

SERIES 20

CARD FRAMES



Some of the different styles of Card Frames available in the Series 20 range

The Series 20 family of Card Frames from APW President has several new features that enhance the level of precision and adaptability. The side panels have half-shears and locating holes at 15mm depth intervals for accurate positioning of the width extrusions. This design not only increases precision, but also provides considerable flexibility to the user. Additional clearance is provided between the side panels and the solder-side of the first PCB. Front and rear extrusions are printed with location numbers.

Card Frames are normally supplied in kit-form. Assembly is simple, requiring only a screw-driver.

Card Frames form the basic building blocks of instrumentation system. Most application requirements can be met with the choice of heights, widths and depths. Customized solutions can be developed to fulfil specific customer needs.



Widths from 21T to 84T

Features

- Rapid assembly and easy accessibility
- Side Panels are provided with "Half Shears"
- Top and bottom covers - plain or with ventilation slots.
- Front & Rear panels - Screw-on type or hinged to open either downwards or sideways
- The hinge arrangement allows the panel to open 180 degree and remain clear of the adjacent profile
- Full range of accessories for direct mounting of Connectors and backplanes - or a combination of both

Sizes

Heights : 2U, 3U, 4U, 5U & 6U
Widths : 21T, 42T, 63T, 81T & 84T
Depths : 180, 240, 300 & 360mm



Heights from 2U to 6U & beyond

Material and Finish

- Side Panels are of 14 SWG (2.0mm) aluminium. The two front profiles (82-42XX) have a 3.00mm extension. Rear profiles (82-44XX) are suitable for direct mounting of Motherboards without necessity of Insulation Spacers
- Front & Rear Panels are made of 2.5mm thick aluminium sheets
- Top and Bottom Covers can be supplied with a natural anodised finish or powder coated

Optional Accessories

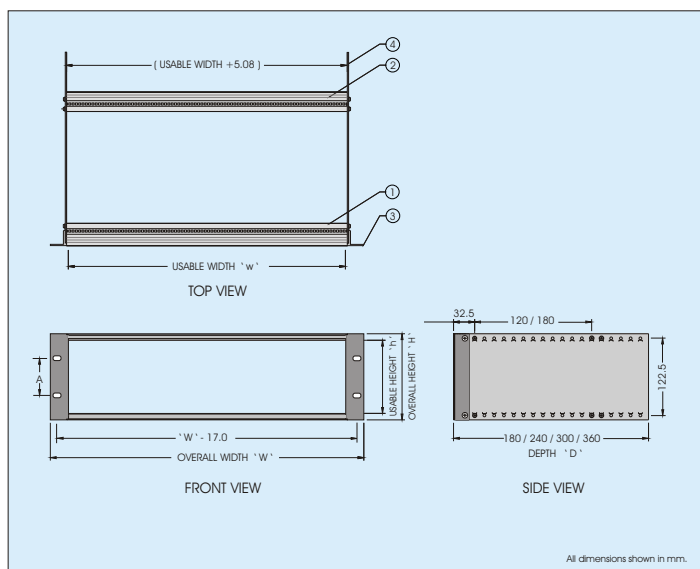
- Threaded Strips
- Card Guides
- Front & Rear Panels
- Top & Bottom Covers
- Pull Out Handles
- Facia Panels
- Plug-in-Modules
- Connector Mounting Sets
- Plastic Accessories

Scope of Supply

No.	Description	Qty
1	Front Profile	2
2	Profile, S20 Mothrbd Mtg.	2
3	Profile, S20 Side Angle	2
4	Panel, Side S20	2
5	Hardware set for Assly	1



Card guides & Threaded strips shown are not included in standard scope of supply.



Dimensions

U	Height		Width		
	Overall H	Usable h	T	Overall W	Usable w
2U	88.00	68.00	21T	162.56	106.68
3U	132.50	112.50	42T	269.24	213.36
4U	177.00	157.00	63T	375.92	320.04
5U	221.50	201.50	81T	482.60	411.48
6U	266.00	246.00	84T	482.60	426.72

