

iNTELECT™ G3 Modular Switchboard System



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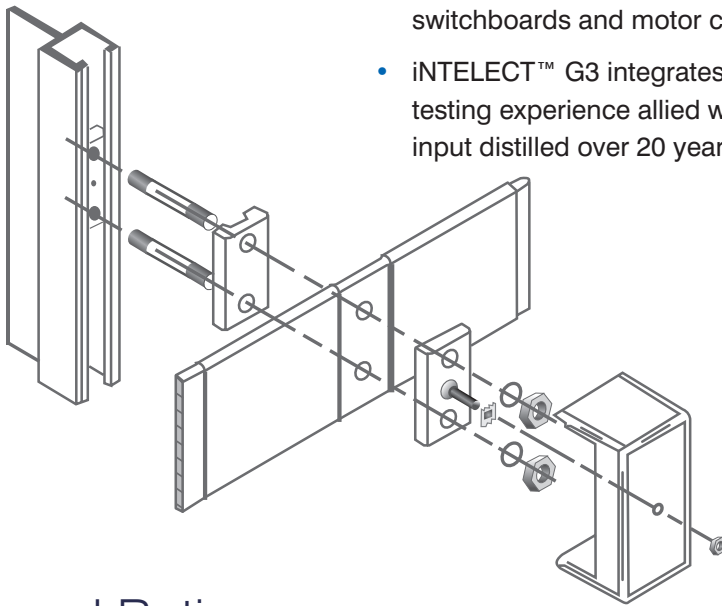
Australian Leadership in Engineered Solutions: iNTELECT™ G3

iNTELECT™ G3 Modular Switchboard System

iNTELECT™ G3 – The next generation of the proven and versatile iNTELECT™ system, proudly engineered in Australia for Australian conditions.

iNTELECT™ G3 features the strength and reliability of custom-built assemblies, coupled with the flexibility of modular construction.

- Award winning iNTELECT™ G3 benefits from years of R & D to produce the most effective design for low-voltage switchboards and motor control centres.
- Multipurpose functionality built-in for power distribution switchboards and motor control centres.
- iNTELECT™ G3 integrates our extensive manufacturing and testing experience allied with valuable customer and end-user input distilled over 20 years.



Exploded view of a typical connection between horizontal and vertical plug-in busbar at the rear of the switchboard.

Thermal Ratings

Horizontal Busbars in Single Vertical Formations (Phase Centres 210mm)

Type	Size	Material	Rating at 40°C Ambient			Rating at 50°C Ambient		
			Bars per Phase			Bars per Phase		
			1	2	3	1	2	3
	80 x 6	Aluminium	800A	1400A	1900A	700A	1200A	1600A
	80 x 6	Copper	1400A	2500A	3200A	1200A	2100A	2800A
	100 x 6	Aluminium	960A	1500A	2100A	800A	1300A	1800A
	100 x 6	Copper	1600A	2600A	3600A	1400A	2300A	3200A
	100 x 10	Aluminium	-	-	-	-	-	-
	100 x 10	Copper	1900A	3100A	4300A	1600A	2700A	3800A

Notes:

1. These ratings are derived from tests in accordance with AS/NZS 3439.1 and ensure that the operating temperature of the busbars does not exceed:
 - 105°C for copper busbars
 - 90°C for aluminium busbars
2. The current rating applies to switchboards with external panelling made from steel.
3. Cu: Copper bar HDHC
4. Al: Aluminium bar alloy 6101, temper T6.
5. Bolt in bars are not available in aluminium.

Vertical Busbars

Type	Phase Centres	Material	Rating at 40°C Ambient			Rating at 50°C Ambient		
			Bars per Phase			Bars per Phase		
			1	2	3	1	2	3
⊥	60mm	Aluminium	800A	-	-	700A	-	-
⊥	60mm	Copper	600A	-	-	500A	-	-
⊥	60mm	Copper	1300A	-	-	1100A	-	-
⊥	60mm	Copper	1400A	-	-	1200A	-	-
	120mm	Copper	1600A	2800A	-	1400A	2400A	-
⊥	120mm	Copper	2500A	4000A	-	2200A	3500A	-

