



# SELPRO

Fan Speed Controllers **Specialist**



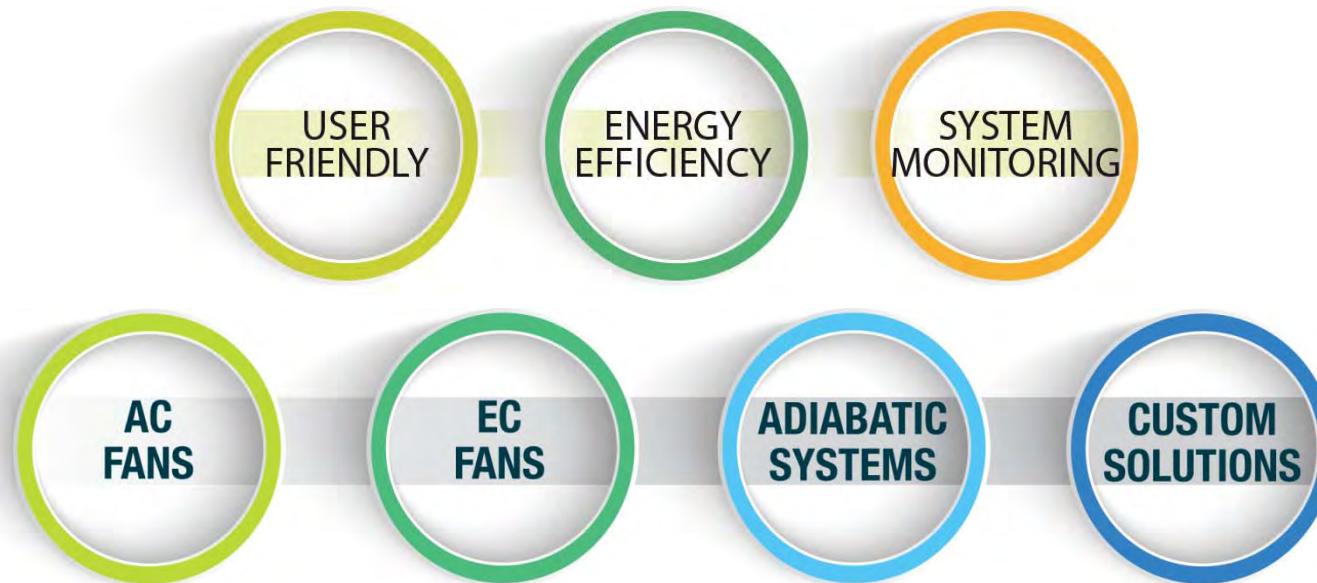
ebmpapst



ZIEHL-ABEGG



# E N H A N C E D F A N S C O N T R O L L E R S





# industrial fans

AXIAL - RADIAL - CENTRIFUGAL



Motor type



Power supply



Control type

## AC



Three Phase



Single Phase

On|Off

STEP control

Heco

VAC Steps  
Hybrid control

SCR

VAC Stepless  
Phase Cutting control

## EC



Three Phase



Single Phase

10<sub>Vdc</sub>

Hardware command

4 20<sub>mA</sub>

Hardware command

Modbus

Software command



*Solutions you need*

ENHANCED **AC & EC FANS** CONTROLLERS

# COMPLIANCE



**Low Voltage Directive 2014/35/EU**

**Conformity has been checked using the aid of the following harmonized standards**

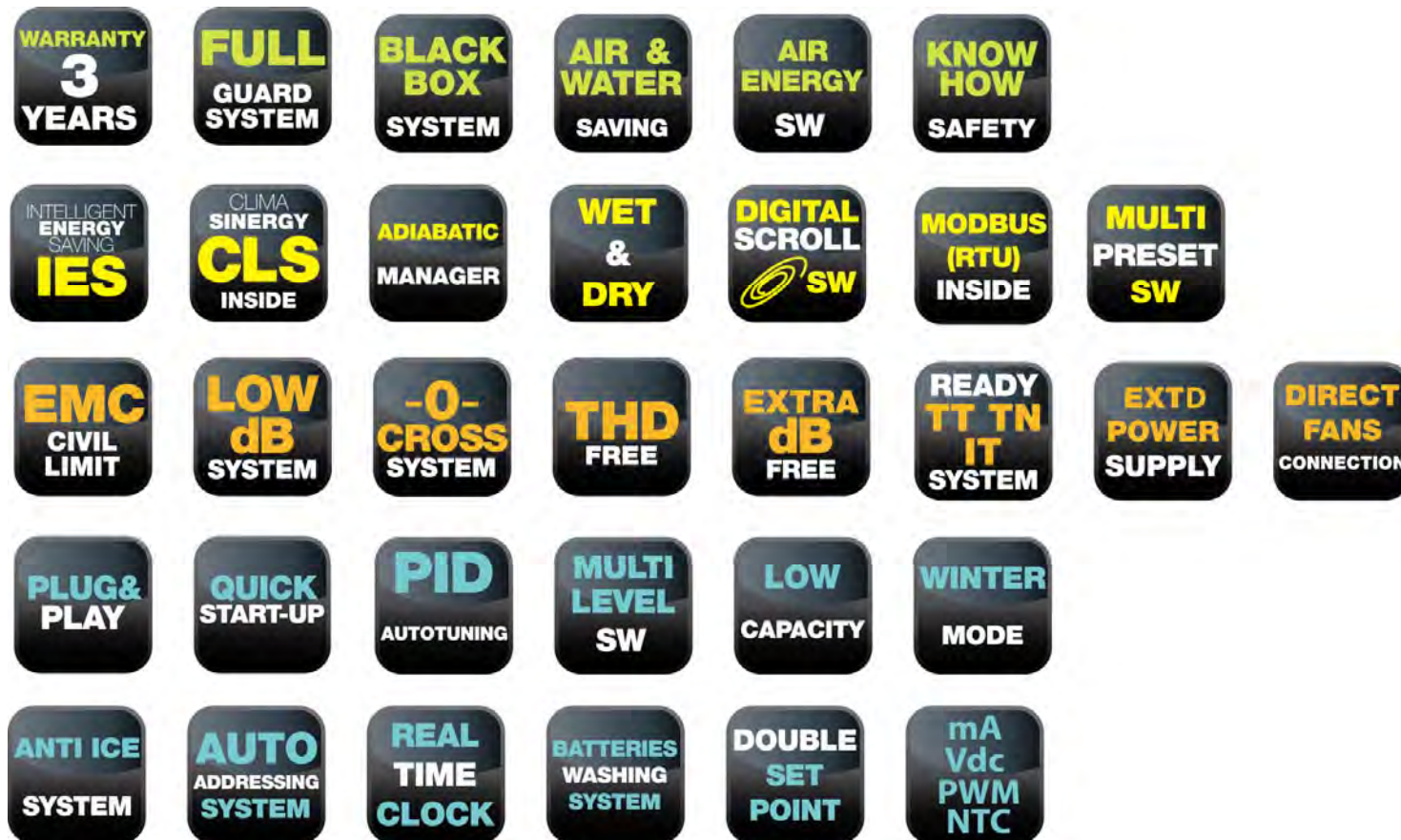
**EN61800-5-1 (2009/04)**

**Electromagnetic Compatibility Directive 2014/30/EU**

**Conformity has been checked using the aid of the following harmonized standards**

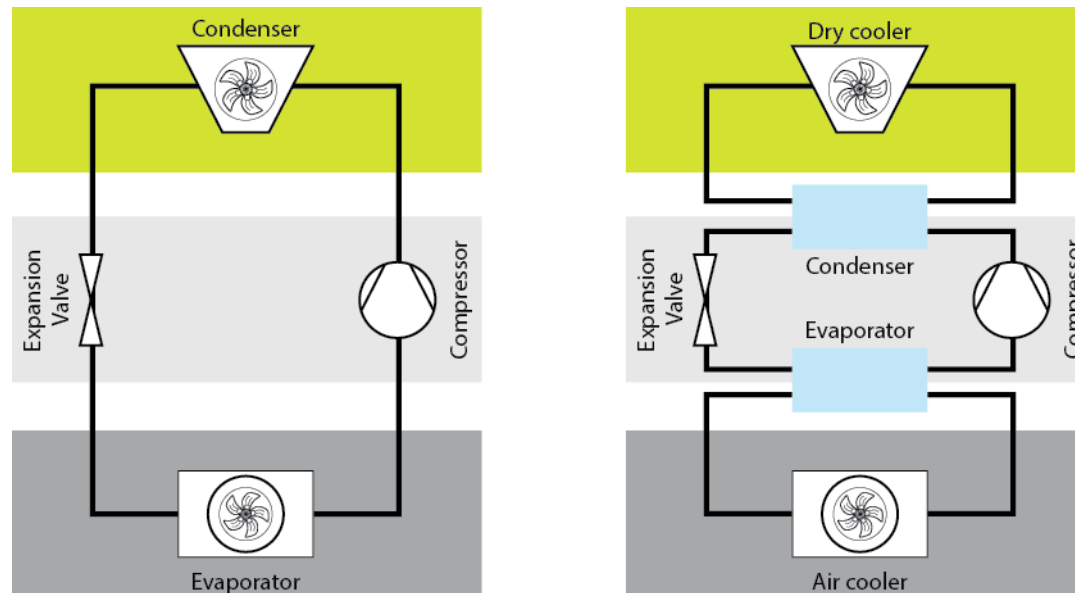
**EN 61800-3 (2004/04), EN 61800-3:2004/A1(2012), EN 61000-6-2, EN 61000-6-3**

## Common technical functions to SELPRO digital Controllers



## Common technical functions

- The SELPRO controls Solutions offers communication interfaces to main BMS systems and to AC & EC fans.
- It shows all operation-relevant information on the display and makes it available to main control systems.
- The communication functionality increases the reliability and transparency of system operations.



The SELPRO solutions control the speed of the fans according to pressure or temperature, controls processes and thus creates an energy-optimised heat exchanger system. All the parameters can be selected and displayed.

# MULTIFUNCTIONS AC EC DIGITAL CONTROLLERS

## MODE

## CODE

### MASTER PID P-I-D Regulation System (Vdc-mA-NTC probes inputs)

## MODE

## CODE

### MASTER P Proportional Regulation System (Vdc-mA-NTC probes inputs)

**r1**  
MASTER  
1 input

**r2**  
MASTER  
2 input

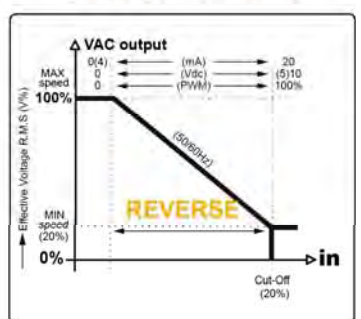
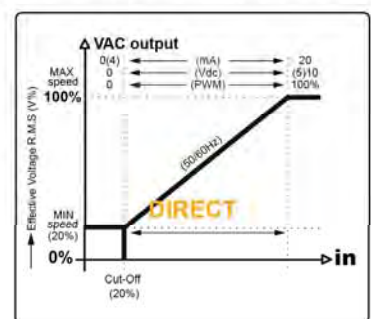
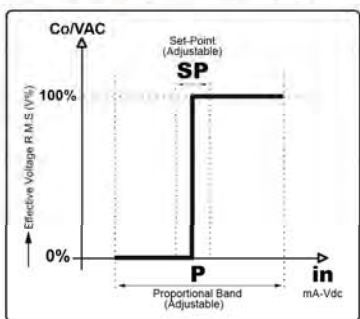
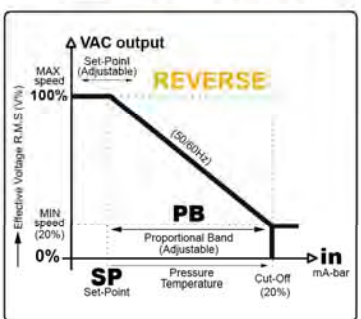
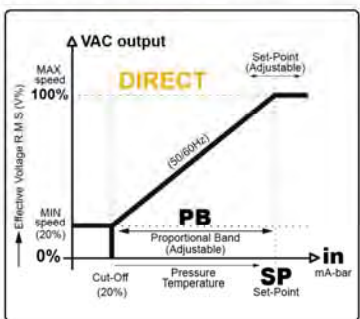
**rP1**  
MASTER  
1 input