19" Mounting	
U	A
2U	76.20
3U	57.10
4U	101.60
5U	146.10
6U	190.60

Ordering Information

Height	Width	Depth in mm			
		180mm	240mm	300mm	360mm
2U	21T	20-2210	20-2220	20-2230	20-2240
	42T	20-4210	20-4220	20-4230	20-4240
	63T	20-5210	20-5220	20-5230	20-5240
	81T	-	20-6220	20-6230	20-6240
	84T	20-7210	20-7220	20-7230	20-7240
3U	21T	20-2310	20-2320	20-2330	20-2340
	42T	20-4310	20-4320	20-4330	20-4340
	63T	20-5310	20-5320	20-5330	20-5340
	81T	-	20-6320	20-6330	20-6340
	84T	20-7310	20-7320	20-7330	20-7340
4U	21T	20-2410	20-2420	20-2430	20-2440
	42T	20-4410	20-4420	20-4430	20-4440
	63T	20-5410	20-5420	20-5430	20-5440
	81T	-	20-6420	20-6430	20-6440
	84T	20-7410	20-7420	20-7430	20-7440
5U	21T	20-2510	20-2520	20-2530	20-2540
	42T	20-4510	20-4520	20-4530	20-4540
	63T	20-5510	20-5520	20-5530	20-5540
	81T	-	20-6520	20-6530	20-6540
	84T	20-7510	20-7520	20-7530	20-7540
6U	21T	20-2610	20-2620	20-2630	20-2640
	42T	20-4610	20-4620	20-4630	20-4640
	63T	20-5610	20-5620	20-5630	20-5640
	81T	-	20-6620	20-6630	20-6640
	84T	20-7610	20-7620	20-7630	20-7640



Rear View

EMC CARD FRAMES

APW President has extended its range of Card Frames by introducing an *Electromagnetically Compatible* (EMC) version. This important new class of card frames (subracks) has been designed to achieve EMC performance without the use of expensive RFI gaskets for shielding.

These card frames are carefully engineered so that all metal parts, which are chromate converted to ensure good electrical conductivity, have close tolerances and overlap at boundaries so as to provide adequate shielding against electrical fields.

This EMC compliant Card Frame provides mounting arrangements for either VME Motherboards or Compact PCI Back Planes. Access Panels, such as the front Facia Panels, are provided with RFI gasketing in the form of stainless steel finger stock.



Front View



Rear view

Features

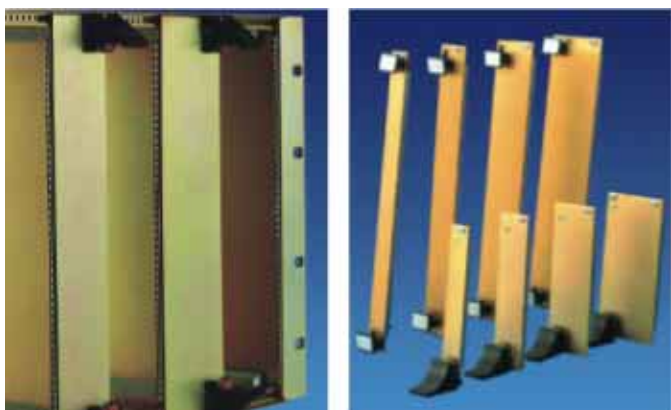
- Rapid assembly and easy accessibility
- Two versions available, conforming to VME format (IEC 60297) or Compact PCI standard (IEEE 1101.10)
- Side Panels are provided with "Half Shears"
- Side Angle profiles have special grooves for fitment of RFI finger stock. Normally this gasket is provided only on the left hand side vertical angle
- Top and bottom covers are provided with clusters of round venting holes of diameter 2.9mm
- Full range of accessories for direct mounting of connectors, back planes - or a combination of both
- Facia Panels for both 3U and 6U heights in widths of 4T, 6T, 9T and 12T. Facias are provided with RFI gaskets for shielding. These facias can be fitted with VME pullers, or PCB injectors / ejectors for Compact PCI applications

