

Control Panels or FBA (Factory Built Assembly) as IEC calls it are tailor made products. Good electrical practice as well as Electricity Rules of National and State bodies require use of number of components for control and protection of any electrical installation and it's feeder circuits. Also requirements of modern industry, such as centralization of control, safety, ease of maintenance, reliability, saving of space, simplification of branch circuit cabling and neatness of appearance etc, have ushered in an era of sophistication in Panel building. Necessity of accommodating more functional blocks in lesser space has also led to development of newer concepts in Control Panel manufacturing.

In spite of parameters being very elaborate, standardization in a number of aspects in Control Panel is possible without making the product too expensive and that is what we, at Electronic Systems have achieved.

Broadly, panels made by us are classified into three basic categories, viz. **Cubicle type (TC)**, **Modular Non Utilised type(TA) & Modular Utilised type (TU)**. Each of these categories is subdivided into various types depending on the different features required. A brief description of each of the types is given hereunder.

## CLASSIFICATION OF PANELS

### Type TC :

Ideally suited for Control and Relay Panels or equipment Control Panel (instrument panel etc.) in the floor mounted version or Lighting DBs, Remote Control Stations etc. in wall mounting versions. These are simple cabinets with properly laid out and wired switchgear inside. All wiring is in PVC ducts and cable terminations are on vertical rows of terminals. Floor mounted version either has a fixed front sheet or hinged doors. Bolted structure with mounting flexibility is also a popular option for floor mounted version.



TC

### Type TA1M :

This is a classic two tier design ideal for distribution boards, central busbar chamber is flanked by one tier of modules at the top and the other tier at the bottom. Cable terminations for bottom tier are in front and those for top tier are at the back. Extendable on both sides. Back access is a necessity.



TA1M

### Type TA1 :

Only horizontal busbar chamber placed at the top or at bottom. Common cable alley placed on opposite side of busbar chamber (bottom or top) depending on cable entry requirement. Boards extendable on both sides. Economical design. In Which wires from BBC to modules and those from modules to cable alley, pass through intervening modules.



TA1

### Type TA 1A :

Problem of wires passing through intervening modules is solved in this design by providing wire ways between two vertical columns of modules. All wires from BBC to modules and those from modules to cable alley pass through these wireways. This is a very popular design for MCCs, that combines economy of type TA1 and extra reliability of utilised designs type TU.



TA1A



TA 2

Type TA 2 is other version in TA design and has a vertical busbar chamber and a vertical cable alley with modules sandwiched in between. These are not extendable but have feature of cable entry both from top or bottom.

### Type TU :

Top of line design in fixed type compartmentalised switch boards and MCCs. These are of utilised design. Each of the units has a horizontal busbar chamber at the top or bottom. A vertical busbar chamber at the side (TU 1) or back (TU3) of each unit and a unit cable alley at the back (TU 1) or the side (TU3) of each unit.



TU1



TU2

Both TU 1 and TU3 have to have back access, the dead front version in this design (with no back access) has vertical busbars on one side of module and unit cable alley on other side and is designated as TU2. All vertical busbars on one side of module and unit cable alley on other side and is designated as TU2. All designs in TU series are extendable on both sides.

### General :

All enclosures are fabricated from good quality steel sheet of thickness 10/14/16 swg as per design requirement. Structural members of panels are designed to withstand electrical and mechanical stresses that are encountered by switchgear. Enclosures can be provided with degree of protection up to IP 55. Enclosures are offered with liquid paint or powder coat and shades as per requirement. Elaborate quality checks are ensured at every stage of fabrication & painting. Flexible Cu wire of appropriate size and colour code is used for wiring with printed ferrule as per international standard. Cu or AL busbar of electrolyte grade with PVC heat shrink sleeve used as per specification. DMC/SMC/Epoxy resin cast support used with careful design to meet short circuit requirement up to 50 KA.