Life Is On

eliwell by Schneider Electric

FREE Way

The programmable platform



www.eliwell.com

FREE Way

The programmable platform



FREE Way: the programmable controller platform

FREE Way includes various PLC families that differ in size and performance: the most compact version FREE Smart, the panel mounted controllers FREE Panel, the versions on DIN rail FREE Evolution and FREE Advanced with Ethernet connectivity.

FREE Studio Plus is the universal programming software suite for the whole FREE Way range, which simplifies all machine design and commissioning phases.

The applications

Air Treatment Units • Chillers • Heat Pumps • Rooftop • Precision conditioning systems • Installer Compressor racks • All air systems • Hydronic systems • Mixed (air/water) systems • Commercial automation



FREE Panel AVP



FREE Panel EVP



FREE Advance



FREE Evolution



FREE Smart

Plus points

Speed

One of the FREE programmable platform's main aims is to enable customers to create solutions for their customers fast. Many FREE features significantly cut the times between design of a new application and its production release.

Compactness

The FREE programmable platform makes customers cost-competitive. FREE controllers were designed with a strong focus on technology and physical size, with impressive results in terms of simplicity, modularity and compactness. FREE controllers' integrated solutions and small size generate real, immediate financial savings for customers.

Efficiency

Complete and scalable to different complexity levels, the FREE programmable platform gives customers great freedom to choose the solution they consider best for their application. This allows easy identification of solutions that cut costs or item numbers, facilitating solutions more open to future developments or future system demands, especially with regard to connectivity.

Reliability

The FREE Way programmable platform's high quality standards enable customs to save on the costs generated by quality nonconformities both in their production processes and in installations in the field. **FREE Smart**, **FREE Panel**, **FREE Advance and FREE Evolution** controllers and the **FREE Studio Plus** development environment were all designed with innovative but carefully defined criteria, using state-of-the-art yet stable technology solutions and certified, monitored production processes. Eliwell has always been famed for its reliability.

The FREE Way targets

Constructors of:

- AHUs (Air Handling Units)
- Chillers
- Heat Pumps
- Rooftop Units
- Precision air-conditioners
- Compressor Rooms

Installers/system integrators of:

- All-air systems
- Hydronic systems
- Air-water systems
- Commercial automation

Connect your machine to the IIoT world quickly, easily and cyber-safely!

Secure Interface is an Edge device that belongs to the FREE Way platform; despite the intrinsic complexity of digitalisation, it makes the IIoT – Industrial Internet of Things - world available to all, at the same time offering the highest standards of cybersecurity.

Secure Interface not only connects to the FREE Way PLC but also to any device fitted with a Modbus bus over RS485, collecting data and conveying it to the Cloud, where specific applications analyse the data and enable predictive maintenance.

The **Secure Interface** device has a client to open a VPN thus ensuring safe and immediate remote access to the machine. All the protocols in the Secure Interface are cybersafe; the device can be used as a simple Modbus gateway, or for more complex operations and connectivity, with various programming levels.

Machine to Cloud

Connection to cloud Apps, Analytics and Services with EcoStruxure Machine Advisor.

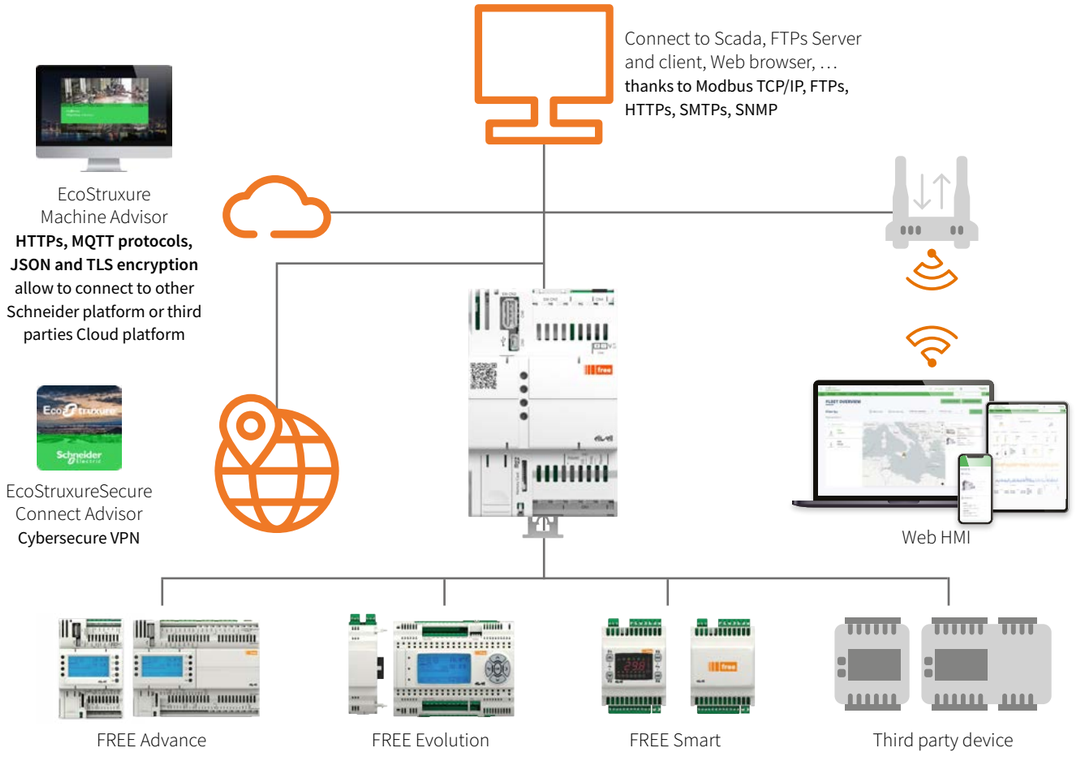
Machine to Plant

Easily integrate machine into plant/BMS thanks to Modbus TCP/IP.
Allow direct communication to IT system.

Machine to Human

Improve and reduce time for commissioning and maintenance.

Cybersecurity - Encrypted communications



FREE Studio Plus

The **FREE Studio Plus** software suite is compatible with all 5 standard programming languages (**IEC61131-3**). Every project may comprise several programs; developers can use more than one language in the same project.

Every new program has a choice of 5 programming languages, 2 textual and 3 visual:

- **ST**, **Structured Text**
- **FBD, Functional Block Diagram**
- **LD, Ladder**
- **IL, Instruction List**
- **SFC, Sequential Function Chart**

IEC61131-3 development software

Main functions

Variable display with application running

Debugging of variables through display of their status in numerical format when the application is running and connected to FREE Smart, FREE Panel, FREE Advance and FREE Evolution

Function Library

Management of default and/or developer-created function libraries.
Any additional cards are managed by the developer himself

Variable graphic display

Debugging of variables through display of their status in graphic format when the application is running and connected to FREE Smart, FREE Panel, FREE Advance and FREE Evolution

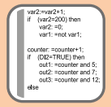
Variable reading / writing

The working environment allows:

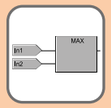
- creation of a dedicated menu to be shown on the device's display
- reading and writing of BIOS parameters (parameters + I/O values)
- reading and writing of the parameters and variables defined by the developer in Applications associated to the menu

On-line Help to assist the programmer in every program development phase, accessed from the context by just pressing the F1 button.
The whole on-line help guide is also available in printable pdf format

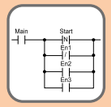
Baselines and Libraries, ready to use and available for download via web



ST



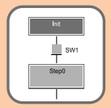
FBD



LD



IL



SFC

System and installation requirements

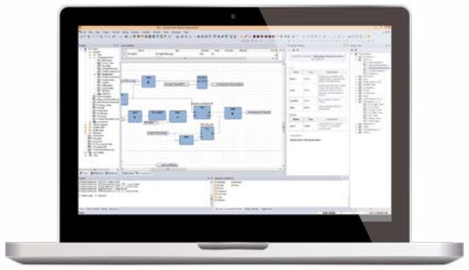
Operating Systems

- Windows 10 English

Supported browser

- Internet Explorer 11 or greater

The installation setup, software updates, libraries and documentation are available on the eliwell.com website, after registration for access to the private area.



Components

FREE Studio Plus is the universal programming software for machines automated by the **FREE Way** logic controllers. It simplifies each of the steps in machine design and commissioning:
FREE Studio Plus allows developers to program in various working environments, since they can access constantly updated with new functions and optimizations, available in the specific area of the Eliwell web site.

- 1 Unique, simple and flexible software suite software or the entire **FREE Way** range
- Compatible with the 5 standard programming languages (IEC 61131-3) to cover all needs with graphic or text languages
- Advanced debug and simulation options plus complete and effective online Help
- Tools for easy commissioning
- Advanced communication features such as remote control and download
- Webpage creation from the software
- Advanced communication features as remote control and download
- Webpage creation for the software



Baselines

Applications supplied ready to use, compliant with architecture rules, easily modified to all requirements.

Libraries of objects to save you even more time, by making FREE Studio Plus easier to use.

FREE ADVANCE

MINIMUM KIT FOR SYSTEM DEVELOPERS	AVAILABLE RESOURCES The IEC programmer includes the following resources:	
• FREE Studio Plus installation setup • 1 FREE Advance AVD8400/C/L/U • Mini-USB cable for PC connection • FREE Advance power transformer	**CPU**	120 MHz - 16 MByte RAM
	available memory for **Application**	1 MByte
	RAM memory - automatic mapping for **Application** and **User Interface**	512 kByte + 512 kByte
	RAM memory - Modbus mapping	5000 word

FREE SMART

MINIMUM KIT FOR SYSTEM DEVELOPERS	AVAILABLE RESOURCES(mod. /C/S, msk 412) The IEC programmer includes the following resources:	
• FREE Studio Plus installation setup • 1 FREE Smart SMxxxx* • 1 DMI 100-3 Manufacturer + yellow TTL cable • 1 optional MFK blue TTL cable • FREE Smart* wiring and transformer * alternatively, request the Demo Case	**CPU**	14.7 MHz
	available memory for **Application**	190 KByte
	RAM memory - automatic mapping	2300 Byte
	RAM memory - Modbus mapping	1024 Byte
	EEPROM variables	1024 Byte

FREE SMART	FREE PANEL AVP	FREE PANEL EVP
AVAILABLE RESOURCES (mod. /C/S, msk 412) The IEC programmer includes the following resources:		
CPU	120MHz, 132 kB RAM	72 MHz, 32 MByte RAM
available memory for **Application + User Interface**	736 kByte	1 Mbyte + 1.5 Mbye = 2.5 Mbyte
FLASH memory data	4 MByte (images + font)	128 MByte
RAM memory - automatic mapping for **Application + User Interface**	78 kByte	512 kByte + 512 kByte
RAM memory - Modbus mapping	5000 word	5000 word
EEPROM variables	4000 word (app)	4000 word (application) + 10000 word (BACnet objects)

FREE EVOLUTION

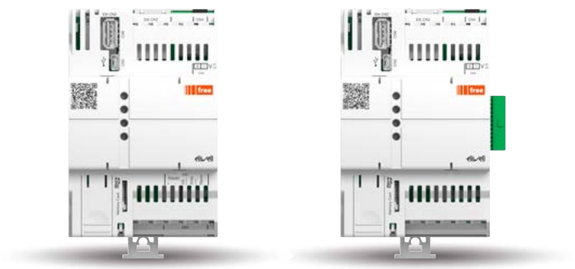
MINIMUM KIT FOR SYSTEM DEVELOPERS

- FREE Studio Plus installation setup
- 1 FREE Evolution EVD7500/C/U
- USB cable
- FREE Evolution power transformer

Secure Interface

An Edge device for connecting HVAC machines and more:

- provides a **connection to the Machine Advisor cloud** or any platform based on **AWS** or **Microsoft Azure**;
- With the VPN Secure Connect Advisor, it enables a cyber-safe connection to any Modbus device;
- it is a Modbus gateway or can become a programmable device for more complex connections and logics;
- it provides protocols including FTPs, HTTPs, SMTPs, SNMP.

