CMP – PWM Manual Command & Vdc Converter to PWM signal (20mA)

1. INTRODUCTION

1.1. Important

- Read these instructions carefully before installation.
- Before use, follow all the installation and electrical connection instructions.
- Keep these instructions with the manual command for future use.
- Observe current technical and safety regulations.
- The manual controller must be professionally installed and commissioned by a qualified technician. INCORRECT installation may cause damages.
- DO NOT tamper with or REMOVE manual controller components; this NULL AND VOIDS THE WARRANTY and can cause damages.
- According to safety regulations, protection against any contact with live parts must be ensured by correct manual controller installation; all parts that ensure protection must be secured so as irremovable without the help of a tool.
- NEVER touch electrical circuit parts when the power is on.
- Install the manual controller in a position protected from direct sunlight.
- Make sure working conditions (working temperature, humidity, etc.) are within the indicated limits (see point 4).
- Do not install the manual controller near heat sources (resistances, hot air ducts, etc.) where room temperature can exceed 50 °C, devices that generate strong magnetic fields, sites subject to rain, humidity, dust, excessive mechanical vibrations or shocks.

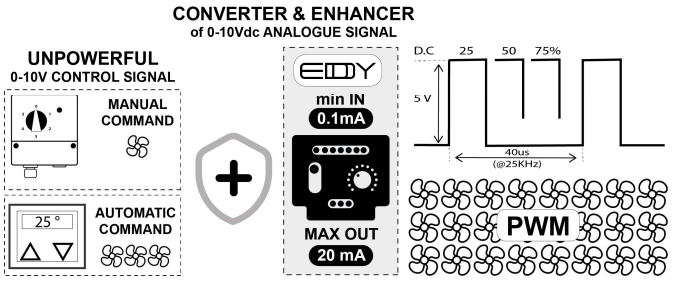
2. CMP REGULATOR UNIT DESCRIPTION

2.1. Overview

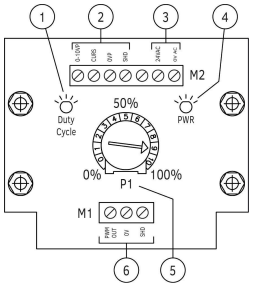
The devices of the "EDDY" series, in the 20mA CMP version, are electronic regulators with extended multifunctionality, with 24 Vac power supply, to generate the PWM command (std. 25 KHz), and/or convert the 0-10Vdc input command signal , to generate the enhanced PWM command (pulse with modulation) (max 20 mA), towards the network of electrical devices, such as EC fan motors, motorized actuators and devices manageable with PWM signal.
The CMP regulator is a device that can work in different functional modes, as MASTER, as SLAVE and always as BOOSTER of the 0-10Vdc input command signal, with integrated Active FAIL SAFE (*) function, which guarantees the continuity of the regulation and the active Intrinsic Safety of the system, even in case of Emergency:
1) In the MASTER function, it directly generates the PWM command adjustable from 0 to 100%.
2) In the SLAVE function, it converts the 0-10Vdc input command to the needs of the system to be regulated, enhancing and stabilizing the command signal for the PWM network.
With the BOOSTER function, always active in all modes, the regulation command is stabilized and amplified from 0.1 mA to 20 mA, to manage the proportional regulation of the "System" actuators in a PWM network in a continuous and efficient way.
On the regulation circuit there are components and active and passive protections, on the input, on the command output and on the power supply.
(*) Active FAIL SAFE: function for automatic insertion of the PWM command at the value set with P1, in the event of interruption/failure to the 0-10Vdc remote command signal (Emergency By Pass).

***ATTENTION* : the PWM command generated by the converter is structured for the amplified CONVERSION (max 20mA) of the PWM signal at 25 KHz**

Graphical exemplification of the 0-10V functional regulation command power LIMIT, and of the effective ENHANCEMENT of the 0-10Vdc command signal through EDDY, and the relative amplified CONVERSION in PWM

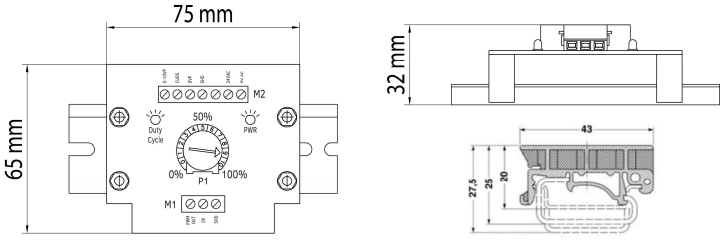


2.2. Legend



Legenda PWM		
1	DL2	Duty Cycle signaling LED
2	M2	0-10 Vdc input
3	M2	24 Vac power supply
4	DL1	Power supply signaling led
5	P1	PWM output manual control trimmer
6	M1	Enhanced PWM output (max 20mA)

2.3. Mechanical dimensions



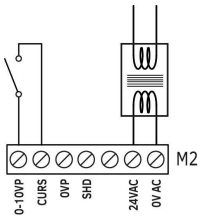
The instrument must be disposed of in accordance with local regulations regarding the collection of electrical and electronic equipment.