**rP2**  
MASTER  
2 input

### SLAVE Control System (Vdc-mA-PWM remote signals)

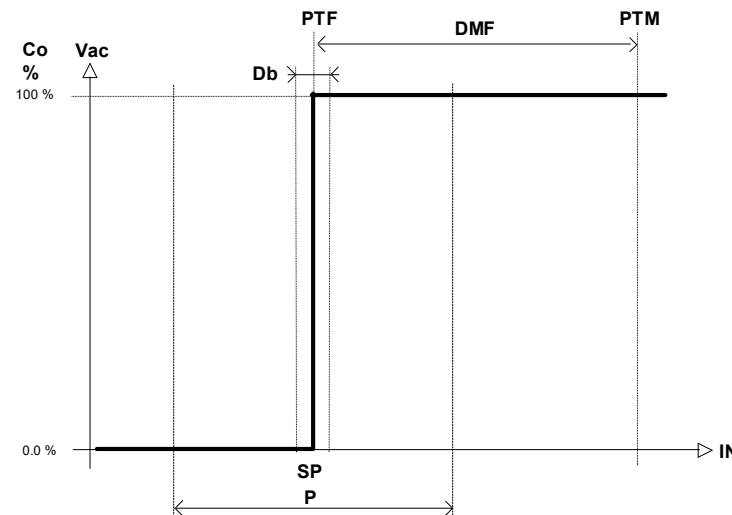
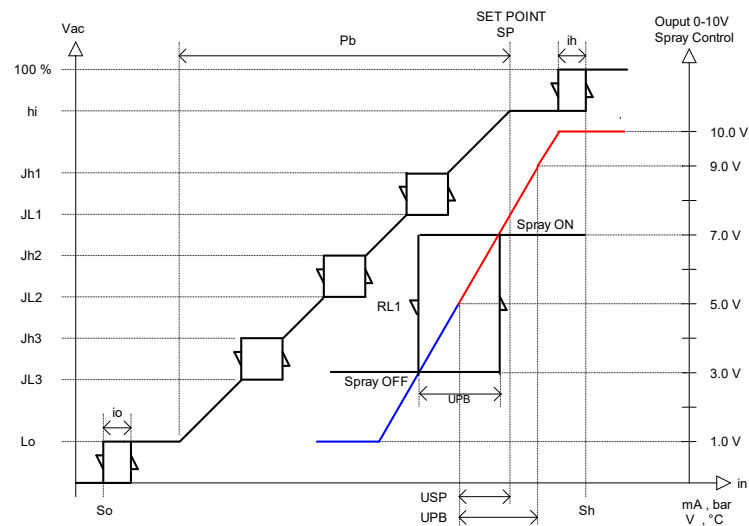
**GP1**  
SLAVE  
1 input

**GP2**  
SLAVE  
2 input



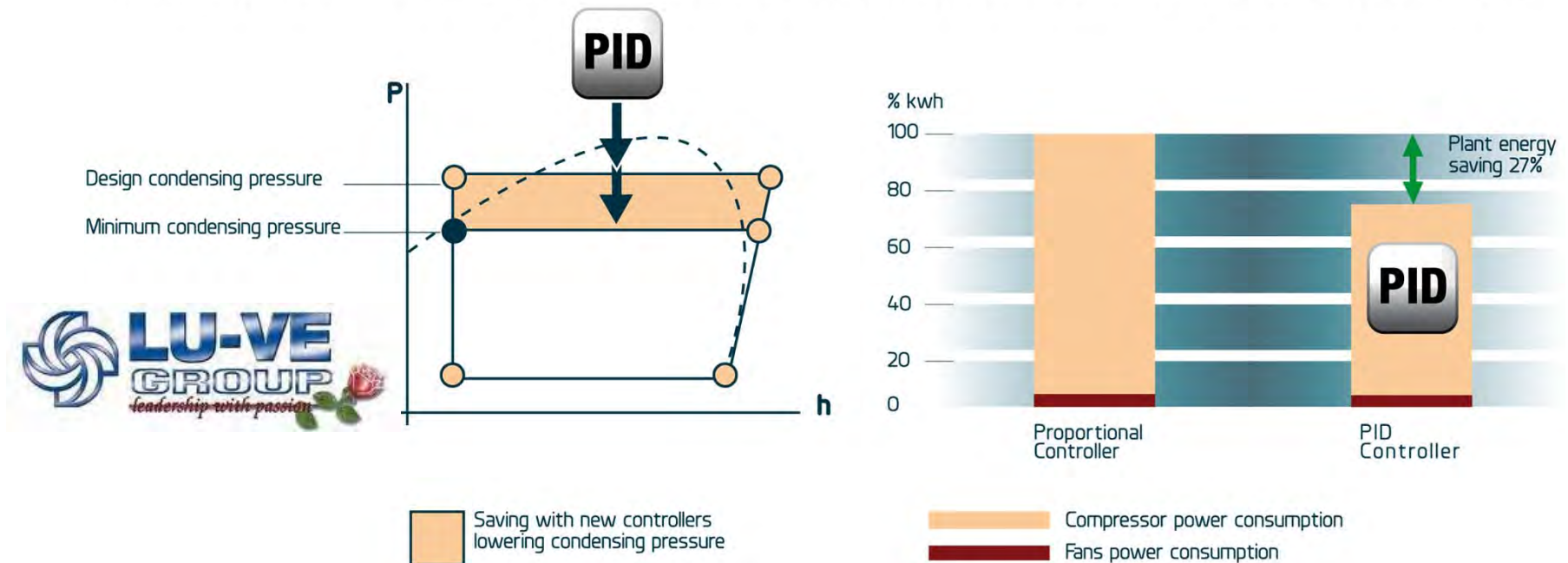
## Functions MODES selectable from the Software menu

Mode	Available Working Modes	Code
SLAVE	Regulation with 1 input	GP1
	Regulation with 2 input (the Higher in value win)	GP2
MASTER Proportional	Regulation with 1 input	r1
	Regulation with 2 input (the Higher in value win)	r2
MASTER PID	Regulation with 1 input	rP1
	Regulation with 2 input (the Higher in value win)	rP2
MASTER PID with AutoTuning	Regulation with 1 input	rAP1
	Regulation with 2 input (the Higher in value win)	rAP2





# REAL SAVING WITH PID SYSTEM



**Evidence of the Energy saved with SELPRO PID-Systems ready for Condensers and Drycoolers applications**



*Solutions you need*

# ENHANCED AC & EC FANS CONTROLLERS

Approved algorithm for the regulation of remote condenser  
with COPELAND Digital-Scroll compressor



**ENHANCED AC FANS CONTROLLERS**

**1** PHASE  
STEPLESS CONTROLLER  
Dynamic Control Technology



**3** PHASE  
STEPLESS CONTROLLER  
Dynamic Control Technology



**3** PHASE  
STEP CONTROLLER  
Hybrid Step VAC Control Technology



**3** PHASE  
STEP CONTROLLER  
On-Off Control Technology Pannels



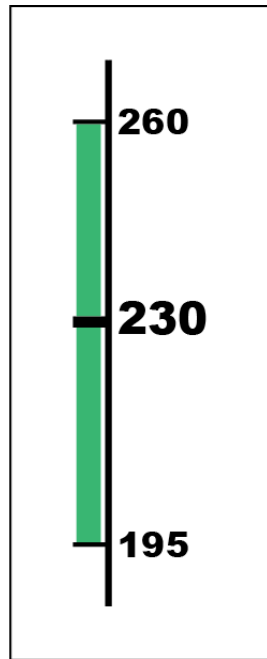


*Solutions you need*

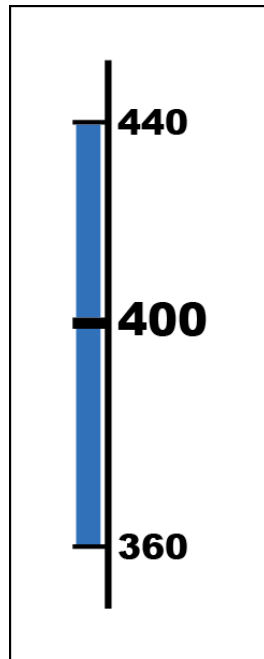
ENHANCED **AC FANS** CONTROLLERS

## Extended range Power Supply AC System

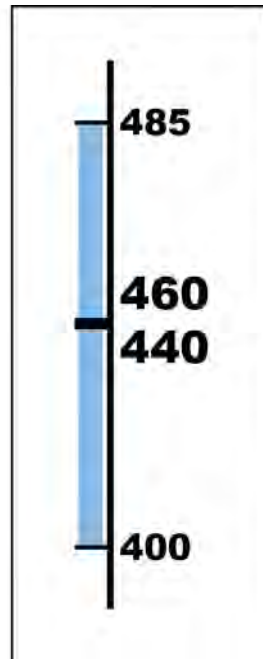
for Single & Three-Phase applications



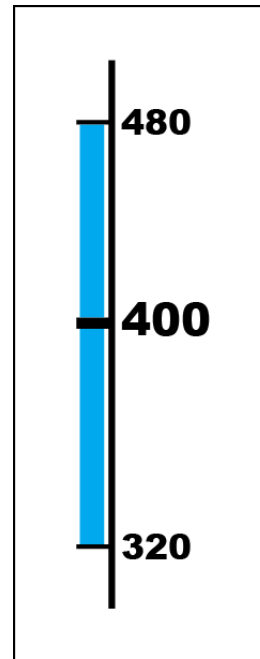
**230VAC**  
(+15% / -10%)



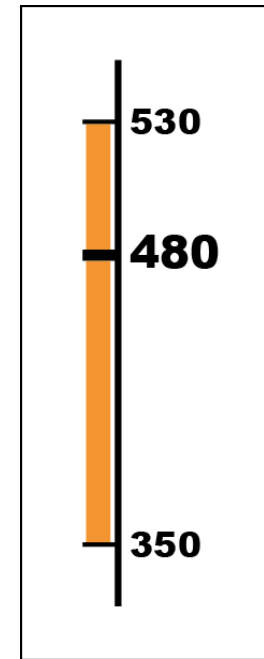
**400VAC**  
(+/- 10%)



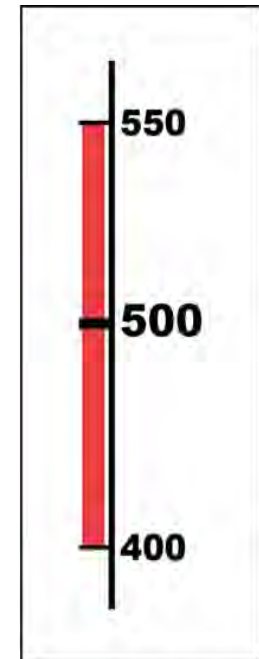
**440/460VAC**  
(+5% / -10%)



**400VAC**  
(+/- 20%)



**480VAC**  
(+10% / -25%)



**500VAC**  
(+10% / -20%)




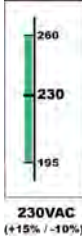
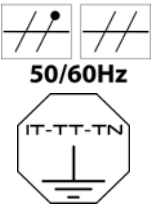



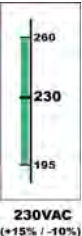
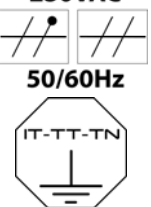



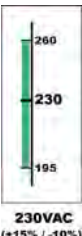
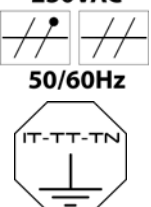

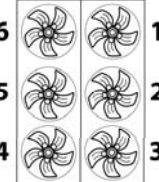
**PHASE**

STEPLESS CONTROLLER





**Dynamic Control Technology**

**1**
**PHASE**  
 STEPLESS CONTROLLER  
 Dynamic Control Technology

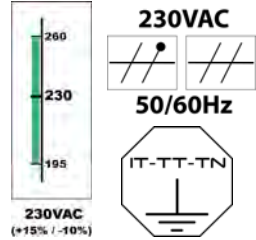
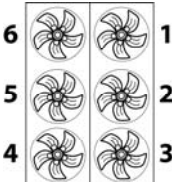
## Available Technical Features