Sizes

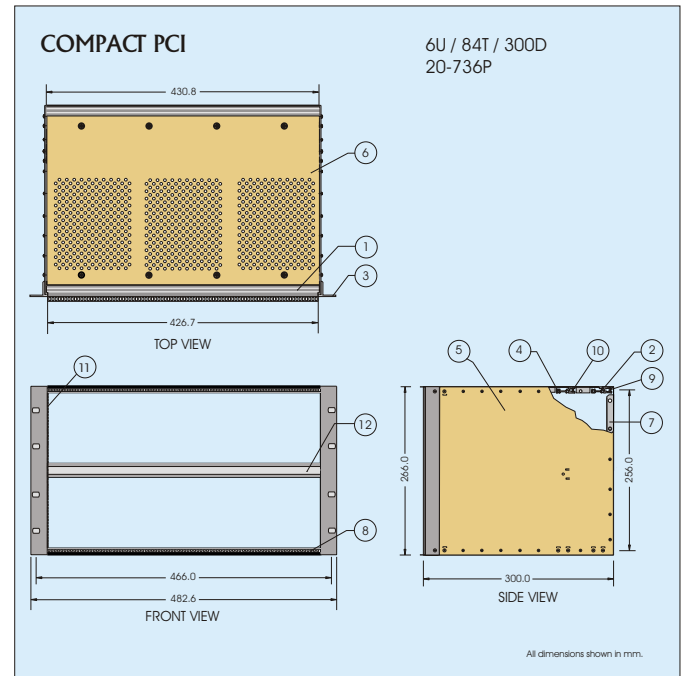
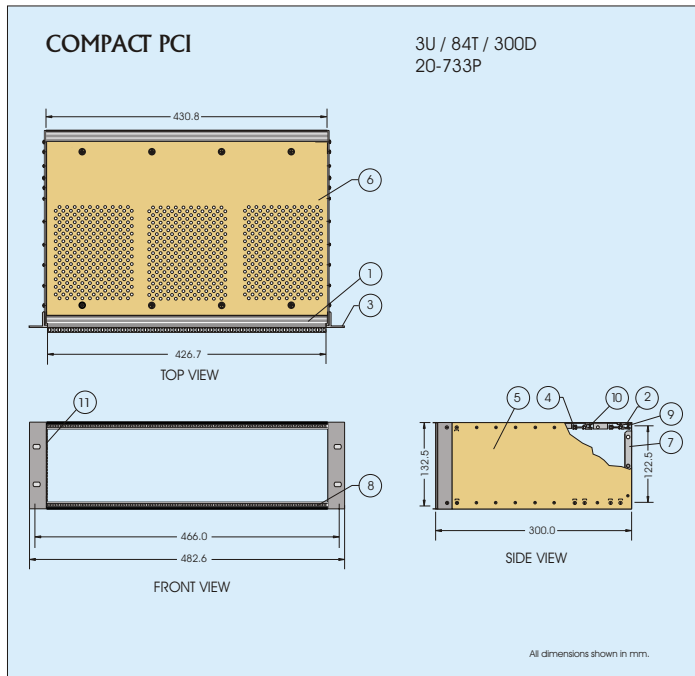
Heights: 3U & 6U
Width : 84T
Depth : 300mm

Material and Finish

- Aluminium extrusions for width members. Side Panels are of 2.0mm thick aluminium sheets. Top, bottom and rear covers are made from 1.2mm aluminium sheets.
- All parts are chromate converted for good electrical conductivity and have yellow passivated finish.
- EMC Facia Panel sets are made from aluminium extrusions.



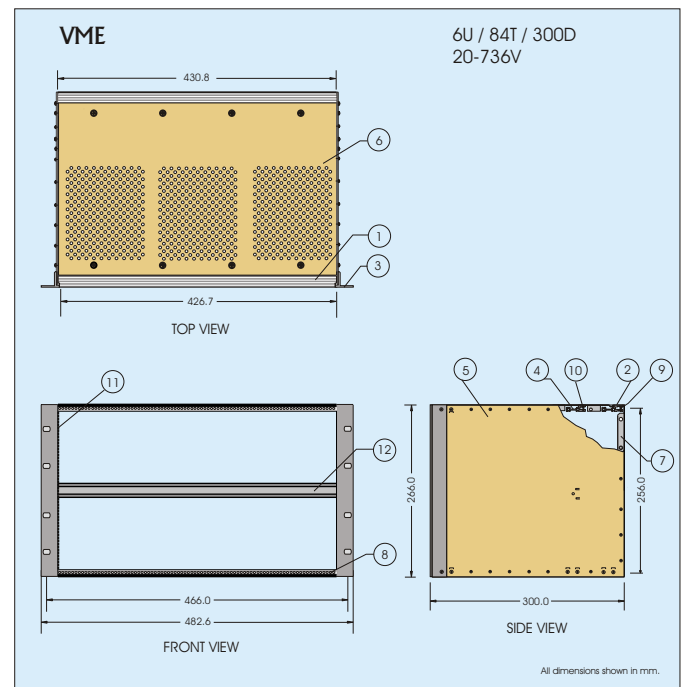
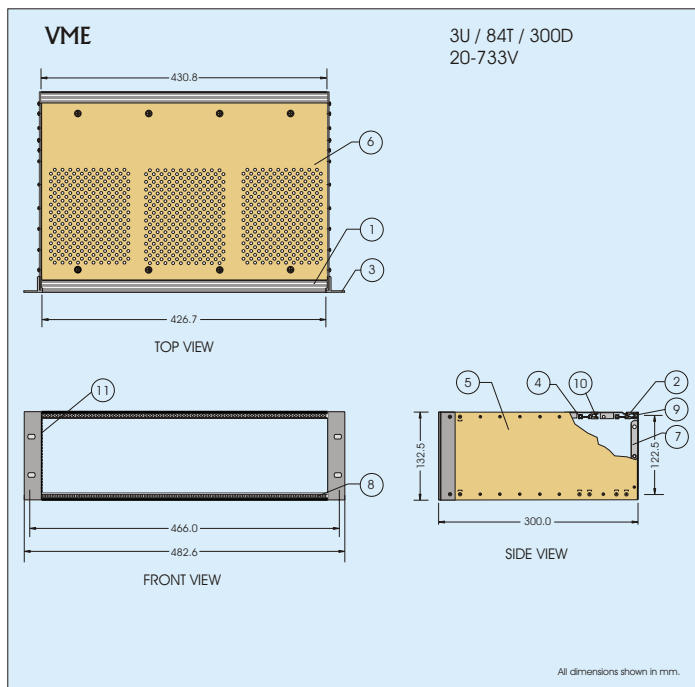
EMC Facias



