



## Panel Build & Supply Data Sheet

### Introduction

Aztec is able to build various panels as listed below,

- All Automation related panels such as PLC control panels, Remote HMI panels, Remote IO panels, etc.
- Motor control panels, Power distribution panels, Marshalling panels, C&R panels, Pneumatic panels, etc.

### Panel Specification:

- All control panels / cabinets shall be supplied in pre-tubed / pre-wired condition and shall be completely tested at manufacturer's works prior to dispatch.
- Control panels shall be free standing type and fabricated preferably from 3 mm thick cold rolled steel sheet. Hot rolled steel sheet of higher thickness shall be used in case 3 mm thick sheets are not available.
- Enclosed cubicle panels shall have removable hinged doors, generally at the side or back for easy maintenance and accessibility of the instruments.
- Doors shall be double leaved type with handle and shall be provided with lock and key. Cubicles inside control room shall be provided with exhaust fans and louvers.
- Panels shall be provided with lifting hooks.
- Adequate illumination shall be provided inside the panel. All light fittings shall be suitable for 230 V, 50 Hz ac.

### Panel Wiring:

- Open terminals shall generally be avoided. Terminal strips shall be of reputed make. Terminals shall be mounted in an enclosure. Fused terminals shall be used wherever necessary.
- All terminals shall be mechanical screw clamp type with pressure plates. Self insulating crimping lugs to be considered for terminations. Wire lugs to be used for all terminations on terminal blocks whereas forked tongue type lugs to be used for termination on relays, alarm annunciator, instruments etc., Terminal shall be suitable to accept 2.5 sq. mm size conductors. Ferrules shall be sleeve type.
- Terminal strips and terminals shall be suitably numbered.
- A minimum of 1 mm<sup>2</sup> multi stranded PE insulated copper conductor shall be used in general.
- All wiring shall be laid in PVC troughs. No trough shall be more than 70% full.

- Thermocouple extension cables / wires shall be used for all thermocouple inputs. These wires shall be routed in separate troughs / wire-ways.
- Wires carrying measurement signals associated with thermocouples, resistance thermometers, pH instruments and other low level signals shall be routed in separate troughs / wire ways and not along with power cables.



### Tools Required:

- Hand Drill Machine
  - Aztec Able to Drill up to 10mm holes.
  - With Reverse / Forward rotation.
- Ferrule Printing Machine
  - Prints wire numbers on tubes with sizes from 2.5mm to 6mm.
  - Able to print on Normal tubes & Heat shrinkable tubes.
  - Prints labels on 6mm/9mm/12mm Self Adhesive Tapes.
  - With USB Option, PC connectivity.
- Other miscellaneous tools such as Digital Multimeter, Screw Drivers, Wire Strippers, Wire crimping tool, Spanners, Cutting pliers, etc.

### Panel Building at Aztec:

- Below are two sample PLC control panels built at Aztec Facility for Shilpa Medicare Pvt. Ltd., Raichur.
- Siemens S7-300 ET200S series PLC's have been used in these panels, with #232 and #100 IO capacity,
- MCB's, Fused Terminal Blocks, Relay modules, Receptacles, etc. are few of its internal components.



- First looks of the Enclosures after unpacking.

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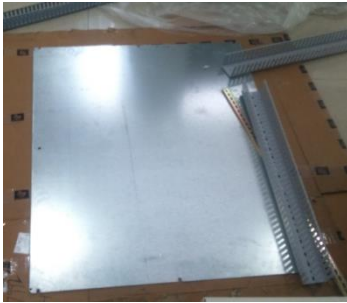
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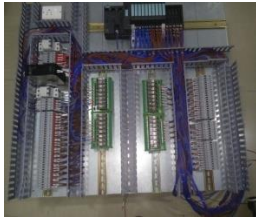
- Components mounting plate after detaching from the Enclosure.



### Local Gauge board:

- Local gauge board shall be used to install skid mounted instruments like pressure gauges, temperature gauges, process switch and transmitters.
- Location of local gauge boards shall be such that easy access is available at the rear and front for all instruments and accessories for maintenance and operation.
- All pressure gauges shall be provided with block and bleed valves, securely fastened. Identification tags shall be securely fastened for easy identification.
- Space in front of the panel shall be unobstructed for 1500mm minimum. Rear access space shall be 1000mm minimum.
- Push-buttons shall be between 1.0 to 1.5 meters above the same level.

### Initial stages of wiring



### Final stages of wiring



### After completion of panel wiring



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