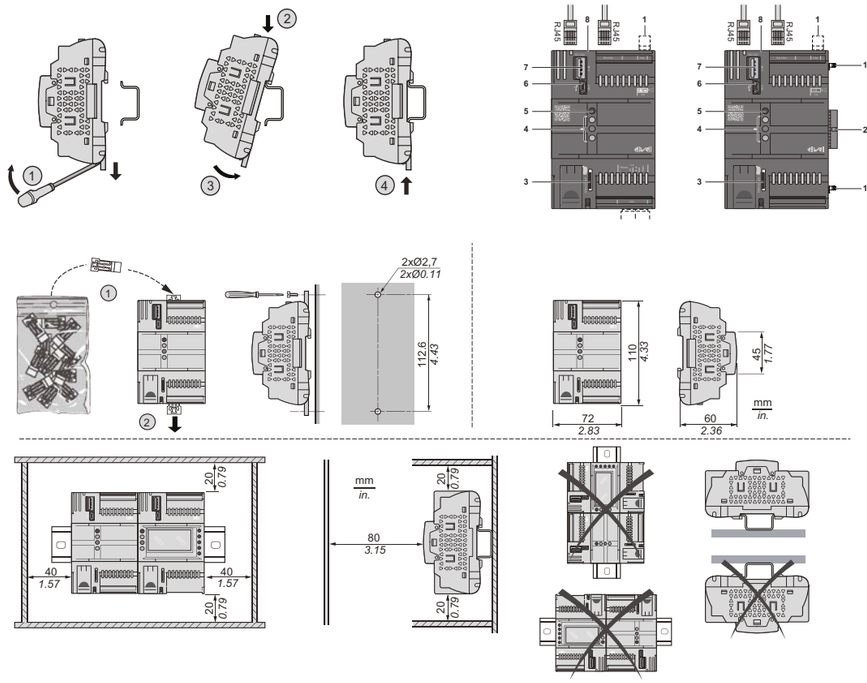


AVS00GW AVS00PI

Technical data

	AVS00GW	AVS00PI
size	2 DIN	
mount	on DIN rail	
display	24 Vac ± 10% 50/60 Hz 20…38 Vdc (UL/CSA) 24 Vdc (IEC)	
communication ports	USB (type mini-B) 2 x Ethernet RS485	USB (type mini-B) 2 x Ethernet
operating temperature	-20…55 °C	

Connections, mounting and sizes



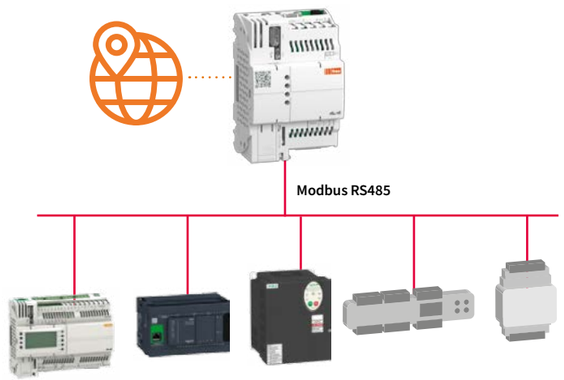
1 - Power supply - CN4
2 - Connection to control unit
3 - Slot for memory card (Micro SD)
4 - programmable LEDs (yellow/red/green)
5 - power LED (green)
6 - USB port (type mini-B) - CN5
7 - USB port (type-A) - CN6
8 - Ethernet ports (RJ45) - CN2, CN3
9 - Serial port (RS 485) - CN1
10 - Connection clip

The two versions of Secure Interface

Secure Interface is available in **two versions, gateway and plug-in**: the first can connect to several Modbus devices via the RS485 port at the bottom of the device, the second is intended for connection to a FREE Advance PLC via the local bus on the right-hand side of the Secure Interface.

AVS00GW - Gateway

multiple device IoT connected



AVS00PI - Plug-in

single machine IoT connected



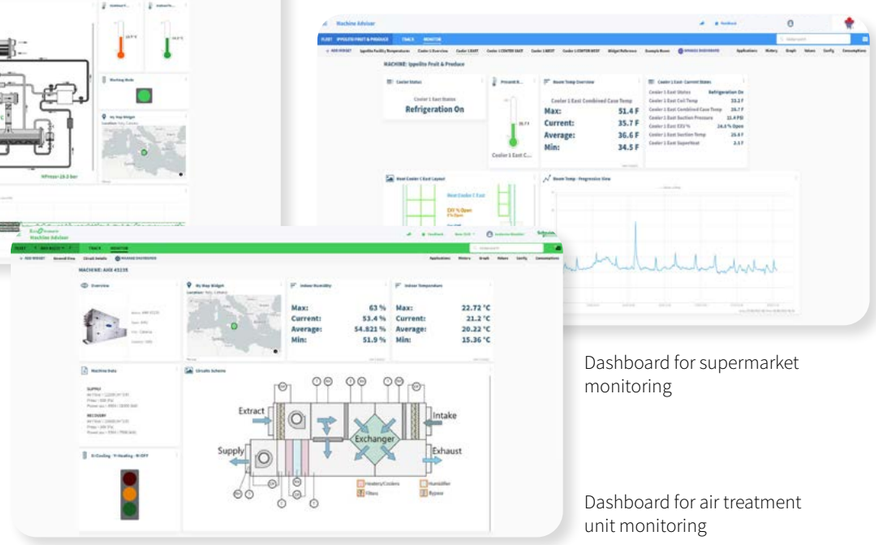
AVD PLC I/Os expansion

Secure Interface enables connection to the Schneider Electric Machine Advisor cloud platform designed explicitly for machine monitoring. The **Machine Advisor** dashboards are easily and intuitively configured to allow the user to easily create the interface that best suits their needs.

Examples for monitoring different types of applications are shown below.



Dashboard for Chiller monitoring



Dashboard for supermarket monitoring

Dashboard for air treatment unit monitoring

FREE Smart models

Models are available both DIN rail mount version (SMD with display, SMC without display) and in the 32x74 Eliwell standard version (SMP) panel mount version.

The offering is completed by various expansions (SME) and terminals (SKP, SKW) for combination with FREE Smart series models.

All inputs and outputs are independent and configurable to ensure adaptability to any system.



FREE Smart 12...24 Vac / 24Vdc /C identifies units with RTC – Real Time Clock — /S identifies units with built-in RS485 serial output

Model	Code	Digital Outputs at hazardous voltage	TRIAC Outputs at hazardous voltage	O.C. outputs: PWM / PPM at safety extra low voltage (SELV)	Analog outputs 0-10 V at safety extra low voltage (SELV)	Digital Inputs voltage free	Analogue Inputs at safety extra low voltage (SELV)	O.C. Outputs	RS 485 built-in
SMP5500/C/S	SMP5500050450	5	-	2	3	6	5	1	yes
SMP5500/C	SMP5500010450	5	-	2	3	6	5	1	-
SMD5500/C/S	SMD5500050450	5	-	2	3	6	5	1	yes
SMD5500/C	SMD5500010450	5	-	2	3	6	5	1	-
SMD3600/C/S	SMD3600050450	3	2	1	3	6	5	1	yes
SMC5500/C/S	SMC5500050450	5	-	2	3	6	5	1	yes
SMC5500/C	SMC5500010450	5	-	2	3	6	5	1	-
Expansions									
SME3200	SME3200000400	3	-	2	-	6	3	1	-
SME5500	SME5500000450	5	-	2	3	6	5	1	-

FREE Smart 100...240 Vac /C identifies units with RTC – Real Time Clock —/S identifies units with built-in RS485 serial output

Model	Code	Digital Outputs at hazardous voltage	O.C. outputs: PWM / DI at safety extra low voltage (SELV)	Outputs 0...10 V at safety extra low voltage (SELV)	Outputs 4...20 mA / 0...20 mA	Analog inputs at safety extra low voltage (SELV)
SMD4500/C/S	SMD4500050H00	4	2	2	1	5
SMD4500/C	SMD4500010H00	4	2	2	1	5
SMC4500/C/S	SMC4500050H00	4	2	2	1	5
Expansion						
SME4500	SME4500000H00	4	2	2	1	5

Terminals with power supply from base

Model	Code	Mount	Dimensions	Display	Analog inputs at safety extra low voltage (SELV)
SKP10	SKP100G000000	panel	74x32x30 mm	LED / 4 digits	-
SKW22	SKW220G000000	wall	137x96.5x31.3 mm	LCD	1 built-in NTC 1 NTC input / DI / 4...20 mA
SKW22L	SKW22LG000000	wall	137x96.5x31.3 mm	Backlit LCD	1 built-in NTC 1 NTC input / DI / 4...20 mA
SKP22	SKP220G000000	panel; wall: see Accessories page	160x96x10 mm	LCD	1 NTC input 1 NTC input / DI / 4...20 mA

KEY: SELV = Safety Extra Low Voltage; PPM = Pulse Position Modulation; PWM = Pulse Width Modulation; O.C. = Open Collector



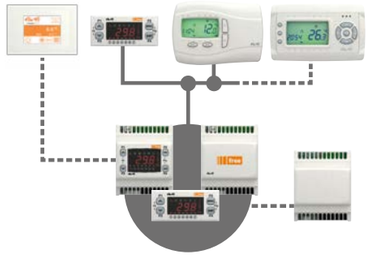
FREE Smart connectivity

FREE Smart controllers are equipped with a serial port for easy integration with the supervision systems of the installation plant.

All controller resources can be accessed via standard Modbus communication protocol, guaranteeing complete control of the plant.

All models have TTL port as standard; /S models have built-in RS485 serial port.

A special Firmware version also provides the Modbus MASTER function.



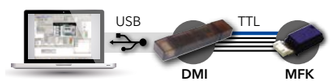
FREE Smart maximum configuration

- max 1 FREE Smart model
- max 1 SME expansion by LAN serial line
- max 1 SKP10 terminal with controller ECHO function
- max 1 SKW22(L) or SKP22 terminal with dedicated menu, allowing ambient temperature and humidity monitoring
- LAN maximum distance: 100 m

FREE Smart update function

Multi Function Key (MFK 100) for uploading and downloading parameter map for quick configuration, and uploading the IEC application and BIOS.

Multi Function Key / DMI
PC → ← FREE



use **blue TTL cable**
for DMI - MFK connection

Data download direction	→	←
Parameter map	-	-
IEC application	✓	-
BIOS	✓	-

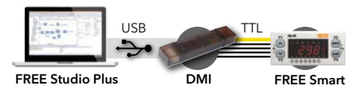
Multi Function Key
MFK → ← FREE



use **yellow TTL cable**
for MFK - target connection

Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	-
BIOS	✓	-

Network
PC → ← FREE

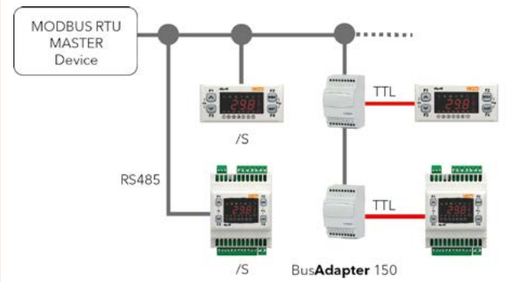


use **yellow TTL cable**
for DMI - target connection

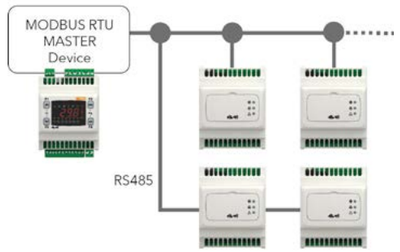
Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	-
BIOS	✓	-

Modbus Slave or Master mode connection examples

Modbus Slave example



Master Modbus example



For models without RS485 use only BusAdapter 150

SMP, SMD, SMC5500



SMP5500



SMD5500

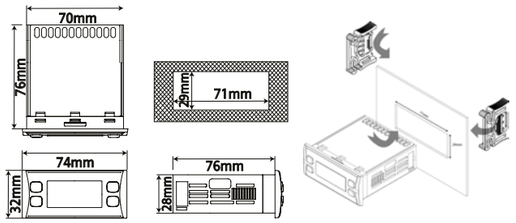


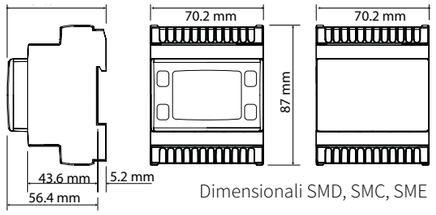
SMC5500

Technical data

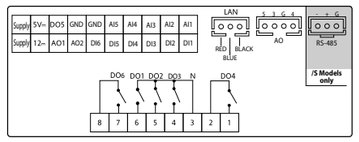
	SMP5500	SMD5500	SMC5500
size	32x74x80 mm (Lxhxd)	4DIN	
display	LED 4 digit - 7 segments		-
power supply	12...24 Vac / 24 Vdc		
relay digital outputs	5 x 2 A 250 Vac		
analog outputs	2 x O.C. PPM/PWM 3 x 0...10 V		
O.C. digital outputs	1 Open Collector		
digital inputs	6 voltage free		
analog inputs	3 x NTC / D.I. 2 x NTC / D.I. / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V / 0-1 V		
connectivity	TTL RS485 isolated (only /S models) LAN for connection to SKP/SKW terminal or SME expansion		
operating temperature	-20...+55 °C		