Scope of Supply

No.	Description	Qty
1	Front Profile	2
2	Rear Profile	2
3	Side Angle Profile	2
4	Rear Profile	2
5	Side Panel	2
6	T/B Cover, vented	2

No.	Description	Qty
7	Rear Panel, Plain	1
8	Strip, Threaded M2.5, 84T 6 x 2	4
9	Strip, Threaded M3 84T 8-Holes 6 x 2	2
10	Strip, Threaded M2.5, 84T 5.5 x 1.5	2
11	RFI Gasket	1
12	Profile Double VME (for 6U only)	1



Ordering Information

EMC Card Frames

Height	Width	Depth=300mm	
		VME	PCI
3U	84T	20-733V	20-733P
6U	84T	20-736V	20-736P

NOTE: Top, Bottom Covers and Rear Panel (1.2mm) are included in the standard scope of supply

Facias for EMC Card Frames

Height	Width				
	Style	4T	6T	9T	12T
3U	VME	29-7304-V	29-7306-V	29-7309-V	29-7312-V
	PCI	29-7304-PY	29-7306-PY	29-7309-PY	29-7312-PY
6U	VME	29-7604-V	29-7606-V	29-7609-V	29-7612-V
	PCI	29-7604-PY	29-7606-PY	29-7609-PY	29-7612-PY

PLUG-IN-MODULES

Plug-in-Modules introduced with the Series 20 Card Frames offer improved mechanical rigidity, precision and internal working space.

These fully enclosed all-aluminium modules offer a high degree of protection against EMI / RFI emissions from adjacent circuitry.

PIM's are available in heights of 3U & 6U to suit single height and double height Euro Card Frames.

The modules have an internal groove for locating standard Euro PCB's of 160, 220 or 280mm depth. Euro Connectors fixed to the PCB project through the slots provided in the Rear Plates. The PIMs slide into the Card Frame along the standard card guides and lock perfectly with the Backplane Connectors fixed at the rear of the card frame.



Series 20 Card Frames with Plug-in-Modules

Features

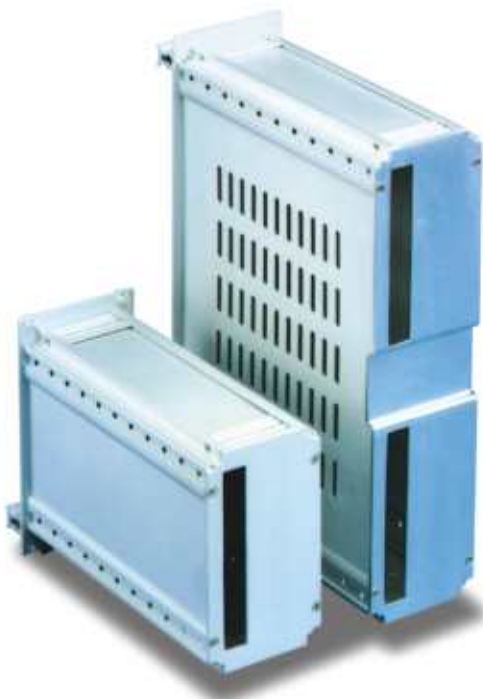
- All aluminium construction
- Proprietary extrusions for width and depth
- Internal groove for locating of PCBs
- Maximization of space for circuit components
- Width profile for increased rigidity

