



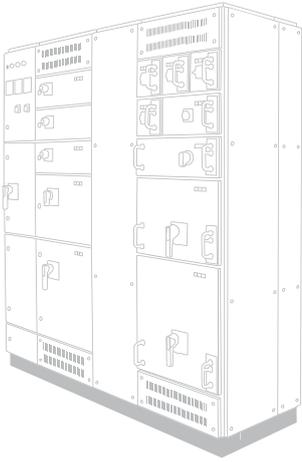
TECHNO Modular Switchboard System



TECHNO
ELSTEEL
MODULE



APPLICATIONS



IPD Industrial Products is a leading distributor of a wide variety of low voltage electrical products for the Australian Industry



Roads & Tunnels



Power Stations



RESIDENTIAL & COMMERCIAL BUILDINGS



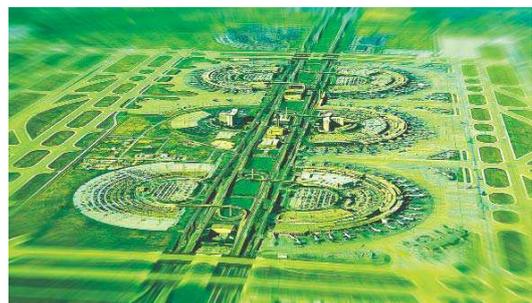
OIL & GAS INSTALLATIONS



With a highly skilled national sales force and dedicated product and engineering teams, IPD Industrial Products is able to offer a solution to match your needs.



MINING & METALS



AIRPORTS

CONTENTS


 CONTENTS:

ELSTEEL's TECHNO Modular Switchboard System is the result of several years in research, development and testing to create a cost effective and easy to assemble system suited to meet the most demanding of applications.

TECHNO is a fully modular system that enables switchboard builders to assemble type-tested boards with user-friendly estimation & design software. Being truly modular, it offers absolute flexibility in switchboard construction enabling changes and modifications to be done easily with little cost impact.

IPD offers complementary training and accreditation to switchboard builders so that the end user is assured of receiving switchboards that comply with type test requirements. IPD also offers technical and engineering support nationally.

TECHNO is made by Elsteel with QA accreditation and international approvals with factories in Denmark, Poland and Sri Lanka.

-  Framework
-  Internal Plates
-  Busbar System
-  Busbar System Accessories
-  Compartments - Fixed Type
-  Compartments - Fully Withdrawable
-  Switchboard Accessories
-  Special Control Units
-  Design & Estimation Software
-  Constructors Manual
-  Accreditation
-  References
-  Schedule of Tests


 TECHNO
ELSTEEL
MODULE




FRAMEWORK

The framework is made up of:

- Base Corners
- Plinth Profiles
- Corners
- Corner Bars
- Crossbars

Structure members range from 200mm up to 2400mm.

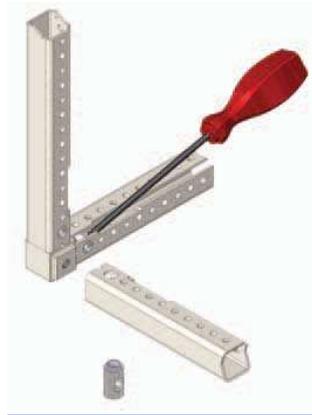
The structure is made from 2mm cold rolled electrogalvanised powder coated steel profiles with tapped holes at every 25mm forming a 25mm grid.

Untapped holes are located at every 12.5mm

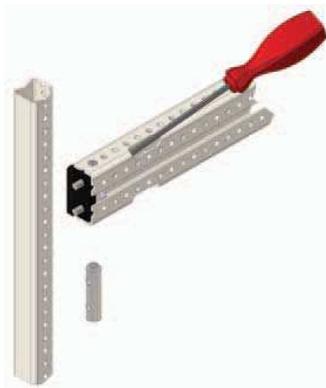
The base profiles include pre-cut holes to facilitate lifting of the switchboard.

All structural members of the framework are screwed together with captive screws to ensure rigidity & earth continuity.

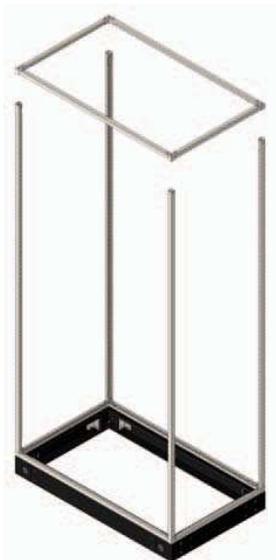
Modular indicators are provided at every 200mm for easy identification during assembly.



CORNER & CORNER BARS



CROSSBAR



PLINTH & CORNER BAR ARRANGEMENT



INTERNAL PLATES



SEPARATION & MOUNTING PLATES

Internal separation up to Form 4b can be achieved using standard parts -

- Mounting Plates
- Separation Plates
- Standard Compartments

Internal separation plates and mounting plates are modular, metallic and offer IP2X protection.

All internal parts are painted white.

FINISH:

Doors and covers are dished and made of 1.5mm mild steel with an epoxy polyester powder coated smooth finish.

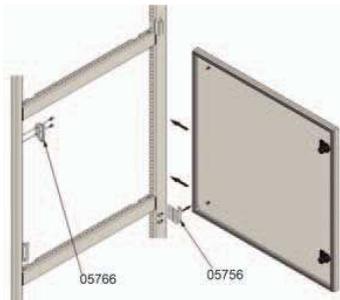
2mm doors & covers are available on request

Flat covers are available as an option.

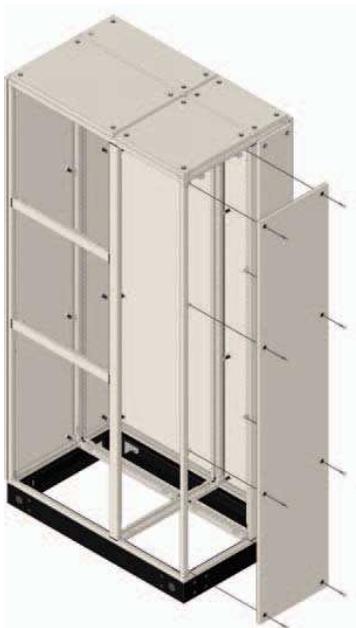
The framework and cladding is stocked in Grey RAL 7032 & Orange RAL 2000

Doors may be hinged left or right.