Electric, mount and dimensional diagrams

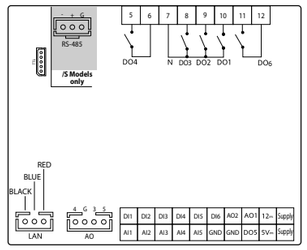




Dimensionali SMD, SMC, SME



SMP5500/C - SMP5500/C/S

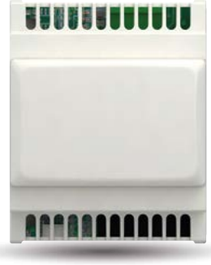


SMD5500/C/S - SMC 5500/C - SMC5500/C/S

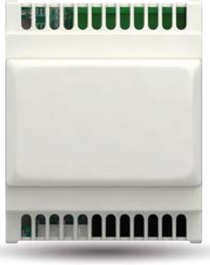
SMD3600, SME Expansions



SMD3600



SME3200

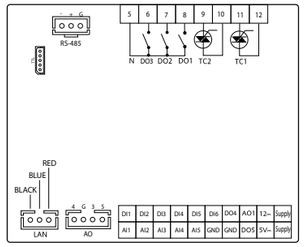


SME5500

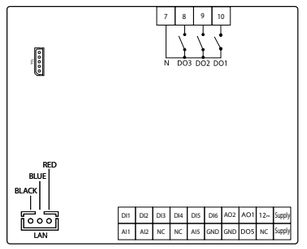
Technical data

	SMD3600	SME3200	SME5500
size	4DIN		
display	LED 4 digit - 7 segments	-	-
power supply	12...24 Vac	12...24 Vac / 24 Vdc	
relay digital outputs	3 x 2A 250 Vac		5 x 2A 250 Vac
analog outputs	2 x TRIAC 3 A 250 Vac 1 x Open Collector PPM/PWM 3 x 0...10 V	- 1 x Open Collector PPM/PWM -	- 2 x Open Collector PPM/PWM 3 x 0...10 V
O.C. digital outputs	2 Open Collector	1 Open Collector	
digital inputs	6 voltage free		
analog inputs	3 x NTC / D.I. 2 x NTC / D.I. / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V / 0-1 V	3 x NTC / D.I. -	3 x NTC / D.I. 2 x NTC / D.I. / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V / 0-1 V
connectivity	TTL RS485 isolated LAN for connection to SKP/SKW terminal or SME expansion	TTL - LAN for connection to FREE Smart	TTL - LAN for connection to FREE Smart
operating temperature	-20...+55 °C		

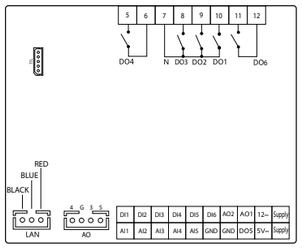
Electric diagrams



SMD3600/C/S



SME3200



SME5500

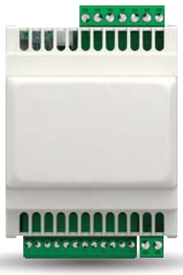
SMD, SMC4500, SME4500 Expansion



SMD4500



SMC4500

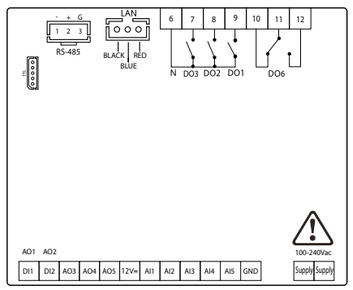


SME4500

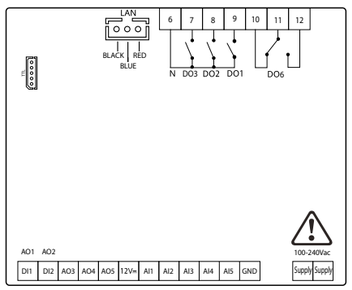
Technical data

	SMD4500	SMC4500	SME4500
size	4DIN		
display	LED 4 digit - 7 segments	-	-
power supply	100...240 Vac		
relay digital outputs	4 x 2 A 250 Vac		
analog outputs	2 x Open Collector PWM/D.I. 2 x 0...10 V 1 x 4..20 mA / 0…20 mA		
analog inputs	3 x NTC / Pt1000 / D.I. 2 x NTC / D.I. / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V / 0-1 V		3 x NTC / D.I. 2 x NTC / D.I. / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V / 0-1 V
connectivity	TTL RS485 LAN for connection to SKP/SKW terminal or SME expansion		TTL - LAN for connection to FREE Smart
operating temperature	-20...+55 °C		

Electric diagrams



SMD4500/C/S - SMC4500/C/S



SME4500 Expansion

Interfaces, FREE Smart Terminals



SKP10



SKW22/22L

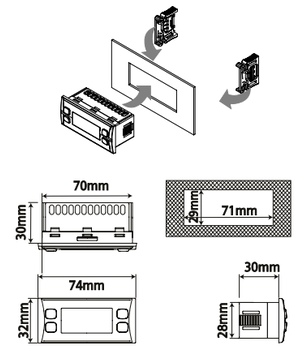


SKP22

Technical data

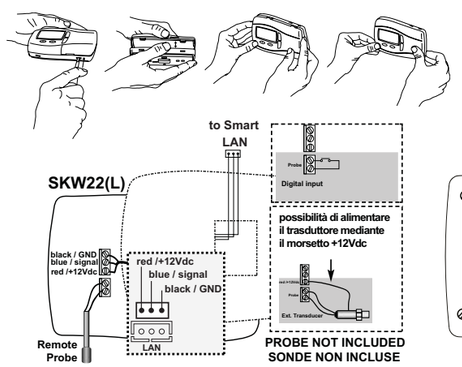
	SKP10	SKW22 - SKW22L	SKP22
size (LxDxH)	74x32x30 mm	4DIN	
mount	panel	wall	panel
display	LED 4 digit - 7 segments	LCD (model 22L: Backlit LCD)	LCD
power supply	from base		
analog inputs	- -	1 x built-in NTC 1 x NTC / D.I. / 0...20 mA / 4...20 mA remote	1 x remote NTC 1 x NTC / D.I. / 0...20 mA / 4...20 mA remote
connectivity	LAN for connection to FREE Smart		
wiring	COLV000033200 cable included in pack		
operating temperature	-20...+55 °C	-5...+60 °C	
humidity module	-	KP100000 - not included (see Accessories page)	-

Electric and mount diagrams

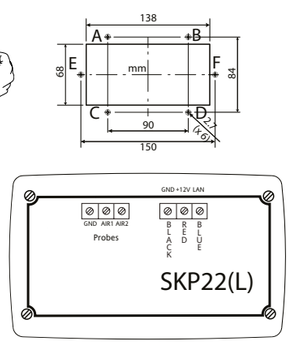




SKP10



SKW22 - SWK22L



SKP22

FREE Panel models

FREE Panel AVP is the completely customizable solution for creating an easily maintained and serviced zone controller with backlit color graphic touchscreen display, mounting on vertical surfaces, Modbus Slave connectivity, and integral temperature, humidity and presence probes.
The panel version adds Modbus Master connectivity with option of installation inside a machine, also on DIN rail.

FREE Panel EVP is the version with LCD graphic display suitable for use as system controller, with gateway functions, used in association with the other FREE Advance, FREE Evolution and FREE Smart controllers or third party devices.
FREE Panel EVP delivers excellent performance in terms of memory, user interface, Master/Slave connectivity and expandability (up to 7 expansions via field CANbus), and is easy to program, maintain and service.
A special base plate is available as wall mount accessory.



FREE Panel AVP



FREE Panel EVP

FREE Panel AVP /C identifies units with RTC – Real Time Clock **/P** identifies panel mount

Model	Code	Mount	Display	Built-in probe	Serial
AVP1000 /P WHITE	AVP100W0P0500	panel*	color touchscreen display 3.5" 320x240	-	RS485** - Modbus SL USB Micro-B
AVP1000 /P GREY	AVP100G0P0500	panel*	color touchscreen display 3.5" 320x240	-	RS485** - Modbus SL USB Micro-B
AVP1100 /C	AVP11000W0500	wall***	color touchscreen display 3.5" 320x240	temperature	RS485** - Modbus SL USB Micro-B
AVP1200 /C	AVP12000W0500	wall***	color touchscreen display 3.5" 320x240	temperature & relative humidity	RS485** - Modbus SL USB Micro-B
AVP1300 /C	AVP13000W0500	wall***	color touchscreen display 3.5" 320x240	temperature, relative humidity and presence	RS485** - Modbus SL USB Micro-B

*both horizontal and vertical (for vertical surface mount see Accessories page)
**RS485 Master or Slave
***Vertical mount. Horizontal mount if built-in probes are not used.

FREE Panel EVP /C identifies units with RTC – Real Time Clock

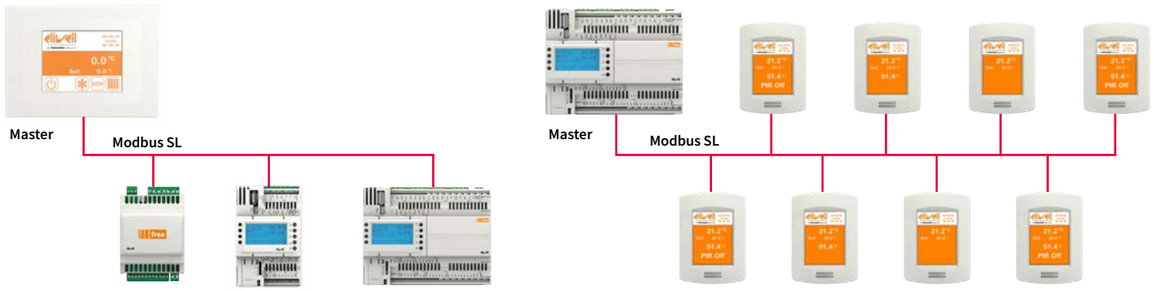
Model	Code	Mount	Display	Inputs at safety extra low voltage (SELV)	Serial
EVP3300/C	EVP3300010B00	panel*	Backlit LCD	1 x built-in NTC; 1 x remote NTC; 1 x remote 4...20 mA / 0-5 V / 0-10 V	CANbus; RS485; Ethernet

*(for wall mount see Accessories page)

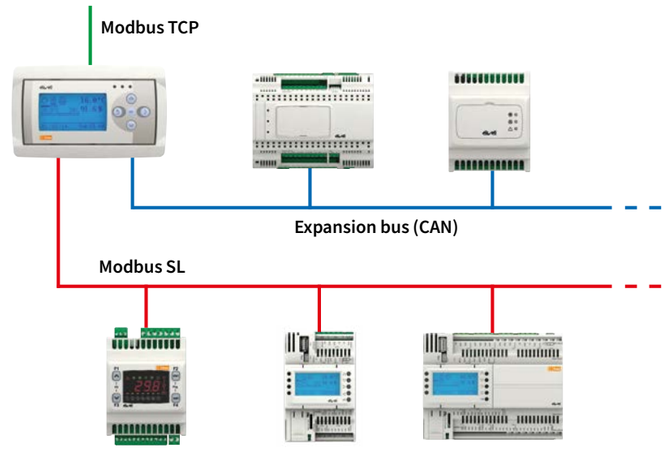
KEY: SELV = Safety Extra Low Voltage

FREE Panel connectivity

AVP



EVP

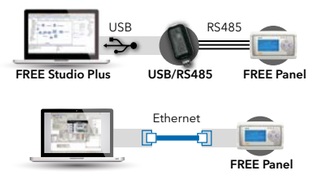


Connectivity and functions

FREE Panel AVP delivers excellent performance in terms of memory, color user interface with resistive touchscreen display and Modbus Master/Slave connectivity, and is easy to program, maintain and service.

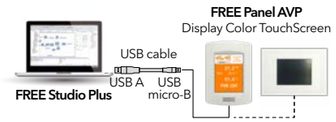
FREE Panel EVP delivers excellent performance in terms of memory, user interface, Master/Slave connectivity and expandability (up to 7 expansions via field CANbus), and is easy to program, maintain and service.