MODELS	IP Box	Power Supply	Fans outputs	AMP size RMS @50°C	Inputs N°	Commands type
<b>DRV</b> 	<b>IP55</b> (UL94>V0)  <b>IP20</b> Din-rail	 <b>230VAC</b> (+15% / -10%)  <b>50/60Hz</b> 	<b>Direct</b>  for ALL fans connected	<b>8 A</b>  <b>12 A</b>	<b>IN 1</b>  <b>IN 2</b>  <b>IN 3</b>	<b>0-20 mA</b>  <b>4-20 mA</b>  <b>0-10Vdc</b>
<b>ESY</b> 	<b>IP55</b> (UL94>V0)	 <b>230VAC</b> (+15% / -10%)  <b>50/60Hz</b> 	<b>Direct</b>  for ALL fans connected	<b>8 A</b>  <b>12 A</b>  <b>16 A</b>  <b>20 A</b>	<b>IN 1</b>  <b>IN 2</b>  <b>IN 3</b>  <b>IN 4</b>	<b>4-20 mA</b>  <b>0-5 Vdc</b>  <b>Kohm (NTC)</b>  <b>0-10Vdc</b>
<b>ESK</b> 	<b>IP55</b> (UL94>V0)	 <b>230VAC</b> (+15% / -10%)  <b>50/60Hz</b> 	Output for 1~ Fans (max 6) direct connection 	<b>14 A</b>  <b>20 A</b>  <b>28 A</b>	<b>IN 1 &amp; IN 2</b>           <b>IN 3</b>	<b>0-20mA</b>  <b>4-20 mA</b>  <b>0-5 Vdc</b>  <b>0-10Vdc</b>  <b>Kohm (NTC)</b>   <b>PWM</b>



## Available Technical Features

MODELS	Function Mode	Std. SW modes selectable	Outputs Commands	Auxiliary Contacts & Function Mode																
<b>DRV</b> 	SLAVE	----	----	----																
<b>ESY</b> 	MASTER and SLAVE	----	0-10Vdc PWM	n. 1 2° Set-Point (Opt)																
<b>ESK</b> 	<b>MASTER and SLAVE</b> 	<table border="1"> <thead> <tr> <th colspan="3">MASTER</th> <th>SLAVE</th> </tr> </thead> <tbody> <tr> <td>MODE Dry-Cooler</td> <td>MODE Condenser</td> <td>MODE Condenser</td> <td>MODE Remote</td> </tr> <tr> <td><b>CODE RANGE</b></td> <td><b>CODE RANGE</b></td> <td><b>CODE RANGE</b></td> <td><b>CODE RANGE</b></td> </tr> <tr> <td>rIE-01 -20/90°C</td> <td>rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar rPr050 0-50bar</td> <td>rPu 05 0-5 Vdc rPu030 0-30 bar rPu010 0-10Vdc</td> <td>rS 010 0-10 Vdc rS 420 4-20 mA rSPWM 0-100%</td> </tr> </tbody> </table>	MASTER			SLAVE	MODE Dry-Cooler	MODE Condenser	MODE Condenser	MODE Remote	<b>CODE RANGE</b>	<b>CODE RANGE</b>	<b>CODE RANGE</b>	<b>CODE RANGE</b>	rIE-01 -20/90°C	rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar rPr050 0-50bar	rPu 05 0-5 Vdc rPu030 0-30 bar rPu010 0-10Vdc	rS 010 0-10 Vdc rS 420 4-20 mA rSPWM 0-100%	0-10Vdc	n. 4 Remote ON-OFF TK fans MAX speed 100% Night Limit
MASTER			SLAVE																	
MODE Dry-Cooler	MODE Condenser	MODE Condenser	MODE Remote																	
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## Available Technical Features

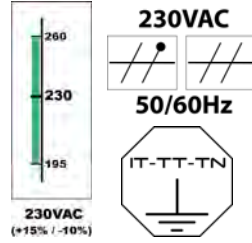
MODEL	IP Box	Power Supply	Fans single Outputs	AMP size RMS @50°C	Inputs N°	Commands type
ESD	IP55 (UL94>V0)	 <p>230VAC 50/60Hz 230VAC (+15% / -10%) IT-TT-TN</p>	<p>Output for 1~ Fans (max 6) direct connection</p> 	<p>14 A 20 A 28 A</p>	<p>IN 1 IN 2 IN 3</p>	<p>4-20 mA 4-20 mA Kohm (NTC)</p>





Function Mode	Std. SW modes selectable	Outputs Commands	Auxiliary Contacts & Function Mode
MASTER	<p>Proportional (PI)</p>  <p>°C ambient (feed forward)</p> 	0-10Vdc	n. 3 Programmable



## Available Technical Features

MODEL	IP Box	Power Supply	Fans single Outputs	AMP size RMS @50°C	Inputs N°	Commands type																
EMK	IP55 (UL94>V0)	 <p>230VAC 50/60Hz 230VAC (+15% / -10%) IT-TT-TN</p>	<p>Direct Dual Fans group connections</p> <table border="1"> <thead> <tr> <th colspan="2">A</th> <th colspan="2">B</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>1</td> <td></td> </tr> <tr> <td>2</td> <td></td> <td>2</td> <td></td> </tr> <tr> <td>3</td> <td></td> <td>3</td> <td></td> </tr> </tbody> </table>	A		B		1		1		2		2		3		3		<p>Double Channels 10 A &amp; 10 A</p>	<p>IN 1 IN 2</p>	<p>MODBUS RS-485 MODBUS RS-485</p>
A		B																				
1		1																				
2		2																				
3		3																				



Function Mode	Std. SW modes selectable	Outputs Commands	Auxiliary Contacts & Function Mode
<p>SLAVE Double Channels System</p>	<p>MODBUS for TWO RS-485 CHANNELS</p>  	<p>-----</p>	<p>n. 6 TK MOTOR (insulated contacts)</p>






**PHASE**













STEPLESS CONTROLLER

**Dynamic Control Technology**

## Available Technical Features

MODELS	IP Box	Power Supply	AMP size RMS @50°C	Inputs N°	Commands type
<p><b>VTM &amp; VTS</b></p> 	<p><b>IP55</b> (UL94&gt;V0) or <b>IP20</b></p>	<p><b>VAC</b> 50/60Hz IT-TT-TN</p>	<p><b>8 A</b> <b>12 A</b> <b>20 A</b></p>	<p><b>IN 1</b></p>	<p><b>0-20 mA</b> <b>4-20 mA</b> <b>0-5 Vdc</b> <b>0-10Vdc</b> <b>Kohm (NTC)</b> <b>PWM</b></p>
<p><b>RDM &amp; DRM</b></p> 	<p><b>IP55</b> (UL94&gt;V0) or <b>IP20</b></p>	<p><b>VAC</b> 50/60Hz IT-TT-TN</p>	<p><b>8 A</b> <b>12 A</b> <b>20 A</b></p> <p><b>28 A</b> <b>(IP20) 30 A</b></p>	<p><b>IN 1 &amp; IN 2</b></p> <p><b>IN 3</b></p>	<p><b>0-20mA</b> <b>4-20 mA</b> <b>0-5 Vdc</b> <b>0-10Vdc</b> <b>Kohm (NTC)</b></p> <p><b>PWM</b></p>
<p><b>RGM</b></p> 	<p><b>IP55</b> (UL94&gt;V0) or <b>IP20</b></p>	<p><b>VAC</b> 50/60Hz IT-TT-TN</p>	<p><b>12 A</b> <b>20 A</b> <b>28 A</b> <b>40 A</b> <b>60 A</b> <b>90 A</b></p>	<p><b>IN 1 &amp; IN 2</b></p>	<p><b>0-20 mA</b> <b>4-20 mA</b> <b>0-5 Vdc</b> <b>0-10Vdc</b> <b>Kohm (NTC)</b></p>

## Available Technical Features

MODELS	Function Mode	Std. SW modes selectable	Outputs Command	Auxiliary Contacts & Function Mode				
<p><b>VTM &amp; VTS</b></p>  	<p><b>MASTER and/or SLAVE</b></p>	<p><b>MASTER</b></p> <table border="1"> <tr> <td>MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 0/70°C</td> <td>MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA (for all the Scale)</td> <td>MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc (for all the Scale)</td> </tr> </table> <p><b>SLAVE</b></p> <table border="1"> <tr> <td>MODE Remote <b>CODE RANGE</b> rS 010 0-10 Vdc rS 05 0-5 Vdc rS 420 4-20 mA rS 020 0-20 mA rSPWM 0-100%</td> </tr> </table>  	MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 0/70°C	MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA (for all the Scale)	MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc (for all the Scale)	MODE Remote <b>CODE RANGE</b> rS 010 0-10 Vdc rS 05 0-5 Vdc rS 420 4-20 mA rS 020 0-20 mA rSPWM 0-100%	<p>----</p> <p>°C ambient (feed forward)</p>	<p>n. 1 (VTS) Remote ON-OFF TK fans n. 3 (VTM) MAX speed 100% Night Limit</p>
MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 0/70°C	MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA (for all the Scale)	MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc (for all the Scale)						
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<p><b>RDM &amp; DRM</b></p>  	<p><b>MASTER and/or SLAVE</b></p>	<p><b>MASTER</b></p> <table border="1"> <tr> <td>MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 -20/90°C</td> <td>MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar rPr050 0-50bar</td> <td>MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc rPu030 0-30 bar rUu010 0-10Vdc</td> </tr> </table> <p><b>SLAVE</b></p> <table border="1"> <tr> <td>MODE Remote <b>CODE RANGE</b> rS 010 0-10 Vdc rS 420 4-20 mA rSPWM 0-100%</td> </tr> </table>  	MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 -20/90°C	MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar rPr050 0-50bar	MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc rPu030 0-30 bar rUu010 0-10Vdc	MODE Remote <b>CODE RANGE</b> rS 010 0-10 Vdc rS 420 4-20 mA rSPWM 0-100%	<p>0-10Vdc</p> <p>°C ambient (feed forward)</p>	<p>n. 2 Remote ON-OFF TK fans MAX speed 100% Night Limit</p>
MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 -20/90°C	MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar rPr050 0-50bar	MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc rPu030 0-30 bar rUu010 0-10Vdc						
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<p><b>RGM</b></p>  	<p><b>MASTER and SLAVE</b></p>	<p><b>MASTER</b></p> <table border="1"> <tr> <td>MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 -20/90°C rTE-02 10/90°C</td> <td>MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar</td> <td>MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc rPu030 0-30 bar rUu010 0-10Vdc</td> </tr> </table> <p><b>SLAVE</b></p> <table border="1"> <tr> <td>MODE Remote <b>CODE RANGE</b> rS 010 0-10 Vdc rS 020 0-20 mA rS 420 4-20 mA rS 020 0-20 mA rSPWM 0-100%</td> </tr> </table>  	MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 -20/90°C rTE-02 10/90°C	MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar	MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc rPu030 0-30 bar rUu010 0-10Vdc	MODE Remote <b>CODE RANGE</b> rS 010 0-10 Vdc rS 020 0-20 mA rS 420 4-20 mA rS 020 0-20 mA rSPWM 0-100%	<p>0-10Vdc 1-10Vdc</p> <p>°C ambient (feed forward)</p>	<p>n. 5 Second Set-point Reverse mode Remote ON-OFF TK fans Night Limit</p>
MODE Dry-Cooler <b>CODE RANGE</b> rTE-01 -20/90°C rTE-02 10/90°C	MODE Condenser <b>CODE RANGE</b> rPr420 4-20mA rPr015 0-15bar rPr025 0-25bar rPr030 0-30bar rPr045 0-45bar	MODE Condenser <b>CODE RANGE</b> rUu 05 0-5 Vdc rPu030 0-30 bar rUu010 0-10Vdc						
MODE Remote <b>CODE RANGE</b> rS 010 0-10 Vdc rS 020 0-20 mA rS 420 4-20 mA rS 020 0-20 mA rSPWM 0-100%								


