications	Description	Reference
Measurement accessories			
Temperature control			
NTC probe	Outside air ■ Temperature control: -50…100 °C *(-58...212 °F)*	- IP 65 - Wall mounting - NTC 10kOhm /25°C	**TM1STNTCW69755**
NTC probe	Inside air (room) ■ Temperature control: -25…40 °C *(-13…104 °F)*	- IP 30 - Indoor wall mounting - NTC 10kOhm /25°C	**TM1STNTCWN75750**
Humidity control			
Humidity probe	Multi-purpose ■ Humidity control: 0…100%	- IP 65 - Wall mounting - 4-20 mA	**TM1SHC4**
Humidity & temperature control			
Humidity & temperature probes	Multi-purpose ■ Humidity control: 0…100% ■ Temperature control: -40…60 °C *(-40...140 °F)*	- IP 65 - Wall mounting - 4-20 mA, NTC 10kOhm /25°C	**TM1SHTCN4**
	Multi-purpose ■ Humidity control: 0…100% ■ Temperature control: -40…60 °C *(-40...140 °F)*	- IP 65 - Wall mounting - 2x 4-20 mA	**TM1SHTCC4**
	Multi-purpose	- IP 65	**TM1SHTM4**

EWPA 007 - 030 - 050

Pressure transducers

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Applications

EWPA pressure transducers are sensors capable of transmitting a signal by way of a current output to the measuring instruments with which they are connected.

Technical data	EWPA 007	EWPA 010	EWPA 030	EWPA 050
Operating range	0..7 Bar g	0..10 Bar g	0..30 Bar g	0..50 Bar g
Output signal	2 wires 4...20 mA			
Overload	2 times pressure range			
Power supply	8...32V			
Accuracy	± 0.5% FS max (linearity, hysteresis, repeatability)			
Compensated temperature	0...120°F			
Electrical connections	2 m cable with Packard connector			
Mechanical connections	male connector / female connector ¼ SAE (7/16"-20UNF)			
Operating temperature	-40...212°F			
Global error at T 0...50°C	max. ± 1.0% FS			
Global error at T -10...80°C	max. ± 1.5 FS			
Response time	(0...99%) <5ms			
Material exposed to environment	AISI 316L Viton outer seal			
Enclosure rating	Packard: IP67 cable: IP54			

Codes	Description	Fitting	Electrical connection
TD24A007	EWPA 007	Male 1/4 SAE (7/16 20UNF)	Packard
TD24A030	EWPA 030		
TD24A050	EWPA 050		
TD34A007	EWPA 007	Female 1/4 SAE (7/16 20UNF)	
TD34A010	EWPA 010		
TD34A030	EWPA 030		
TD34A050	EWPA 050		
CO00096	2 meter cable		Packard

EWPA 007 - 030 - 050

Ratiometric pressure transducers

Codes	Description	Fitting	Electrical connection
TD42A010	EWPA 007	Female 1/4 SAE (7/16 20UNF)	Packard
TD42A030	EWPA 030		
TD42A050	EWPA 050		
CO000096	2 mt. Cable		Packard

Applications

EWPA ratiometric pressure transducers are sensors capable of transmitting a signal by way of a voltage output to the measuring instruments with which they are connected. They offer accurate performance across a wide temperature range.

Technical data	EWPA 010	EWPA 030	EWPA 050
Operating range at 0.5...4.5V	0...10 bar (relative)	0...30 bar (relative)	0...50 bar (relative)
Output signal	3 wires 0.5...4.5V ratiometric	3 wires 0.5...4.5V ratiometric	3 wires 0.5...4.5V ratiometric
Overload	2.5 times pressure range	2.5 times pressure range	2.5 times pressure range
Power supply	5.0Vdc± 0.5V	5.0VAC ± 0.5V	5.0VAC ± 0.5V
Accuracy	± 0.25% FS max (linearity, hysteresis, repeatability)	± 0.25% FS max (linearity, hysteresis, repeatability)	± 0.25% FS max (linearity, hysteresis, repeatability)
Energy consumption	max 8 mA	max 8 mA	max 8 mA
Load resistance	> 5KΩ	> 5KΩ	> 5KΩ
Electrical connections	2 m cable with packard connector	2 m cable with packard connector	2 m cable with packard connector
Mechanical connections	female connector ¼ SAE (7/16"-20UNF)	female connector ¼ SAE (7/16"-20UNF)	female connector ¼ SAE (7/16"-20UNF)
Operating temperature	-40...257°F	-40...257°F	-40...257°F
Global error at T 0...50°C	max. ± 1.0% FS	max. ± 1.0% FS	max. ± 1.0% FS
Global error at T -10...80°C	max. ± 1.5% FS	max. ± 1.5% FS	max. ± 1.5% FS
Response time	(0...99%) <5ms	(0...99%) <5ms	(0...99%) <5ms
Material exposed to environment	AISI 316L Viton outer seal	AISI 316L Viton outer seal	AISI 316L Viton outer seal
Enclosure rating	IP67	IP67	IP67

