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REPORT

on

COMPONENT - CONNECTORS FOR USE IN DATA, SIGNAL,
CONTROL AND POWER APPLICATIONS

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DESCRIPTION

PRODUCT COVERED:

USR Component - Connector series 160, 163, AC 166, AC 166-A, AC 166 E, AC 166 G, AC 166 GE or AC 166-1, may be followed by BU, ST or KU, may be followed by F, blank, KV, BV, LH, LV, PF or VT, followed by /2XX, /2DXX, 2DSXX, /3XX, /3DXX, /3DSXX, /4XX, /4DXX, /5XX, /5DXX or /5DSXX, followed by 2 to 5 letters denoting color.

USR Component - Connector series AC 166 G VLC, AC 166 G ALSC and AC 166 G ALBC, refer to nomenclature for details.

USR Component - Connector series cat. nos.: AC 166 GSTF/3 may or not be followed by GW and AC 166 GBUF/3 may or not be followed by GW.

USR Component - Connector series AC 164, refer to nomenclature for details.

USR Components - connectors series AC 166 GVH may be followed by 4/3 or 6/3, maybe followed by SW or WS, may be followed by BL.

USR Component - Connector series AC 164 VT, may be followed by 3/2, 3/3, 3/4, 3/5, or 3/6 maybe followed by PB, SW or WS.

USR Component - Connector, series AC 166 GVTA, followed by 3/3, followed by SW, WS, or HR.

GENERAL:

* USR - indicates investigation to United States Standard.

These devices are multipole connectors intended for factory assembly. These Connectors consist of male or female connectors with pressure wire connections or Push-In Type (Wire Secured by Spring Type Action). The houses are provided with suffixes for constructional details.

ELECTRICAL RATINGS:

Type	No. of poles	Type Designation	Electrical Rating	Wire Range	Torque
160 BU/2 with or without DS 160 BU/3 with or without DS 160 BU/5 with or without DS 163 ST/2 with or without DS 163 ST/3 with or without DS 163 ST/5 with or without DS AC 166 EBU/3 AC 166 EST/3 AC 166 KU/3 AC 166 GBU/3** AC 166 GST/3** AC 166 GKU/3	** 2 through 5	2	16 A, 600 V	14 SOL/STR	0.6 Nm
AC 166 GEBU/3 AC 166 GEST/3 AC 166 GEKBU/3 AC 166 GEKBUV/3 AC 166 GEKST/3 AC 166 GEKSTV/3	3 through 5	2	16A, 600V	14-18 sol/str	0.6 Nm
AC 166-1 BU/3 AC 166-1 ST/3	3	2	16A, 600V	14 sol/str	0.6 Nm
AC 166 may be followed by -A BU/ followed by 2,3,4 or 5 AC 166 may be followed by -A ST/ followed by 2,3,4 or 5 AC 166 may be followed by -A BUD/ followed by 2,3,4 or 5 AC 166 may be followed by -A STD/ followed by 2,3,4 or 5	2 thru 5	2	16 A, 600 V	14 SOL/STR	0.6 Nm
**AC 166 BUF/3 AC 166 STF/3	3	2	16 A, 600 V	14 SOL/STR	0.4 Nm
AC 166 GBUF/3 AC 166 GSTF/3 AC 166 GBUF/3 GW AC 166 GSTF/3 GW	3 through 5	2	16A, 600V	14-18 sol/str	0.4 Nm
AC 166 G VLC, AC 166 G ALBC, AC 166 G ALSC	3 through 5	2	16A, 600V	14-18 sol/str	0.4 Nm
AC 166 GEBUV/3 AC 166 GESTBV/3 AC 166 GEBUKV/3 AC 166 GESTKV/3	3	2	16 A, 600 V	14 SOL/STR	0.4 Nm
AC 166 GBULH/3 AC 166 GSTLH/3 AC 166 GBULV/3 AC 166 GSTLV/3	3 through 4	2	16 A, 600 V	--	--
AC 166 GBUPF/3 AC 166 GSTPF/3	3	2	16 A, 600 V	14 sol	--
*AC 166 GVT/3	3 + 4	2	16A/600V	--	--
AC 164	2 through 5	2	16A/600V	16 sol	0.5 Nm