Degree of protection is to IP55



DOOR



COVERS





BUSBAR SYSTEM

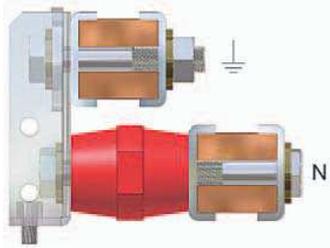
The busbar system is designed around 10mm wide flat bars and has been tested extensively for ratings up to 7100A / 100kA.

Busbars can be mounted at the top or bottom & can be arranged for front or back access.

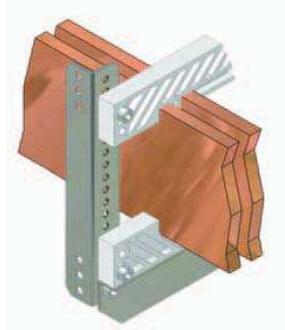
The busbar holders have a unique clamping method that negates the need for drilling holes.

The holders are modular in size to suit all tier widths.

There are several types of busbar holders to suit various types of switchboard arrangements.



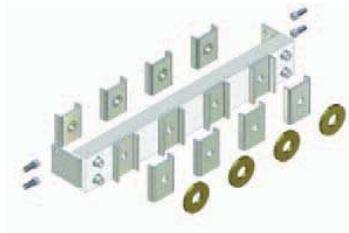
E+N BRACKET



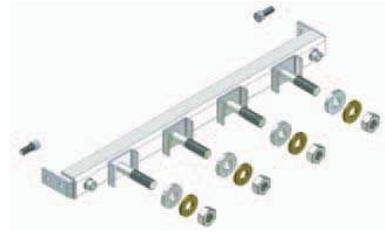
"UBH" BUSBAR SUPPORT



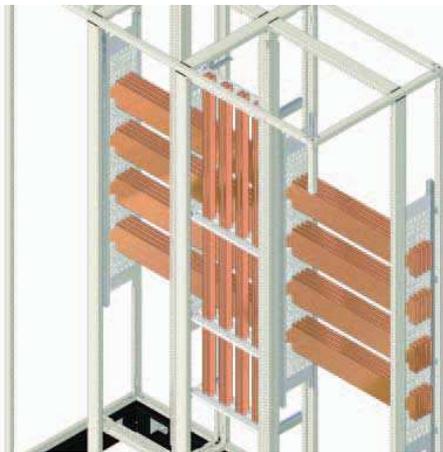
"MAB"
BUSBAR SUPPORT



"BH" BUSBAR SUPPORT



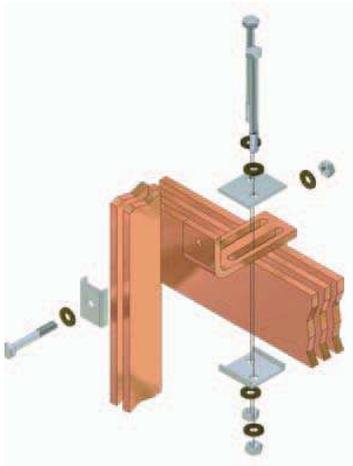
"DH" BUSBAR SUPPORT



BUSBAR ARRANGEMENT WITH MAB
& UBH SUPPORT



BUSBAR SYSTEM ACCESSORIES

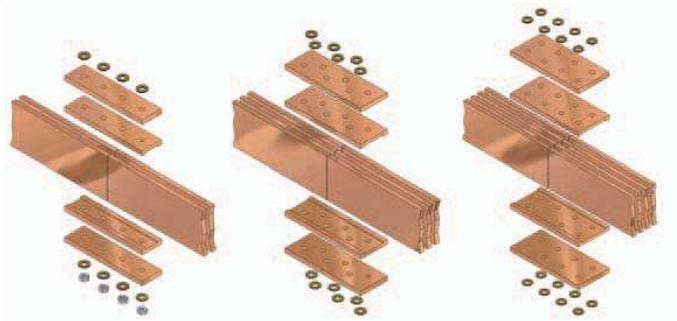


HORIZONTAL TO VERTICAL CONNECTOR

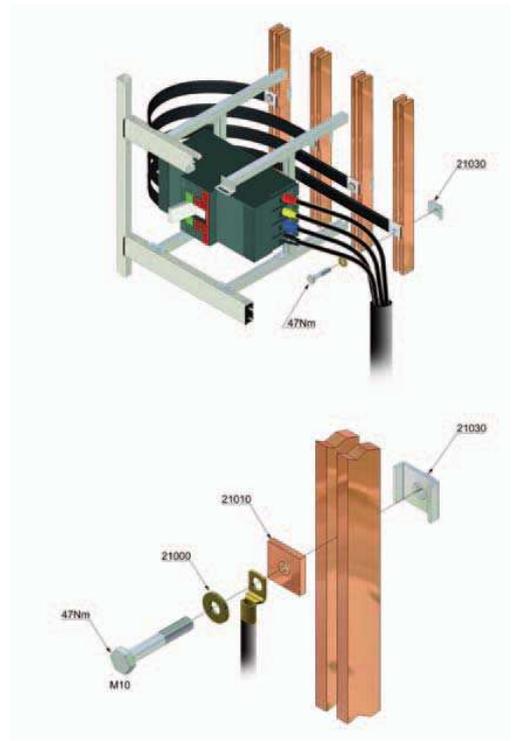
Connections from main horizontal to vertical busbars can be made using standard Horizontal-Vertical connectors or cylindrical copper spacers.

Connections to devices from dropper busbars are achieved using busbar tap-off sets. These connections may be of cable, flexible copper or solid copper bars.