Drip protection - Plexiglass protection

Protections for 32x74 controllers

Applications

These accessories can be used with devices in the ID, IC, IDPlus, EW, EWPlus series.
The drip protection, applied to the rear of the instrument, are a valid support in protecting electrical connectors against dripping liquid.
The plexiglass accessory, equipped with a surface easy to clean, is particularly suitable for use in outdoor environments or characterized by a high degree of dirt.

Code	Description	Details
ZZ000270	Drip protection	Pack of 20
ZZ000272	Plexiglass protection for controllers 32x74	Pack of 10

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D16P

Adjustable single pressure controllers

Applications

D16P are electromechanical pressure controllers for high and low pressure, equipped with an SPDT switch that closes and opens as the pressure increases or decreases.
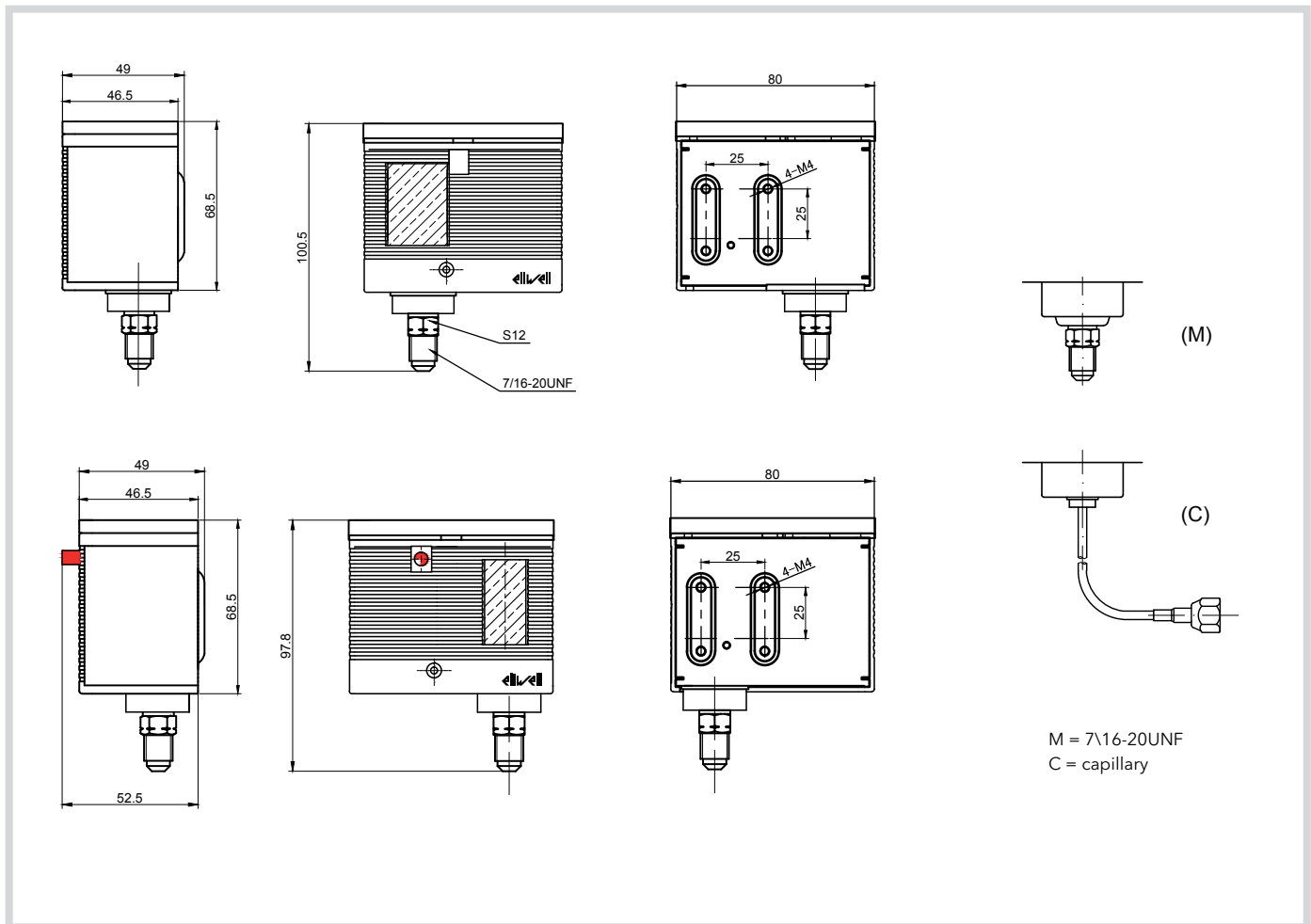
Technical data	**D16P**	
Compatible refrigerants	R22, R407A, R407C, R134a, R404A, R410A, **	
Maximum Temperature System (TS)	120 °C (248 °F)	
Working ambient temperature	-40 ...65 °C (-40 ... 149 °F)	
Storage and transport conditions	-40 ...70 °C (-40 ... 158 °F) 10...90 %RH (no condensing)	
Contact configuration	SPDT	
Electrical load and rated current	**ENEC**	**UL**
	16 (16) A resistive inductive 240 Vac	16 FLA - 96 LRA 240 Vac
	1(1) A resistive inductive 240 Vac	3 HP 240 Vac
		2 HP 120 Vac
Degree of protection provided by enclosure	IP44 automatic reset with top cover	
	IP30 manual reset with top cover	
	IP20 without top cover	
Maximum Pressure System (PS)	**RANGE**	**PS**
	-0.3 ... 7 bar (-4.35 ... 101 psi)	17 bar (246 psi)
	7 ... 20 bar (101 ... 290 psi)	25 bar (362 psi)
	7 ... 31 bar (101 ... 449 psi)	35 bar (507 psi)
	10 ... 45 bar (145 ... 652 psi)	50 bar (725 psi)
Burst Pressure	**RANGE**	**BURST PRESSURE**
	-0.3 ... 7 bar (-4.35 ... 101 psi)	80 bar (1160 psi)
	7 ... 20 bar (101 ... 290 psi)	100 bar (1450 psi)
	7 ... 31 bar (101 ... 449 psi)	140 bar (2030 psi)
	10 ... 45 bar (145 ... 652 psi)	200 bar (2900 psi)
Mounting	Threaded holes on back of the case for M4x5 screws	
Adjustment	hexagonal headshape and cross profile screws, for range and differential	

