
Specification for

Modular plug-in unit and standard 19-inch rack mounting unit based on NIM standard (for electronic nuclear instruments)

Spécification des tiroirs et châssis de 19 pouces basés sur
le système NIM (pour appareils d'électronique nucléaire)

Spezifikation für Modul-Einschubeinheiten und Rahmen von 19 Zoll
auf Basis des NIM-Systems (für elektronische
Geräte de Kerntechnik)

Contents

	Page	Figures	Page
National foreword	Inside front cover	1. Dimensions of instrument module Type N	2
Cooperating organizations	Back cover	2. Dimensions of the rack mounting unit Type NC — Front view	4
Specification		3. Dimensions of the rack mounting unit Type NC — Side view	6
1. Scope	1	4. Dimensions of the rack mounting unit Type NC — Top view	7
2. Object	1	5. Dimensions of the rack mounting unit Type NC — Rear view	8
3. Specifications	1	6. Dimensions of connectors for instrument module Type N — Rear view bin connector	12
3.1 Dimensions of plug-in unit and rack mounting unit	1	7. Dimensions of connectors for instrument module Type N — Rear view module connector	13
3.2 Connector dimensions and pin assignments	1	8. Dimensions of connector hoods for instrument module Type N	16
Tables		National appendices	
I and II. Dimensions of instrument module Type N	3	A. Extracts from IEC 297 : 1975	19
III. Dimensions of the rack mounting unit Type NC	10	B. Extracts from IEC 482 : 1975	23
IV. Dimensions of connectors for instrument module Type N	15		
V. Connector pin assignments	17		

National foreword

This British Standard is identical (except for the addition of the national appendices: see 'Cross-references' below) with IEC 547 : 1976 Modular plug-in unit and standard 19-inch rack mounting unit based on NIM standard (for electronic nuclear instruments). It has been prepared under the direction of the Nuclear Engineering Standards Committee. The United Kingdom has taken part in the discussion in the International Electrotechnical Commission (IEC) Technical Committee TC 45 that prepared IEC 547 on the basis of a standard developed by the USAEC-NIM Committee.

IEC 547 is intended as a complement to IEC 482 : 1975 Dimensions of electronic instrument modules (for nuclear electronic instruments) and IEC 516 : 1977 A modular system for data handling: CAMAC system. The first of these publications specifies modular plug-in units. Types N, C and S are based on the NIM, CAMAC and USSR standards, all of which are widely used in nuclear laboratories.

The second publication, IEC 516, defines the whole CAMAC system, taking over the Type C modular plug-in unit, whereas IEC 547 defines the NIM system, taking over the type N modular plug-in unit; both describe the corresponding standard 19-inch rack mounting unit.

The formal decisions or agreements of IEC on technical matters, prepared by technical committees on which all the national committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with. Then decisions or agreements have the form of recommendations for international use and they are accepted by the national committees in that sense.

Terminology and conventions. The text of the international standard has been approved as suitable for publication, without deviation, as a British Standard. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

Wherever the word 'standard' appears, referring to this publication, it should be interpreted as 'British Standard'.

The comma has been used in the diagrams and related tables as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

References in the text to page numbers relate to IEC page numbers.

Cross-references. There are no corresponding British Standards for the following international standards that are referred to in the text:

IEC 297 : 1975 Dimensions of panels and racks;

IEC 482 : 1975 Dimensions of electronic instrument modules (for nuclear electronic instruments);

both of which are quoted in IEC 547. The committees responsible for them having been consulted, it has been decided to include the relevant portions of them as national appendices A and B. Insofar as the international standards are called up in the main body of this standard as requirements to be complied with, they are to be regarded as mandatory for the purposes of this standard.

NOTE 1. After consultation with the responsible committee, approval has been given to the adoption of IEC 516 'A modular system for data handling: CAMAC system' as a dual-numbered British Standard.

NOTE 2. *Textual error.* It should be noted that in many instances Roman (upright) type has been used for symbols for dimensions rather than the correct italic (sloping) type.

In note 2 to figures 8 and N3 the equivalent imperial value for 13.3 N is 3 lbf and not 3 lbs as printed.

