EWCM EO Range

Controllers for compressor rooms

eo | **ENVIRONMENTALLY OPTIMISED**

- Compatibility of sub-critical CO_2 systems with V910 plug&play driver
- New supported refrigerants : glycole, R290 and R427
- New optimised algorithm for balancing compressor inverter
- Suction and discharge setpoint management reflecting both ambient conditions and the refrigerated cabinet's load
- Backup function in the event of inverter failure
- Rapid configuration tool for PC **Device**Manager

The new EWCM EO controllers provide a means of managing compressors in refrigeration plants, thereby ensuring minimum energy consumption.

All the models in series 8000/9000 can be completely configured by the user including the management of digital compressors and inverters, digital fans and inverters, up to 2 circuits.

The complete and versatile solution adapts to various plant configurations, including sub-critical CO_2 cascade sytems and glycol units.

The backup function guarantees continuous function, with no additional external devices, in combined systems with inverter-piloted loads and relays, should an inverter failure occur.

Applications

Commercial refrigeration:
- Retail outlets (Hypermarkets, Supermarkets, Convenience Stores, Grocery Stores).
- Catering (Hotels, Restaurants)

Industrial refrigeration:
- Food processing
- Food distribution
- Other industrial applications (chemical, pharmaceutical, ice rinks)

Energy saving

- More fluid regulation of the systems with inverter, with reduction of fluctuations, ON/OFF cycles of step compressors
- Simplified setting of the inverter based on the plate data provided by the manufacturer.
- Floating condensation with external temperature probe
- Modulated suction setpoint with point of sale temperature probe
- Digital input that can be configured to activate the reduced setpoint and modulated suction and discharge
- "Combined" digital and inverter systems for compressors and fans.
- Backup relay that keeps the compressor/inverter-piloted fan running even in the event of an inverter failure
- Management of electronic expansion module plug&play driver:
    - V800 for subcooling
    - V910 for CO_2 heat exchangers

### Reduction of installation and maintenance costs

- New configurable regulator, including dedicated alarms for some typical functions such as:
    - Oil heating or cooling, with possibility of injecting cold gas on the heads, in environments with particularly harsh working temperatures
    - Electric panel cooling with panel temperature probe;
    - Supercooling of discharge gas by a pulse or step-by-step electronic expansion valve
    - Modulated pump management and flow switch diagnostics for units on plants with indirect expansion and with secondary fluids (e.g. glycol);
- Local/remote switching off of the machine, showing its status on the display
- Device Manager for configuration by serial line or Copy Card USB with selection of languages for software and extended management of model languages (e.g. Cyrillic script)
- Compatible with Drivers Televis**Compact** and Televis**GO**
- Wide range of function configuration programs and respective documentation available on the site **www.eliwell.com**

Extensive range of coolants

- R22 • R717 (NH_3) • R134A • R410A • R502 • R417A
- R404A • R744 (CO_2) • R407C • R402A • R507 • R402B
- R290 • R427 • R600a

**Example of EWCM EO 2 circuits with EWCFW08 inverter discharge control**
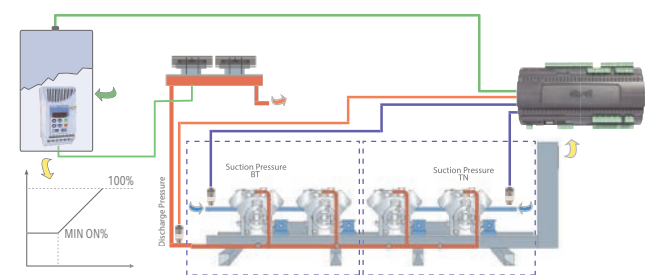
Energy saving by floating condensation

The graph represents the total consumption of a supermarket*, before and after use of floating condensation for 24 hours' energy consumption.

The green area represents reduced consumption - 25% energy saving.

The maximum energy saving can be obtained during opening hours.

