renova
WE NEVER LOSE CONTROL

web tension control systems

web tension control systems

Integrated systems for web tension regulation

We know that producing quality laminates requires very high web tension control.

For this reason we provide a very wide range of integrated systems for the web tension regulation in closed-loop system or open-loop system that stand out for their maximum:

- accuracy;
- linearity;
- user-friendliness;
- precision;
- flexibility.

Load cells, amplifier, control panel, transducer.
Their function is crucial as they keep constant the desired web tension, avoiding the possibility of material breakings in any phase of web processing.

On unwinders, they are ideal with our pneumatic brakes or magnetic powder brakes.

CLOSED LOOP TENSION CONTROL

1. Load cells (or dancer roller) – detect the web tension and send an input signal to the control panel.

2. Control panel – compares the web tension detected with the ‘set point’ and send the input to the brake (or motor). In case of pneumatic brake, an electropneumatic converter would be necessary in order to convert the electronic signal into compressed air signal to the brake.

3. Brake (or motor) – adjust the torque (or rpm if a motor) in order to obtain the web tension required.

REGULATION WITH LOAD CELLS

REGULATION WITH DANCER ROLLER

OPEN LOOP TENSION CONTROL

1. Ultrasonic sensor – by emitting an ultrasonic pulse towards the reel and reading the signal reflected, detects the reel diameter.

2. Control panel – receives the reel diameter information from the ultrasonic sensor and gives to the brake an automatic signal.
   a) In case of pneumatic brake, an electropneumatic converter would be necessary in order to convert the electronic signal into compressed air signal to the brake.
   b) In case of magnetic powder brake, a power supply module can replace the control panel.

3. Brake (or motor) – adjust the torque (or rpm if a motor) in order to obtain the web tension required.

REGULATION WITH ULTRASONIC SENSOR

REGULATION WITH POTENTIOMETER OR PRESSURE REGULATOR

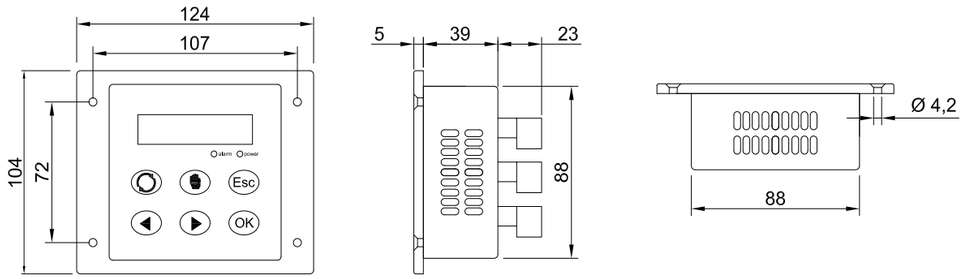
ISOMATIC

CONTROL PANEL

The Isomatic is suitable for various applications in both closed-loop and open-loop systems.
The Isomatic reads the input signal from the load cells (or dancer roller), compares the web tension value with the predetermined reference “set point” and gives the input to the brake (or motor) to adjust the web tension.

The Isomatic control panel particulary stands out for its user-friendliness; compact and easy to use, it is extremely versatile to meet all requested feautures with the highest reliability.

- Complete management of PID functions
- Compensation of reels inertia in different stages
- Programmable acceleration and deceleration time instead of the set point
- Management program for rolls change no-stop

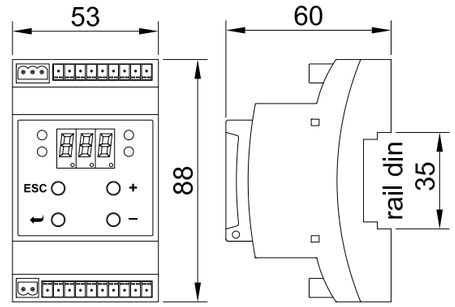


	TECHNICAL DATA
supply	24 VDC
capacity	5W max (no load)
cells analogue input	0÷10 mV (type 1,6mV/V)
analogue input	0÷10 V / -20 mA
analogue output (2X)	±10 V
capacity output	0÷24 V / 10 A
digital input (4X)	24 V (PNP)
output input (4X)	24 V (PNP, max 100 mA)
degree of protection	IP20 (case), IPS4 (frontal panel)

AL PWX 5A

POWER SUPPLY MODULE

Power supply module with microprocessor and current-controlled output for a precise control of the braking torque, regardless of the brake temperature. Analog inputs for torque reference signal and serial communication RS485 for the control and programming with Modbus protocol. Digital inputs and analogue outputs for a wide management of main functions.