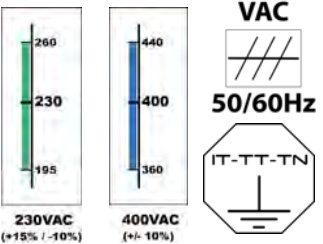



**PHASE**

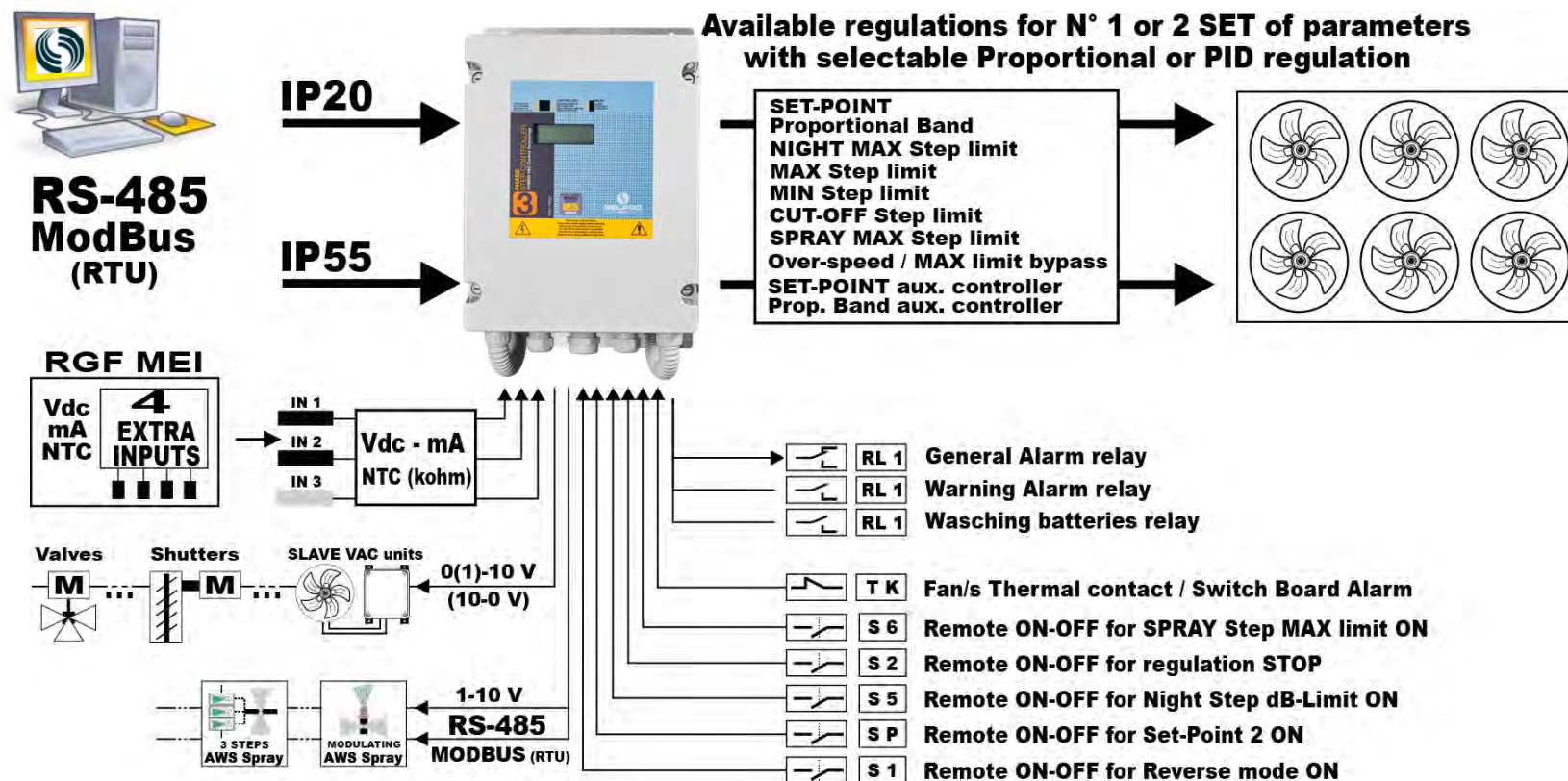
STEP CONTROLLER

**Hybrid Step VAC Control Technology**

# Available Technical Features

SERIES	Power Supply	DSV - AMP size (RMS) @ 50°C	IP Box	Inputs N°																																				
	 <p>230VAC (+15% / -10%) 400VAC (+/- 10%)</p>	<p>12A / 16A / 27A      32A / 48A</p> 	<p>IP55 (UL94&gt;V0) IP20</p>	<p>IN 1 IN 2  IN 3</p>																																				
Function Mode	Commands types	Std. SW modes selectable	Outputs Commands	Auxiliary Contacts & Function Mode																																				
<p>MASTER and SLAVE</p>	<p>0-20 mA 4-20 mA 0-5 Vdc 0-10Vdc Kohm (NTC)</p>	<table border="1"> <thead> <tr> <th colspan="3">MASTER</th> <th>SLAVE</th> </tr> <tr> <th>MODE</th> <th>MODE</th> <th>MODE</th> <th>MODE</th> </tr> <tr> <th>Dry-Cooler</th> <th>Condenser</th> <th>Condenser</th> <th>Remote</th> </tr> <tr> <th>CODE RANGE</th> <th>CODE RANGE</th> <th>CODE RANGE</th> <th>CODE RANGE</th> </tr> </thead> <tbody> <tr> <td>rE-01 -20/90°C</td> <td>rPr420 4-20mA</td> <td>rUu 05 0-5 Vdc</td> <td>rS 010 0-10 Vdc</td> </tr> <tr> <td>rtE-02 10/90°C</td> <td>rPr015 0-15bar</td> <td>rPu030 0-30 bar</td> <td>rS 020 0-20 mA</td> </tr> <tr> <td></td> <td>rPr025 0-25bar</td> <td>rUu010 0-10Vdc</td> <td>rS 420 4-20 mA</td> </tr> <tr> <td></td> <td>rPr030 0-30bar</td> <td></td> <td></td> </tr> <tr> <td></td> <td>rPr045 0-45bar</td> <td></td> <td></td> </tr> </tbody> </table>	MASTER			SLAVE	MODE	MODE	MODE	MODE	Dry-Cooler	Condenser	Condenser	Remote	CODE RANGE	CODE RANGE	CODE RANGE	CODE RANGE	rE-01 -20/90°C	rPr420 4-20mA	rUu 05 0-5 Vdc	rS 010 0-10 Vdc	rtE-02 10/90°C	rPr015 0-15bar	rPu030 0-30 bar	rS 020 0-20 mA		rPr025 0-25bar	rUu010 0-10Vdc	rS 420 4-20 mA		rPr030 0-30bar				rPr045 0-45bar			<p>n.2 0 (1) - 10 Vdc</p> <p>°C ambient (feed forward)</p>	<p>n. 6 Second Set-Point Reverse mode Remote ON-OFF TK fans Night RPM Limit Adiabatic SW System</p>
MASTER			SLAVE																																					
MODE	MODE	MODE	MODE																																					
Dry-Cooler	Condenser	Condenser	Remote																																					
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	rPr030 0-30bar																																							
	rPr045 0-45bar																																							

## Available Technical Features



The Heco-300 series are for the Manual or Automatic regulation of also **Standard Asynchronous (AC) three-phase motors**, applied on axial and centrifugal fans, with devices and control systems specialized for applications on ventilated heat-exchangers.  
N° 2+1 PROGRAMMABLE inputs, with n. 12 different software of regulation modes are available, also with the Adiabatic Booster Software  
The controller can be connected with the SELPRO Supervising free software (CLIMA-Sinergy) or a remote net MODBUS (RTU std.) Supervising System.



# MULTIFUNCTION DIGITAL CONTROLLERS





# EC FANS



## Available solutions for outdoor & din-rail applications

### IP 55 OUTDOOR APPLICATIONS



### DIN RAIL SWITCH BOARD SOLUTIONS



### SWITCH BOARDS





*Solutions you need*

# ENHANCED EC FANS CONTROLLERS



selpro.it

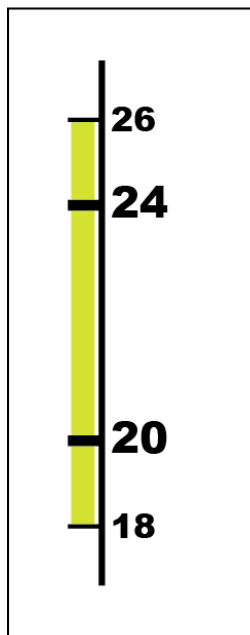


*Solutions you need*

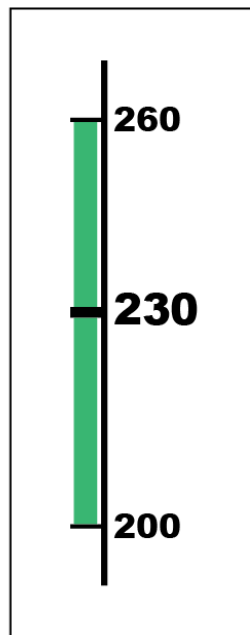
ENHANCED **EC FANS** CONTROLLERS

## Extended range Power Supply System

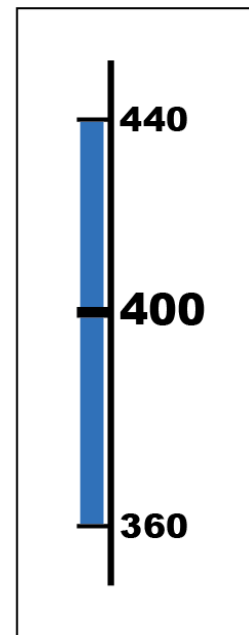
for Single & Three-Phase applications



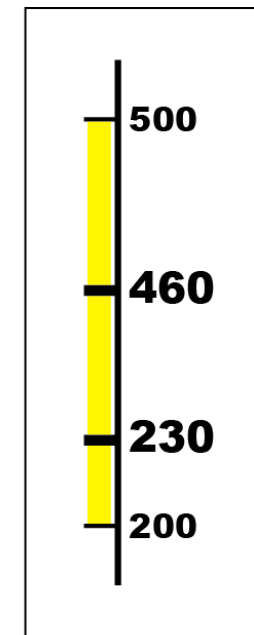
**20/24VAC**  
(+/-10%)



**230VAC**  
(+15% / -10%)



**400VAC**  
(+/- 10%)



**230/460VAC**  
(+/- 10%)


**ECM EC Manager**

**ECP EC Plus**

**ECB EC Basic**

**ECN EC Nano**


<b>Power supply</b>	24VAC (+/-10%) or 230/460VAC +/-10% (std)		24VAC or 230 or 400VAC +/-10%	20/24 AC/DC +/-10% (std)
<b>Frequency</b>	50/60 Hz automatic selection		50/60 Hz automatic selection	50/60 Hz automatic selection
<b>Inputs commands</b>	Modbus SLAVE from BMS system n. 3 mA / Vdc / NTC (kohm) programmable	Modbus SLAVE from BMS system n. 2 mA/Vdc/NTC (kohm) programmable	n. 2 mA/Vdc/NTC programmable	n. 2 4-20mA or NTC (10kohm)
<b>Regulation outputs</b>	Modbus MASTER with ebm & Ziehl protocol inside n. 2 0(1)-10Vdc programmable	n. 1 0(1)-10Vdc programmable	n. 1 4-20mA programmable n. 1 0-10Vdc programmable	n. 1 0(1)-10Vdc programmable
<b>Protection BOX</b>	IP55 – DIN rail (IP00)			
<b>Standards compliance</b>	Standard EN 50178 (directive 2006/95 CE) Standard EN 61800-3 (directive 2004/108 CE) Standard EN 60204-1 (directive 2006/95 CE)			
<b>Regulation SW</b>	n.14 pre-parameterized HVAC&R Software		Settings by digital switch	Settings by digital switch
<b>Working Inputs number</b>	n. 3 inputs (mA-Vdc-NTC) always programmable	n.2 inputs (mA-Vdc-NTC) always programmable		n. 2 inputs (mA-NTC)
<b>Reading Input</b>	n. 1 inputs (mA-Vdc-NTC) always programmable			
<b>Working benches</b>	n. 2 workbenches of parameters (always programmable) for n. 14 std software modes		n. 2 Set-Points selectable	
<b>Working parameters</b>	n. 85 always programmable	n. 60 always programmable		
<b>Functional contacts</b>	n. 6 ON-OFF auxiliary contacts	n. 5 ON-OFF auxiliary contacts		n. 4 ON-OFF auxiliary contacts
<b>Remotable contact</b>	n. 1 Alarm Relay (NO/NC) n. 2 Warning Relay programmable	n. 1 Alarm relay (NO/NC)		n. 1 Alarm relay (NO/NC)



# EC NANO CONTROLLER



WARRANTY  
**3**  
YEARS

FULL  
GUARD  
SYSTEM

INTELLIGENT  
ENERGY  
CONTROL  
**IES**

PLUG &  
PLAY

QUICK  
STAR-UP

EMC  
CIVIL  
LIMIT

THD  
FREE

EXTRA  
dB  
FREE

## ECN

### MASTER or SLAVE DIGITAL CONTROLLER for the REGULATION of EC FANS.

EC Nano device is a multifunction digital unit, with 2 transducer inputs, specialized for the regulation of EC fans Motors. It's ready to drive EC fans through 0-10Vdc net connections. It's optimized with software "IES", the innovative control algorithm for HVAC&R applications.