** please contact Eliwell sales dept. for not listed refrigerants.

D16P

Adjustable single pressure controllers

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code	type	pressure range bar (psi)	differential bar (psi)	reset	fitting	accessories included in standard individual packing
D16P07A01MS200	Low press control auto reset	-0.3...7 (-0.4…100)	Adjustable 0.6...4 (9…58)	Automatic	Male 7/16-20UNF	top cover, knob, Instruction Sheet
D16P07A01CS200	Low press control auto reset	-0.3...7 (-0.4…100)	Adjustable 0.6...4 (9…58)	Automatic	Capillary & Flare Nut 1mt	top cover, knob, Instruction Sheet
D16P07M01MS200	Low press control manual reset	-0.3...7 (-0.4…100)	fixed >= 0.6 (9)	Manual	Male 7/16-20UNF	top cover, knob, Instruction Sheet
D16P07M01CS200	Low press control manual reset	-0.3...7 (-0.4…100)	fixed >= 0.6 (9)	Manual	Capillary & Flare Nut 1mt	top cover, knob, Instruction Sheet
D16P20A01MS200	Fan press control auto reset	7...20 (100…290)	Adjustable 1.5...6 (21…87)	Automatic	Male 7/16-20UNF	top cover, knob, Instruction Sheet
D16P20A01CS200	Fan press control auto reset	7...20 (100…290)	Adjustable 1.5...6 (21…87)	Automatic	Capillary & Flare Nut 1mt	top cover, knob, Instruction Sheet
D16P30A01MS200	high press control auto reset	7...31 (100…450)	Adjustable 2...8 (35…115)	Automatic	Male 7/16-20UNF	top cover, knob, Instruction Sheet
D16P30A01CS200	high press control auto reset	7...31 (100…450)	Adjustable 2...8 (35…115)	Automatic	Capillary & Flare Nut 1mt	top cover, knob, Instruction Sheet
D16P30M01MS200	high press control man. reset	7...31 (100…450)	fixed >= 3.0 (45)	Manual	Male 7/16-20UNF	top cover, knob, Instruction Sheet
D16P30M01CS200	high press control manual reset	7...31 (100…450)	fixed >= 3.0 (45)	Manual	Capillary & Flare Nut 1mt	top cover, knob, Instruction Sheet
D16P45A01MS200	high press control auto reset	10...45 (145…650)	Adjustable 5...15 (70…215)	Automatic	Male 7/16-20UNF	top cover, knob, Instruction Sheet
D16P45M01MS200	high press control manual reset	10...45 (145…650)	fixed >= 4.0 (58)	Manual	Male 7/16-20UNF	top cover, knob, Instruction Sheet