Sizes

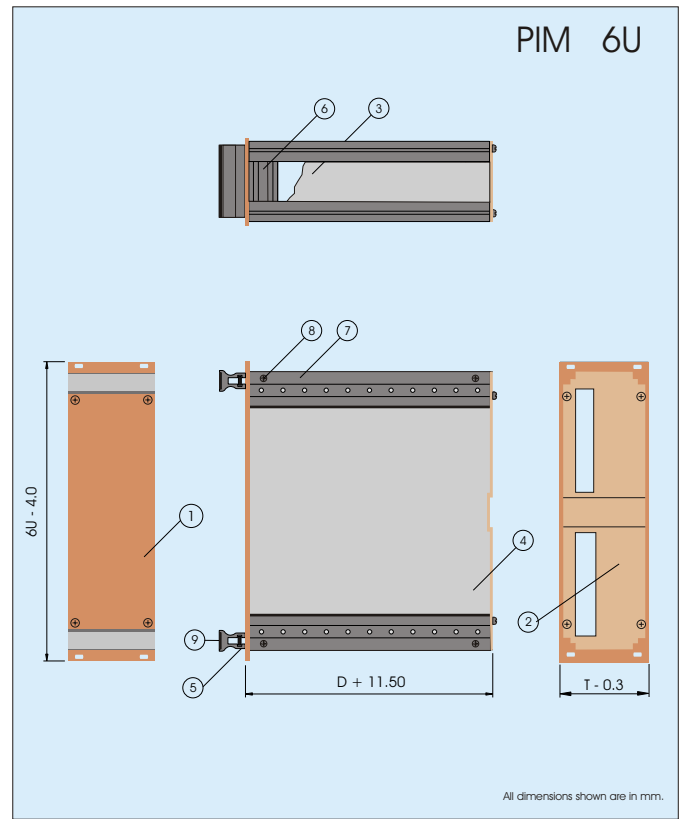
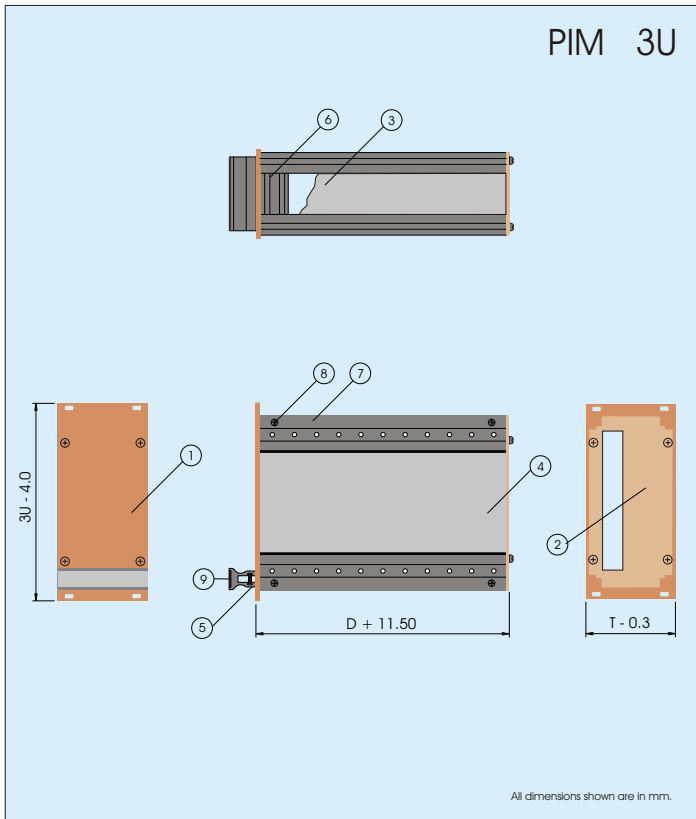
Heights: 3U & 6U
Widths : 10T, 14T, 21T & 28T
Depths : 160, 220 & 280mm

Material and Finish

- All aluminium construction, frame made of extrusions, front panel of 2.5mm thick aluminium.
- Top, Bottom and Side Covers of 0.9mm and Rear panel of 2mm thick aluminium sheet.
- All aluminium parts have natural alodine finish.