* Source: Fieuw koeltechniek
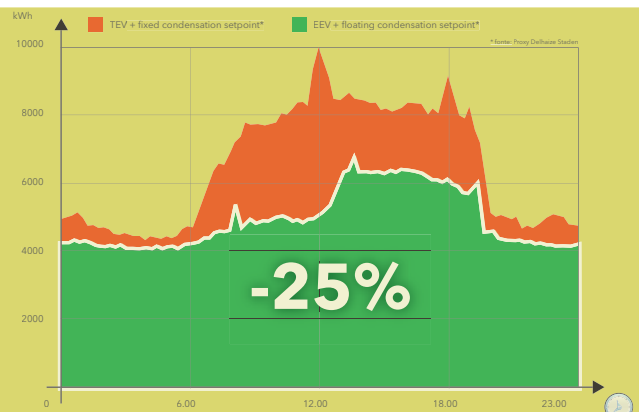
INVERTER	COMP/FAN	CIRCUITS	

EWCM EO 18 DIN-Rail (9900)
Step compressors and/or inverter compressor and condensing unit up to 8 step fans or inverter fan.

EWCM EO 13 DIN-Rail (9100)
Step compressors and/or inverter compressor and condensing unit with step fans or inverter fan.

EWCM EO 13 DIN-Rail (8900)
Step compressors and/or inverter compressor and condensing unit with step fans or inverter fan.

EWCM 4120-4150-4180
Ideal for small refrigerating units with single circuit with inverter compressor or a maximum of 4 step compressors and condensation control with inverter fan or up to 4 digital inverters.

EWCM EO DIN Rail

EWCM EO 13 and 18 DIN Rail controllers have been designed for the most complex and evolved plant solutions, offering solutions for LT and NT direct expansion units and for unified units with dual temperature and single condensation However it is also suitable for managing plants with indirect expansion and with secondary fluids.