Dimensions

M = 7\16-20UNF
C = capillary

D17P

Adjustable single pressure controllers by dual pressure controllers

Applications

D17P are electromechanical dual pressure controllers for high and low pressure, equipped with 2 indipendent SPDT switches that closes and opens as the pressure increases or decreases.
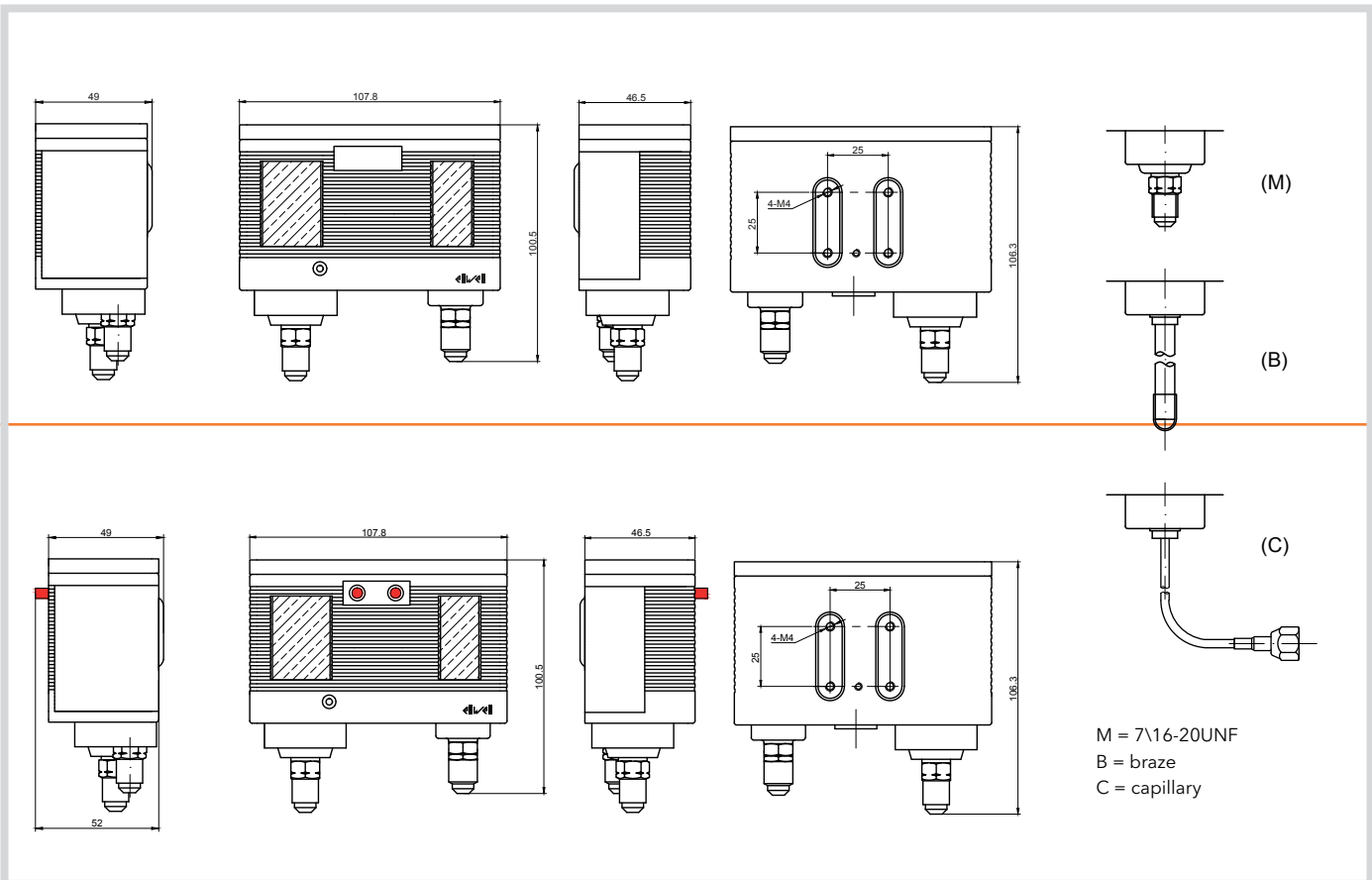
Technical data	**D17P**	
Compatible refrigerants	R22, R407A, R407C, R134a, R404A, R410A **	
Maximum Temperature System (TS)	120 °C (248 °F)	
Working ambient temperature	-40 ...65 °C (-40 ... 149 °F)	
Storage and transport conditions	-40 ...70 °C (-40 ... 158 °F) 10...90 %RH (no condensing)	
Contact configuration	2 x SPDT	
Electrical load and rated current	**ENEC**	**UL**
	16 (16) A resistive inductive 240 Vac	16 FLA - 96 LRA 240 Vac
	1(1) A resistive inductive 240 Vac	3 HP 240 Vac
		2 HP 120 Vac
Degree of protection provided by enclosure	IP44 automatic reset with top cover	
	IP30 manual reset with top cover	
	IP20 without top cover	
Maximum Pressure System (PS)	**RANGE**	**PS**
	-0.3 ... 7 bar (-4.35 ... 101 psi)	17 bar (246 psi)
	7 ... 31 bar (101 ... 449 psi)	35 bar (507 psi)
	10 ... 45 bar (145 ... 652 psi)	50 bar (725 psi)
Burst Pressure	**RANGE**	**BURST PRESSURE**
	-0.3 ... 7 bar (-4.35 ... 101 psi)	80 bar (1160 psi)
	7 ... 31 bar (101 ... 449 psi)	140 bar (2030 psi)
	10 ... 45 bar (145 ... 652 psi)	200 bar (2900 psi)
Mounting	Threaded holes on back of the case for M4x5 screws	
Adjustment	hexagonal headshape and cross profile screws, for range and differential	