USB-RS485; Ethernet
PC → ← FREE



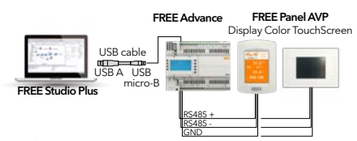
Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	-
HMI application	✓	-
Data files	✓	✓
BIOS	✓	-
Commissioning	✓	✓

USB Host
PC → ← FREE



Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	-
HMI application	✓	-
Data files	-	-
BIOS	✓	-

Ethernet
PC → ← FREE



Configuration permissible with FREE Advanced in Bridge mode and AVP in Slave mode

Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	-
HMI application	✓	-
Data files	-	-
BIOS	✓	-

AVP1000



AVP1000/P WHITE

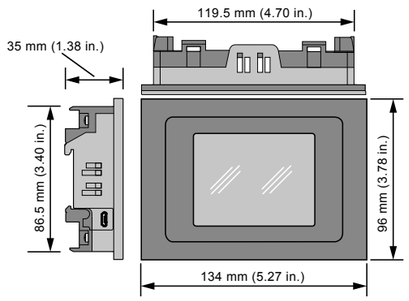


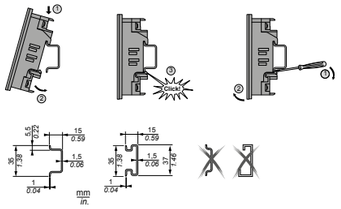
AVP1000/P GREY

Technical data

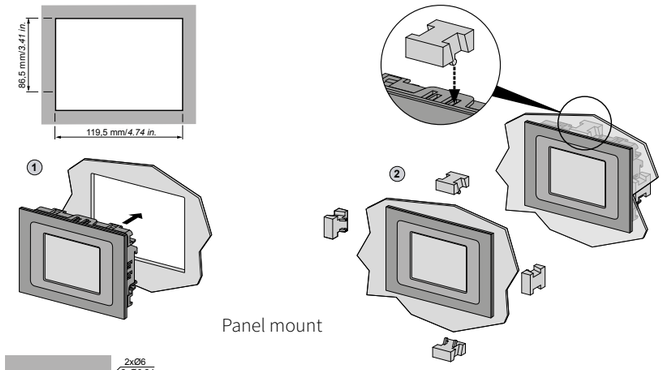
	AVP1000/P WHITE	AVP1000/P GREY
size	134x96x35 mm	
enclosure rating	IP 65 on front panel	
display	color touchscreen display 3.5” 320x240	
power supply	24 Vac/dc (Type T 500 mA UL recognized fuse)	
analog inputs	none	
connectivity	RS 485 – Modbus SL USB Micro-B (programming and debug)	
operating temperature	-20…60 °C	

Dimensional and mount diagrams

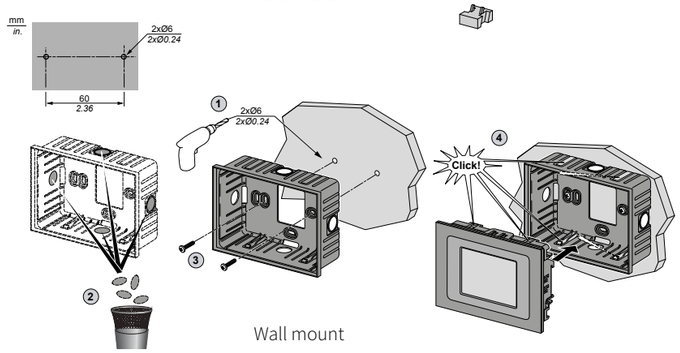




DIN rail mount



Panel mount



Wall mount

AVP1100, AVP1200, AVP1300



AVP1100/C



AVP1200/C

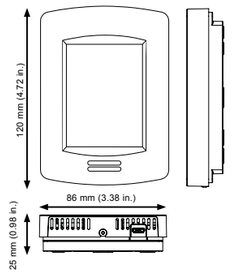


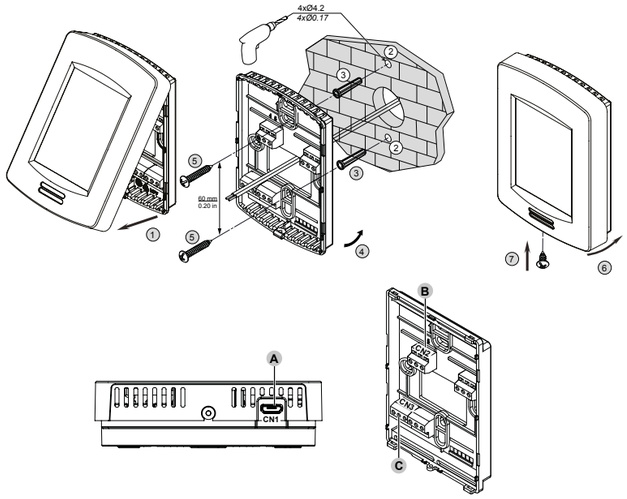
AVP1300/C

Technical data

	AVP1100/C	AVP1200/C	AVP1300/C
size	120x86x25 mm		
display	color touchscreen display 3.5” 320x240		
power supply	24 Vac/dc		
analog inputs	1 x built-in NTC	1 x built-in NTC 1 x built-in %RH	1 x built-in NTC 1 x built-in %RH 1 x built-in PIR (presence probe)
connectivity	RS485 - Modbus SL USB Micro-B (programming and debug)		
operating temperature	0...+50 °C		

Electric and mount diagrams





EVP3300/C

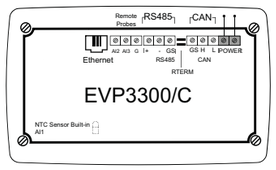


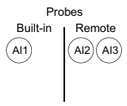
EVP3300/C

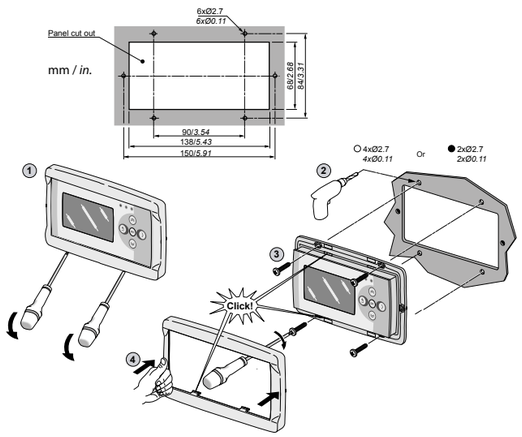
Technical data

	EVP3300/C
size	160x96x10 mm
display	backlit LCD 128x64 px graphic display
power supply	24 Vac/dc - 48 Vdc isolated
analog inputs	AI1 1 x built-in NTC AI2 1 x remote NTC / D.I. AI3 1 x remote 4...20 mA / 0-5 V / 0-10 V
connectivity	CANBus isolated: CANopen RS485 isolated: Modbus RTU, BACnet MSTP Ethernet: Modbus TCP - BACnet IP - WebServer
operating temperature	-5...+55 °C

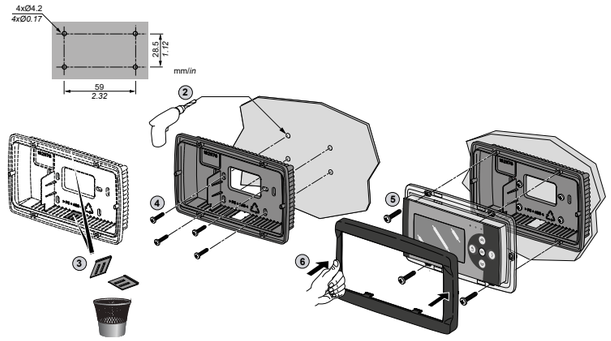
Electric and mount diagrams







Panel mount



Wall mount

FREE Advance models



FREE Advance

FREE Advance models (**AVD** with display, **AVC** without display) are available in versions for assembly on 8 DIN rail, with disconnectable screw terminal blocks for quick, easy installation.

Every AVD or AVC is expandable via CANbus (field) up to 7 expansions and 2 terminals (AVK/EVK). Up to 10 controllers can also be connected together via CANbus (network).

Up to 127 devices can be controlled with Modbus Master, via RS485.

FREE Advance with or without display /C indicates units with RTC – Real Time Clock; built-in RS485 and CANbus as standard

Model	Code		Relay outputs at hazardous voltage	SSR outputs	Analog outputs at safety extra low voltage (SELV)	Digital inputs (SELV) 2 fast pulse/ frequency counters up to 2 Khz included	Analog inputs at safety extra low voltage (SELV)
AVD3000/C/L/U	AVD3000060500	Isolated	3	-	-	2	2
AVC3000/C/L/U	AVC3000060500	Isolated	3	-	-	2	2
AVD6200/C	AVD6200050500	Isolated	6	-	2	2	8
AVC6200/C	AVC6200050500	Isolated	6	-	2	2	8
AVD6200/C/L/U	AVD6200060500	Isolated	6	-	2	2	8
AVD6200/C/L/U/SSR	AVD62SS060500	Isolated	4	2	2	2	8
AVC6200/C/L/U	AVC6200060500	Isolated	6	-	2	2	8
AVC8400/C/L/U	AVC8400060500		8	-	4	8	8
AVD8400/C/L/U	AVD8400060500		8	-	4	8	8
AVD8400/C/L/U/SSR	AVD84SS060500		6	2	4	8	8
AVC12600/C/L/U	AVC1260060500		12	-	6	12	12
AVD12600/C/L/U	AVD1260060500		12	-	6	12	12
AVD12600/C/L/U/SSR	AVD126S060500		10	2	6	12	12
AVC8400/C/L/U/I	AVC840006I500	Isolated	8	-	4	8	8
AVD8400/C/L/U/I	AVD840006I500	Isolated	8	-	4	8	8
AVD8400/C/L/U/SSR/I	AVD84SS06I500	Isolated	6	2	4	8	8
AVC12600/C/L/U/I	AVC126006I500	Isolated	12	-	6	12	12
AVD12600/C/L/U/I	AVD126006I500	Isolated	12	-	6	12	12
AVD12600/C/L/U/SSR/I	AVD126S06I500	Isolated	10	2	6	12	12
AVC8400/C/I	AVC840005I500	Isolated	8	-	4	8	8
AVD8400/C/I	AVD840005I500	Isolated	8	-	4	8	8
AVC12600/C/I	AVC126005I500	Isolated	12	-	6	12	12
AVD12600/C/I	AVD126005I500	Isolated	12	-	6	12	12

Expansions RS485 (EVE7500 only) and built-in CANbus as standard

Model	Code	Relay outputs at hazardous voltage	SSR outputs	Analog outputs (SELV) **AO4**/**AO5** configurable as Open Collector 12 Vdc 100 mA max each	Digital inputs at safety extra low voltage (SELV)	Digital inputs voltage free	Analog inputs at safety extra low voltage (SELV)
EVE10200	EVE1020000500	10	-	2 (AO1/AO2 30 mA)	4+2**	-	10
EVE4200	EVE4200000500	4	-	2 (AO1/AO2 30 mA)	4	-	4

FREE Advance controllers are compatible also with EVE7500. *fast pulse/frequency counter 1 Khz. **fast pulse/frequency counter 2 Khz.

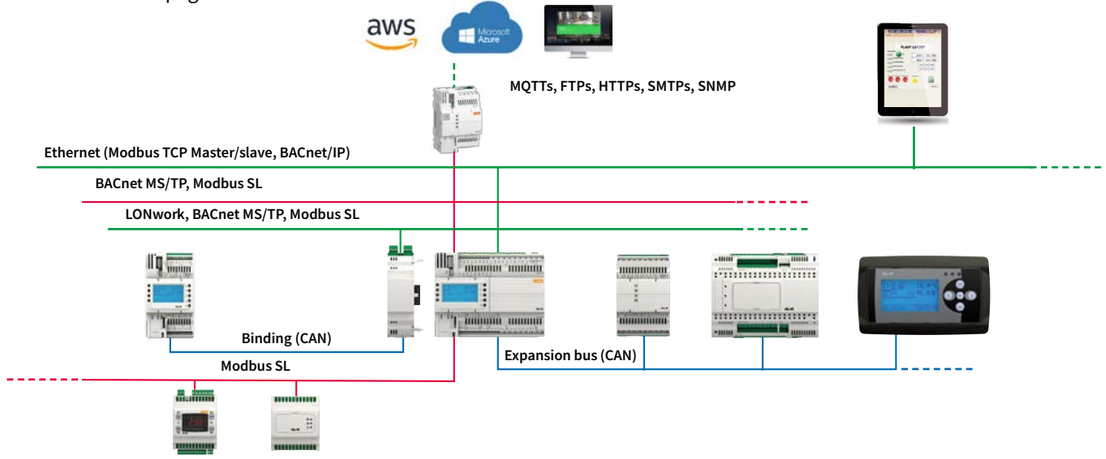
Driver EEVD

Model	Code	Description	Details	Communication Ports	Power Supply	Classification
EVEVD1U	EVEVD1U000500	EEVD Expansion 1 EEV Unipolar	1 Unipolar (up to 6 wires)	CAN Expansion Bus (isolated from power supply - Functional Insulation)	24 Vac ± 10% 50/60 Hz / 20…38 Vdc	Expansion
EVEVD1B	EVEVD1B000500	EEVD Expansion 1 EEV Bipolar	1 Bipolar (4 wires)			
EVEVD2B	EVEVD2B000500	EEVD Expansion 2 EEV Bipolar	2 Bipolar (4 wires + 4 wires)			
EVEVDBAT	EVEVDBA000000	EEVD battery backup	-			Accessory

FREE Advance connectivity

The **FREE Advance** models are equipped with an Ethernet port, two RS-485 serial ports and a CANbus port. They can therefore be integrated locally into industrial automation systems and BMS and through the range of plug-ins and 2DIN modules that connect quickly and intuitively to the main AVD/AVC module.