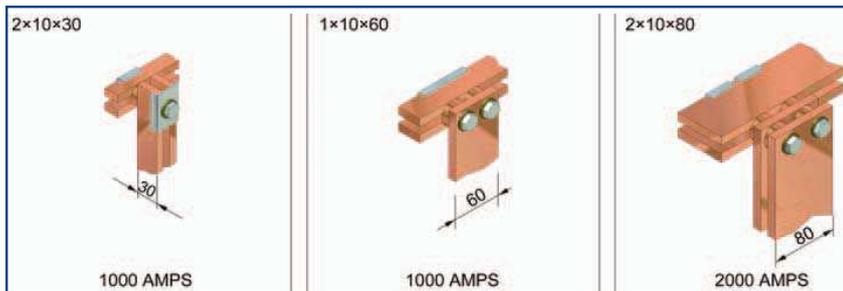
A choice of fish plates allows busbar extensions & joints to be done easily.



FISH PLATES



BUSBAR TAP-OFF SETS



COPPER SPACERS



COMPARTMENTS - FIXED TYPE

Compartments to FORM 3a, 3b & 4a are available in modular sizes from 400W x 200H x 200D up to 600W x 600H x 400D.

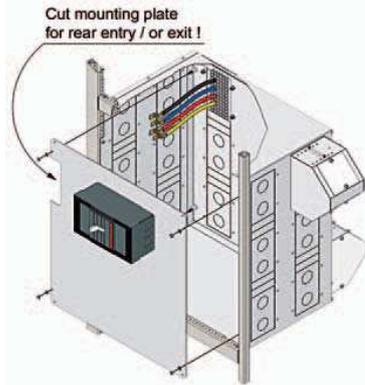
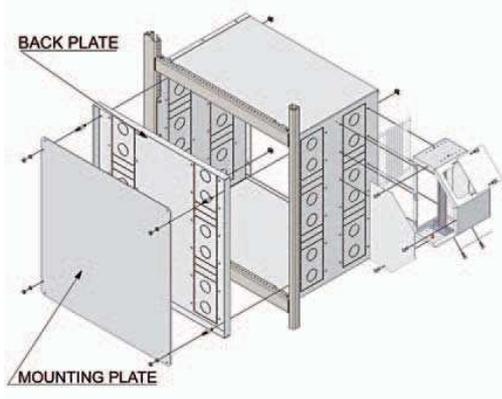
FORM 4b can be achieved using cable boxes.

Compartments are made up of 1.2mm mild steel, painted white and include mounting plates.

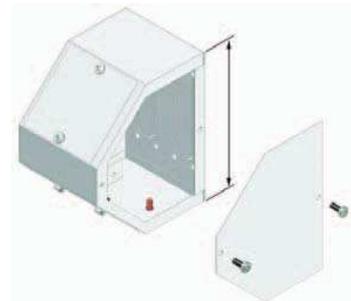
Larger size compartments are formed using separation plates.

Compartments come flat and are bent into shape using a simple bending tool.

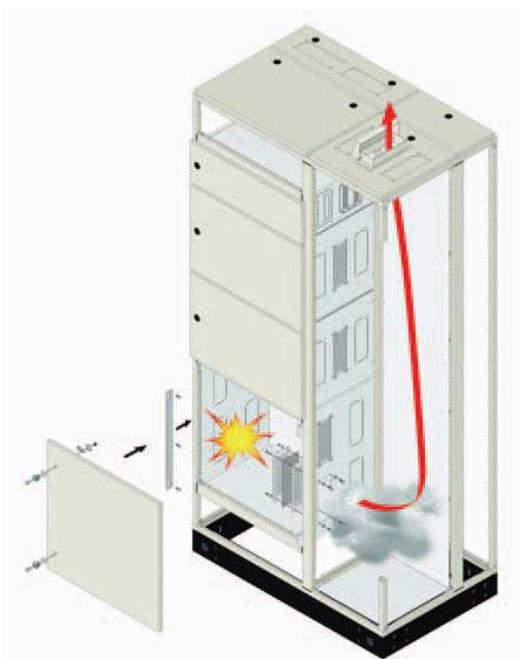
Knock outs are included for incoming & outgoing connections.



FIXED TYPE COMPARTMENT



CABLE BOX



INTERNAL ARC FAULT VENTING

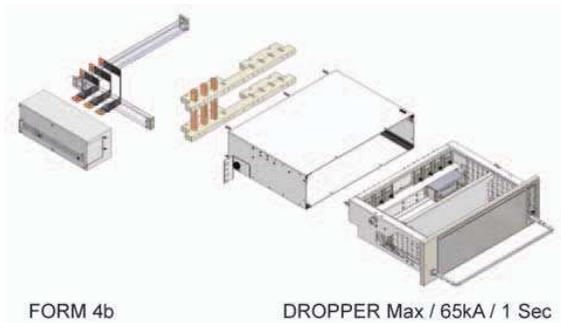
INTERNAL ARC FAULT CONTAINMENT

TECHNO has been successfully tested for Internal Arcing Fault Containment in accordance with AS3439.1 Appendix EE.

Specially designed and tested filters allow the overpressure caused by ionisation of gases to escape out of the compartments through the top of the panel. This ensures total safety to operators along with reducing down times in the event of a fault.



COMPARTMENTS - FULLY WITHDRAWABLE



FORM 4b

DROPPER Max / 65kA / 1 Sec

6.2.4 FULLY WITHDRAWABLE COMPARTMENT



4.2.4 FULLY WITHDRAWABLE COMPARTMENT

COMPARTMENTS - DEMOUNTABLE



4.2.4 DEMOUNTABLE UNIT



KENTAN PLUG IN ARRANGEMENT

Fully withdrawable compartments are available rated up to 630A.

Compartment sizes range from 200W x 200H x 400D up to 600W x 1000H x 400D mm.

Compartments provide 3 distinct positions - INSERTED, TEST/ISOLATED and FULLY WITHDRAWN with position indicators and padlocking features.

Earth contacts that make first and break last are provided as a safety feature. Main switch shaft interlocks and compartment interlocks are also provided for added safety.

Heavy duty stainless steel handles and mechanism offer years of reliable operation.