** please contact Eliwell sales dept. for not listed refrigerants.

D17P

Adjustable single pressure controllers by dual pressure controllers

code	type	pressure range bar (psi)	differential bar (psi)	reset	fitting	accessories included in standard individual packing
D17P30AA1MS100	Dual press control auto-auto reset	-0.3...7; 7...31 (-0.4...100; 100...450)	LP Adjustable 0.6...4 (9...58); HP fixed >= 3.0 (45)	Automatic - Automatic	Male 7/16-20UNF	top cover, Instruction Sheet
D17P30AA1CS100	Dual press control auto-auto reset	-0.3...7; 7...31 (-0.4...100; 100...450)	LP Adjustable 0.6...4 (9...58); HP fixed >= 3.0 (45)	Automatic - Automatic	Capillary & Flare Nut 1mt	top cover, Instruction Sheet
D17P30AM1MS100	Dual press control auto-manual reset	-0.3...7; 7...31 (-0.4...100; 100...450)	LP Adjustable 0.6...4 (9...58); HP fixed >= 3.0 (45)	Automatic - Manual HP	Male 7/16-20UNF	top cover, Instruction Sheet
D17P30AM1CS100	Dual press control auto-manual reset	-0.3...7; 7...31 (-0.4...100; 100...450)	LP Adjustable 0.6...4 (9...58); HP fixed >= 3.0 (45)	Automatic - Manual HP	Capillary & Flare Nut 1mt	top cover, Instruction Sheet
D17P30MM1MS100	Dual press control manual-manual reset	-0.3...7; 7...31 (-0.4...100; 100...450)	LP fixed 0.6 (9); HP fixed >= 3.0 (45)	Manual - Manual	Male 7/16-20UNF	top cover, Instruction Sheet
D17P30MM1CS100	Dual press control manual-manual reset	-0.3...7; 7...31 (-0.4...100; 100...450)	LP fixed 0.6 (9); HP fixed >= 3.0 (45)	Manual - Manual	Capillary & Flare Nut 1mt	top cover, Instruction Sheet
D17P45AA1MS100	Dual press control auto-auto reset	-0.3...7; 10...45 (-0.4...100; 145...650)	LP Adjustable 0.6...4 (9...58); HP fixed >= 4.0 (58)	Automatic - Automatic	Male 7/16-20UNF	top cover, Instruction Sheet
D17P45AM1MS100	Dual press control auto-manual reset	-0.3...7; 10...45 (-0.4...100; 145...650)	LP Adjustable 0.6...4 (9...58); HP fixed >= 4.0 (58)	Automatic - Manual HP	Male 7/16-20UNF	top cover, Instruction Sheet

Dimensions

M = 7\16-20UNF
B = braze
C = capillary

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D16T

Adjustable temperature controllers

Applications

D16T are electromechanical temperature controllers equipped with an SPDT switch that closes and opens as the temperature increases or decreases.