The Secure Interface raises the connection of FREE Advance PLCs to the highest level of IIoT, providing connection to the cloud, the VPN or to HTTPS pages.



Connectivity and web functions

FREE Advance, FREE Evolution and FREE Panel are WEB-enabled, giving machine manufacturers and system integrators integral remote access, incorporating Ethernet, BACnet protocols as well as optional LON protocol via plug-in. Furthermore, via the Secure Interface, the protocols FTPs, SMTPs, MQTTs and SNMP, used especially in datacenters, are also available. If the cloud is not necessary, the FREE Advance range in any case has an integrated WebServer and can be completely configured for an economic yet effective remote access solution.

With a wide range of remote access possibilities, even end users have many benefits for their own systems, depending on their needs:

- Integrated WebServer
- Local and remote system control, including alarms management and e-mail notifications.
- Preventive and predictive maintenance via cloud and related analytics
- Next generation system interface on PC, Tablet and Smartphone
- VPN for a safe connection

SD card Datalogging
SD card → ← FREE



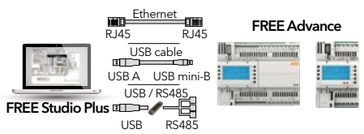
Data download direction	→	←
Parameter map	-	-
IEC application	✓	
HMI application		
Data files		
BIOS	-	-

USB Host
PC → ← FREE



Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	✓
HMI application	✓	✓
Data files	✓	✓
BIOS	✓	-

Ethernet / USB Device / RS485
PC → ← FREE



Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	-
HMI application	✓	-
Data files	✓	✓
BIOS	✓	-

AVD3000/C/L/U, AVC3000/C/L/U



AVD3000

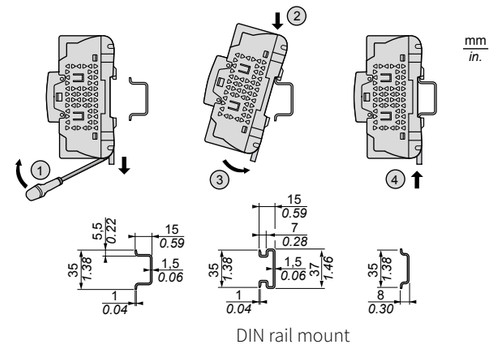


AVC3000

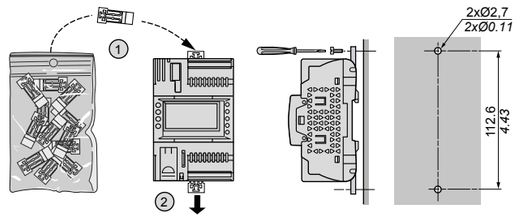
Technical data

	AVD3000	AVC3000
size	4 DIN	
display	backlit LCD 128x64 pixel graphic display	-
power supply	24 Vac isolated 20...38 Vdc isolated	
digital outputs	**3**: 3 x 3 A 250 Vac	**3**: 3 x 3 A 250 Vac
digital inputs	**2** x SELV can operate as pulse/frequency counters up to 2 kHz	
analog inputs	**2** x NTC 103AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V	
connectivity	Ethernet: Bacnet IP, Modbus TCP Master/Slave, Webserver, Ftp Client/Server, SNTP CANBus: CANopen 2 x RS485: Modbus RTU (of which 1 x RS485: also BACnet MS/TP) USB (type A); USB (type mini-B)	
operating temperature	-20...+60°C	

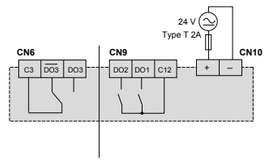
Electric and mount diagrams

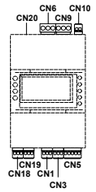


DIN rail mount

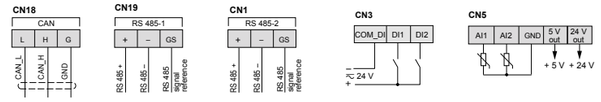


Panel mount





AVD3000
AVC3000*
*without display



AVD6200/C, AVC6200/C



AVD6200/C

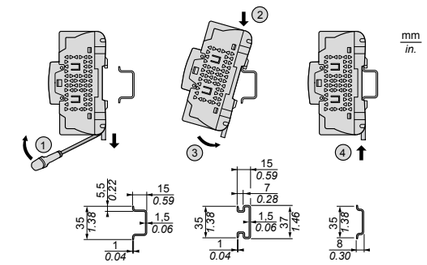


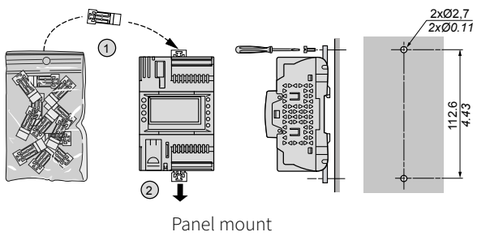
AVC6200/C

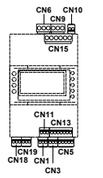
Technical data

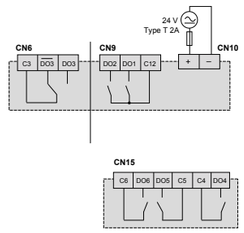
	AVD6200/C	AVC6200/C
size	4 DIN	
display	backlit LCD 128x64 pixel graphic display	-
power supply	24 Vac isolated 20...38 Vdc isolated	
digital outputs	**6**: 6 x 3 A 250 Vac	**6**: 6 x 3 A 250 Vac
analog outputs	**2**: 2 x 0-10 V, 2 x 0-10 V /4...20 mA / ON-OFF / PWM / O.C. 24 Vdc 50 mA max	
digital inputs	**2** x SELV can operate as pulse/frequency counters up to 2 kHz	
analog inputs	**8** x NTC C 103 AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V	
connectivity	CANBus: CANopen 2 x RS485: Modbus RTU (of which 1 x RS485: also BACnet MS/TP) USB (type mini-B); 1 x plug-in EVS: Ethernet: BACnet IP, Modbus TCP Master/Slave, Webserver, Ftp Client/Server, SNTP via specific EVS ETH plug-in module	
operating temperature	-20...+60 °C	

Electric and mount diagrams

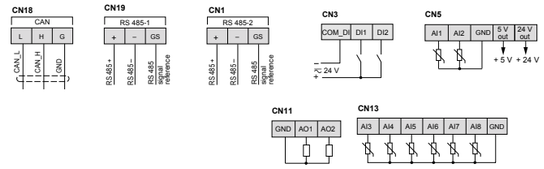








AVD6200/C
AVC6200/C*
*without display



AVD6200/C/L/U, AVD6200/C/L/U SSR, AVC6200/C/L/U



AVD6200/C/L/U



AVD6200/C/L/U SSR

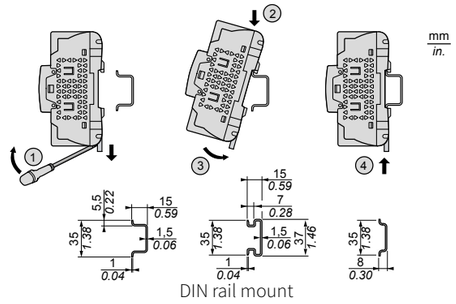


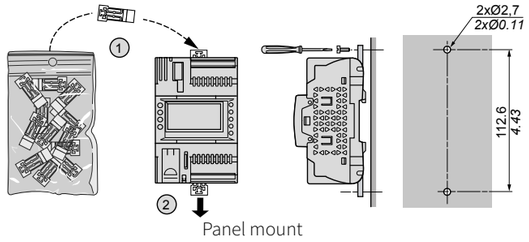
AVC6200/C/L/U

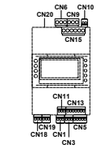
Technical data

	AVD6200/C/L/U	AVD6200/C/L/U SSR	AVC6200/C/L/U
size	4 DIN		
display	backlit LCD 128x64 pixel graphic display		-
power supply	24 Vac isolated 20...38 Vdc isolated		
digital outputs	**6**: 6 x 3 A 250 Vac	**4**: 4 x 3 A 250 Vac **SSR**: 2 x 0.2A 240 Vac	**6**: 6 x 3 A 250 Vac
analog outputs	**2**: 2 x 0-10 V, 2 x 0-10 V /4...20 mA / ON-OFF / PWM / O.C. 24 Vdc 50 mA max		
digital inputs	**2** x SELV can operate as pulse/frequency counters up to 2 kHz		
analog inputs	**12** x NTC 103 AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V		
connectivity	Ethernet: Bacnet IP, Modbus TCP Master/Slave, Webserver, Ftp Client/Server, SNTP CANBus: CANopen 2 x RS485: Modbus RTU (of which 1 x RS485: also BACnet MS/TP) USB (type A); USB (type mini-B); 1 x plug-in EVS		
operating temperature	-20...+60 °C	-20...+55 °C	-20...+60 °C

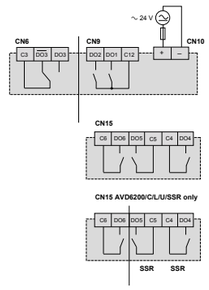
Electric and mount diagrams

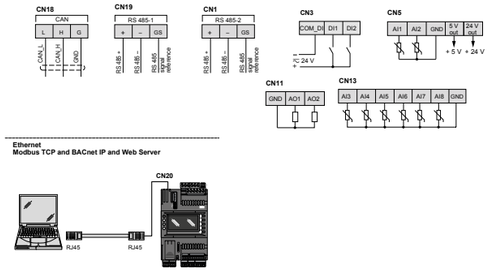






AVD6200/C/L/U
AVD6200/C/L/U/SSR
AVC6200/C/L/U*
*without display





AVD8400, AVD8400 SSR, AVC8400

/C /L /U (/I)models



AVD8400



AVD8400 SSR

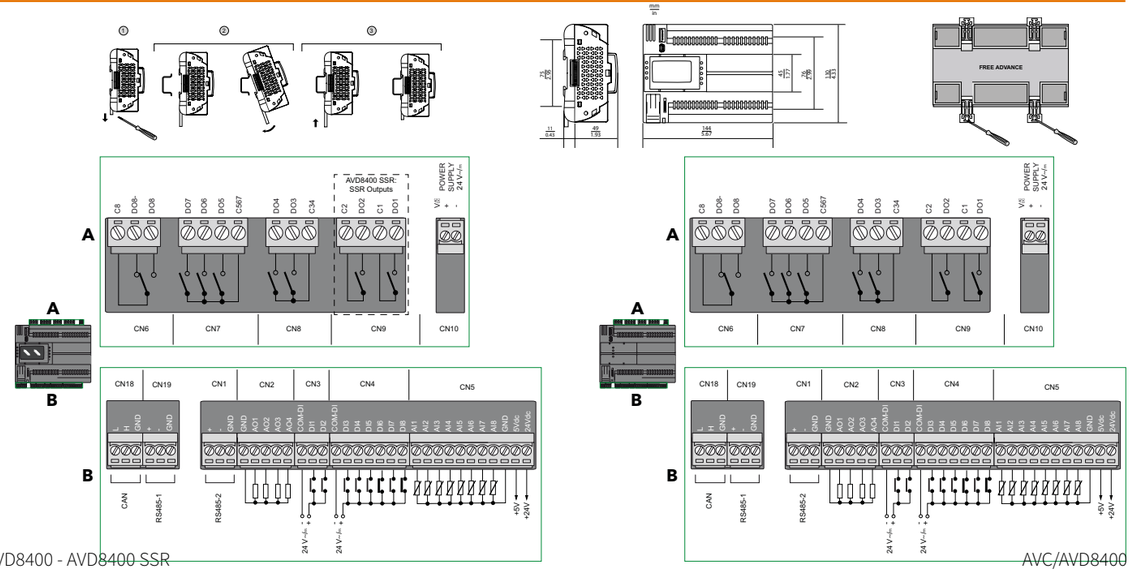


AVC8400

Technical data

	AVD8400	AVD8400 SSR	AVC8400
size	8 DIN		
display	backlit LCD 128x64 pixel graphic display		
power supply	24 Vac (isolated, /I models only) 20...38 Vdc (isolated, /I models only)		
digital outputs	**8**: 7 x 3 A, 1 x 1A 250 Vac	**6**: 5 x 3 A, 1 x 1 A 250 Vac **SSR**: 2 x 0.5 A 240 Vac	**8**: 7 x 3 A, 1 x 1 A 250 Vac
analog outputs	**4**: 2 x 0-10 V, 2 x 0-10 V /4...20 mA / ON-OFF / PWM / O.C. 24 Vdc 30 mA max		
digital inputs	**6** x SELV **2** x pulse/frequency counters up to 2 kHz		
analog inputs	**8** x NTC 103AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V		
connectivity	Ethernet: BACnet IP, Modbus TCP Master/Slave, Webserver, Ftp Client/Server, SNTP CANBus: CANopen 2 x RS485: Modbus RTU (of which 1 x RS485: also BACnet MS/TP) USB (type A); USB (type mini-B); 1 x plug-in EVS		
operating temperature	-20...+60 °C -20...+65 °C (/I models)		