EWCM 4120, 4150 and 4180

Low-cost compact parametric controllers. Simple to use and install (mounted on a panel 32x74) for the complete control of small refrigerating units. All the inputs and outputs and independent and configurable, ensuring adaptability to most applications with step or modulating control of the compressors and the fans. The already generous supply of I/O can be further extended by connecting an external relay to the low voltage digital output or expansion modules for controlling the fans to the PWM analogue and voltage outputs.
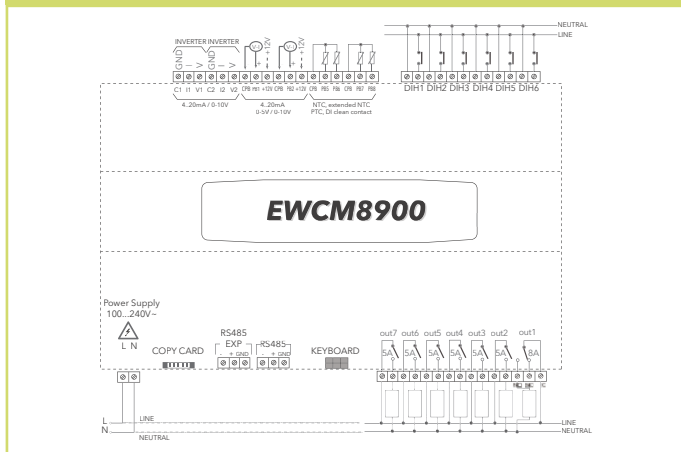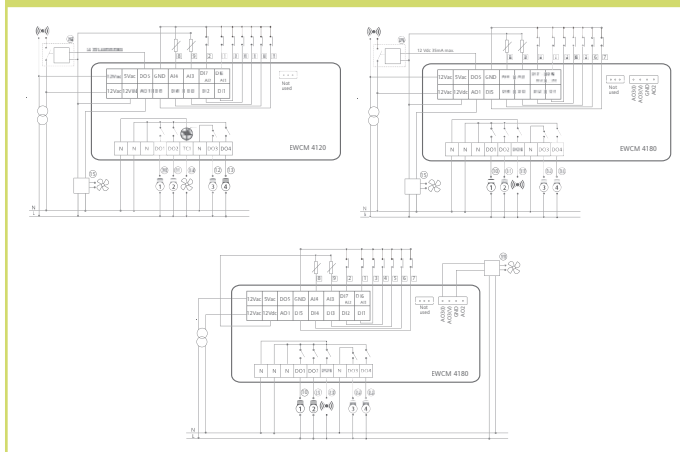
MODEL 9900 18DIN
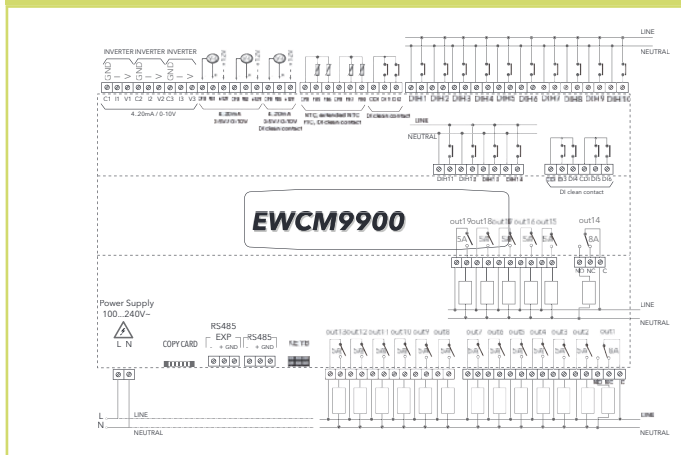
MODEL 9100 13DIN
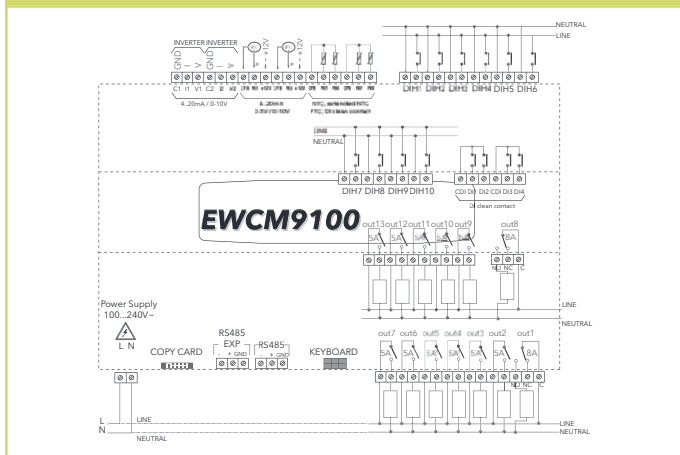
MODEL 8900 13DIN