Rear view of Modules



Ordering Information

Height	Width	Depth		
		160mm	220mm	280mm
3U	10T	29-8312-X	29-8322-X	29-8332-X
	14T	29-8313-X	29-8323-X	29-8333-X
	21T	29-8314-X	29-8324-X	29-8334-X
6U	28T	29-8315-X	29-8325-X	29-8335-X
	10T	29-8612-X	29-8622-X	29-8632-X
	14T	29-8613-X	29-8623-X	29-8633-X
6U	21T	29-8614-X	29-8624-X	29-8634-X
	28T	29-8615-X	29-8625-X	29-8635-X

Scope of Supply

No.	Description	Qty
1	Front Panel	1
2	Rear Panel	1
3	Cover Top/ Bottom	2
4	Cover Side	2
5	Profile Facia Handle	1
6	Profile PIM Width	4
7	Profile PIM Depth	4
8	Hardware Set	1
9	Decorative Strip for Facia Handle	1

IF PIM Rear Panel is required with a slot for connectors, mention specifically in PO. If Front Panels are to be customized with cut-outs, holes, printing etc, refer to APSL for specific offer.

Slots for ventilation are normally provided on the two side panels only, but can be provided on Top & Bottom panels for 14, 21 and 28T wide PIMs. For specifying slotting details use the suffix 'X' as indicated below.

- X = 0 No Slotting, all covers plain
- X = 1 Side Covers with ventilation slots
- X = 2 Top and Bottom covers with ventilation slots
- X = 3 Top, Bottom and Side covers with ventilation slots



Front view of Modules

ACCESSORIES

FOR CARD FRAMES

APW President offers a variety of accessories for use with Card Frames. These accessories enable Design Engineers and System Integrators to complete their product packaging in conformity with the latest practices followed worldwide.

Card Guides

Single piece moulded Card Guides are available in lengths suitable for 160mm and 220mm length PCB's. For other lengths three-part Card Guides are available. For high vibration environments APW President offers anti-vibration Card Guides.

Ordering Information

Guide, PCB MOD2 148mm Polyco	83-4140-1
Guide, PCB MOD2 148mm Polyco, GF	83-4140-2
Guide, PCB MOD2 208mm Polyco, GF	83-4150-2
Guide, PCB MOD3 148mm Noryl	83-4180-3
Guide, PCB MOD3 208mm Noryl	83-4190-3
Guide, PCB screw-on, 148mm Polyco	83-1723
Guide, PCB screw-on, 208mm Polyco	83-1724



Card Guides

Threaded Strips

Threaded Strips slide into special grooves in the width profiles to allow fixing of Front Panels, Facias and Modules. A variety of Threaded Strips having M2.5 and M3.0 tapped holes are available to suit different applications.

Ordering Information

Type	Width				
	21T	42T	63T	81T	84T
M2.5, 6.0X2.0	86-1121	86-1142	86-1163	86-1181	86-1184
M2.5, 5.0X1.5	86-1121-2	86-1142-2	86-1163-2	86-1181-2	86-1184-2
M2.5, 5.5X1.5	86-1121-3	86-1142-3	86-1163-3	86-1181-3	86-1184-3
M3.0, 6.0X2.0	86-1421	86-1442	86-1463	86-1481	86-1484



Threaded Strips

Pull-Out Handles

Pull-Out Handles are supplied in sets with fixing hardware. They are available in natural anodised and black anodised finish. Fixing hole diameters are M3.5.

For sizes from 3U onwards handles are formed from a common aluminium extrusion bent at the two ends.

Ordering Information

Style of Anodising	Height			
	2U	3U	4U	5U
NATURAL	29-9302-10	29-9503-3	29-9504-3	29-9505-3
BLACK	29-9302-11	29-9503-4	29-9504-4	29-9505-4

Style of Anodising	Height			
	6U	7U	8U	9U
NATURAL	29-9506-3	29-9507-3	29-9508-3	29-9509-3
BLACK	29-9506-4	29-9507-4	29-9508-4	29-9509-4



Pull-out Handles

Front and Rear Panels

Front and Rear Panels are available for all standard models of Card Frames. These panels can be of the Screw-On type or they can be hinged to open either downwards or sideways. These panels are made of 2.5mm thick aluminium sheets and are anodised.

Prices of Front and Rear Panels include all fixing hardware, such as knurled screws, threaded strips etc.

Ordering Information

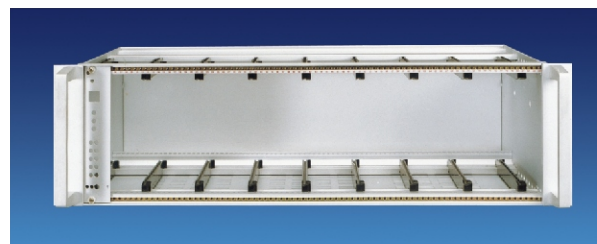
Height	Width				
	21T	42T	63T	81T	84T
2U	29-1322-Y	29-1324-Y	29-1325-Y	29-1326-Y	29-1327-Y
3U	29-1332-Y	29-1334-Y	29-1335-Y	29-1336-Y	29-1337-Y
4U	29-1342-Y	29-1344-Y	29-1345-Y	29-1346-Y	29-1347-Y
5U	29-1352-Y	29-1354-Y	29-1355-Y	29-1356-Y	29-1357-Y
6U	29-1362-Y	29-1364-Y	29-1365-Y	29-1366-Y	29-1367-Y
7U	-	-	-	-	29-1377-Y
8U	-	-	-	-	29-1387-Y
9U	-	-	-	-	29-1397-Y