Technical data

D16T		
Working ambient temperature	-40 ...65 °C (-40 ... 149 °F)	
Storage and transport conditions	-40 ...70 °C (-40 ... 158 °F) 10...90 %RH (no condensing)	
Contact configuration	SPDT	
Electrical load and rated current	**ENEC**	**UL**
	16 (16) A resistive inductive 240 Vac	16 FLA - 96 LRA 240 Vac
	1(1) A resistive inductive 240 Vac	3 HP 240 Vac
		2 HP 120 Vac
Degree of protection provided by enclosure	IP44 automatic reset with top cover	
	IP30 manual reset with top cover	
	IP20 without top cover	
Mounting	Threaded holes on back of the case for M4x5 screws	
Adjustment	hexagonal headshape and cross profile screws, for range and differential	

Dimensions

(C)

(A)

(T)

C = capillary
A = ambient
T = coiled end

D16T

Adjustable temperature controllers

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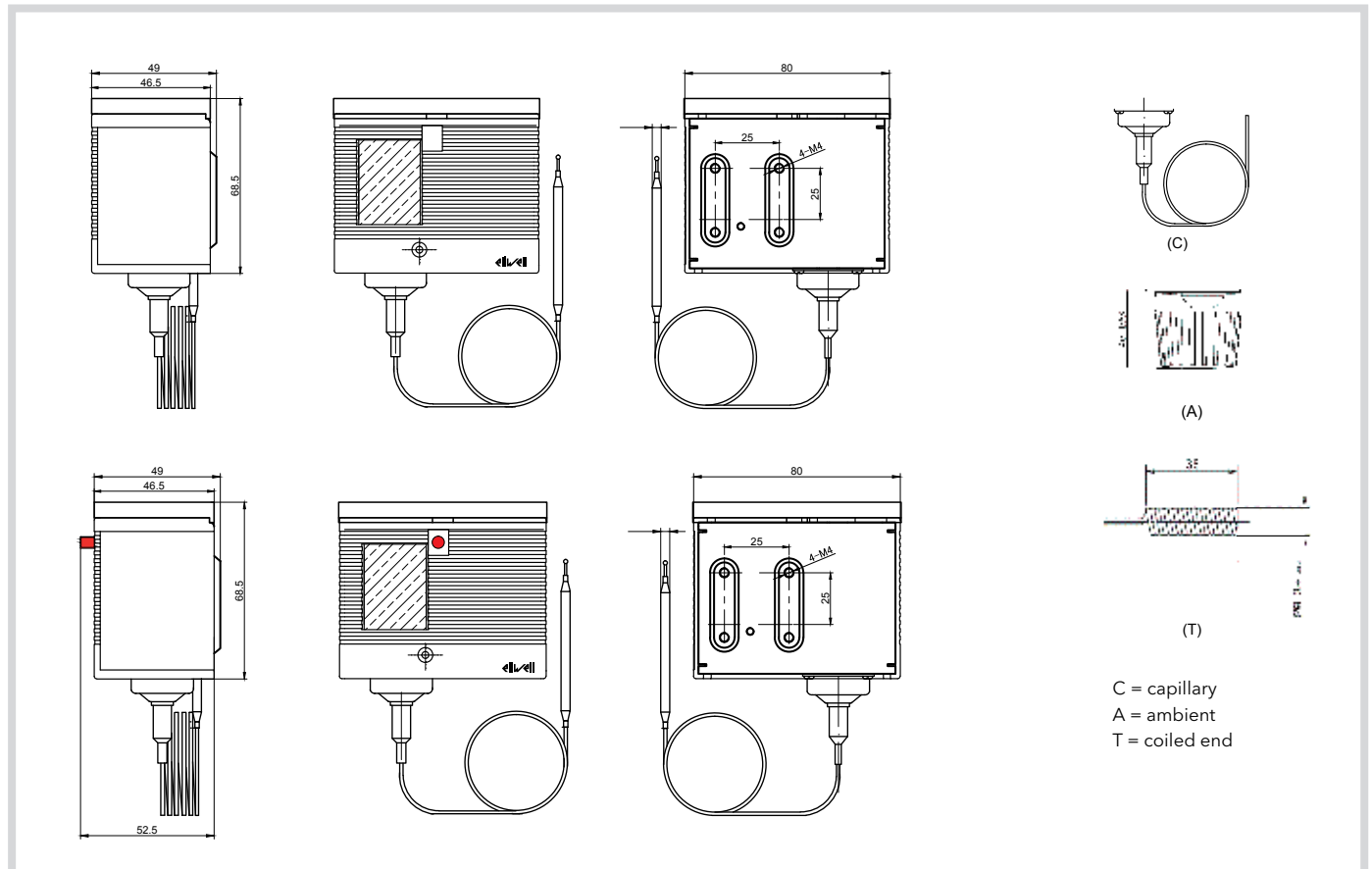
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code	type	temperature range °C (°F)	differential °C (°F)	reset	sensor type	sensor length	accessories included in standard individual packing
D16T15AAC2S200	Temperature control auto-reset	-20\+15 (-4\+59)	adjustable 2…5 (3.5…9)	automatic	straight capillary	2m	top cover, knob, Instruction Sheet
D16T15AAC3S200	Temperature control auto-reset	-20\+15 (-4\+59)	adjustable 2…5 (3.5…9)	automatic	straight capillary	3m	top cover, knob, Instruction Sheet
D16T15AAC6S200	Temperature control auto-reset	-20\+15 (-4\+59)	adjustable 2…5 (3.5…9)	automatic	straight capillary	6m	top cover, knob, Instruction Sheet
D16T15AAC1S200	Temperature control auto-reset	-20\+15 (-4\+59)	adjustable 2…5 (3.5…9)	automatic	straight capillary	12m	top cover, knob, Instruction Sheet
D16T15AFC2S200	Temperature control auto-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	automatic	straight capillary	2m	top cover, knob, Instruction Sheet
D16T15AFC3S200	Temperature control auto-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	automatic	straight capillary	3m	top cover, knob, Instruction Sheet
D16T15AFC6S200	Temperature control auto-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	automatic	straight capillary	6m	top cover, knob, Instruction Sheet
D16T15AFC1S200	Temperature control auto-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	automatic	straight capillary	12m	top cover, knob, Instruction Sheet
D16T15MFC2S200	Temperature control manual-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	manual	straight capillary	2m	top cover, knob, Instruction Sheet
D16T15MFC3S200	Temperature control manual-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	manual	straight capillary	3m	top cover, knob, Instruction Sheet