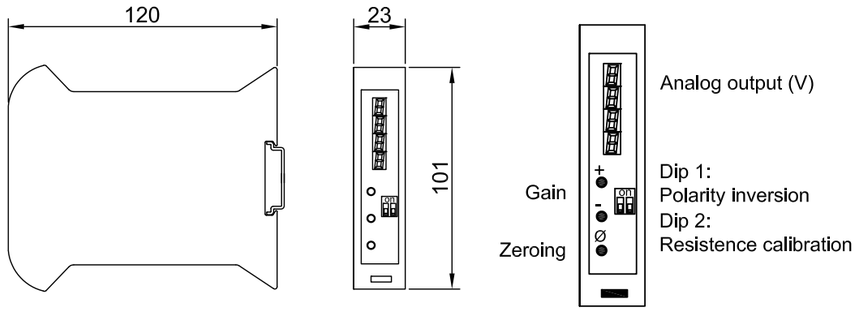
	TECHNICAL DATA
power supply	12÷27 V AC or 12÷36 V DC
set power output	Adjustable from 1A to 5A, current-stabilized output, regulated through the reference analog inputs. Reference nominal tension 24V DC
power output	24 VDC 200 mA for sensors power supply (eg: ultrasonic)
set point auxiliary output	10 VDC 50 mA (control through potentiometer 5 kohm)
digital inputs	3 dedicated digital inputs with configurable activation level through JP2 (0V or 24VDC); FREE/BRAKE/DEMAG functions
digital outputs	2 set-point analog inputs 0÷10 VDC and 4÷20 mA
analog outputs	2 configurable analog outputs (supplied power or set point)
comm interface	RS485
jumper	JP1: RS485 termination; JP2: set up digital input activation mode
LEDs	2 for functioning and programming check; 2 for activated pre-programmed functions check
function	PSW protection - Automatic Demag function – Display value setting - Smart Dancer
operating temperature	+0°C / +70°C
available versions	DIP-SWITCHES user interface (mod. ALPWX-5A-DSW) LED DISPLAY user interface (mod. ALPWX-5A-LED)

RESET

AMPLIFIER

Digital measuring amplifier for connecting two load cells with strain gauge bridge.
Its compact size, user-friendliness and easy installation allow the Reset amplifier to be extremely flexible and precise at the same time, with high long-term stability and excellent linearity.
It is equipped with a 24-bit acquisition circuit with programmable gain, of 3 analog outputs to a control unit and a digital input for a reset of the outputs from remote.

- Microprocessor at 24 bit
- Assembling on DIN guide step of 23 mm
- Four digits display
- Also available with RS485, CANopenor Profibus DPV1 DS404 interfaces



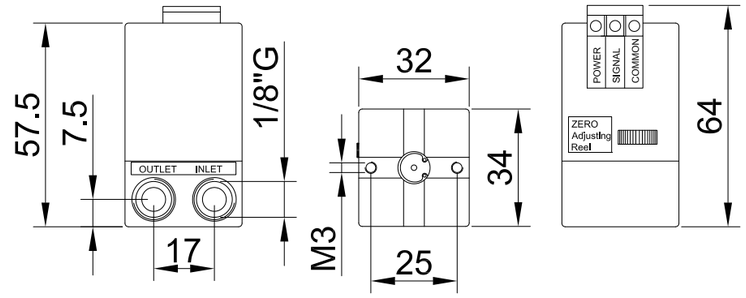
family identifier	interface code	description
ADS - R	-	standard solution
	D	with RS485 interface
	P	with Profibus interface (DPv1)
	C	with CANopen interface (DS4D4)

EP CONVERTER

TRANSDUCER

Converts the electrical signal provided by the Control Panel into compressed air and provides the input to the pneumatic brake.
Can be used for the web tension control in both closed-loop and open-loop system.

- Maximum precision and accuracy
- Very compact dimensions: it can be easily placed near the brake it is connected to, in order to obtain the maximum performance.
- Power supply 24 VDC
- Signal 0-10 V

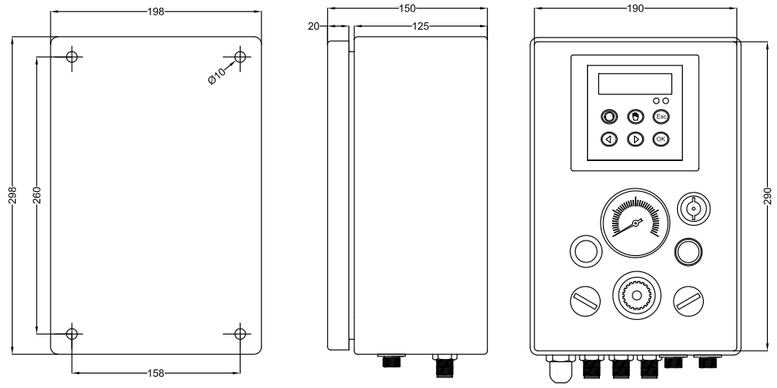


	TECHNICAL DATA
medium	oil free, dry air, filtered to 5 µm
output pressure 0-6 BAR (0-90 psi)	0-6 BAR (0÷90 psi)
supply pressure	minimum 1,5 BAR (22 psi) above max output pressure
electrical connection	0÷10 V / 4÷20 mA
supply	24 VDC ± 10%
flow capacity	forward: < 200 l/min (7 scim); relief: < 180 l/min (6 scim)
air consumption	√6 BAR (90 si) ≤ 3 nl/min
degree of protection	IP30
electromagnetic compatibility	compliant with EC requirements
materials	diaphragm: nitrile; base: zinc casting; spacer: aluminum

ISOBOX

CONTROL BOX

Isobox is an integrated system for the automatic tension regulation of the Isomatic (control panel) and Ep converter (transducer). Isobox is easy to use and ready to mount. Thanks to its high flexibility, it can be customized to suit dfferent applications and can be configured to work with load cells, dancer roller or ultrasonic sensor for the web tension control both in the closed-loop system and the open-loop system.