To specify Front / Rear Panels style, use the suffix 'Y' as below

- Y=1 for Front Panels, Screw-on
- Y=2 for Rear Panels, Screw-on
- Y=3 for Front Panels, Hinged downwards
- Y=4 for Front Panels, Hinged sideways, Leftside
- Y=5 for Front Panels, Hinged sideways, Rightside



Front Panel



Rear Panel

Top and Bottom Covers

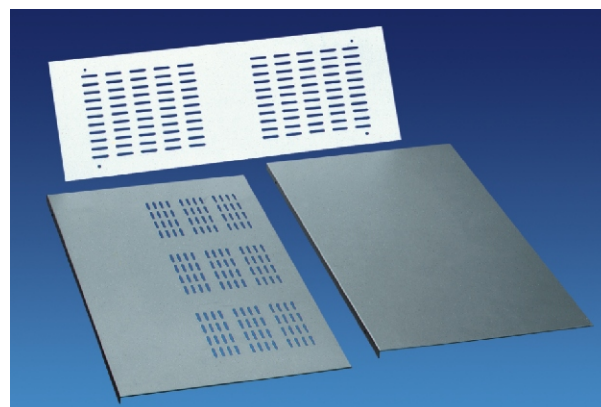
Top and Bottom Covers are available - either plain or with ventilation slots. Choice of finish is either anodised or powder coated. They are made from 0.9mm aluminium sheets.

Ordering Information

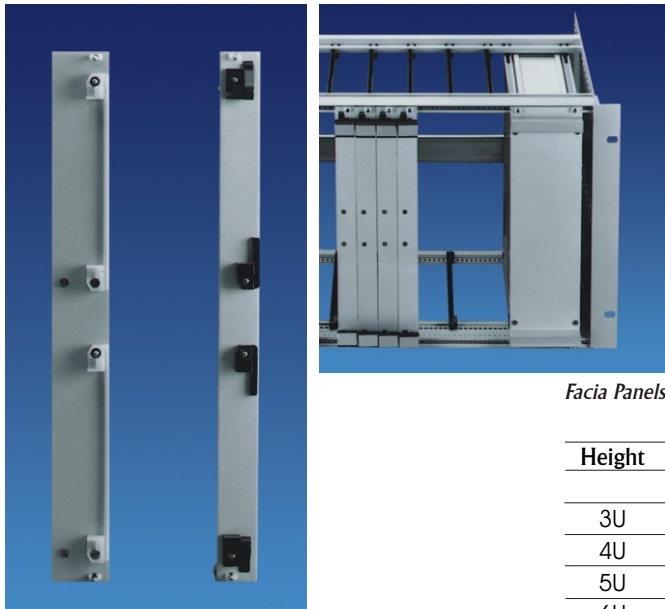
Style	Depth	Width			
		81T	84T	81T	84T
		Anodised		Painted	
Plain	180	29-2061-00	29-2071-00	29-2061-0Y	29-2071-0Y
	240	29-2064-00	29-2074-00	29-2064-0Y	29-2074-0Y
	300	29-2066-00	29-2076-00	29-2066-0Y	29-2076-0Y
	360	29-2068-00	29-2078-00	29-2068-0Y	29-2078-0Y
Slotted	180	29-2061-10	29-2071-10	29-2061-1Y	29-2071-1Y
	240	29-2064-10	29-2074-10	29-2064-1Y	29-2074-1Y
	300	29-2066-10	29-2076-10	29-2066-1Y	29-2076-1Y
	360	29-2068-10	29-2078-10	29-2068-1Y	29-2078-1Y

To specify finish required, use the suffix 'Y' as below

- Y=0 For natural Anodised finish
- Y=1 Black Texture, powder coated
- Y=2 PS Blue, powder coated
- Y=5 Powder coated to RAL 7035
- Y=9 Special