British Standard Specification for

Modular plug-in unit and standard 19-inch rack mounting unit based on NIM standard (for electronic nuclear instruments)

1. Scope

This standard applies to modular electronic nuclear instruments.

Note. — Later IEC standards may extend the scope to other more general applications.

For reactor instrumentation and control systems, other packaging of electronic nuclear instruments may also be used.

2. Object

To define standard dimensions of a modular system based on NIM standard and comprising the plug-in unit Type N specified in IEC Publication 482, Dimensions of Electronic Instrument Modules (for Nuclear Electronic Instruments), the corresponding 19-inch rack mounting unit Type NC (conforming to IEC Publication 297, Dimensions of Panels and Racks) and the associated connectors.

3. Specifications

3.1 *Dimensions of plug-in unit and rack mounting unit*

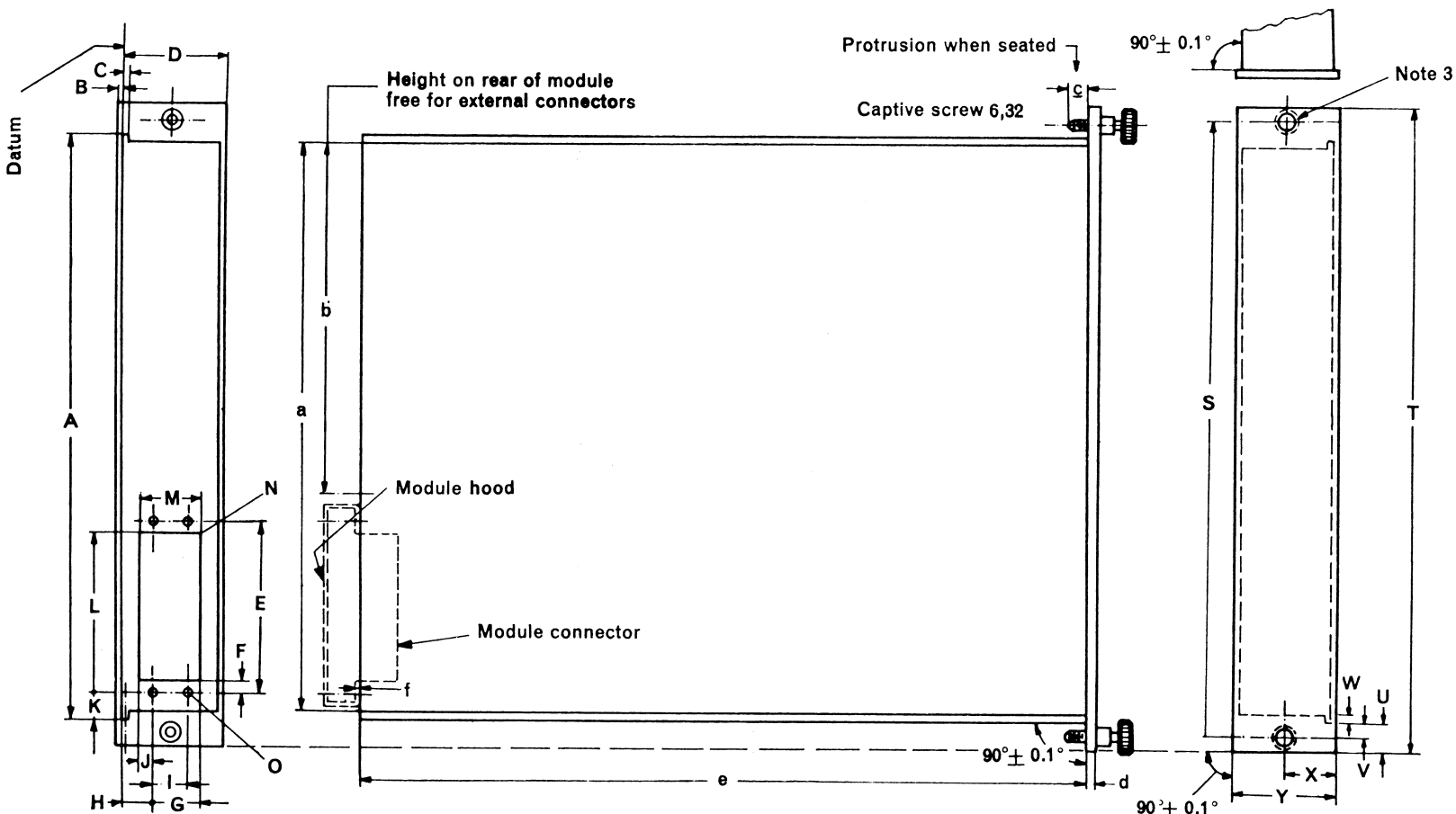
The dimensions of the modular plug-in unit Type N are given in Figure 1, page 8, and Tables I and II, page 9.