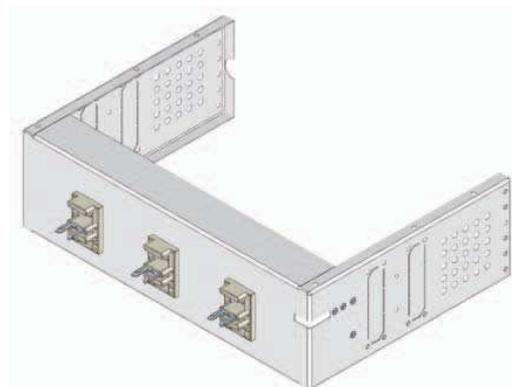
Internal segregation of up to Form 4b is maintained to ensure the highest level of material safety.

DEMOUNTABLE UNITS

Demountable cells are in all sizes from 400W x 200H up to 600W x 600H.

Earth contacts that make first and break last are provided.

Doors may be hinged to the structure or as an option, may be fixed to the demountable cell itself. The cell design suits outgoing to the left or right as needed.



TECHNO PLUG IN ARRANGEMENT



SWITCHBOARD ACCESSORIES

A wide variety of accessories are available for the TECHNO system.

These include:

- A choice of locks
- Internal doors & plates
- Tools
- Equipment mounting accessories



BLANK FRONT PLATES



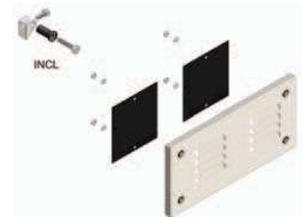
ESCUTCHEON DOORS



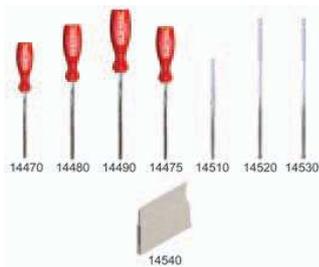
CABLE HOLDERS



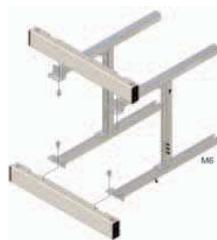
DOOR INTERLOCK



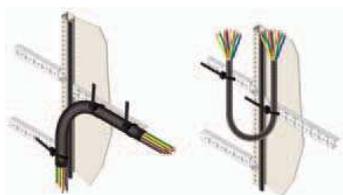
LOUVRE COVERS



TOOLS



SUPER FLEX INSERTS



DOOR CABLE HOLDERS



KEY LOCK



KNOB LOCK

SPECIAL CONTROL UNITS

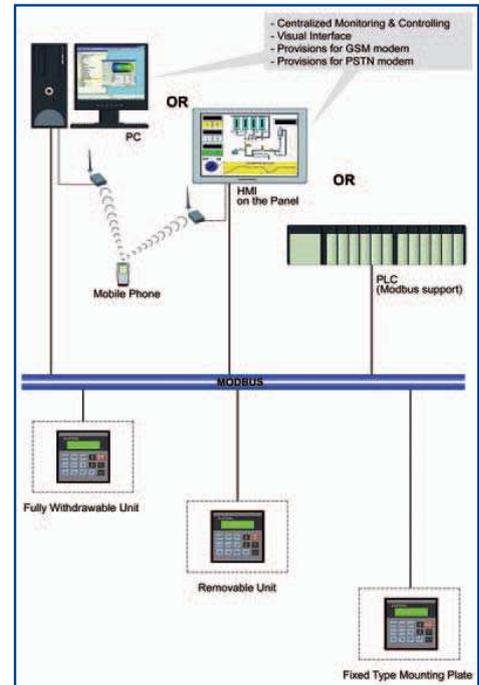
ELSTEEL MOTOR VISION

Features:

- Pre-programmed common starting methods
- Communications using Modbus / connection to any SCADA system
- Measure Current & Run Time
- Set temperature limits to switch off motors
- Measure air and terminal temperatures
- Display positions of Fully Withdrawable cells
- SMS Control Commands / status & alarms via mobile phones
- Options of HMI, PC or PLC's



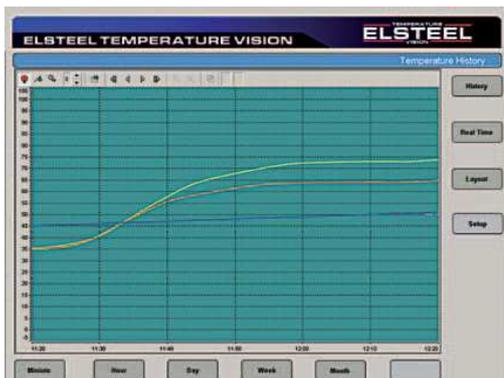
Elsteel MOTOR VISION is a simple low cost multi-function controller that provides motor starting and control functions with communications.



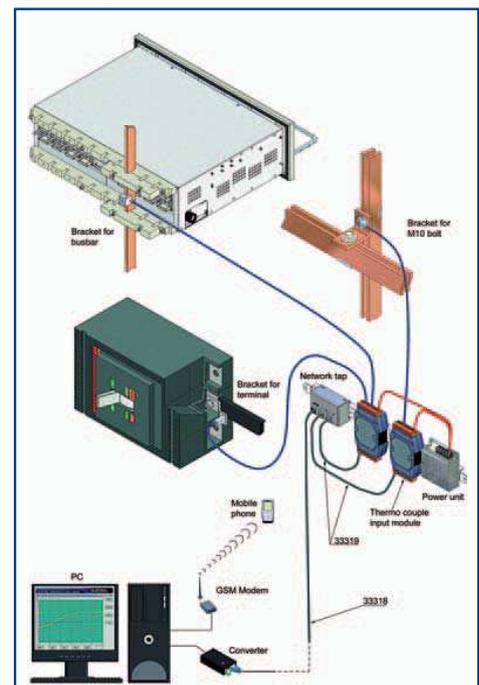
ELSTEEL TEMPERATURE VISION

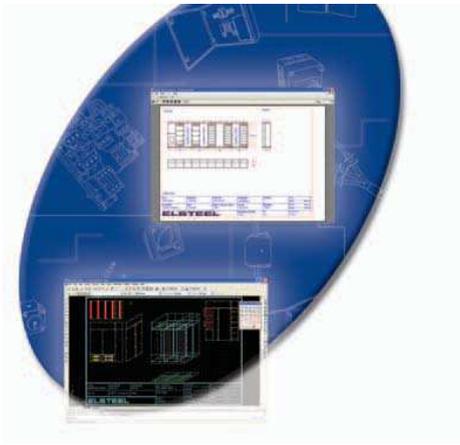
Features:

- Continuous online measurement of temperature at any point in a switchboard
- Graphical view of temperature variations with history (data logger)
- Communicate to the external world using Modbus
- Connect to any SCADA system
- Temperature limit settings to automatically generate alarms
- SMS capability using Elsteel MESSAGE SUITE software.