#### Applications

Used in HVAC&R plants to control and regulate:

- temperature (dry-cooler, heaters)
- pressure (ventilated heaters like condensers, evaporators)
- differential air flow (laminated flow plants, suction hoods)

#### Available Regulations Mode

**Master Unit** - as stand-alone automatic regulator the driving command is directly related to the inputs values, of the connected probes (NTC) or transducers (mA). Moreover, it is possible to select direct (DIR) or reverse (REV) regulation. Different modes are also selectable:  
**PID** : with "IES" technology, to reach high regulation precision and ensure continuous Energy Saving, by keeping temperature/pressure regulation at the designed values.  
**P** (proportional) to keep in Proportional Band the selected transducer value (i.e. temperature, pressure).  
Driving command is selectable: direct (DIR) or reverse (REV).

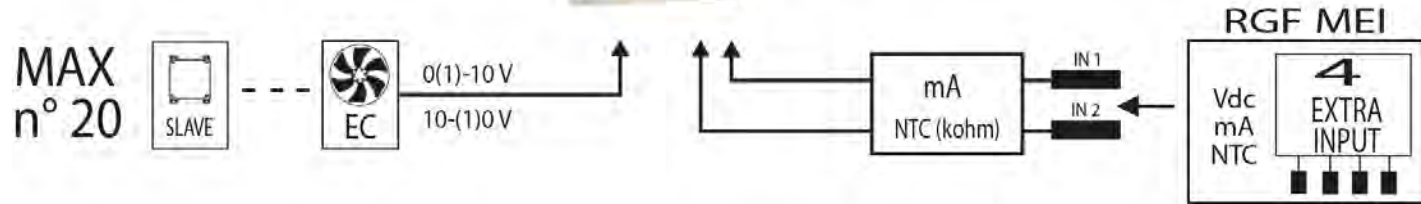
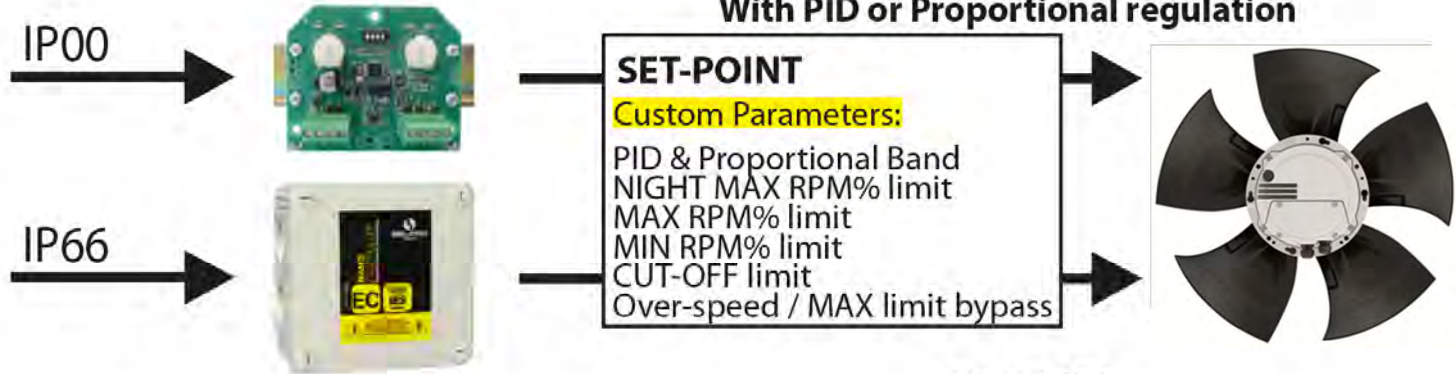
#### Key Points

Choice between two control and regulation signals (0/1-10Vdc)  
Simple and Compact  
Easy to use  
Noiseless speed controlling  
NO shielded cables required  
Digital multifunction regulation  
Direct connection for Pressure (mA) & Temperature (NTC) probes  
PID or Proportional regulation  
Direct and Reverse regulation  
All-Round system protection  
LEDs to display functions and Alarm conditions



Power supply	20/24 VAC/Vdc +/-10%
Regulation output	0(1)-10Vdc programmable output
Protection BOX	IP55 - DIN Rail
Standards compliance	Standard EN 50178 (directive 2006/95 CE)
	Standard EN 61800-3 (directive 2004/108 CE)
	Standard EN 60204-1 (directive 2006/95 CE)
Working Inputs	n. 1 Input 4-20mA + n. 1 Input NTC (std) n. 2 inputs 4-20 mA (on request) n. 2 inputs NTC (on request)

**Available regulations for N°1 SET-Point  
With PID or Proportional regulation**



# EC BASIC CONTROLLER



- WARRANTY  
**3 YEARS**

PLUG & PLAY
- FULL GUARD SYSTEM

QUICK STAR-UP
- INTELLIGENT ENERGY SAVING IES

EMC CIVIL LIMIT
- THD FREE

EXTRA dB FREE

## ECB

### MASTER or SLAVE DIGITAL CONTROLLER for the REGULATION of EC FANS.

EC Basic device is a multifunction digital unit, with 2 transducer inputs, specialized for the regulation of EC fans Motors. It's ready to drive EC fans through 0-10Vdc or 4-20mA net connections. It's optimized with software "IES", the innovative control algorithm for HVAC&R applications.

### APPLICATIONS

Used in HVAC&R plants to control and regulate:

- ventilation
- suction
- destratificators
- temperature (dry-cooler, heaters)
- pressure (ventilated heaters like condensers, evaporators)
- differential air flow (aminated flow plants, suction hoods)

### Available Regulations Mode

**Master Unit** - as stand-alone automatic regulator the driving command is directly related to the inputs values, of the connected probes (NTC) or transducers (mA or Vdc). Moreover, it is possible to select direct (DIR) or reverse (REV) regulation. Different modes are also selectable:

**PID** : with "IES" technology, to reach high regulation precision and ensure continuous Energy Saving, by keeping temperature/pressure regulation at the designed values.

**P** (proportional) to keep in Proportional Band the selected transducer value (i.e. temperature, pressure). Driving command is selectable: direct (DIR) or reverse (REV).

### Slave Unit - as BRIDGE CONTROLLER :

the driving command is directly related to the inputs command values, coming from REMOTE system still selectable are direct (DIR) or reverse (REV) regulation.

### Key Points

- Choice between three control and regulation signals (0/1-10Vdc and 4-20mA)
- Noiseless speed controlling
- NO shielded cables required
- Digital multifunction regulation
- Direct connection for Pressure (mA-Vdc) & Temperature (NTC) probes
- PID or Proportional regulation
- Direct and Reverse regulation
- All-Round system protection
- LED to display functions and Alarm conditions



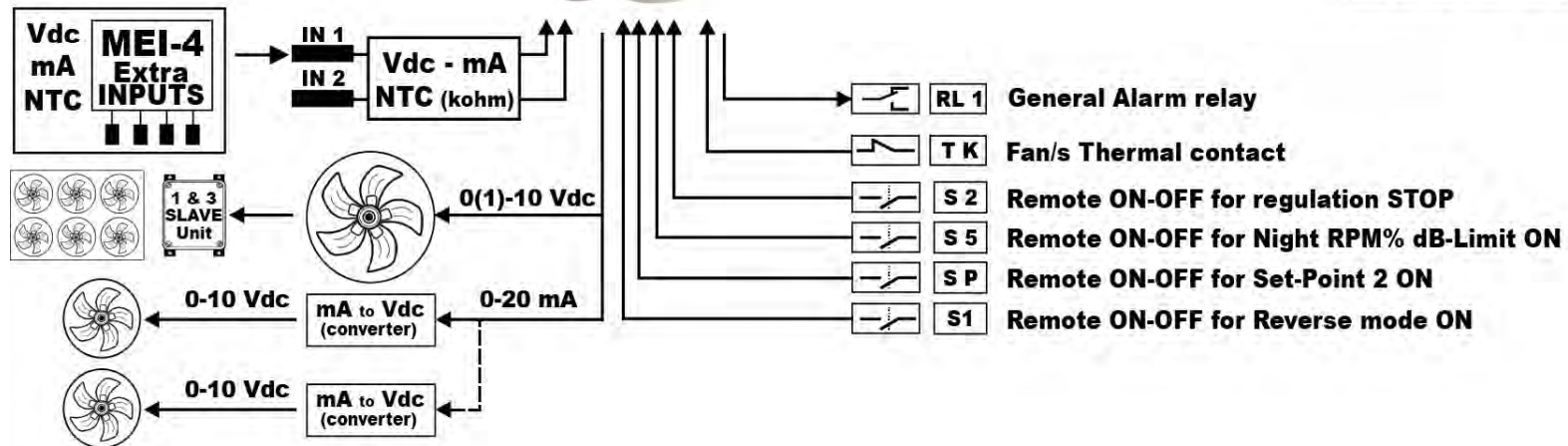
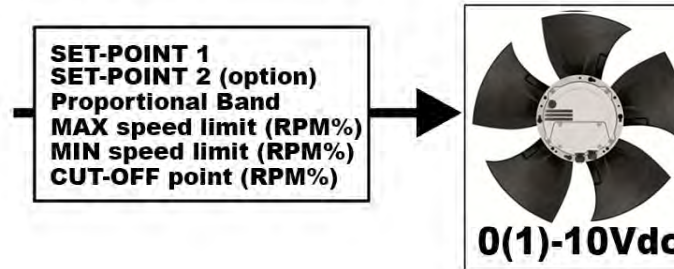
Power supply	24VAC or 230 VAC or 400 VAC +/-10%
Frequency	50/60 Hz automatic selection
Regulation command Outputs	n. 1 for 0(1)-10Vdc / n. 1 for 4-20mA
Protection BOX	IP55 - DIN Rail
Standards compliance	Standard EN 50178 (directive 2006/95 CE)
	Standard EN 61800-3 (directive 2004/108 CE)
	Standard EN 60204-1 (directive 2006/95 CE)
Working Inputs	n. 2 inputs (mA-Vdc-NTC) always programmable
Functional input contacts	n. 4 ON-OFF auxiliary contacts
Remotable contact	n. 1 Alarm relay (NO/NC) programmable

**DIN-rail** →

→ **IP55**



**Available regulations for N° 1 Set-Point (with 2nd Set-P option) & working Parameters with PID & Proportional regulation**







- WARRANTY  
**3 YEARS**
- FULL  
GUARD  
SYSTEM
- EMC  
CIVIL  
LIMIT
- THD  
FREE
- EXTRA  
dB  
FREE
- PLUG &  
PLAY
- QUICK  
STAR-UP
- REDUCED  
ENERGY  
CONSUMPTION  
**IES**
- ADIABATIC  
MANAGER
- MODBUS  
INSIDE
- CLIMA  
SINERGY  
**CLS**  
INSIDE

## ECP

### MASTER or SLAVE DIGITAL CONTROLLER for the REGULATION of EC FANS

EC Plus device is a multifunction digital unit, with 2 transducer inputs, specialized for the regulation of EC fans Motors.

It's ready to drive EC fans through 0-10Vdc net connections.

It's suited to have a choice of 12 different (def) working softwares.

EC Plus is ready to drive EC fans through programmable Master 0-10Vdc net connections.

It's optimized with software "IES", the innovative control algorithm for HVAC&R applications.

The Management of WET&DRY System (adiabatic booster) is included in the firmware, driving via ON-OFF an optional Water Spray System with its own Set-Point and Proportional Band.

Using a serial Modbus (RTU) line, it's possible to read & write all the control parameters of the device, remotely adjusting also the state of the machine and testing for Service AID.

The Selpro Clima-Sinergy software is available.

Clima-Sinergy allows data collection, analysis with graphs, change of working parameters, optimization of performances, remote control & service.