The dimensions of the standard 19-inch rack mounting unit Type NC are given in Figures 2, pages 10 and 11, 3 and 4, pages 12 and 13, and 5, pages 14 and 15, and Table III, pages 16 and 17.

3.2 *Connector dimensions and pin assignments*

3.2.1 The dimensions of the connector and associated hardware for module Type N and mounting unit Type NC shall be as specified in Figures 6 and 7, pages 18 and 19, and 8, page 22, and Table IV, page 21.

3.2.2 The connector pin assignments shall be in accordance with Table V, page 23.



Notes:

1. — For dimensions, see Tables I and II.
2. — Dimensions are given for the outside of the module. Metal thickness must be included in these dimensions. Dimensions are absolute and include projections such as screw heads, etc.
3. — Drill 0.257 ± 0.005 in (6.53 ± 0.13 mm) and countersink 82° , 0.020 ± 0.005 in (0.51 ± 0.13 mm) deep on rear of panel, 2 holes minimum.
4. — The millimetre dimensions are derived from the original inch dimensions.

FIG. 1. — Dimensions of instrument module Type N.

TABLE I (see Figure 1, page 8)

Reference	Nominal (mm)	Tolerance (mm)		Nominal (in)	Tolerance (in)		Remark
A	199,97	+ 0,00	— 0,25	7,873	+ 0,000	— 0,010	Note 1
B	0,38	± 0,13		0,015	± 0,005		
C	1,63	± 0,13		0,064	± 0,005		
D							
E	57,94	± 0,13		2,281	± 0,005		
F	3,25	± 0,13		0,128	± 0,005		
G	15,98	± 0,13		0,629	± 0,005		
H	10,92	± 0,25		0,430	± 0,010		
I	11,89	± 0,25		0,468	± 0,010		
J	4,09	± 0,13		0,161	± 0,005		
K	11,71	± 0,25		0,461	± 0,010		
L	54,69	± 0,13		2,153	± 0,005		
M	20,07	± 0,13		0,790	± 0,005		
N	0,38			0,015			Note 2
O	3,30	± 0,13		0,130	± 0,005		Note 3
P	11,71	± 0,13		0,461	± 0,005		
R	15,98	± 0,13		0,629	± 0,005		Note 1
S	210,57	± 0,25		8,290	± 0,010		
T	221,30	± 0,20		8,712	± 0,008		
U	10,69	± 0,25		0,421	± 0,010		
V	5,36	± 0,25		0,211	± 0,010		
W	3,20	± 0,13		0,126	± 0,005		
X	17,15	± 0,13		0,675	± 0,005		
Y							
a	193,57	+ 0,00	— 0,38	7,621	+ 0,000	— 0,015	
b	117,98	± 0,13		4,645	± 0,005		
c	6,35	± 1,52		0,250	± 0,060		
d	3,18	± 0,25		0,125	± 0,010		
e	245,72	+ 0,00	— 0,25	9,674	+ 0,000	— 0,010	
f	0,79	± 0,08		0,031	± 0,003		Note 4

Notes 1. — See Table II.

2. — Typical radius.

3. — Diameter, 4 holes.

4. — See module hood.