Elsteel TEMPERATURE VISION is a cost effective and smart solution to provide online monitoring of temperatures within switchboards.

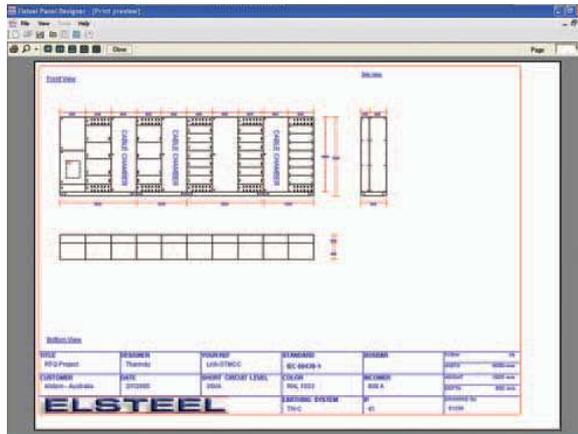
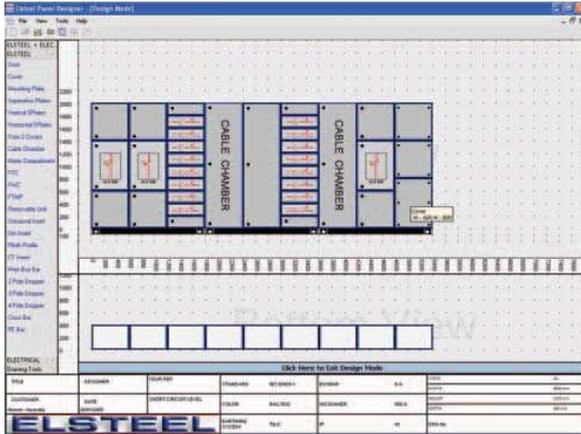




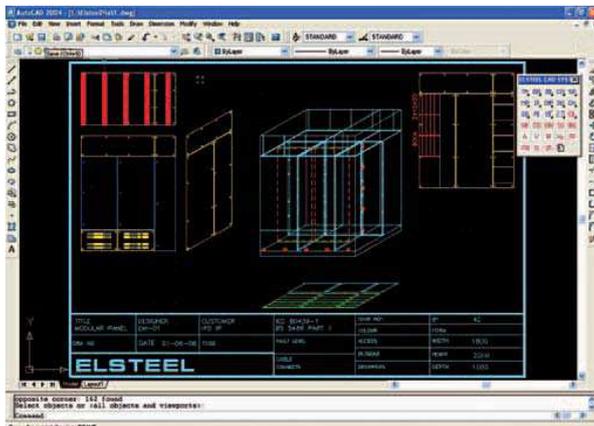
DESIGN & ESTIMATION SOFTWARE

The ELSTEEL PANEL DESIGNER is a revolutionary Windows based software program for designing switchboards of just about any size in only a matter of minutes. This software is very user friendly and allows boards to be designed and laid out quickly. Changes and modifications to designs are easily done.

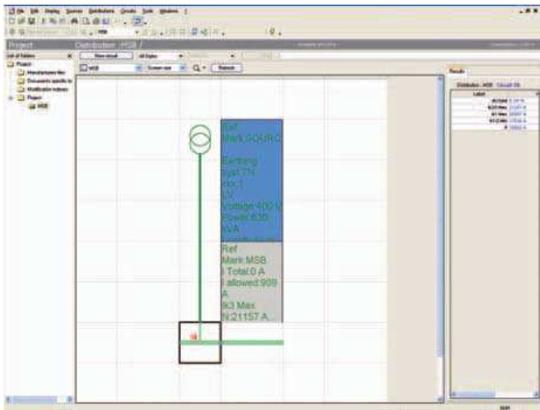
The software provides switchboard layout drawings along with the TECHNO parts list. It can also provide a complete list of the electrical components selected for the switchboard.



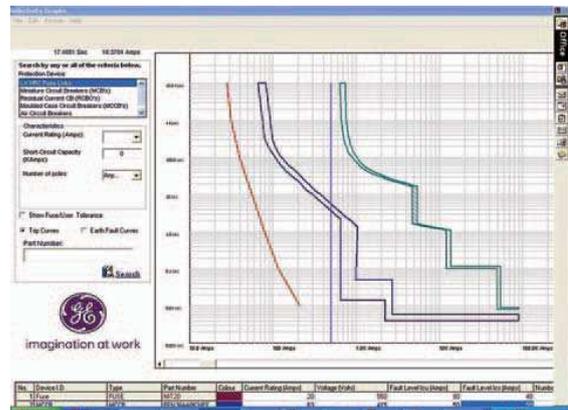
ELCAD is an Auto Cad based software program used in the design & estimation of TECHNO switchboards. This software allows designers to generate isometric drawings along with parts lists.



DESIGN & ESTIMATION SOFTWARE



PROCERA PLUS SOFTWARE



SELECTION PLUS SOFTWARE

Features:

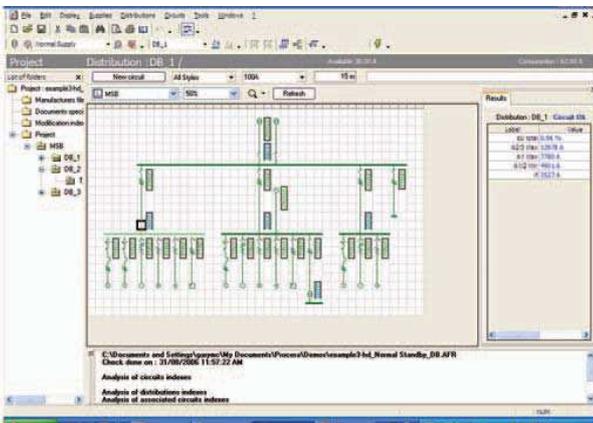
Systems Design software for;

- Fault level / Volt Drop / Circuit impedance / cable and switchgear selection / backup and discrimination selection.