#### Applications

Used in HVAC&R plants to control and regulate:

- ventilation
- suction
- de-stratificators
- temperature (dry-cooler, heaters)
- pressure (ventilated heaters like condensers, evaporators)
- differential air flow (aminated flow plants, suction hoods)

#### Available Regulations Mode

**Master Unit** - as stand-alone automatic regulator the driving command is directly related to the inputs values, of the connected probes (NTC) or transducers (mA or Vdc) Moreover, it is possible to select direct (DIR) or reverse (REV) regulation. Different modes are also selectable:

**PID** : with "IES" technology, to reach high regulation precision and ensure continuous Energy Saving, by keeping temperature/pressure regulation at the designed values.

**P** (proportional) to keep in Proportional Band the selected transducer value (i.e. temperature, pressure).

Driving command is selectable: direct (DIR) or reverse (REV).

#### Slave Unit - as BRIDGE CONTROLLER :

the driving command is directly related to the inputs command values, coming from REMOTE system still selectable are direct (DIR) or reverse (REV) regulation.

#### Key Points

- Choice between two control and regulation signals (0/1-10Vdc)
- NO shielded cables required
- Noiseless speed controlling
- Digital multifunction regulation
- Direct connection for Pressure (mA-Vdc) & Temperature (NTC) probes
- Modbus (RTU) connection
- PID or Proportional regulation
- Direct and Reverse regulation
- All-Round system protection
- Digital DISPLAY with push buttons
- Visualization of regulation functions and alarms messages
- LED to display functional conditions

Power supply	24VAC or 230/400 VAC +/-20% (std)
Frequency	50/60 Hz automatic selection
Regulation command output	0(1)-10Vdc programmable
Protection	IP55 - DIN rail
Standarde compliance	Standard EN 50178 (directive 2006/95 CE) Standard EN 61800-3 (directive 2004/108 CE) Standard EN 60204-1 (directive 2006/95 CE)
Regulation SW	n. 12 pre-parameterized HVAC&R Software
Working Inputs	n. 2 Inputs (mA-Vdc-NTC) always programmable
Working benches	n. 2 benches of pre-parameterized parameters
Working parameters	n. 50 always programmable
Functional contacts	n. 5 ON-OFF auxilliary contacts
Remotable contact	n. 1 Relay (NO/NC) programmable for Alarm or ON-OFF command



**RS-485 ModBus (RTU)**

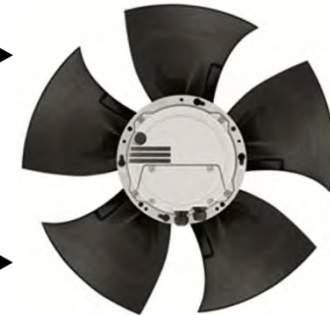
**DIN-rail**

**IP55**



**Available regulations for N° 1 or 2 SET of parameters With PID or Proportional regulation**

- SET-POINT
- Proportional Band
- NIGHT MAX RPM% limit
- MAX RPM% limit
- MIN RPM% limit
- CUT-OFF limit
- SPRAY MAX RPM% limit
- Over-speed / MAX limit bypass
- SET-POINT aux. for AIR-Fresh
- Prop. Band aux. for AIR-Fresh



Vdc mA NTC **MEI-4 Extra INPUTS**

IN 1 IN 2 Vdc - mA NTC (kohm)

SLAVE

0(1)-10 V 10-(1)0 V

**AIR FRESH** ADIABATIC Booster

(0)1-10 V





- WARRANTY**  
**3 YEARS**

**FULL GUARD SYSTEM**

**EMC CIVIL LIMIT**

**THD FREE**

**EXTRA dB FREE**
- PLUG & PLAY**

**QUICK STAR-UP**

**INTELLIGENT ENERGY SAVING IES**

**ADIABATIC MANAGER**

**MODBUS INSIDE**

**CLIMA SINERGY CLS INSIDE**



## ECM

EC Manager device is a multifunction digital unit, with 3 transducer inputs, specialized for the management of ventilated Heat Exchangers with EC fans Motors.

ECM offers a choice of 12 different default working softwares. It's optimized with software "IES", the innovative control algorithm for HVAC&R applications.

ECM is the only Controller with integrated ebmpast and ziehl-abegg MODbus protocols, ready to drive EC fans through Master Modbus network and Master 0-10Vdc net connections.

The Management of WET&DRY System (adiabatic booster) is included in the firmware, driving with 0(1)-10Vdc proportional command an optional Spray system with its own Set-Point and proportional band. Connecting a serial Modbus (RTU) line, it's possible to read & write all the control parameters of the device and of all the fans, testing and adjusting also the state of the machine from a remote sites.

The Selpro software Clima-Sinergy is already allowable. Clima-Sinergy allows data collection, analysis with graphs, change of working parameters, optimization of performances, for remote control & service AID.

- Applications**  
Used in HVAC&R plants to control and regulate:
- ventilation
  - suction
  - destratificators
  - temperature (dry-cooler, heaters)
  - pressure (ventilated heaters like condensers, evaporators)
  - differential air flow (laminated flow plants, suction hoods)

**Available Regulations Mode**

**Master Unit** - as stand-alone automatic regulator the driving command is directly related to the inputs values, of the connected probes (NTC) or transducers (mA or Vdc) Moreover, it is possible to select direct (DIR) or reverse (REV) regulation. Different modes are also selectable:

**PID** : with "IES" technology, to reach high regulation precision and ensure continuous Energy Saving, by keeping temperature/pressure regulation at the designed values.

**P** (proportional) to keep in Proportional Band the selected transducer value (i.e. temperature, pressure). Driving command is selectable: direct (DIR) or reverse (REV).

**Slave Unit** - as BRIDGE CONTROLLER : the driving command is directly related to the inputs command values, and all the informations are available for the REMOTE system still selectable are direct (DIR) or reverse (REV) regulation.

**Key Points**

Choice between four controls and regulations signals (0/1-10Vdc)  
Digital multifunction regulation  
Modbus (RTU) input for remote connection  
Modbus (RTU) output to fans management  
PID or Proportional regulation  
Direct and Reverse regulation  
Direct connection for Pressure (mA-Vdc) & Temperature (NTC) probes  
ALL-round protection system  
Block-Box function (minimum 60 hours)  
Wide digital backlighted DISPLAY with keys  
Visualization of regulation functions and alarm messages  
LED to display functional conditions

Power supply	24VAC or 230/400 VAC +/-20%
Frequency	50/60 Hz automatic selection
Regulation output	Modbus MASTER with ebmpast & Ziehl-abegg protocol inside n. 2 0-10Vdc MASTER programmable
Protection BOX	IP55 - DIN Rail
Standards compliance	Standard EN 50178 (directive 2006/95 CE) Standard EN 61800-3 (directive 2004/108 CE) Standard EN 60204-1 (directive 2006/95 CE)
Regulation SW	n. 12 pre-parameterized HVAC&R Software
Working Inputs	n. 2 inputs (mA-Vdc-NTC) always programmable
Reading Input	n. 1 inputs (mA-Vdc-NTC) always programmable
Working benches	n. 2 benches of pre-parameterized parameters
Working parameters	n. 80 always programmable
Functional contacts	n. 6 ON-OFF auxiliary contacts
Remotable contact	n. 1 Alarm relay (NO/NC) programmable n. 2 Relay programmable



**RS-485  
ModBus  
(RTU std.)**

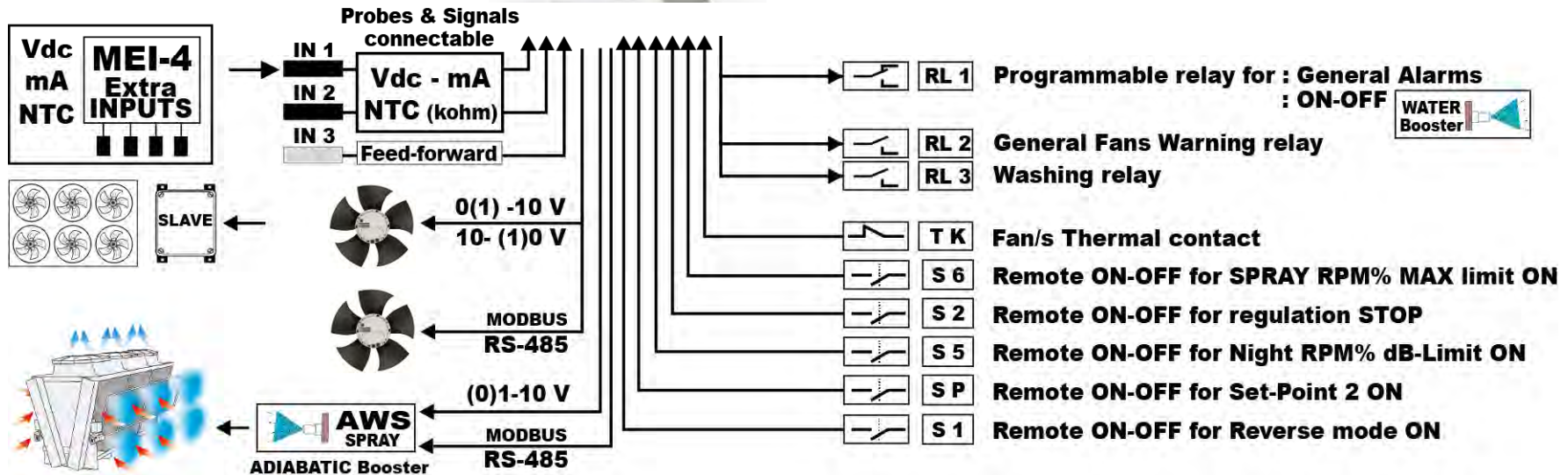
**DIN-rail** →

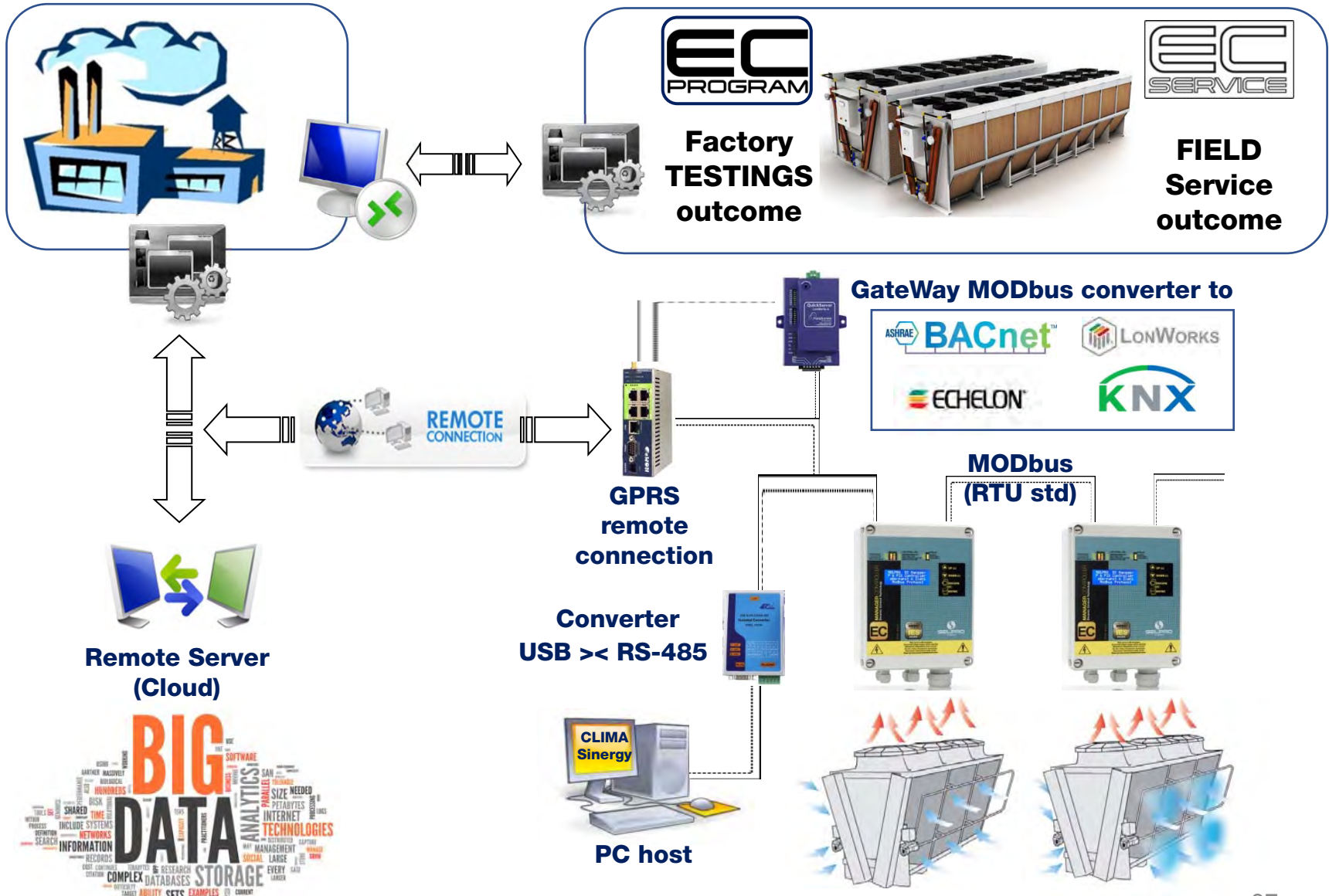
**IP55** →



**Selectable PID & Proportional regulations  
with n. 14 SW ready for Master & Slave control**

- EVENT Logger function
- Automatic Fans ADD & PROGR functions
- RTC Real Time Clock function
- Battery WASHING function
- Battery CLEANING function
- Reverse ROTATION function
- SHEDDING function
- LOW Capacity function
- ICE & SNOW protection functions
- CABLE Broken function
- AUT & MAN Emergency Speed functions
- OVER-Speed functions
- Auto BANK Switch function