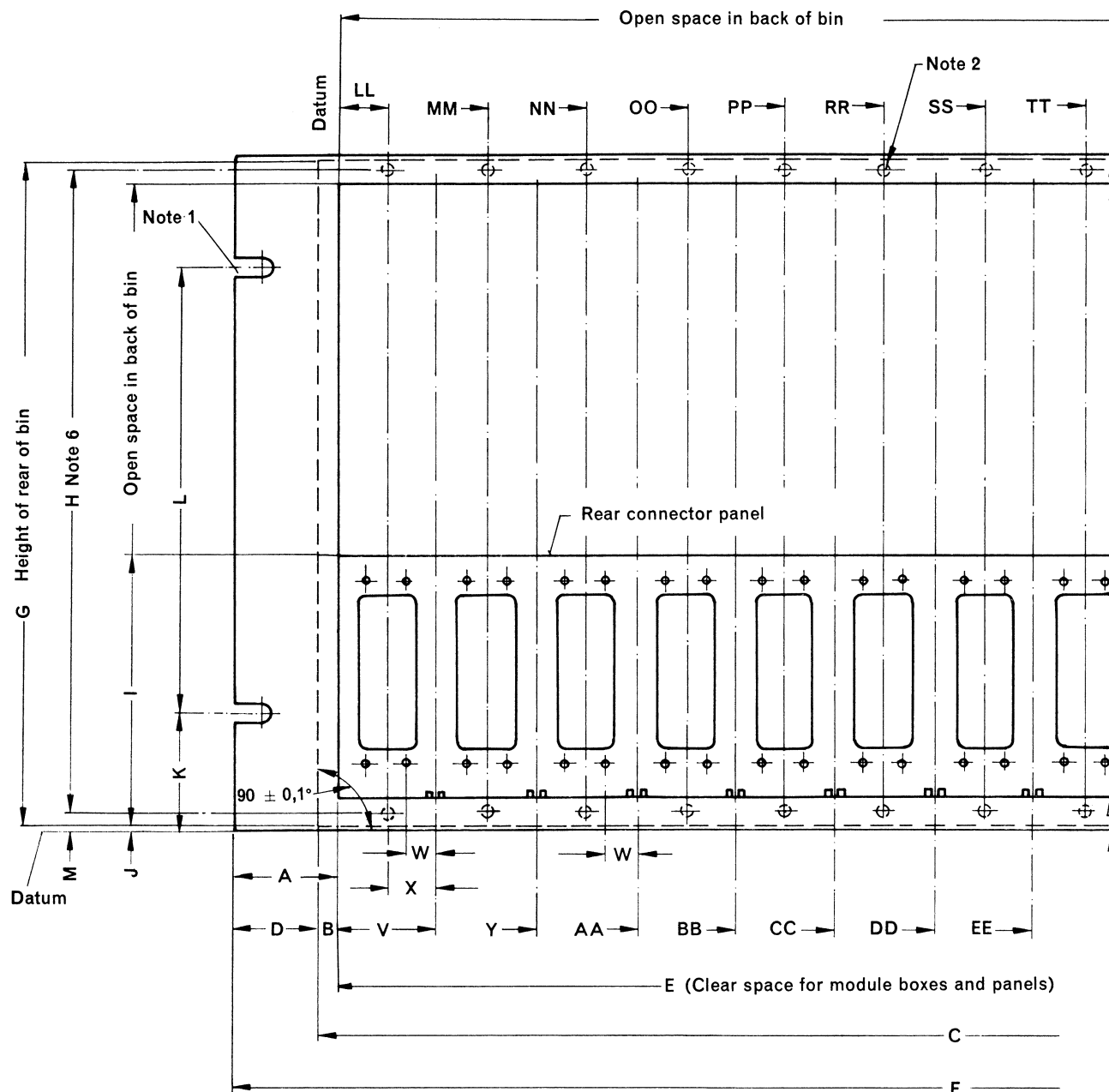
5. — The millimetre dimensions are derived from the original inch dimensions.