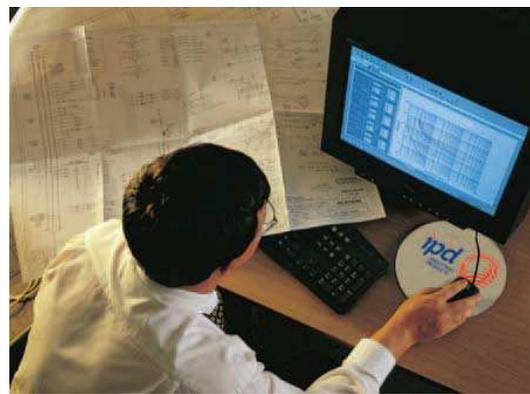
The latest version of GE's "Selection Plus" software, which was designed & produced in Australia now offers the engineering consultant, switchboard manufacturers or electrical contractors a set of design tools to optimize the performance of a low voltage installation using GE equipment.

The new software now features the ability to;

1. Draw a single line diagram of the installation
2. Select and print the selectivity curves including user defined values including voltage reflection for comparing GE HV fuses and GE LV protective devices.
3. Temperature rise calculations for enclosures.



PROCERA PLUS SOFTWARE



ENGINEERING, DESIGN AND ESTIMATION CAPABILITY



CONSTRUCTORS MANUAL

The CONSTRUCTORS MANUAL is a comprehensive guide in full colour that includes all TECHNO parts listed with part numbers, description, weights and pack quantities.

The manual also includes assembly pictures, technical specifications, selection guides, inspections and check lists necessary for consultants, engineers and switchboard builders.

ORDER INFORMATIONS

BUSBAR HOLDER 800A - 2000A
SCHENENHALTER 800A - 2000A

SKINNEHOLDER 800A - 2000A

Amper (A)	Cross sectional area (sq mm)	Width	Height	Number of positions	Order No.
800A	2 x 16 x 36	400	80	1	20000002
1200A	2 x 16 x 54	600	80	2	20000003
1600A	2 x 16 x 72	800	80	3	20000004
2000A	2 x 16 x 90	1000	80	4	20000005

BUSBAR HOLDER 2500A - 5000A
SCHENENHALTER 2500A - 5000A

Amper (A)	Cross sectional area (sq mm)	Width	Height	Number of positions	Order No.
2500A	2 x 16 x 144	1200	80	5	20000006
3000A	2 x 16 x 180	1500	80	6	20000007
3500A	2 x 16 x 216	1800	80	7	20000008
4000A	2 x 16 x 252	2100	80	8	20000009

SKINNEHOLDER 2500A - 5000A

Amper (A)	Cross sectional area (sq mm)	Width	Height	Number of positions	Order No.
2500A	2 x 16 x 144	1200	80	5	20000010
3000A	2 x 16 x 180	1500	80	6	20000011
3500A	2 x 16 x 216	1800	80	7	20000012
4000A	2 x 16 x 252	2100	80	8	20000013

Please note the busbar holder kits

Order No. **Type** **Particulars**

20000002 800A-400 Busbar holder of 80mm in width, 400mm in length & 70mm corners

20000003 1200A-600 Busbar holder of 80mm in width, 600mm in length & 70mm corners

20000004 1600A-800 Busbar holder of 80mm in width, 800mm in length & 100mm corners

20000005 2000A-1000 Busbar holder of 80mm in width, 1000mm in length & 100mm corners

20000006 2500A-1200 Busbar holder of 80mm in width, 1200mm in length & 100mm corners

20000007 3000A-1500 Busbar holder of 80mm in width, 1500mm in length & 100mm corners

20000008 3500A-1800 Busbar holder of 80mm in width, 1800mm in length & 100mm corners

20000009 4000A-2100 Busbar holder of 80mm in width, 2100mm in length & 100mm corners

20000010 2500A-1200 Busbar holder of 80mm in width, 1200mm in length & 100mm corners

20000011 3000A-1500 Busbar holder of 80mm in width, 1500mm in length & 100mm corners

20000012 3500A-1800 Busbar holder of 80mm in width, 1800mm in length & 100mm corners

20000013 4000A-2100 Busbar holder of 80mm in width, 2100mm in length & 100mm corners

This maximum distance between two adjacent busbar holders must not exceed 400mm

Busbar standards are generally 200mm. However when using two busbar holders at each clamping position the busbar standard must be 400mm.

This signified base is maximum ensures the copper bar can carry in its entire length.

Normally you can reduce the size because of power distribution in strips and the insulator.

Please anticipate:

ISOLATION PROFILE
ISOLATIONS PROFIL
ISOLATIONS PROFIL

TYPE	DESCRIPTION	SIZE	LENGTH	WEIGHT kg	ORDER NO.
IPB	ISOLATION PROFILE	80x10	2.00 meters	0.050	20000014

BUSBAR HOLDER ASSEMBLY KIT
SCHENENHALTER BESLAG
SKINNEHALTER BESLAG

TYPE	DESCRIPTION	SIZE	LENGTH	WEIGHT kg	ORDER NO.
BAL	BUSBAR HOLDER ASSEMBLY KIT	80x10	0.76	0.005	20000015

DESIGNED BY: F. F. DATE: 01/04/2004 APPROVED BY: A. K. DATE: 01/04/2004 REPLACES: 01/03/2003

INSTRUCTIONS

Bolt Quality 4.8

DESIGNED BY: F. F. DATE: 01/04/2004 APPROVED BY: A. K. DATE: 01/04/2004 REPLACES: 01/03/2003



ASSEMBLY INSTRUCTIONS MANUAL

The ASSEMBLY INSTRUCTIONS MANUAL provides step-by-step instructions on the assembly of TECHNO switchboards.