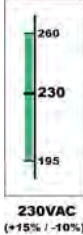
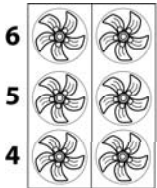








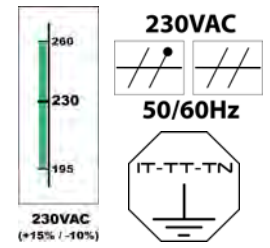
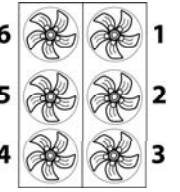
# MULTIFUNCTION DIGITAL CABINET





MODEL	IP Box	Power Supply	EC Fans DIRECT-PW supply	Total Ampere size	Inputs N°	Commands type
ECK	IP55 (UL94>V0)	 <p>230VAC 50/60Hz IT-TT-TN</p>	<p>Protected Power 230VAC</p> 	20 A	IN 1 IN 2  IN 3	0-20mA 4-20 mA 0-5 Vdc 0-10Vdc Kohm (NTC)  °C ambient (feed forward)



Function Mode	Std. SW modes selectable	Outputs Commands	Auxiliary Contacts & Function Mode																																	
MASTER & SLAVE	<p>MASTER</p> <table border="1"> <thead> <tr> <th>MODE</th> <th>MODE</th> <th>MODE</th> </tr> <tr> <th>Dry-Cooler</th> <th>Condenser</th> <th>Condenser</th> </tr> <tr> <th>CODE RANGE</th> <th>CODE RANGE</th> <th>CODE RANGE</th> </tr> </thead> <tbody> <tr> <td>rTE-01 -20/90°C</td> <td>rPr420 4-20mA</td> <td>rUu 05 0-5 Vdc</td> </tr> <tr> <td></td> <td>rPr015 0-15bar</td> <td>rPu030 0-30 bar</td> </tr> <tr> <td></td> <td>rPr025 0-25bar</td> <td>rUu010 0-10Vdc</td> </tr> <tr> <td></td> <td>rPr030 0-30bar</td> <td></td> </tr> <tr> <td></td> <td>rPr045 0-45bar</td> <td></td> </tr> <tr> <td></td> <td>rPr050 0-50bar</td> <td></td> </tr> </tbody> </table> <p>SLAVE</p> <table border="1"> <thead> <tr> <th>MODE</th> </tr> <tr> <th>Remote</th> </tr> <tr> <th>CODE RANGE</th> </tr> </thead> <tbody> <tr> <td>rS 010 0-10 Vdc</td> </tr> <tr> <td>rS 420 4-20 mA</td> </tr> <tr> <td>rSPWM 0-100%</td> </tr> </tbody> </table> <p> </p>	MODE	MODE	MODE	Dry-Cooler	Condenser	Condenser	CODE RANGE	CODE RANGE	CODE RANGE	rTE-01 -20/90°C	rPr420 4-20mA	rUu 05 0-5 Vdc		rPr015 0-15bar	rPu030 0-30 bar		rPr025 0-25bar	rUu010 0-10Vdc		rPr030 0-30bar			rPr045 0-45bar			rPr050 0-50bar		MODE	Remote	CODE RANGE	rS 010 0-10 Vdc	rS 420 4-20 mA	rSPWM 0-100%	0-10Vdc	n. 4 Remote ON-OFF TK fans MAX speed 100% Night Limit
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Function Mode	Std. SW modes selectable	Outputs Commands	Auxiliary Contacts & Function Mode
MASTER	Proportional (PI)  °C ambient (feed forward) 	0-10Vdc	n. 3 Programmable





# EC PROGRAM

TRY OUT

THE TESTING SYSTEM FOR EC FANS OF THE WORLD'S TOP MANUFACTURERS





**EC  
PROGRAM**

# Next-generation

*Programming and Testing*



The **EC** motors  
last generation  
Digital  
**CERTIFICATION**



## Verify

Program all EC fans at the same time



## Simplify

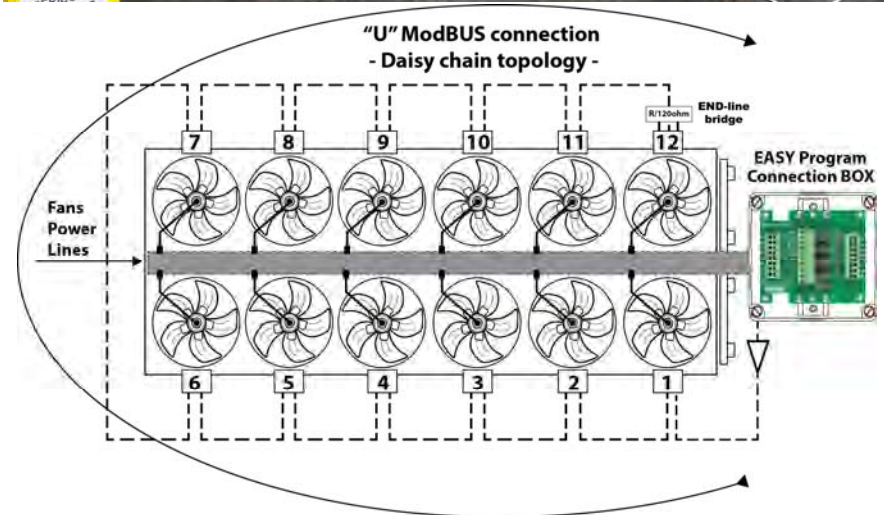
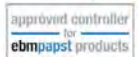
Reduce programming time by 90%

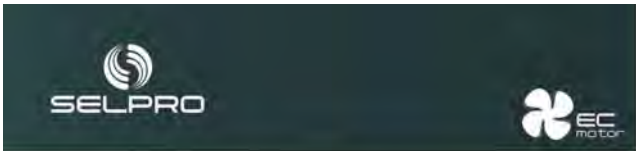


## Certify

Automatically create analysis reports

Identify and test all EC motors  
verify modbus and auxiliary controls wiring  
certify programming specifications



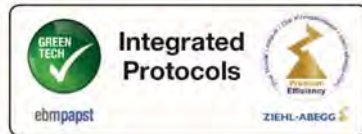


EC SERVICE

# Your EC motors SERVICE helper



## The Digitalized SERVICE for EC motors



### Unifies

Direct and automatic management of Modbus protocols ebm-papst & ziehl-abegg



### Simplifies

Automatically handles the addressing and simultaneous programming all EC motors. Verifies and summarizes in a Report all the functional datas and alarms of EC motors



### Guarantees

Identify and verifies the functioning of EC fans. Elaborates the Technical Report of the carried-out verification. Gives to the customers the "Identity Card" of the machine with all the fans datas as programmed and verified.



selpro.it

Click and watch the presentation video

<https://www.youtube.com/channel/UCdcyMuoEBHfg1utXphV4FLw>

## EC fans program report

Date:	25/09/2019 16:17:04	Machine model:	EHL1D1X
Handling Unit:	S0001045818	Machine serial number:	1001703_2019
Item Code:	P10150122	Fans disposition rows:	2
Fans model:	ebm papst	Max Speed RPM:	925
Fans number:	12	Running direction:	1=CW
Shedding:	ENABLED	Emergency RPM:	200
Operator:	ROSSI MARIO	<b>EC motor programmed data</b>	
Set value source:	RS485	<b>EC functions ready for work</b>	
Fail safe function:	ON		

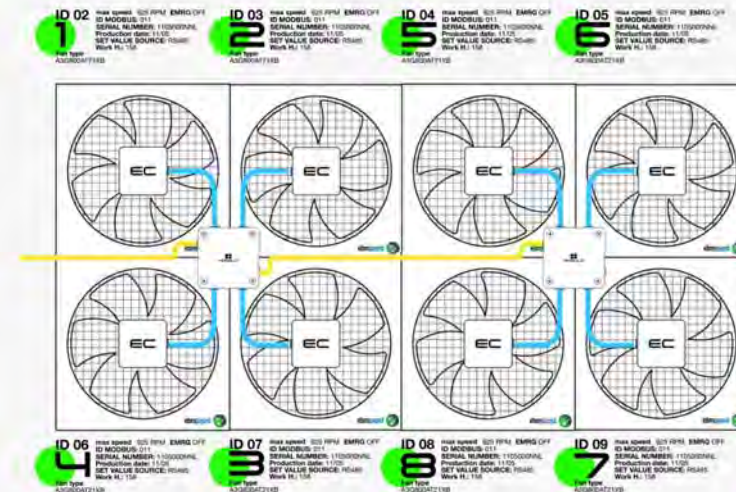
Fans (\* indicates warning/error)

N.	ID	Max speed	Emerg.	Fan type	Identification	SW	Serial Number	Prod.date	Dir	Work.H
1	02	925 RPM	200 RPM	A3G800AT21XB	ebm-papst s.84/112/150/200 v.5.00		1105000NNP	11 / 5	1 CW	2029
2	03	925 RPM	200 RPM	*A3G800AT2101	ebm-papst s.84/112/150/200 v.5.00		1820000DIT	18 / 20	1 CW	267
3	04	925 RPM	200 RPM	A3G800AT21XB	ebm-papst s.84/112/150/200 v.5.00		1105000NNS	11 / 5	1 CW	2060
4	05	925 RPM	200 RPM	*A3G800AT2101	ebm-papst s.84/112/150/200 v.5.00		1805000900	18 / 5	1 CW	246
5	06	925 RPM	200 RPM	*M3G150FF39WA	* ebm-papst series vers.6.00		1729001PHK	17 / 29	1 CW	44
6	07	925 RPM	200 RPM	*M3G150FF39WA	* ebm-papst series vers.6.00		1729001PH7	17 / 29	1 CW	52
7	08	925 RPM	200 RPM	*M3G150FF39WA	* ebm-papst series vers.6.00		1729001PHA	17 / 29	1 CW	52
8	09	925 RPM	200 RPM	*M3G150FF39WA	* ebm-papst series vers.6.00		1729001PHN	17 / 29	1 CW	51
9	010	925 RPM	200 RPM	A3G800AT21XB	ebm-papst s.84/112/150/200 v.5.00		1105000NNL	11 / 5	1 CW	1787
10	011	925 RPM	200 RPM	A3G800AT21XB	ebm-papst s.84/112/150/200 v.5.00		1105000NNM	11 / 5	1 CW	1892
11	012	925 RPM	200 RPM	A3G800AT21XB	ebm-papst s.84/112/150/200 v.5.00		1105000NNQ	11 / 5	1 CW	1962
12	013	925 RPM	200 RPM	A3G800AT21XB	ebm-papst s.84/112/150/200 v.5.00		1105000NNO	11 / 5	1 CW	2015

RS485 TEST: ALL OK

WIRING TEST

**Evidence of differences between connected EC motors**



Programmed



Your Personal Pass to Digital



# The friendly Modbus management



MODULO converts the 0-10Vdc & 4-20mA signals into Modbus protocol ebm-papst and ziehl-abegg, and automatically activates special functions such as:

- operation at reduced fan power (**Low-Capacity**)
- cleaning of the exchanger coil (**Coil cleaning**)
- anti-Ice and snow function (**Antilock & Winter mode**)
- silent and night operation (**Silence mode**)
- safe emergency operation (**Automatic Fail Safe**)



## Factory test

Automatically manages addressing and programming of the ebm-papst and ziehl-abegg EC motors



## Safety

Thanks to the automated programming, safeguards the testing procedures and operator safety



## Watchdog

Intrinsically safe management. Checks the quality of the wiring. Monitors the level of the Modbus signals.