TABLE II (see Figure 1, page 8)

Width units	Nominal ¹⁾ Y (mm)	Nominal ²⁾ Y (in)	Nominal ¹⁾ D (mm)	Nominal ²⁾ D (in)
1	34,29	1,350	33,53	1,320
2	68,68	2,704	67,92	2,674
3	103,07	4,058	102,31	4,028
4	137,46	5,412	136,70	5,382
5	171,86	6,766	171,09	6,736
6	206,25	8,120	205,49	8,090
7	240,64	9,474	239,88	9,444
8	275,03	10,828	274,27	10,798
9	309,42	12,182	308,66	12,152
10	343,81	13,536	343,05	13,506
11	378,21	14,890	377,44	14,860
12	412,60	16,244	411,84	16,214

¹⁾ Tolerance — 0,25 mm²⁾ Tolerance — 0,010 in

Note. — The millimetre dimensions are derived from the original inch dimensions.

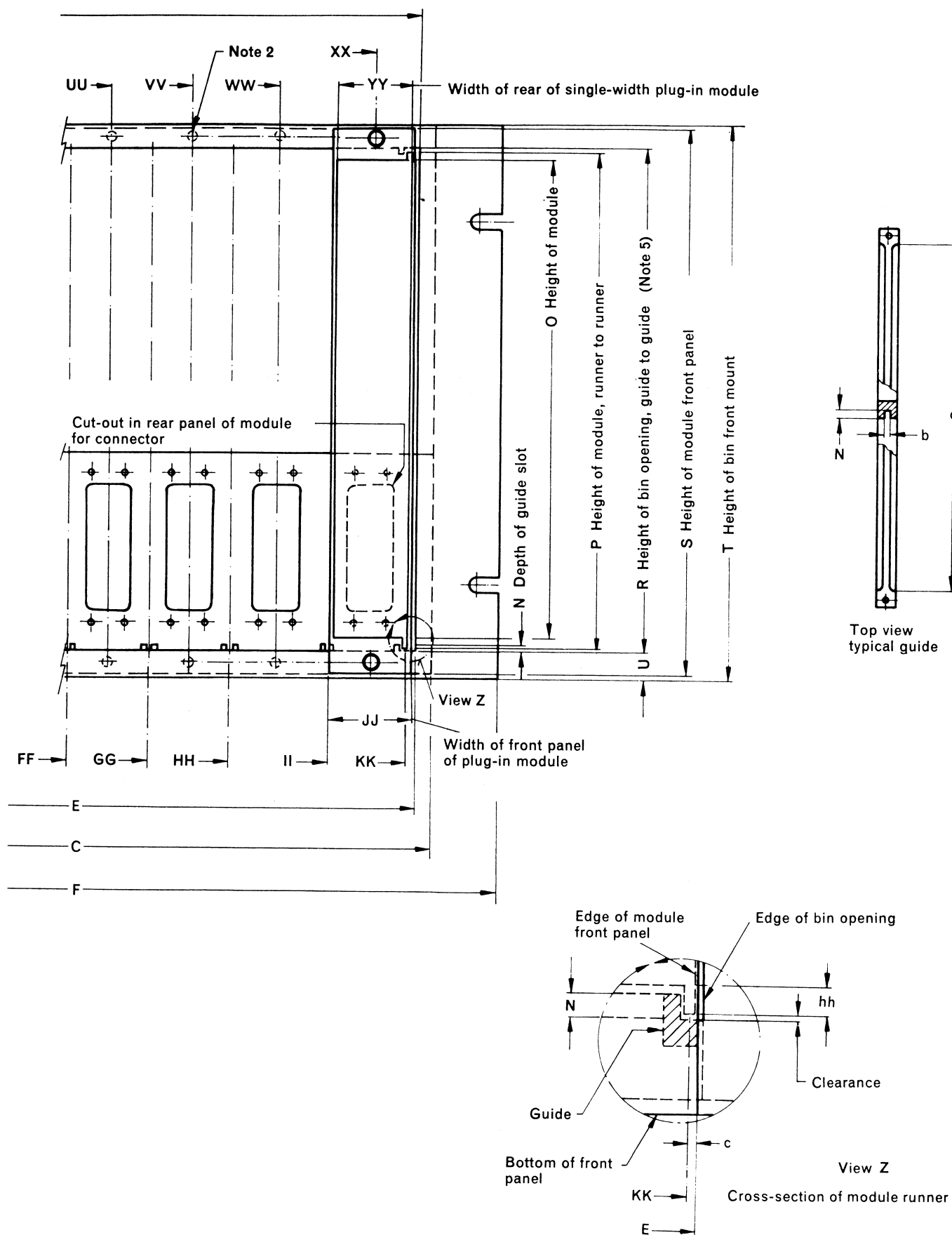


Notes:

1. — Open or closed slots in accordance with IEC Publication 297.
2. — Drill and tap for No. 6-32, class 2 fit (24 holes) if steel. Drill and press threaded insert if aluminium.
3. — Each power connector to be assembled with a jig positioning it with respect to the centre line of adjacent bottom guide.
4. — Mount spacers 0.031 in (0.79 mm) thick between connectors and connector mounting plate when not using shielding hood.
5. — R is measured between inner sliding surfaces of upper and lower guides.
6. — H is measured between the centres of panel mounting holes.

Continuation of Figure 2, page 11.

FIG. 2. — Dimensions of the rack mounting unit Type NC — Front view.



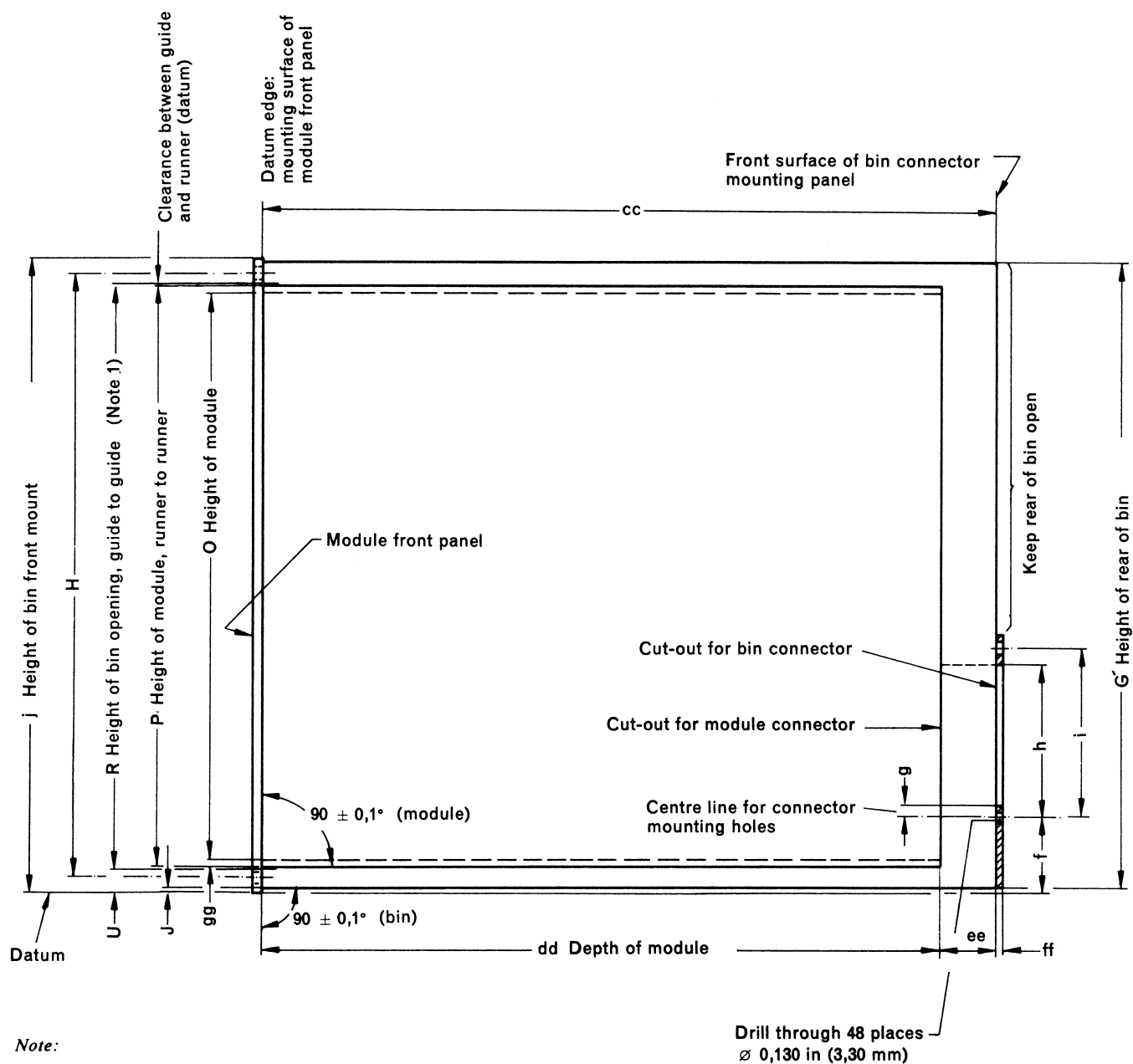
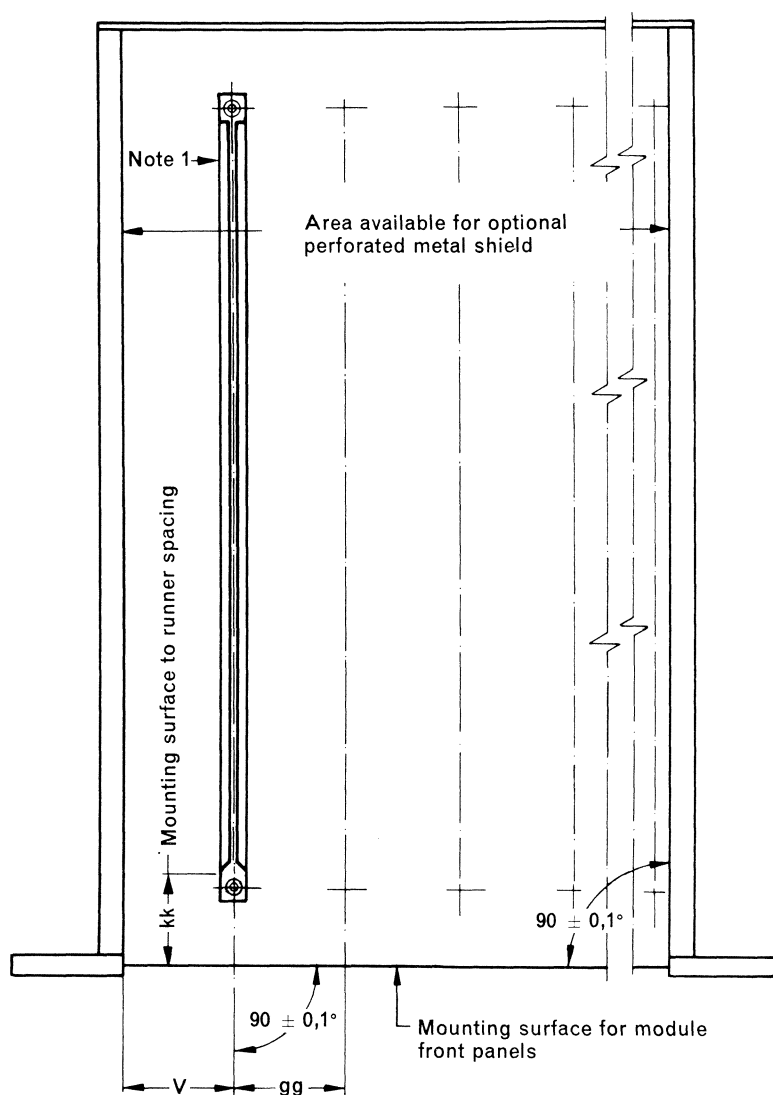