Electric and mount diagrams



AVD8400 - AVD8400 SSR

AVC/AVD8400

AVD12600, AVD12600 SSR, AVC12600

/C /L /U (/I)models



AVD12600



AVD12600 SSR

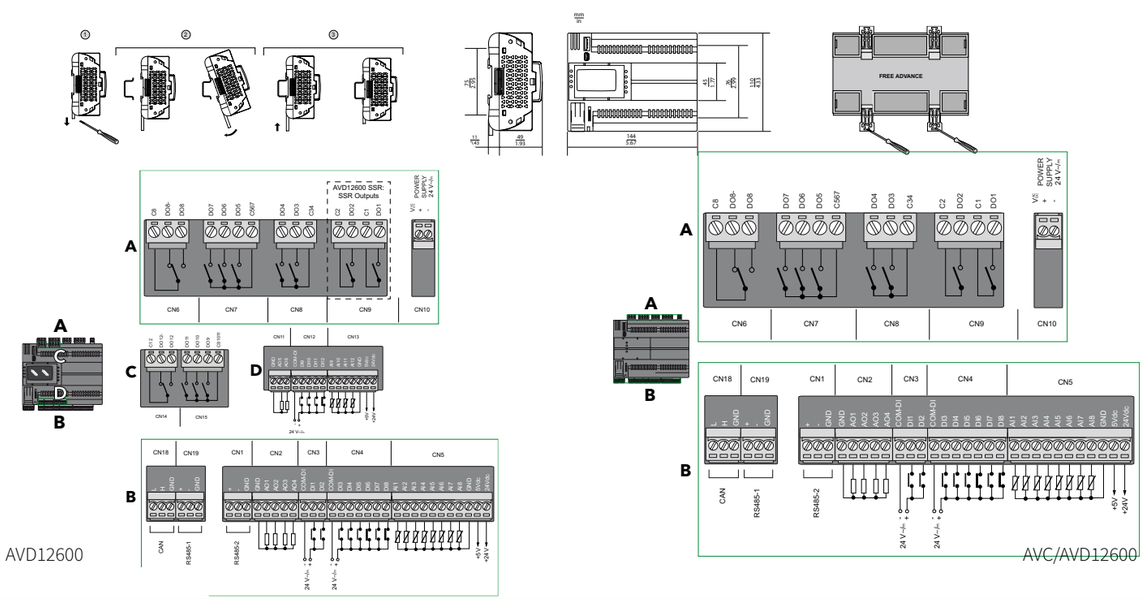


AVC12600

Technical data

	AVD12600	AVD12600 SSR	AVC12600
size	8 DIN		
display	backlit LCD 128x64 pixel graphic display		
power supply	24 Vac (isolated, /I models only) 20...38 Vdc (isolated, /I models only)		
digital outputs	**12**: 10 x 3 A, 2 x 1 A 250 Vac	**10**: 8 x 3 A, 2 x 1 A 250 Vac **SSR**: 2 x 0.5A 240 Vac	**12**: 10 x 3 A, 2 x 1 A 250 Vac
analog outputs	**6**: 4 x 0-10 V, 2 x 0-10 V /4...20 mA / ON-OFF / PWM / O.C. 24 Vdc 30 mA max		
digital inputs	**10** x SELV **2** x pulse/frequency counters up to 2 kHz		
analog inputs	**12** x NTC 103 AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V		
connectivity	Ethernet: Bacnet IP, Modbus TCP Master/Slave, Webserver, Ftp Client/Server, SNTP CANBus: CANopen 2 x RS485: Modbus RTU (of which 1 x RS485: also BACnet MS/TP) USB (type A); USB (type mini-B); 1 x plug-in EVS		
operating temperature	-20...+60 °C -20...+65 °C (/I models)		

Electric and mount diagrams



AVD12600

AVC/AVD12600

AVD / AVC 8400, AVD / AVC 12600

/C /I models



AVD8400



AVC8400



AVD12600

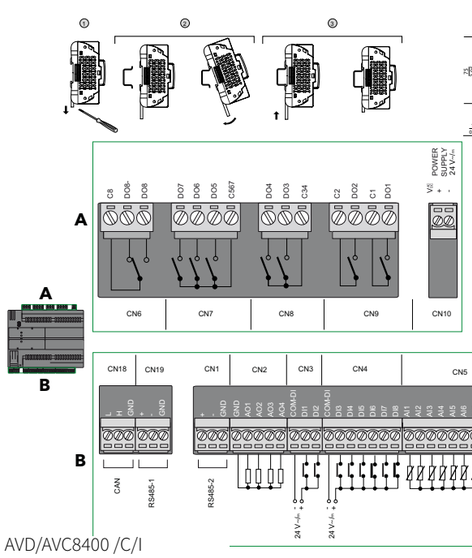


AVC12600

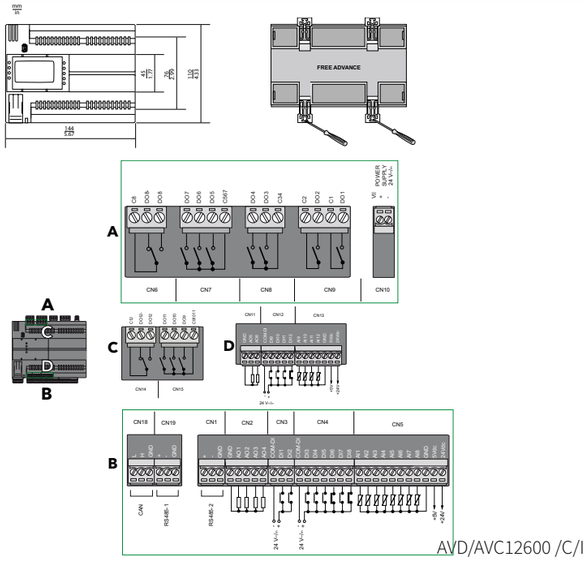
Technical data

	AVC8400	AVD8400	AVC12600	AVD12600
size	8 DIN			
display	-	backlit LCD 128x64 pixel graphic display	-	backlit LCD 128x64 pixel graphic display
power supply	24 Vac isolated 20...38 Vdc isolated			
digital outputs	**8:** 7 x 3 A, 1 x 1A 250 Vac		**12**: 10 x 3 A, 2 x 1 A 250 Vac	
analog outputs	**6**: 4 x 0-10 V, 2 x 0-10 V /4...20 mA / ON-OFF / PWM / O.C. 24 Vdc 30 mA max			
digital inputs	**6** x SELV **2** x pulse/frequency counters up to 2 kHz			
analog inputs	**8** x NTC 103AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V		**12** x NTC 103 AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V	
connectivity	CANBus: CANopen 2 x RS485: Modbus RTU (of which 1 x RS485: also BACnet MS/TP) USB (type mini-B); 1 x plug-in EVS: Ethernet: BACnet IP, Modbus TCP Master/Slave, Webserver, Ftp Client/Server, SNTP via specific EVS ETH plug-in module			
operating temperature	-20...+65 °C			

Electric and mount diagrams



AVD/AVC8400 /C/I



AVD/AVC12600 /C/I

FREE Evolution models



FREE Evolution

FREE Evolution models (**EVD** with display, **EVC** without display) are available in versions for assembly on 8 DIN rail, with disconnectable screw terminal blocks for quick, easy installation.

Every EVD or EVC is expandable via CANbus (field) up to 7 expansions and 2 terminals (EVK). Up to 10 controllers can also be connected together via CANbus (network).

Up to 127 devices can be controlled with Modbus Master, via RS485.

FREE Evolution with or without display /C indicates units with RTC – Real Time Clock; built-in RS485 and CANbus as standard

Model	Code	Relay outputs at hazardous voltage	SSR outputs	Analog outputs (SELV) **AO4**/**AO5** configurable as Open Collector 12 Vdc 100 mA max each	Digital inputs at safety extra low voltage (SELV)	Digital inputs voltage free	Analog inputs at safety extra low voltage (SELV)
EVD7500/C/U	EVD7500060B00	7	-	5	8	1*	6
EVD75SS/C/U	EVD75SS060B00	5	2	5	8	1*	6
EVC7500/C/U	EVC7500060B00	7	-	5	8	1*	6

*Fast counter 1 kHz

** Also compatible with EVE4200 and EVE10200

Expansions RS485 (EVE7500 only) and built-in CANbus as standard

Model	Code	Relay outputs at hazardous voltage	SSR outputs	Analog outputs (SELV) **AO4**/**AO5** configurable as Open Collector 12 Vdc 100 mA max each	Digital inputs at safety extra low voltage (SELV)	Digital inputs voltage free	Analog inputs at safety extra low voltage (SELV)
EVE7500	EVE7500000B00	7	-	5	8	1*	6
EVE4200	EVE4200000500	4	-	2	4	-	4

*Fast counter 1 kHz

USB Host
USB → ← FREE



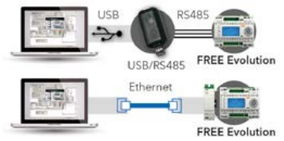
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Parameter map	✓	✓
IEC application	✓	✓
HMI application	✓	✓
Data files	✓	✓
BIOS	✓	-

USB Device
PC → ← FREE



Data download direction	→	←
Parameter map	-	-
IEC application	✓	✓
HMI application	✓	✓
Data files	✓	✓
BIOS	✓	-

USB-RS485 / Ethernet + Plugin
PC → ← FREE



Data download direction	→	←
Parameter map	✓	✓
IEC application	✓	-
HMI application	✓	-
Data files	✓	✓
BIOS	✓	-

EVD7500, EVD75SS, EVC7500



EVD7500



EVD75SS

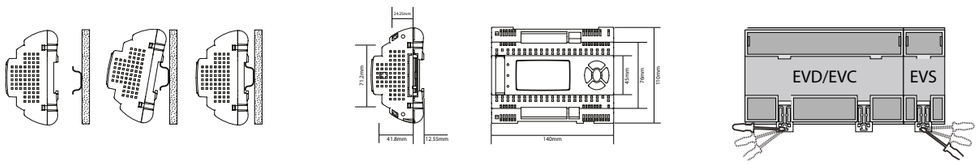


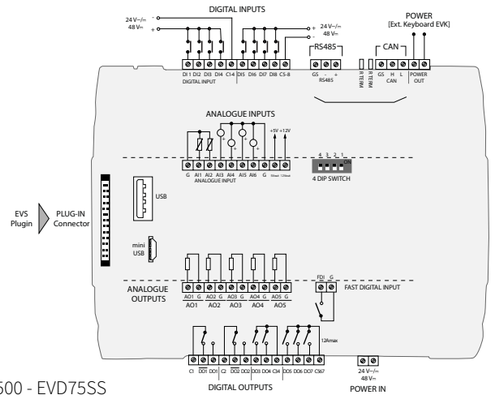
EVC7500

Technical data

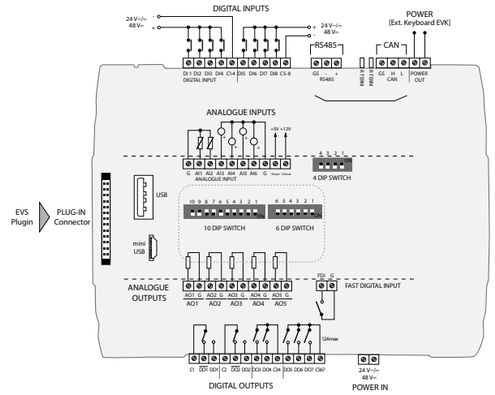
	EVD7500	EVD75SS	EVC7500
size	8 DIN		
display	backlit LCD 128x64 pixel graphic display		
power supply	24 Vac/dc - 48 Vdc isolated		
digital outputs	7: 2 x 8 A, 5 x 5 A 250 Vac -	5: 2 x 8 A, 3 x 5 A 250 Vac SSR: 2 x 1 A 250 Vac	7: 2 x 8 A, 5 x 5 A 250 Vac -
analog outputs	5 x 0-10 V / 4...20 mA / (switch 0..20 mA) AO4/AO5 configurable as O.C. 12 Vdc 100 mA max each		
digital inputs	8 x SELV 1 x voltage free fast counter 1 kHz		
analog inputs	2 x NTC 103 AT / NTC NK103 / D.I. 4 x NTC 103 AT / NTC NK103 / D.I. / Pt1000 / 4...20 mA / 0-10 V / 0-5 V		
connectivity	USB; 1 x Plug-in EVS CANBus isolated: CANopen RS485 isolated: Modbus RTU		
operating temperature	-10...+55 °C		