The manual provides precise assembly methods along with clear pictures and is a useful tool for switchboard builders, mainly for new users.

- Take one bottom frame and place it on your table as shown.

- Place the plinth assembly on top and fix it to the corner base frame.

Tighten with the right torque.

Turn the base frame around on the table and fix the height corner bars.

Turn the bars on the flat surface of the cross bar and point towards future adjacent panels.

Now place the assembly on the floor and fix the remaining corner assembly frame to the top of the structure.

This is now the correct Techno Module structure should look.

DESIGNED BY: A. K. DATE: 01/07/2003 APPROVED BY: E. L. DATE: 01/07/2003 REPLACES:

CROSS BAR

Modular indicator

• Corner bars and Cross bars are provided with a modular indicator at every 300mm intervals as shown.

Use the indicators as corner points when drilling the outside surfaces of an enclosure.

The cross bars can be used inside the panel in all directions.

DESIGNED BY: A. K. DATE: 01/07/2003 APPROVED BY: E. L. DATE: 01/07/2003 REPLACES:



ACCREDITATION



To ensure that TECHNO switchboards are built to standards and are in accordance with the type test requirements, IPD Industrial Products offers training and accreditation to switchboard builders.

There are 3 levels of accreditation with Level III being the highest.

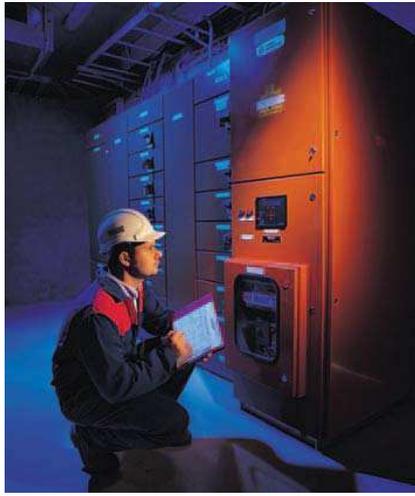
IPD also offer technical and engineering support nationally to ensure that customers receive adequate assistance during design and assembly.

MATERIAL SPECIFICATION

Base Frame	2mm mild steel powder coated in black (RAL 9005)
Corners	Aluminium die cast powder coated in grey (RAL 7032) or Orange (RAL2000)
Corner Bar / Cross Bar	Electro galvanised 2mm powder coated in grey (RAL 7032) or Orange (RAL2000)
Doors / Covers	Mild steel 1.5mm powder coated in grey (RAL 7032) or Orange (RAL2000). 2mm available as an option.
Door Stabiliser	Mild steel 20x20x1.5 square pipe powder coated in grey (RAL 7032) or Orange (RAL2000)
Mounting Plate	Mild steel 2mm powder coated in white (RAL 9010)
Separation Plate	Mild steel 1.2mm painted white (RAL 9010)
Flat Cover	Mild steel 1.5mm painted in grey (RAL 7032) or Orange (RAL2000)
Panel Assembly Kit	Mild steel 3mm zinc plated
Cable Holder	Mild steel 2mm painted white (RAL 9010)
Lifting Eyes	Mild steel 3mm powder coated in black (RAL 9005)
Wall Mounting Brackets	Mild steel 3mm powder coated
Busbar Holder	Self-extinguishing fibre material / reinforced PC
Fish Plate	Copper 10mm
H to V Connectors	Copper 10mm
Busbar Tap-Off	
- 21000	Dia 10mm zinc plated
- 21010	Copper 5mm
- 21020	Copper 5mm
- 21030	M.S. 3mm zinc plated
Bracket for Earth Conductor	Mild steel 3mm zinc plated
Copper Spacers	Copper, 30mm diameter, 5 to 50mm in width



REFERENCES



INNER CITY BYPASS TUNNEL, BRISBANE

TECHNO is used in over 30 countries around the world. Over the last few years, TECHNO has built up several impressive references. In Australia and New Zealand, hundreds of TECHNO Modular Switchboards have been supplied for every possible application.

AUSTRALIA & NEW ZEALAND

- Stadium Australia, Sydney
- Shortland Wastewater Treatment Plant, NSW
- M5 East Tunnel, NSW
- Parramata Rail Link, NSW
- Lane Cove Tunnel, NSW
- Westmead Hospital, NSW
- Parramata Police Centre, NSW
- Glennies Creek Coal Mine, NSW
- Campvale Pumping Station, NSW
- Bateau Bay Sewerage Treatment Plant, NSW
- Tamworth Hospital, NSW
- Citipower, VIC
- Eastlink Freeway, VIC
- Perth Mandurah Metro Rail, WA
- Playford Power Station, SA
- Western Mining Company, SA
- Festival Towers, QLD
- Brisbane Harbour Cruise Ship Terminal, QLD
- HMAS Waterhen, ADI
- Comalco, TAS
- Newmont Granite Gold Mine, NT
- Dreamworld Water Park, Gold Coast
- Telstra
- Woolworths
- Bluescope Steel
- Onesteel



M5 EAST TUNNEL, SYDNEY



REFERENCES



HUNTLEY POWER STATION, NZ 7100A LV SWITCHBOARD



NEW DELHI METRO, INDIA



CROWNE PLAZA LEBANON

OVERSEAS

- Telecom, NZ
- Clandeboye Milk Dryer Facility, NZ
- Vodafone, NZ
- Superyachts, NZ
- Huntley Power Station, NZ
- Te Roha Waste Water Treatment Plant, NZ
- Norfolk Southern Cross Hospital, NZ
- Westlands Dairy, NZ
- New Zealand Post
- Watercare Services Ltd, NZ
- EDS, NZ
- Mighty River Power, NZ
- Hamilton City Council, NZ
- London Underground
- Heathrow Airport
- Hong Kong Airport
- Singapore Motor Train Lines
- New Delhi Metro, India
- Northern Telephones, China
- Norway Seafoods
- Cyprus International Airport
- Crowne Plaza Lebanon
- Siemens Germany



NORFOLK SOUTHERN CROSS HOSPITAL, NZ



SCHEDULE OF TESTS

TECHNO has been extensively tested both overseas and in Australia. This is to ensure that the system is continually developing in keeping with the latest electrical standards.