MODELS 4120-4150-4180 32x74

TECHNICAL SPECIFICATIONS

		8900	9100	9900	4120	4150	4180
Dimensions	-	13DIN	13DIN	18DIN	Panel 32x74	Panel 32x74	Panel 32x74
Terminals	-	disconnectable	disconnectable	disconnectable	disconnectable	disconnectable	disconnectable
Digital Outputs	Relay	6 to 5A SPST 1 to 8A SPDT	11 to 5A SPST 2 to 8A SPDT	17 to 5A SPST 2 to 8A SPDT	4 to 2A SPST	5 to 2A SPST	5 to 2A SPST
	Open Collector	-	-	-	1	1	1
Analogue Outputs	0-10V, 4-20mA	2	2	3	-	-	-
	TRIAC	-	-	-	1	-	-
	PWM-Open Collector	-	-	-	1	2	2
	0-10V, 4-20mA, 0-20mA	-	-	-	-	1	1
Digital Inputs	Low Voltage (LV)	-	4	6	7	7	7
	High Voltage (HV)	6	10	14	-	-	-
Analogue Inputs	4-20mA, 0-5V, 0-10V	2	2	3	-	-	-
	NTC, NTC extended, PTC, DI	4	4	4	-	-	-
	4-20mA, 0-5V, 0-10V, NTC, DI	-	-	-	2	2	2
Power supply	-	100-240 V~	100-240 V~	100-240 V~	12 V~	12 V~	12 V~
RTC	-	●	●	●	●	●	●
Connections	TTL				●	●	●
	RS-485 Televis	●	●	●			
	RS-485 Driver EEV	●	●	●			
	Copy Card	-	-	-	●	●	●
	Eliwell USB Copy Card	●	●	●			
Keyboard	LCD graphic display 128x64 pixels backlit with LEDs	●	●	●	-	-	-
	4-figure LED display	-	-	-	●	●	●
Menu Languages	-	2 from p/n	2 from p/n	2 from p/n	--		
Televis/Modbus	-	●	●	●	●	●	●
Device **Manager**	-	●	●	●	●	●	●
Circuits		2	2	2	1	1	1
Discharge Control		●	●	●	●	-	●
Inverter Management		2	2	3	1	1	1
Regulation		PID / ZN	PID / ZN	PID / ZN	P/ZN	P/ZN	P/ZN
Sensor Control		Temperature Pressure	Temperature Pressure	Temperature Pressure	Temperature Pressure	Temperature Pressure	Temperature Pressure
Time Bands		●	●	●	●	●	●
Log	Operation	●	●	●	●	-	-
	Alarms	●	●	●	●	-	-

ACCESSORIES

EWCM4000 12...24V Wiring(**)	COLV0000E0100	Wiring for I/O connection voltage not dangerous SELV(°)
COLV000035100	RS-485 wiring
COLV000042100	AO3-4-5(°) (°) wiring (connector + 1m cables)

| EEV Driver | Various p/n's available | V800 EEV Driver pulse V910 EEV driver EEV step by step |

| Transformer | TF411205 TF411210 | 230V~/12V 6VA (protected) 230V~/12V 11VA (protected) |

| Expansion module EXP11 (O.C. output) | MW320100 | 230V 10A expansion module with DIN rail-mounted base |

Temperature probes (*)	SN8DAE11502C0	NTC 1.5m IP 68 6x20 -50+110°C
	SN8DAE13002C0	NTC 3.0m IP68 6x20 -50...+110°C
	SN9DAE11502C6	PT1000 1.5m IP68 6x20 -50...+110°C
	SN9DAE13002C6	PT1000 3.0mt IP68 6x20 -50...+110°C
	SN7DAE11502C0	PTC 1.5m IP68 6x20 -50...+110°C
	SN7DAE13002C0	PTC 3.0m IP68 6x20 -50...+110°C

| Pressure transducers | male female TD220050° TD320050° TD240050* TD340050* | EWPA050, 4..20mA/0..50bar IP54°/IP67*; |
| | male female TD220007° TD320007° TD240007* TD340007* | EWPA007, 4..20mA/ -0.5..7bar IP54°/IP67*; |

| Ratiometric transducers 0/5V Female coupling | TD420010 TD420030 TD420050 Includes packard IP67 2m cable | EWPA 010 R 0/10BAR EWPA 030 R 0/30BAR EWPA 050 R 0/50BAR |

| Fan modules | MW991012 Various p/n's available | CFS05 TANDEM TRIAC 5+5A 230V CFS Single-phase speed regulators for currents from 2A to 9A |

ELIWELL CONTROLS srl
Via dell' Industria, 15 Z.I. Paludi
32010 Pieve d' Alpago (BL)
- ITALY -
Telephone: +39 0437 986 111
Fax: +39 0437 989 066

www.eliwell.com

Sales:
Telephone: +39 0437 986 100 (Italy)
+39 0437 986 200 (other countries)
email: saleseliwell@invensys.com

Technical Support:
Telephone: +39 0437 986 300
email: techsuppeliwell@invensys.com

SAI GLOBAL Certified System
ISO 9001

ENVIRONMENTAL SYSTEM CERTIFICATION
ISO 14001
DNV