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Busbars

- The iNTELECT™ busbar system is a patented matrix (or grid) pattern in which the main busbars can occupy a number of predetermined vertical and horizontal positions.
- The horizontal busbars are arranged for maximum mechanical strength and cooling, with each phase fully insulated and segregated. The vertical (dropper) busbars are fully insulated and segregated from each other and are supported over the entire length.
- The busbar system takes up almost no depth within the switchboard, yet offers maximum flexibility in switchboard design, without departing from type test certification.
- Busbar connections can be readily accessed for maintenance and present no obstacle to cables entering or exiting the switchboard from above or below. The current rating of the switchboard can be increased on site by simply adding busbars to the existing system.
- Consistent with the safety goals set for iNTELECT™, all mouldings are made from the highest grade polycarbonate, and all plastics parts used in iNTELECT™ have been tested to prove fire retardancy.



Functional Units

- **GENERAL:** Functional units are classified according to the method of mounting and the type of connection to the vertical busbars.
- **FIXED PAN:** This is primarily intended for a single device such as an MCCB or fuse-switch unit used as a feeder. Connection to the busbars are generally by a busplug. Drives and feeders over 800A would be a bolted connection to the busbars. The pan is fixed in the module by brackets and clips.
- **DEMOUNTABLE UNIT:** These are trays that move in and out of the module on runners. They are intended for motor drives. Connections to busbars are by a busplug. Outgoing conductors are wired directly to a device or to terminal blocks in or outside of the unit.

Construction

MATERIAL SPECIFICATIONS	
Base	75 x 40mm Rolled mild steel
Mullions & Ribs	1.6mm & 2.0mm Sheet steel
Roof, Base Panels	
Door, Panels, Partitions & Shelves	

SURFACE TREATMENT	
Framework, Doors, Panels, Partitions & Shelves	Powder Coated (50 micron min)
Mounting Pans etc.	Zinc Plated
Base	Powder Coated (Hot dip galvanised optional)
Internal Hardware	Zinc Plated
External	Chrome Plated

COLOUR	
Plastic Mouldings	Beige/Clear
Base & Framework	Charcoal
Shelves, Doors & External Panels	Specified Colour
Partitions	White



Corner Joints:

Use of patented base and corner joint which is a zinc and aluminium alloy used to connect the frames.



Frame Structure:

Patented superior frame structure which provides greater strength and toughness; innovative tooling process which requires a special forming process.



Polyurethane Gasket:

Doors are fitted with machine applied polyurethane gasket to prevent ingress of moisture or dust. Gasket returns to original shape even after being compressed for prolonged periods of time. No joints ensure a good IP rating.



Hinges:

Special 180° stainless steel hinges for use in all harsh environments to prevent corrosion.

Standards and Classifications

Standards and Classifications applicable to our **INTELECT™** switchboards are:

Standards

AS/NZS 3439.1 IEC 61439-1 BS EN 60439-1	Low Voltage Switchgear and Controlgear Assemblies
AS/NZS 2420	Fire Test Methods for insulation Material and Non-Metallic Enclosures for Electrical Equipment
AS 60529	Classification of Degree of Protection of Enclosures for Electrical Equipment
AS/NZS 3000	SAA Wiring Rules
AS/NZS 3947.4.1 IEC 947-4.1	Co-ordination of Short-Circuit Protective Devices

Classifications

General

Type tested low-voltage switchgear and controlgear assembly (TTA & PTTA).

Type

Multi-cubicle type assembly. Indoor installation (or contained in an enclosure for outdoor installation). Stationary.

Construction

Degree of Protection	IP42 to IP44
Pollution	Pollution degree 3
Clearance distances	20mm Min.
Creepage distances	29mm Min.

Electrical Characteristics

Rated operational voltage (Ue)	1000V max.
Rated insulation voltage (Ui)	1000V max.
Rated impulse withstand voltage (Uimp)	16kV
Rated current phase bars	Up to 6000A
Rated current neutral bar	Not less than 50% of the phase bars
Rated short-time withstand current (Icw) Phase	up to 65kA for 3 secs 80kA for 1 sec
Rated short-time withstand current (Icw) neutral bars	Not less than 60% of the short circuit rating of the phase bar.
Rated peak withstand current (Ipk)	up to 176kA
Rated frequency	50-60Hz

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