Test Performed	Testing Authority	Certificate Reference
1. Full type test on 2500A TECHNO MODULE SYSTEM	IPH - Berlin	513.228.6.384
2. Full type test on 5000A TECHNO MODULE SYSTEM	IPH - Berlin	1513.08320.0.468
3. Temperature rise test and Short Circuit Withstand test for 2500A TECHNO MODULE SYSTEM Temperature Rise test was carried out according to IEC 439-1 edition 1985	IPH - Berlin	170.265.2.230
4. Temperature Rise test and Short Circuit Withstand test for 3200A TECHNO MODULE SYSTEM	ASTA Certification Service.	Certificate No:12798
5. Temperature Rise test and Short Circuit Withstand test for 5000A TECHNO MODULE SYSTEM	ASTA Certification Service.	Certificate No:12890
6. Degree of Protection test (IP test) for TECHNO MODULE & INSTANT PANEL SYSTEMS Degree of Protection test (IP test) was carried out according to IEC 529, for TECHNO MODULE & INSTANT PANEL made of mild steel and painted in grey grey (RAL 7032). The test was passed. The requirement for IP55 construction was fulfilled.	DEMKO	10/92 - 29BTh
7. Lloyd's Register of Shipping for all Elsteel parts The test was carried out according to LR1 to 10, 14, 15 for TM, 19" MBOX, MTNB, SSBOX (aisi 304/316), STNB (AISI 304/316). The requirements for LR1 to 10, 14, 15 were fulfilled	Lloyd's Register of Shipping	
8. Standard Internal Arcing Fault test 63kA rms at 415V tested in accordance with AS 3439.1 1993 with amendment 1, appendix EE. Apparatus - three outgoing units of a 415V / 690V (Ue/Ui) three phase switchgear assembly.	Testing & Certification Australia	100574
9. Short Circuit Strength Tests on outgoing Units in a TECHNO MODULE SYSTEM - MCCB Units - 63kA rms - Motor Starter Unit - 50 kA rms - Short Circuit Strength Tests on Phase busbars 50kA rms & 63kA rms for 1s - Short Circuit Strength Tests on a plug-in Kentan busbar arrangement in a TECHNO Module System, 63kA rms for 1s, 139kA peak.	Testing & Certification Australia	101740-1
10. Vibration Testing of an Elsteel TECHNO MODULE SYSTEM	Vipac Engineers & Scientists Ltd Australia	Report No:302649-01
11. Vibration Testing of an Elsteel TECHNO MODULE SYSTEM Seismic Vibration	Vipac Engineers & Scientists Ltd Australia	Report No:302649-02
12. Short Circuit Strength Tests on outgoing units in a TECHNO CHASSIS SYSTEM	Testing & Certification Australia	102014
13. Short Circuit Strength Tests on phase busbars in a TECHNO CHASSIS SYSTEM - 2 x 60 x 10mm bars per phase 50kA rms & 63kA rms / 1s - 2 x 40 x 10mm bars per phase 63kA rms / 1s - 2 x 30 x 10mm bars per phase 63kA rms / 1s	Testing & Certification Australia	102014
14. Full type test on 7100A TECHNO MODULE SYSTEM 100kA / 1S	IPH - Berlin	1819.1061.3.434



MCCB Chassis



Air Circuit Breakers



Contactors & Thermal Overloads



Pushbuttons, Indicators and Panel Meters



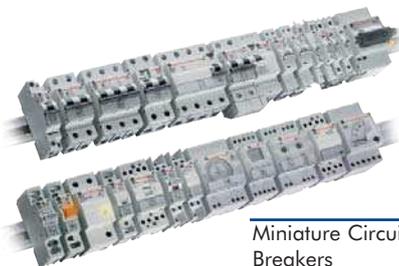
Moulded Case Circuit Breakers



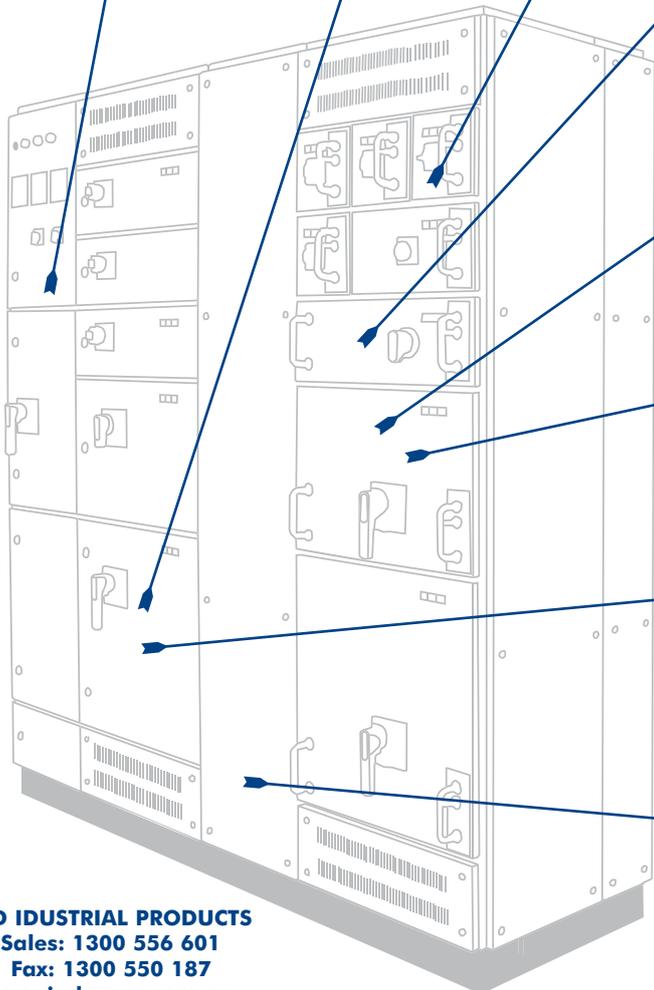
Motor Control Starters



Variable Speed Drives



Miniature Circuit Breakers





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