Top & Bottom Covers



Facia Panels

Facia Panels

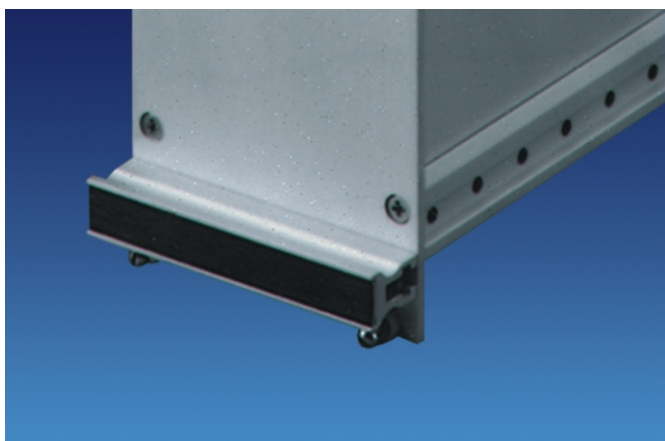
Different widths and heights of Facia Panels for use with PCB assemblies are available. These are supplied in natural anodised aluminium finish.

Facia Panel sets include the anodised Aluminium Facia Plate, Handles, Facia Bushes with M2.5 Captive Screws and PCB Holder.

For VME Facia Panels, the PCB Card Puller is included as a standard accessory.

Ordering Information

Height	Width					
	4T	4T(VME)	6T	9T	12T	18T
3U	29-7304	29-7304-01	29-7306	29-7309	29-7312	29-7318
4U	29-7404	-	29-7406	29-7409	29-7412	29-7418
5U	29-7504	-	29-7506	29-7509	29-7512	29-7518
6U	29-7604	29-7604-01	29-7606	29-7609	29-7612	29-7618



Handles for Facia Panels

Handles for Facia Panels

Facia Handle Sets consist of basic profile 82-35XX along with the Label Strip, MS Threaded Strip and fixing hardware.

Ordering Information

Handle for Facia Panel + HW 4T	29-9404
Handle for Facia Panel + HW 6T	29-9406
Handle for Facia Panel + HW 9T	29-9409
Handle for Facia Panel + HW 10T	29-9410
Handle for Facia Panel + HW 12T	29-9412
Handle for Facia Panel + HW 14T	29-9414
Handle for Facia Panel + HW 18T	29-9418
Handle for Facia Panel + HW 21T	29-9421
Handle for Facia Panel + HW 42T	29-9442
Handle for Facia Panel + HW 63T	29-9463
Handle for Facia Panel + HW 81T	29-9481
Handle for Facia Panel + HW 84T	29-9484



Connector Mounting Sets

Connector Mounting Sets

Single or Double VME Connector mounting sets for Euro cards are available - as well as special types for use with other connector families.

Ordering Information

Type of Accessory	Width	
	21T	42T
Connector Mtg set, Single Euro	29-6121-1	29-6142-1
Connector Mtg set, Double Euro	29-6321-1	29-6342-1
Connector Mtg set, General Purpose	29-6721-1	29-6742-1

Type of Accessory	Width		
	63T	81T	84T
Connector Mtg set, Single Euro	29-6163-1	29-6181-1	29-6184-1
Connector Mtg set, Double Euro	29-6363-1	29-6381-1	29-6384-1
Connector Mtg set, General Purpose	29-6763-1	29-6781-1	29-6784-1

Plastic Accessories

These include Instrument Feet, Card Guide Retainers, PCB Holders (both fixed as well as VME Pull-Out types), Insulation Strips for Mother Board mounting, Pull-Out Knobs and Facia Bushes, Hinged Brackets for Front Panels, PCB Retainer and Extractor sets, as well as other hardware.

Ordering Information

A	Feet, ABS, Screw-on type, Pair	83-1500
B	Feet, ABS, Snap-on type, Pair	83-1503
C	Feet Tilt-back ABS, Set of 4	83-1509
D	Retainer/Extractor Set, for PCB	83-3003
E	PCB Puller, 3U VME Boards	83-3009
F	PCB Puller, 6U VME Boards	83-3010
G	Hinge, Steel for Front Panels	83-3400
H	Bush, Facia (ABS) & Screw Set	83-3505
I	Retainer, Card Guide, Pkt of 100	83-3506
J	Card Guide Retainer Bkt, Pkt of 20	83-1854
K	Holder for PCB, ABS, with Mounting HW	83-5000
L	Holder, PCB, Split Type	83-5002
M	Insulation Strip, VME Motherboard Mounting	83-5004
N	Knob, Pull Out in Plated, Each	86-1007
O	Screw, Captive M2.5, Pkt of 10	86-1025
P	Bars for Card Frame Support 225mm	86-1028
Q	Bars for Card Frame Support 285mm	86-1029