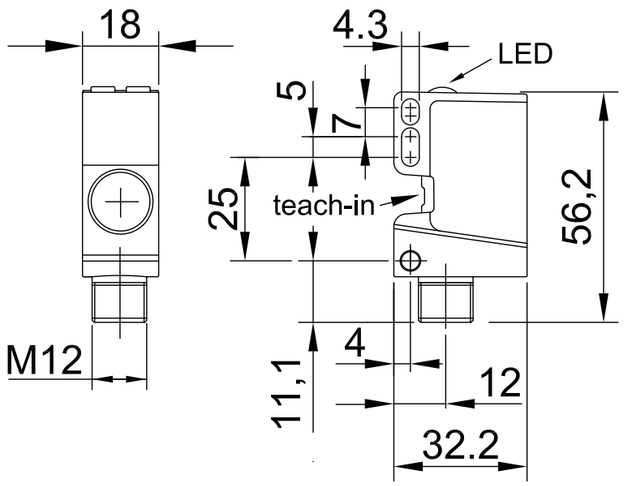


	TECHNICAL DATA
input supply	220÷240 V; 50÷60 Hz; 3,2 A
input pressure	max 8 bar
input load cell signal	2x6 pin connector EN 60529
output supply	24 V; 6,25 A
output pressure	0÷6 bar
drives	left brake and right brake; manual and automatic mode
security	on/off electrical button
regulation	automatic regulation by panel and manometer; manual regulation by manual regulator and termometer
operating temperatures	0÷50 °C

USX 5000

ULTRASONIC SENSOR

Ultrasonic sensor with programmable measurement field

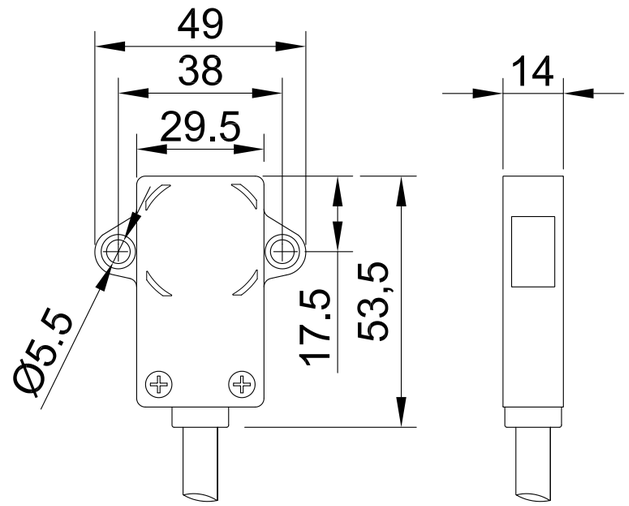


	TECHNICAL DATA
power supply	12÷13 Vdc; 35 mA
angle of measurement	70÷1000 mm programmable
resolution	< 0,3 mm
repeatability	< 0,5 mm
time of response	< 40 ms
operating temperature	from -25 °C to +65 °C
output	analog 0÷10 V; 2 digital push pull
output current	< 100 mA
LEDs	LED for power supply + LED for measurement field

SAX 360

ANGULAR SENSOR

Non-contact inductive angular sensor with programmable angle of measurement.



	TECHNICAL DATA
power supply	15÷30 Vdc; 100 mA
angle of measurement	0÷360° programmable
resolution	12 bit
repeatability	≤ 0,025% full scale
operating temperature	from -25 °C to +70 °C
outputs	analog 0÷10 V or 4÷20 mA programmable
LEDs	LED for power supply + LED for measurement field

MADE IN ITALY
Our products are 100% designed and made in Italy

INNOVATION
We provide solutions that increase productivity and safety levels while reducing maintenance costs and procedures

SUPPORT
Our staff is always available to answer your questions, also in the after-sales phase

QUALITY
All Renova's products are managed by TUV ISO 9001

CUSTOM PROJECTS
Projects large or small, we work with you to provide the solution that fits

SUSTAINABILITY
Sustainable products, sustainable company.
Renova has joined Erion

renova
WE NEVER LOSE CONTROL

renova
WE NEVER LOSE CONTROL

renova srl
viale rimembranze 93
20099 sesto san giovanni
milano - Italy

t +39 022700739
f +39 0225708635
m info@renova-srl.com

www.renova-srl.com

web tension control systems