D16T15MFC6S200	Temperature control manual-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	manual	straight capillary	6m	top cover, knob, Instruction Sheet
D16T15MFC1S200	Temperature control manual-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	manual	straight capillary	12m	top cover, knob, Instruction Sheet
D16T15AAT2S200	Temperature control manual-reset	-20\+15 (-4\+59)	adjustable 2…5 (3.5…9)	automatic	coiled end Ø 9.3x40mm	2mt overall	top cover, knob, Instruction Sheet
D16T15MFT2S200	Temperature control manual-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	manual	coiled end Ø 9.3x40mm	2mt overall	top cover, knob, Instruction Sheet
D16T15AAB2S200	Temperature control auto-reset	-20\+15 (-4\+59)	adjustable 2…5 (3.5…9)	automatic	bulb Ø 6 x 70mm	2mt overall	top cover, knob, Instruction Sheet
D16T15AAA0S200	Temperature control auto-reset	-20\+15 (-4\+59)	adjustable 2…5 (3.5…9)	automatic	cage Ø 40mm	40mm	top cover, knob, Instruction Sheet
D16T15AFA0S200	Temperature control auto-reset	-20\+15 (-4\+59)	fixed 2 (3.5)	automatic	cage Ø 40mm	40mm	top cover, knob, Instruction Sheet
D16T25AAC2S200	Temperature control auto-reset	-10\+25 (+14\+77)	adjustable 5…10 (9…18)	automatic	straight capillary	2m	top cover, knob, Instruction Sheet
D16T25AAC3S200	Temperature control auto-reset	-10\+25 (+14\+77)	adjustable 5…10 (9…18)	automatic	straight capillary	3m	top cover, knob, Instruction Sheet
D16T25AAT2S200	Temperature control auto-reset	-10\+25 (+14\+77)	adjustable 5…10 (9…18)	automatic	coiled end Ø 9.3x40mm	2mt overall	top cover, knob, Instruction Sheet
D16T25AAB2S200	Temperature control auto-reset	-10\+25 (+14\+77)	adjustable 5…10 (9…18)	automatic	bulb Ø 6 x 70mm	2mt overall	top cover, knob, Instruction Sheet
D16T25AAA0S200	Temperature control auto-reset	-10\+25 (+14\+77)	adjustable 5…10 (9…18)	automatic	cage Ø 40mm	40mm	top cover, knob, Instruction Sheet
D16T25AFA0S200	Temperature control auto-reset	-10\+25 (+14\+77)	fixed 2 (3.5)	automatic	cage Ø 40mm	40mm	top cover, knob, Instruction Sheet
D16T40AAA0S200	Temperature control auto-reset	+5\+40 (+41\+104)	adjustable 2…5 (3.5…9)	automatic	cage Ø 40mm	40mm	top cover, knob, Instruction Sheet
D16T40AAB2S200	Temperature control auto-reset	+5\+40 (+41\+104)	adjustable 2…5 (3.5…9)	automatic	bulb Ø 10 x 80mm	2mt overall	top cover, knob, Instruction Sheet
D16T05AAT2S200	Temperature control auto-reset	-40\-5 (-40\+23)	adjustable 2…5 (3.5…9)	automatic	coiled end Ø 9.3x40mm	2mt overall	top cover, knob, Instruction Sheet