2.4. Installation

Rest and hook the control board supports to the omega/C bar after having correctly positioned the special hooking supports supplied.

2.5. Functionality and Electrical Connections

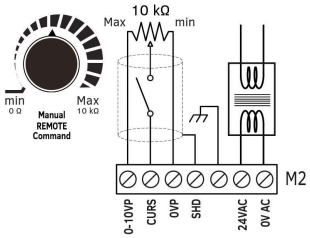
2.5.1. Manual command (P1) with external ON-OFF contact (Speed-UP)



Based on the status of the ON-OFF contact, connected between CURS and 0-10VP, the PWM OUT output behaves as follows:

- Contact OPEN > PWM output command at the value of P1
- Contact CLOSED > fans controlled at 100% (Speed-UP)

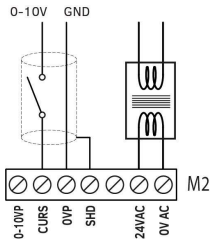
2.5.2. Remote manual control with POTENTIOMETER and ON-OFF contact, with Active FAIL SAFE function (*)



Based on the status of the ON-OFF contact connected in series between CURS and the cursor of the external potentiometer, the PWM OUT output behaves as follows:

- Contact OPEN > PWM output command at the value of P1
- Contact CLOSED > PWM output regulated according to the 0-10Vdc command generated by the external potentiometer

2.5.3. Remote automatic control with THERMOREGULATOR and ON-OFF contact, with Active FAIL-SAFE function (*)



Based on the status of the ON-OFF contact connected in series between CURS and the external 0-10V Master signal, the PWM OUT output behaves as follows:

- Contact OPEN > PWM output command at the value of P1
- Contact CLOSED > PWM output regulated according to the 0-10Vdc command coming from the external automatic signal

(*) Active FAIL SAFE: function for automatic insertion of the PWM command at the value set with P1, in the event of interruption/failure to the 0-10Vdc remote command signal (Emergency By Pass)

3. LED & SIGNALS

3.1. Display and Signaling Led

Led	Colore	Label	Description
DL1	GREEN	PWR	Power present - OK (steady light)
DL2	RED	Duty Cycle	PWM output present – OK (fixed light variable intensity)

4. TECHNICAL DATA

Electrical data
Power supply : Alternating voltage 24 Vac (±10%) - Imax 190 mA.
Frequency: 50/60 Hz

OUTput signal PWM
Amplitude: 0-5 V @ max 20 mA
Frequency : 25KHz +/-10%
Duty Cycle : 0….100%

Electric connection
Flexible cable section
Rated section: ≤1.5 mm² (16 AWG)
Torque: ≤ 0.6 Nm

Protections
Protection grade: IP00 for DIN-rail application (omega or C bar)
Power supply: with PTC resettable fuse for short-circuit protection

Working conditions
Working temperature: from -20 °C to 55 °C
Storage temperature: from -25 °C to 75 °C
Humidity: from 0% to 85% non-condensing relative humidity
Vibrations: ≤ 1 g (9.8 m/s²)

Assembly
Assembly: in electric panel on omega/C bar (DIN-rail)

5. DIRECTIVES AND TECHNICAL STANDARDS

The essential directive requirements are met by compliance with "generic standards" for the industrial environment

5.1. CE – Declaration of conformity

Directive	Standard code	Version
EMC 2014/30/UE	EN 55014-1 EN 55014-2 EN 61000-3-2 EN 61000-3-3	2023-09 2021-11 2024-06 + /A1 /A1 2021-07, /A2 2022-07
Safety 2014/35/UE	EN 60335-1	2025-06
RoHS	EN 50581	CEI EN IEC 63000:2019-04 CEI EN IEC 63000:2021-03

5.2. UK – Declaration of conformity

Directive	Standard code	Version
EMC	BS EN 55014-1 BS EN 55014-2 BS EN 61000-3-2 BS EN 61000-3-3	2023-09 2021-11 2024-06 + /A1 /A1 2021-07, /A2 2022-07
Safety	BS EN 60335-1	2025-06
RoHS	BS EN 50581	CEI EN IEC 63000:2019-04 CEI EN IEC 63000:2021-03