Electric and mount diagrams





EVD7500 - EVD75SS



EVC7500

EVK1000 terminal



AVK1000

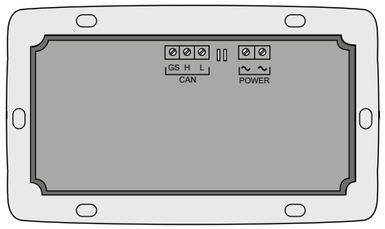


EVK1000

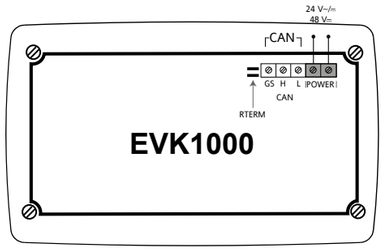
Technical data

	AVK1000	EVK1000
size	160x96x10 mm	
Mounting	panel (for wall mount see Accessories page)	
Display	Backlit LCD	
power supply	24 Vac/dc	24 Vac/dc - 48 Vdc isolated
connectivity	CANBus isolated: CANopen	
operating temperature	-20...+55 °C	-5...+55 °C
code	AVK1000000500	EVK1000000B00

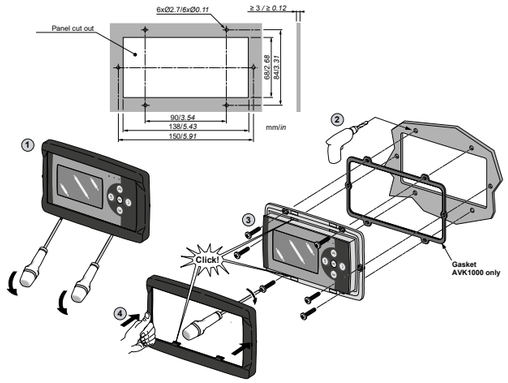
Electric, mount and dimensional diagrams



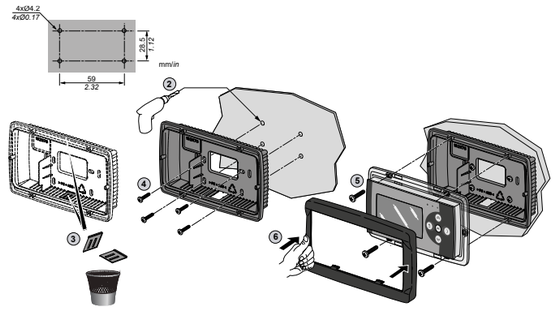
AVK1000



EVK1000



Panel mount



Wall mount

Expansions EVE7500, EVE4200



EVE7500

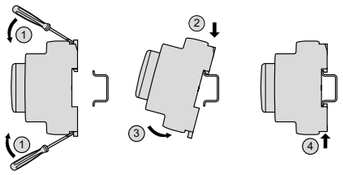


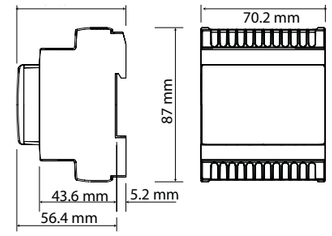
EVE4200

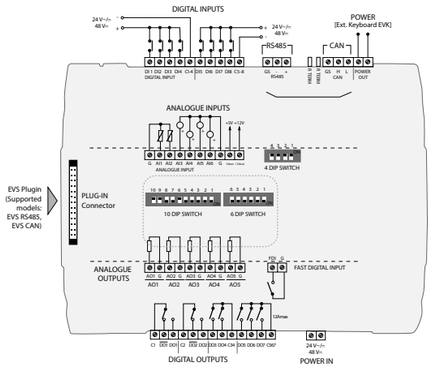
Technical data

	EVE7500	EVE4200
size	8 DIN	
mount	on DIN rail	
display	-	
power supply	24 Vac/dc - 48 Vdc isolated	24 Vac/dc
digital outputs	2 x 8 A 250 Vac	1: 1 x 5 A 250 Vac
	5 x 5 A 250 Vac	3: 3 x 3 A 250 Vac
analog outputs	5 x 0-10 V / 4..20 mA /switch 0..20 mA	2 x 0-10 V
digital inputs	8 x SELV	4 x SELV
	1 x voltage free fast counter 1 kHz	
analog inputs	2 x NTC 103 AT / NTC NK103 / D.I. 4 x NTC 103 AT / NTC NK103 / D.I. / Pt1000 / 4...20 mA / 0-10 V / 0-5 V	4 x NTC 103AT / NTC NK103 / D.I. / Pt1000 / PTC / 4...20 mA / 0-10 V / 0-5 V -
connectivity	CANBus isolated: CANopen RS485 isolated: Modbus RTU 1 x EVS Plugin (only EVS RS485, EVS CAN)	CANBus: CANopen - -
operating temperature	-10...+55 °C	-10...+55 °C

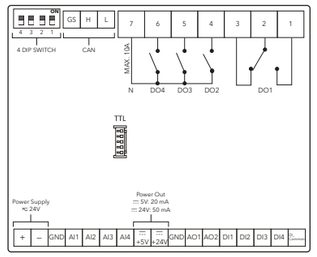
Electric, mount and dimensional diagrams







EVE7500



EVE4200

Expansions EVE6000, EVE10200



EVE6000

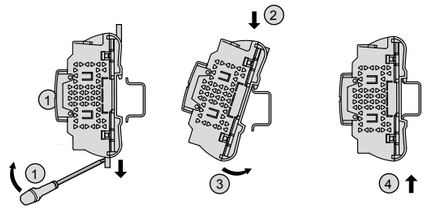


EVE10200

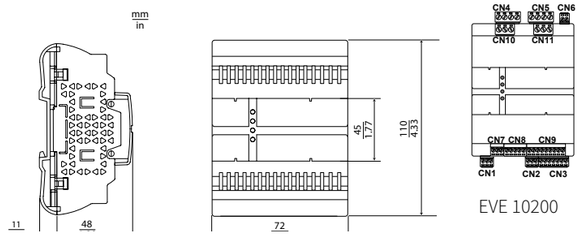
Technical data

	EVE6000	EVE10200
size	4 DIN	
mount	on DIN rail	
power supply	24 Vac 20...38 Vdc	
digital outputs	**6**: 6 x 3 A 250 Vac -	**10**: 10 x 3 A 250 Vac -
analog outputs	-	**2**: 2 x 0-10 V, 2 x 0-10 V /4...20 mA / ON-OFF / PWM / O.C. 24 Vdc 30 mA max
digital inputs	- **2** x pulse/frequency counters up to 2 kHz	**4** x SELV **2** x pulse/frequency counters up to 2 kHz
analog inputs	**4** x NTC 103 AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V	**10** x NTC 103 AT / NTC NK103 / D.I. / PTC KTY81 / Pt1000 / 0...20 mA / 4...20 mA / 0-10 V / 0-5 V
connectivity	CANBus: CANopen	
operating temperature	-20...+65 °C	

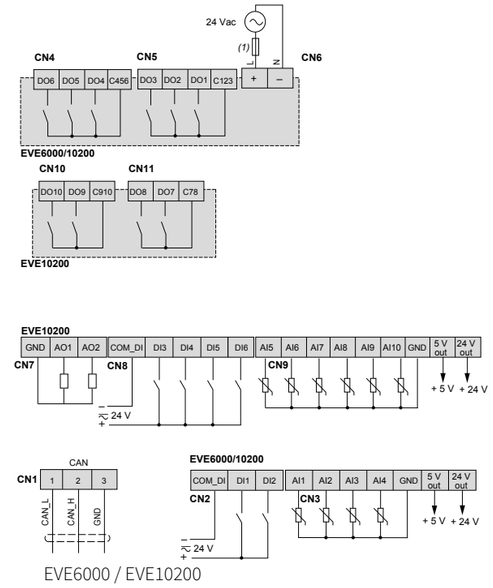
Electric, mount and dimensional diagrams



EVE 6000

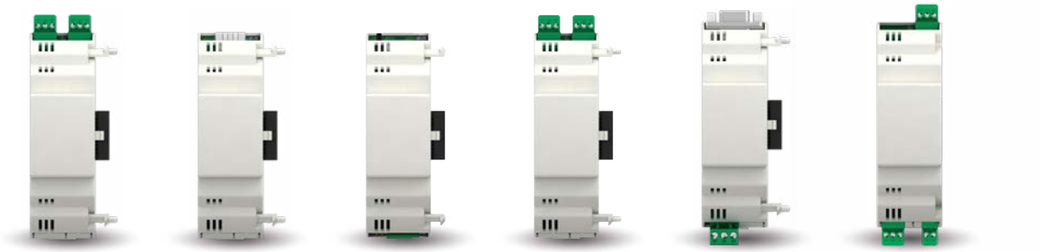


EVE 10200



EVE6000 / EVE10200

Plugin EVS



EVS RS485 | EVS ETH | EVS LON | EVS CAN | EVS RS232 | LAN-RS485 ADAPTER

Technical data

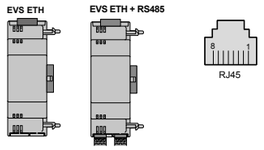
EVS	
size	2 DIN
mount	on DIN rail
power supply	from base EVD/EVC/AVD

Connectivity

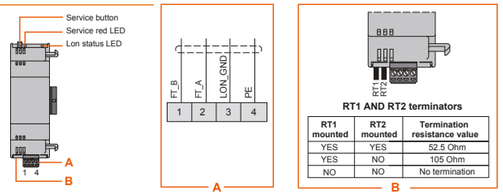
Model	Code	Hazardous voltage output	Connectivity protocol	Compatibility
EVS RS232	EVS10R2000000	1 x SPDT 5A 250 Vac	Modbus ASCII	FREE Advance - FREE Evolution
EVS RS485	EVS00R4000000	-	Modbus RTU	FREE Advance - FREE Evolution
EVS CAN	EVS00CA000000	-	CANopen	FREE Advance - FREE Evolution
EVS Bacnet	EVS00BM000000	-	Modbus RTU - BACnet MSTP	FREE Advance - FREE Evolution
EVS LONWORKS	EVS0LON000000	-	LON	FREE Advance - FREE Evolution
EVS ETH	EVS00ET000000	-	Modbus TCP - BACnet IP - WebServer	FREE Advance /C /I - FREE Evolution
EVS Profibus	EVS00PB000000	-	Profibus DP Slave-V0	FREE Evolution
EVS ETH/RS485	EVS00EB000000	-	Modbus RTU - BACnet MSTP - Modbus TCP - BACnet IP - Webserver	FREE Evolution
LAN-RS485 ADAPTER	SMALAN4850400	-	Modbus SL (RS485)	FREE Smart

Electric, mount and dimensional diagrams

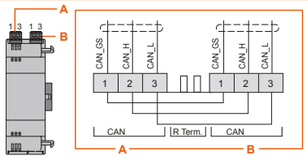
EVS ETHERNET



EVS LON



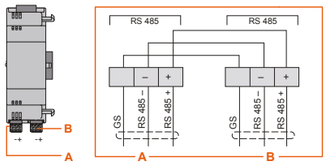
EVS CAN



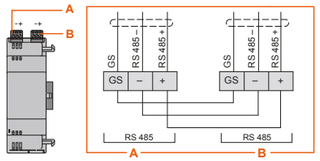
EVS RS232/R



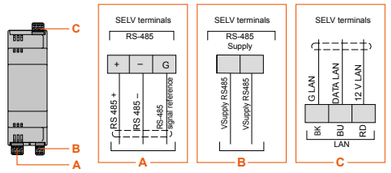
EVS RS485 BACnet MS/TP



EVS RS485



LAN-RS485 ADAPTER



Driver for electronic valves

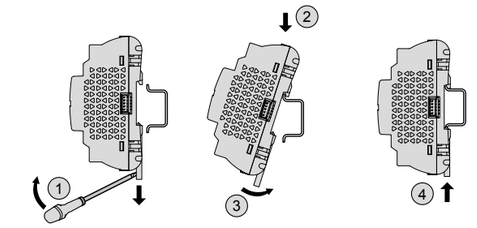


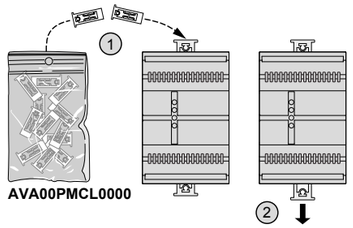
EVEVD1U | EVEVD1B | EVEVD2B | EVEVDBAT

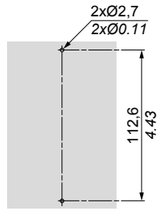
Technical data

	EVEVD1U	EVEVD1B	EVEVD2B	EVEVDBAT
size	2 DIN	2 DIN	4 DIN	2 DIN
power supply	24 Vac ± 10% - 50/60 Hz / - 20…38 Vdc functional Insulation			
valve control output	1 unipolar	1 bipolar	2 bipolar	-
connectivity	CANBus			
operating temperature	-20...+65 °C			-20...+60 °C