Accessories D Controls

Accessories for D pressure and temperature controllers

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Code		Description	Note
D00P00FN110100	❶	D controls coupling 1.0mt w\o valve	D16P-D17P only
D00P00FN115100		D controls coupling 1.5mt w\o valve	D16P-D17P only
D00A00BF100100	❷	D controls flat mounting bracket	
D00A00BA100100	❸	D controls angle mounting bracket	
D00A00TC116100	❹	D16 top cover	
D00A00TC117100	❺	D17 top cover	
D00A00KN100100	❻	D controls adjusting knob	
D00T0MCC100100	❼	D controls capillary clip metal	D16T only

Accessories

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DeviceManager

Controller configuration software

Codes	Descr.
TM171ADMI	M171Opt. Programmable cable
DMI1003002000	W/RTN Device Manager

Applications

DeviceManager is a Windows software used to manage and for the first installation of Eliwell devices. The software can be used to create and save parameter mapping and transfer it to and from the controller with a few clicks.

DeviceManager needs the USB communication interface **Device**Manager Interface (DMI) to communicate with controllers directly and is compatible with Unicard USB and Multi Function Key to transfer maps, parameters and controller firmware updating.

Features

| |
|---|
| Graphic interface |
| Eliwell instrument parameter management |
| Real-time variable monitoring and management |

System requirements	DeviceManager
Operating system:	• Windows XP Pro SP2, Italian and English. • Windows XP Home SP2, Italian and English. • Windows 2000 Professional SP4, Italian and English. • Windows 7 Premium, Windows 7 Professional, Windows 7 Ultimate, versions 32bit, Italian-English • Windows 10
Software components required besides operating system:	• .NET Framework 2.0
Minimum hardware:	• graphics resolution 1024x768 • 700MHz CPU • RAM 256MB • HD 1GB • Mouse or equivalent navigation system
Space required on disk:	Approx. 500 MB for normal installation (2 languages, 50 models)

Accessories

Code	Description	Details
CO111127	TTL cable	3.3' reinforced cable
COLV000016200	USB-A/A 2MT extension lead	Length 2m

Unicard - Copy Card - Multi Function Key

Memory for fast configuration and updating of controllers

(A)　　　　(B)　　　　(C)
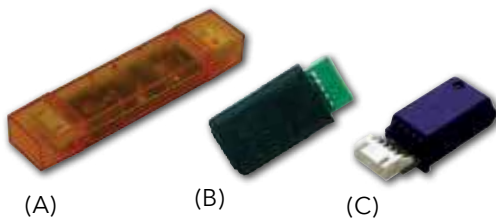
Codes		Descr.
CCAOBHT00UU00	(A)	EW + Unicard
CCOS00A00M000	(B)	EW + Copycard
TM171AMFK	(C)	M171 Opt. Programming stick
CCOOBOT008004		nEW interface and copycard

Applications

The new USB/TTL Unicard is a memory device for rapid parameter configuration/duplication, specifically designed for controllers in the IDPlus family.

By downloading the **Device**Manager software from the **www.eliwell.com** website, maps for instruments in the ID and IDPlus families can be read and written on the Unicard device without having to use other interfaces/licences.

Copy Card is a memory device for rapid Eliwell controller parameter configuration/duplication. Multi Function Key is used with **Device**Manager to transfer maps, parameters and controller firmware updating.

Common features

Unicard has a **standard USB port** for connection to the most widely-used power supply units and adapters on the market (mains-powered, machine-powered, battery-powered, etc.).
Updating device parameter values
Updating device firmware/applications

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DISCLAIMER

The type approval marks associated with each individual instrument are present on specific part numbers only. Check details and availability with sales department.

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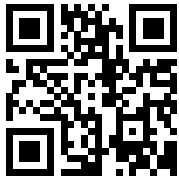
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