## Field Service

Simplifies Service activities. Addressing and automatic Programming for immediate replacement of EC motors

## Bridge

Designed to collect data and information for the stand alone Master or the remote control system (BMS), facilitates direct management of EC motors



## The **plug&play** Modbus



The first **modular** system for the cabling and the **plug & play** Modbus management of ventilated machines with **EC** motors



Factory test



Field service



Watchdog



Bridge



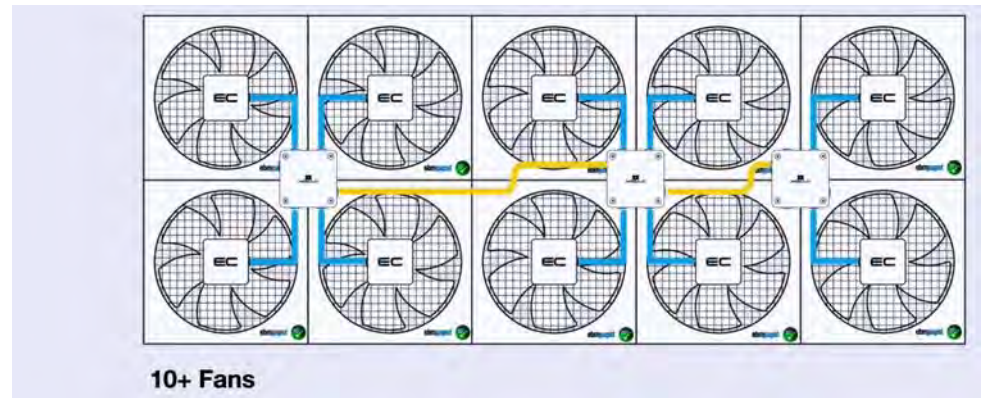
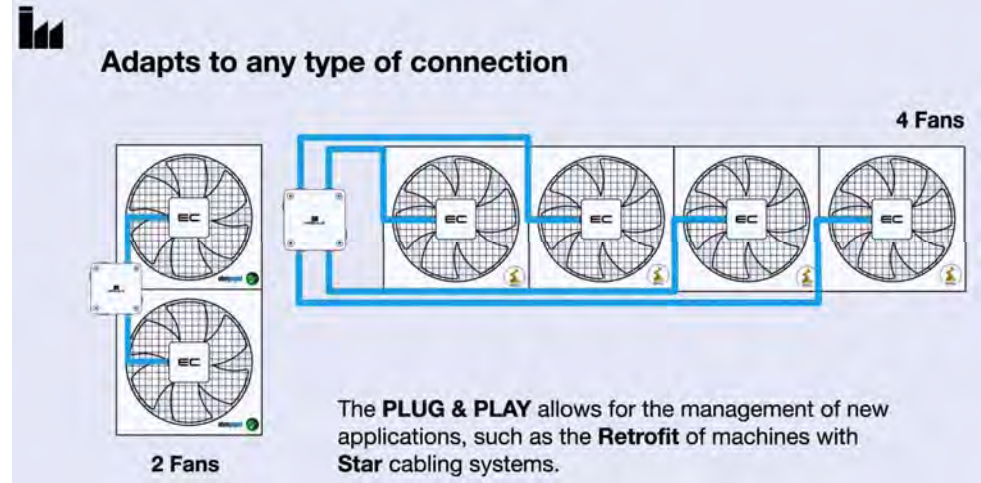
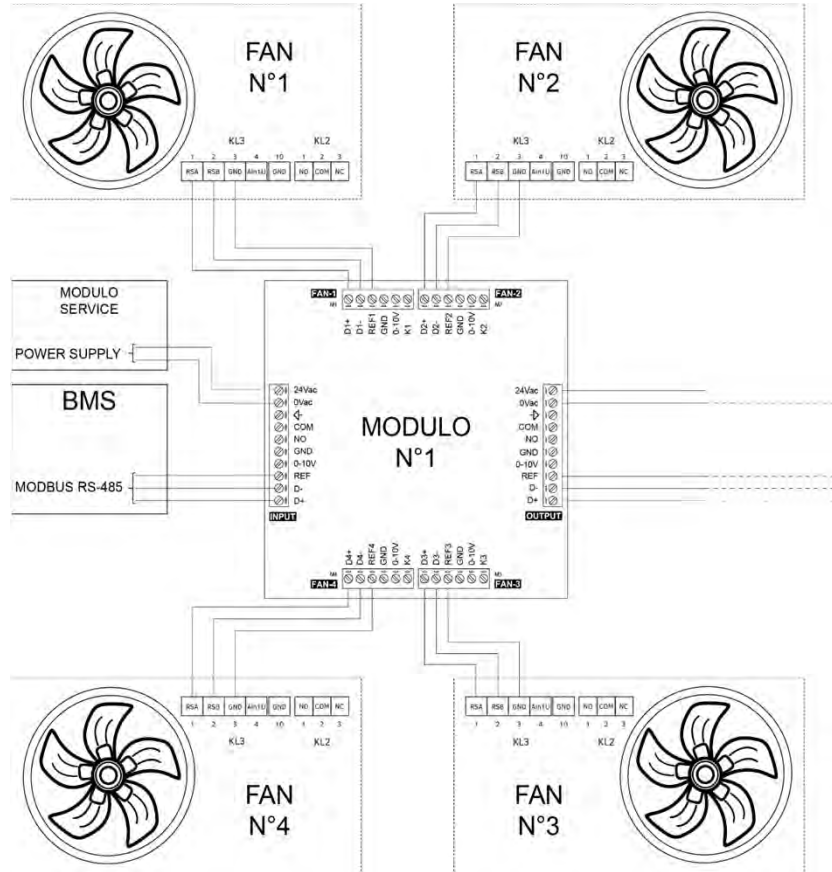
Safety



Link at SELPRO presentation Videos

<https://www.youtube.com/channel/UCdcyMu0EBHfg1utXphV4FLw>



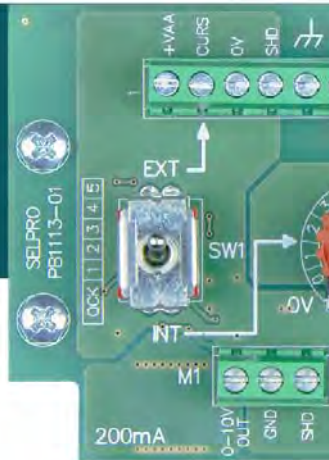
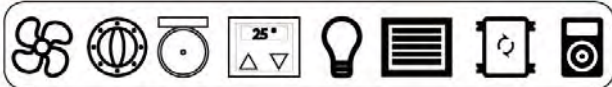




# EDDY

## The solution of the control problems

of the systems run by the 0-10Vdc controller



### APPLICAZIONI APPLICATION

- ventilatori, valvole, pompe  
fans, valves, pumps
- serrande, unità slave, inverter  
shutters, slave units, inverters,
- termoregolatori, sistemi di illuminazione  
thermoregulators, lighting system
- ... e molto altro ...  
and more ...



### Regulation command

Used as 0-10Vdc manual control  
Guarantees, stabilizes and protects the 0-10Vdc regulation command.



### Emergency By-pass

Allows to operate quickly in case of shutdown or control system failure avoiding system shutdowns.



### Amplifier of the remote controller

Thanks to the integrated power electronics, amplifies the received 0-10Vdc control signal up to 200 mA and sends it to all connected devices.



### Security and Protection

Simplifies and facilitates the operation of the 0-10Vdc regulated systems. Stabilizes the 0-10Vdc command signal, protects inputs and remodulates the signal.

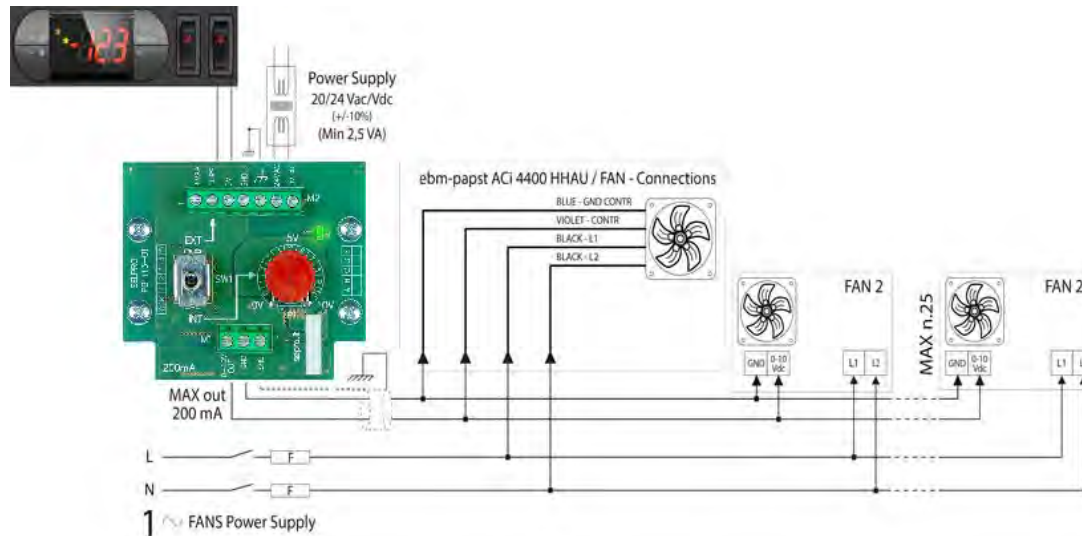
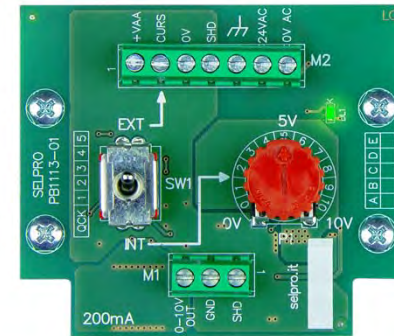
<p>F1</p> <p><b>Amplifier remote controller</b> of the 0-10Vdc</p>	<p>F2</p> <p><b>EMERGENCY By-pass</b></p>
<p>F3</p> <p><b>Remodulator remote controller</b> of the 0-10Vdc</p>	<p>F4</p> <p><b>Security and PROTECTION</b> STABILIZES THE 0-10 CONTROLLER PROTECTS INPUTS AND OUPUTS GUARANTEES THE 0-10 SIGNAL OUTPUTS</p>



Technical Characteriscs	
Power Supply	20/24 Vac/Vdc (+/-10%)
INPUT command	0(1) - (5)10Vdc (min 0,01 mA)
Regulated OUTPUT	0 – (1)10Vdc (MAX 200 mA)
Control FUNCTIONS	Manual Command 0-10Vdc
	Emergency By-Pass 0-10Vdc
	Command Amplifier 0-10Vdc
	Stabilizer of the 0-10Vdc Command

IP 55

DIN -R A IL





# SELPRO

ENHANCED AC & EC FANS CONTROLLERS

ENERGY-SAVING SYSTEM

SAVES UP TO  
**27%**  
OF ENERGY

ADVANCED ADIABATIC SYSTEM

**-90%**  
OF WATER  
CONSUMPTION

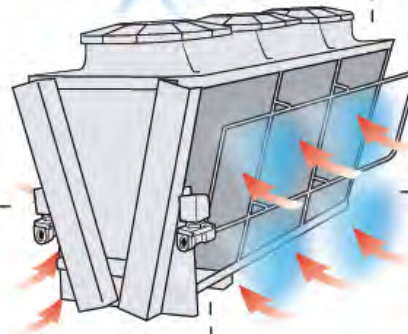
QUICK START-UP

READY TO  
PERFORM IN  
LESS THAN

**10** MIN

BOOSTED REGULATION

**100%**  
MODBUS  
SYSTEM MANAGEMENT



CLEAN NOISELESS  
TECHNOLOGY

**0%**  
Extra dB  
THD



*Solutions you need*