Electric and mount diagrams

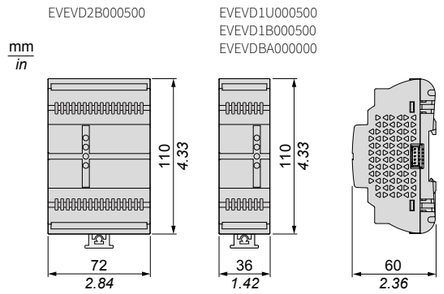


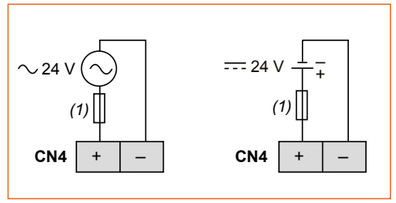




EVEVD2B000500

EVEVD1U000500
EVEVD1B000500
EVEVDBA000000





NSYSDR200
IEC/EN60715

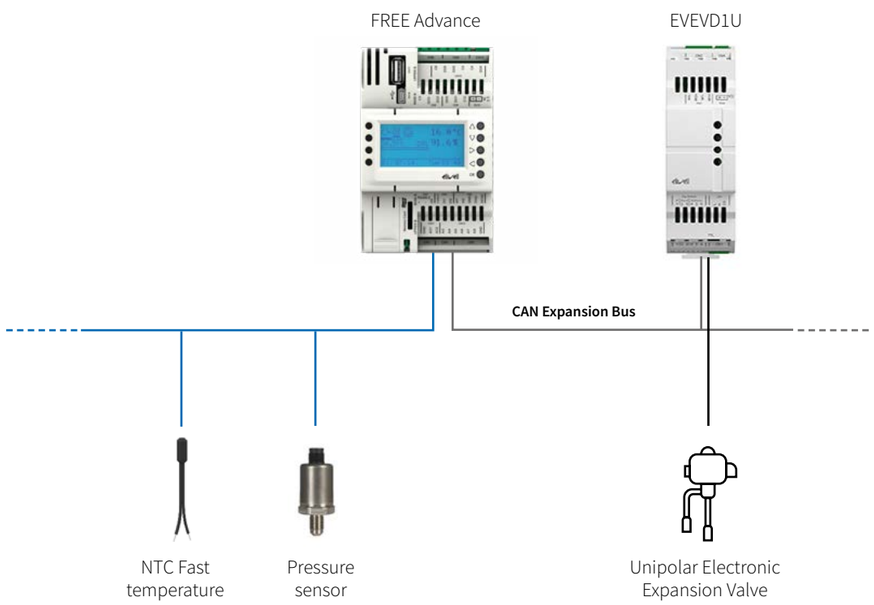
NSYSDR200BD



NSYSDR200T

Electronic valve control

The new EVEVD driver for electronic valves offers a flexible, eco-efficient solution for controlling various machines such as chillers, heat pumps, compressor racks, etc.



The advantages of the new valve driver

- **Scalable**: an expansion module that connects easily to our successful FREE Advance controllers
- **Easy to use**: direct configuration from the PLC via FREE Studio Plus, so without the need to configure the driver
- **Open**: available with preconfigured sets of parameters for the main valve manufacturers (Parker-Sporlan, Sanhua, Danfoss, Emerson-Alco, Saginomiya) and configurable for other models
- **Flexible**: solution covering all OEM needs - for machines of various sizes
- **Efficient**: integrated overheating algorithm that can be customised to increase efficiency and develop any application
- **Safe**: backup battery to protect the evaporator

Accessories

In association with FREE Smart, FREE Panel, FREE Evolution and FREE Advance, Eliwell supplies a vast range of accessories, from a protected transformer to IP68 temperature probes, ratiometric pressure transducers and pressure switches.

Single-phase (with currents from 2 to 9A) and three-phase fan modules are available.

No additional serial interfaces are required for connection of ratiometric pressure probes, external modules (such as fan modules) or terminals.

FREE Smart accessories

Converters, interfaces, programming keys



Code	Description	Details
SAR0RA00X701	USB/485 MINI KIT converter	-
DMI1003002000	DMI100-3 Manufacturer interface module	For FREE Smart only
MFK100T000000	MFK: programming key for parameter, application upload/download	For FREE Smart only

Wiring



Code	Description	Details
COLV0000E0100	I/O connection wiring - safety extra low voltage (SELV) - 1 m cable	FREE Smart 12...24V only
COLV000035100	RS485 Wiring	FREE Smart 12...24V only
COLV000042100	Wiring AO3-4-5 -1 m cable	FREE Smart 12...24V only

Connectivity



Code	Description	Details
BA10000R3700	BusAdapter 150 TTL-RS485	For FREE Smart only

Humidity module



Code	Description	Details
KP100000	Humidity module %RH	For SKW terminal

Demo Case



Code	Description	Details
VAL00031K	Demo Case for FREE Smart	-

Temperature probes*



Code	Description	Details
SN8DED11502C0	NTC 103AT 5X20 1.5 mt TPE IP68	-
SN8DAE11502C0	NTC 103AT 6X20 1.5 mt TPE IP68	-
SN9DAE11502C6	Pt1000 6X20 1.5 mt IP68	FREE Smart 4500
SN9DED11502C6	Pt1000 5X20 1.5 mt IP68	

Transformers



Code	Description	Details
TF411205	Transformer 230 Vac/12 V 6 VA (protected)	For FREE Smart only
TF411210	Transformer 230 Vac/12 V 11 VA (protected)	For FREE Smart only
TF111211	Transformer 220 Vac/24 V-24 V 16 VA	For FREE Smart only

KEY: SELV = Safety Extra Low Voltage
*different cable lengths available on request

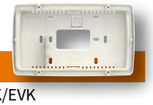
FREE Advance, FREE Evolution and FREE Panel accessories

Converters, interfaces, programming keys



Code	Description	Details
SAR0RA00X701	USB/485 MINI KIT converter	-
EVA00USCA0000	USB/CAN converter	-

Base plates



Code	Description	Details
EVA00WMRC0000	Kit (4 Pcs) White base plate for wall mount	For EVP/AVK/EVK
EVA00WMRC0001	Kit (4 Pcs) Black base plate for wall mount	For EVP/AVK/EVK
AVA00WMRC0000	White base plate for wall mount	For AVP1000
AVA00WMRC0001	Grey base plate for wall mount	For AVP1000

Demo Case



Code	Description	Details
VAL00033K	Demo Case for FREE Evolution	-
VAL00034	Demo Case for FREE Advance	-

Temperature probes*



Code	Description	Details
SN8DED11502C0	NTC 103 AT 5X20 1.5 m TP IP68	-
SN8DAE11502C0	NTC 103 AT 6X20 1.5 m TP IP68	-
SN9DAE11502C6	Pt1000 6X20 1.5 m IP68	FREE Evolution / FREE Advance
SN9DED11502C6	Pt1000 5X20 1.5 m IP68	

Transformers



Code	Description	Details
TF111202	Transformer 230V~/24 V 25 VA	For FREE Evolution only
TF111205	Transformer 230V~/24 V 35 VA DIN rail mount	FREE Evolution / FREE Advance

FREE range accessories

Pressure transducers



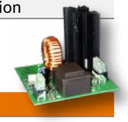
Code	Description	Details
TD220050	EWPA050 4…20 mA / 0...667 psi / 0..50 bar IP54** 2 m cable	1/4 SAE MALE
TD220007	EWPA007 4…20 mA / -7...101.5 psi /-0.5..7 bar IP54** 2 m cable	1/4 SAE MALE
TD320050	EWPA050 4…20 mA / 0...667 psi / 0..50 bar IP54** 2 m cable	1/4 SAE FEMALE
TD320007	EWPA007 4…20 mA / -7...101.5 psi /-0.5..7 bar IP54** 2 m cable	1/4 SAE FEMALE

Ratiometric transducers



Code	Description	Details
TD420010	EWPA 010 R 0...145 psi / 0...10 bar IP67 2 m cable (packard connector)	Female connection
TD420030	EWPA 030 R 0...508 psi / 0...30 bar IP67 2 m cable (packard connector)	Female connection
TD420050	EWPA 050 R 0...667 psi / 0...50 bar IP67 2 m cable (packard connector)	Female connection

Expansions, fan modules



Code	Description	Details
MW320100	EXP11 250 V 10 A expansion with DIN rail mount base	Open Collector Output
MW991012	CFS05 TANDEM TRIAC 5+5 A 250 V	-
CFS Modules	CFS - Single-phase speed regulators for currents from 2 A to 9 A	Various articles available

KEY: SELV = Safety Extra Low Voltage
*different cable lengths available on request **optional IP67 version with packard connector

Code tables

FREE Smart

SMD5500050400	**SM**	**D**	**5**	**5**	**00**	**05**	**0**	**4**	**00**
Product family	FREE Smart series								
Physical feature		D = Built-in Display, DIN-rail mounting C = Blind, DIN-rail mounting P = Panel mounting 32x74 E = I/O Expansion module, DIN-rail mounting							
Number of digital outputs			5 4 3 2						
Number of analog outputs				6 5 2					
Not relevant					00				
Embedded Communication & Real Time Clock						05 = RTC and RS-485 01 = RTC			
Not relevant							0		
Power supply								4 = 12...24 Vac, 24 Vdc H = 100...240 Vac [1]	
Customization									00 = standard other values = variants & customization on demand

[1] **Only for SMD, SMC and SME models**

FREE Advance

AVD1260060500	**AV**	**D**	**12**	**6**	**0**	**06**	**0**	**5**	**00**
Product family	FREE Advance series								
Physical feature		D = Built-in Display C = Blind							
Number of digital outputs			3 6 8 12						
Number of analog outputs				0 2 4 6					
Digital output type					00: The digital outputs are relay SS: 2 digital outputs are SSR NOTE: Only one digit in case of 12 digital outputs				
Embedded Communication						06 = RS-485 and Ethernet based communication protocols 05 = RS-485 based communication protocols			
Power supply isolation [1]							0 I: Power Supply Isolated		
Power supply								5 = 24 Vac/dc	
Not relevant									00

[1] **Only for 28 and 42 I/O**

FREE Advance Panel & Keypad

AVP11000W0500	AV	P	1	1	00	0W	0	5	00
Product family	FREE Advance Panel series								
Physical feature		P = Programmable Panel with PLC capability K = Remote display with keypad							
Number of digital inputs			1						
Number of analog inputs				3 2 1 0					
Color option [1]					00: standard, if no options are available 0G: grey plastics 0W: white plastics				
Mounting option [1]						00: default for AVK 0W = vertical surface mounting 0P = panel mounting			
Not relevant							0		
Power supply								5 = 24 Vac/dc	
Customization									00 = standard other values = variants & customization on demand

[1] **Only for AVP models**

FREE Evolution

EVD7500060B00	EV	D	7	5	00	06	0	B	00
Product family	FREE Evolution series								
Physical characteristic		D: Built-in Display C: Blind							
Number of digital outputs			7 0						
Number of analogue outputs				5 0					
Digital output type					00: Relay digital outputs SS: 2 SSR digital outputs				
Integrated communication protocol and RTC						06: RTC and USB port 01: RTC			
Not relevant							0		
Power supply								B: 24 Vac, 24...48 Vdc	
Customisation									00 = standard other values = variants and customisations on request

FREE Expansion modules

EVE1020000500	EVE	10	2	0	00	0	5	00
Product family	FREE Expansion modules series							
Number of digital outputs [1]		10 7 6 4						
Number of analog outputs [1]			0 2 4 5 6					
Main feature [2]		VD = valve driver						
Digital output type [1] **Valve driving capability** [2]				00: The digital outputs are relay [1] SS: 2 digital outputs are SSR [1] NOTE: Only one digit in case of 10+ digital outputs [1] 1U: single unipolar valve [2] 1B: single bipolar valve [2] 2B: double bipolar valve [2] BA: battery backup module [2]			
Not relevant					00			
Not relevant						0 I: Power Supply Isolated		
Power supply							5: 24 Vac/dc B: 24 Vac, 24...48Vdc 0: powered by the controller [2]	
Customization								‘00: standard other values: variants & customization on demand

[1] **Only for I/O expansions** [2] **Only for Valve Drivers**

Note

Note



Life Is On

eliwell by Schneider Electric

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