

The Concept: Pro_Con series process controllers are intended for automatic control of small & medium size machines & equipments. It is a very cost effective solution for machines & equipments that are repeatedly manufactured. Pro_Con is a complete control system that shall replace systems based on hard-wired logic / timer & counter logic / PLC at much lower price & provide additional features. The system is built around industry standard 8051 family micro-controllers that has a proven track record over last 15 years.



Key Benefits over existing system:

If the machine is based on hard-wire / timers & counters:

- 1) Up to 32 timers & counters
- 2) Settings through front display & keypads.
- 3) Different settings can be stored as multiple recipes & can be called back.
- 4) Online faults / status indication
- 5) Self & system diagnosis.
- 6) Network connectivity.
- 7) Minimal wiring.
- 8) Internal power for external sensors, indicators etc.
- 9) Aux power : 185 to 270VAC/DC
- 10) Compact in size
- 11) Cost wise same or better

If the machine is based on PLC

- 1) Up to 32 timers & counters
- 2) Built in MMI.
- 3) Different settings can be stored as multiple recipes & can be called back.
- 4) No additional relays or power supply etc. required.
- 5) Online faults / status indication
- 6) Self & system diagnosis.
- 7) Network connectivity.
- 8) Internal power for external sensors, indicators etc.
- 9) Aux power : 185 to 270VAC/DC
- 10) Compact in size
- 11) Reduction in overall system cost from 30% to 80%

Architecture: Pro_Con series process controllers are available in 3 basic models.



MODEL NO	NO OF INPUT/OUTPUTS	ARCHITECTURE
Pro_Con_13	13	1 Main Unit having integrated I/Os : 8 DI + 5 Relay outputs on the back panel.
Pro_Con_24	24 +	1 Main + 1 I/O module + 1 Expansion port
Pro_Con_48	48 +	1 Main + 2 I/O module + 1 Expansion port

Digital I/Os : For Pro_Con_13, digital I/O modules are mounted on the back panel of the main unit. For Pro_Con_24 & Pro_Con_48, these are interfaced with the main unit with flat ribbon cable & connector provided on the back of main unit.

PARAMETER / FEATURE	SPECIFICATIONS
Inputs	18-30VDC, 5mA
Outputs	Pro_Con_13 : Relay : Sunhold / Lion or equivalent , sugar-cube Contact rating : 230VAC / 24DC @ 5 Amp Pro_Con_24 & Pro_Con_48 : Relay :Omron G2R Contact rating : 230VAC / 24DC @ 5 Amp Coil :24VDC, 25mA
Input Indication	Red LED
Output Indication	Red LED
Termination	Screw type, suitable for 1.5 mm sq wire

Analog I/Os: For Pro_Con_24 & Pro_Con_48, these are interfaced with the main unit through D connector provided on the back of the main unit. These cards are suitable for 0-10VDC or 4-20mA input & output signals. Other input modules are available with potentiometer, load cell, thermo-couple, thermister, AC signals etc.

Special I/Os: Pro_Con_24 & Pro_Con_48 are also featured with special I/Os such as pulse, frequency, PWM , stepper motor driver, high speed interrupt, additional LCD/LED display/ keyboard, supply line synchronous output, solid state relay, etc.

Networking: Networking of multiple Pro_Con_24 or Pro_Con_48 controllers along with PC is possible through protocol converters. Online data acquisition for MIS & centralized control can be established.

Programming : The software programming shall be done by our engineer based on the data provided. This data may include ladder diagram, screen architecture, flow chart, descriptive literature or a working sample unit. Our engineer shall do the software design considering the following:

- 1) Ease of operation
- 2) Minimum setup time
- 3) Easy navigation through various screens
- 4) Maximum possible productivity
- 5) Best quality product output
- 6) Minimum wastage
- 7) Safety of operation
- 8) Future requirements.

Due to continuous development, the details are subject to change without prior notice.
 For other details & specifications please contact us.
 We welcome development of products to suit your specific requirements.

General Specifications :

PARAMETER/FEATURE	Pro_Con_13	Pro_Con_24	Pro_Con_48
Display	16x2 LCD with backlit	16x2 LCD with backlit	16x2 LCD with backlit
Keys	5 Navigation + 2 Soft + 2 Function keys	5 Navigation + 2 Soft + 2 Function keys	5 Navigation + 2 Soft + 2 Function keys
Field Input/output	Direct connection	Through I/O modules	Through I/O modules
Internal power sourcing for external elements	12VDC : up to 0.5 Amp	24VDC : up to 0.8 Amp	24VDC : up to 0.8 Amp
Aux Supply	185-270 VAC/DC, 1 Amp max	185-270 VAC/DC 1 Amp max	185-270 VAC/DC 1 Amp max
Dimensions	96 x 96 x 105	96 x 96 x 130	96 x 96 x 130
Mounting	Flush at the front	Main Unit : Flush at the front I/O modules : 35 mm Din rail	Main Unit : Flush at the front I/O modules : 35 mm Din rail