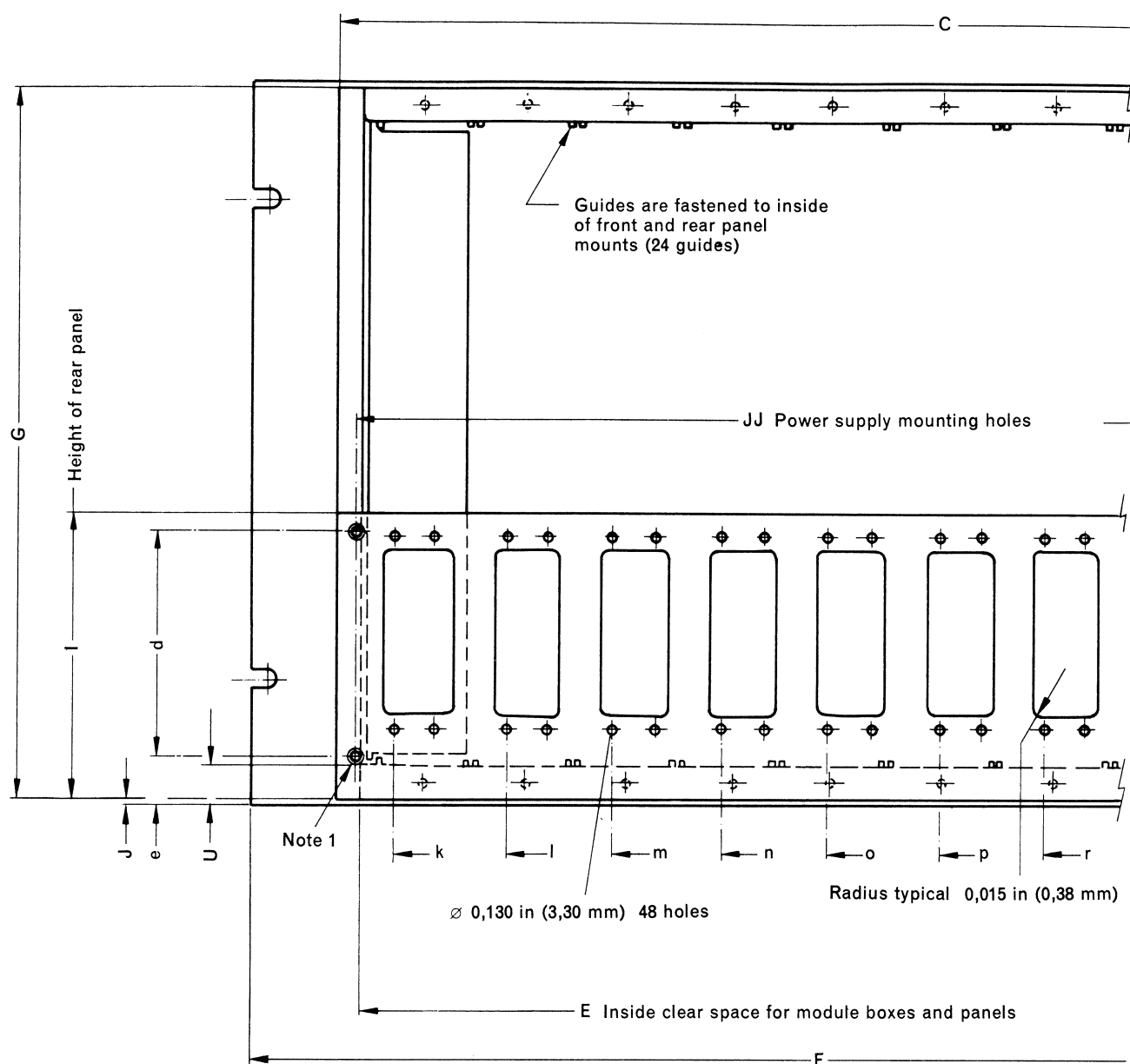
FIG. 3. — Dimensions of the rack mounting unit Type NC — Side view.



Note:

1. — Guide to fall within 0.005 in (0.13 mm) of straight line

FIG. 4. — Dimensions of the rack mounting unit Type NC — Top view.



Notes:

1. — Power supply mounting holes (4 holes), drill and tap for No. 10-32 UNF-2B. Minimum depth of clearance holes behind power supply mounting holes to be 0.500 in (12.70 mm).
2. — See Notes 3 and 4 of Figure 2, page 11, on front view figure regarding mounting of connectors.

Continuation of Figure 5, page 15.

FIG. 5. — Dimensions of the rack mounting unit Type NC — Rear view.