ELECTRICAL RATINGS: coun't

*Type	Type of poles	No. of Poles			Electrical Rating	Wire Range (2)
		all	rows	poles in row		
AC 166 GVH 4/3 SW(1) AC 166 GVH 4/3 WS(1) AC 166 GVH 4/3 SW BL(1) AC 166 GVH 4/3 WS BL(1) AC 166 GVH 6/3 SW(1) AC 166 GVH 6/3 WS(1) AC 166 GVH 6/3 SW BL(1) AC 166 GVH 6/3 WS BL(1)	inputs	3	1	3	16 A, 600 V	N/A
	outputs	3 x 3	3	3	16 A, 600 V	N/A
		3 x 5	5	3	16A, 600V	N/A
AC 164 VT 3/2 (3)	inputs	2	1	2	16 A, 600 V	N/A
	outputs	2 x 2	2	2	16 A, 600 V	N/A
AC 164 VT 3/3 (3)	inputs	3	1	3	16 A, 600 V	N/A
	outputs	2 x 3	2	3	16 A, 600 V	N/A
AC 164 VT 3/4 (3)	inputs	4	1	4	16 A, 600 V	N/A
	outputs	2 x 4	2	4	16 A, 600 V	N/A
AC 164 VT 3/5 (3)	inputs	5	1	5	16 A, 600 V	N/A
	outputs	2 x 5	2	5	16 A, 600 V	N/A
AC 164 VT 3/6 (3)	inputs	6	1	6	16 A, 600 V	N/A
	outputs	2 x 6	2	6	16 A, 600 V	N/A
*AC 166 GVTA 3/3 (4)	inputs	3	1	3	16 A, 600 V	N/A
	outputs	3	1	3	16 A, 600 V	N/A
		3	1	3	16 A, 600 V	N/A

Note:

1 - Ratings of certified connectors are retained to use with connectors series AC 166, cat nos.: AC 166 GBUF/3 AC, 166 GSTF/3, AC 166 GBUF/3, AC 166 GSTPF/3, AC 166 G VLC, AC 166 G ALBC, AC 166 G ALSC as a mating part for current circuit.

2 - The outputs and inputs of certified connectors must be respectively mated with applicable male and female connectors as a mating parts.

3 - Ratings of certified connectors are retained to use with connectors series cat. nos.: AC 164 STF and AC 164 BUF as a mating part for current circuit.

4 - Ratings of certified connectors are retained to use with connectors, Cat. Nos.: AC166 GSTF/3 SW and AC166 GBUF/3 SW as a mating parts for current circuit.

NOMENCLATURE CODE: AC 166 GBUF/3

Example: AC 166 G BU F /315 black GW
 A B C D E F

A. Basic Type -

160
 163
 AC 166
 AC 166-A
 AC 166 E
 AC 166 G
 AC 166 GE
 AC 166-1

B. Construction -

BU - Female Connector
 ST - Male Connector
 KU - Coupler

C. Types Designation

F - Flat version
 None - Not flat version
 KV - built-in plugs and sockets to be used in plastic frames
 BV - built-in plugs and sockets to be used in metal frames
 LH - plugs and sockets with horizontal solder pins
 LV - plugs and sockets with vertical solder pins
 PF - flat plugs and sockets with strain relief, screwless
 VT - distributing blocks (1 input, 2 output terminals)

D. First digit indicates the Number of poles -

/2 - 2 poles
 /2D - 2 poles with 2 wire terminals per pole
 /2DS - 2 poles with wire protector
 /3 - 3 poles
 /3D - 3 poles with 2 wire terminals per pole
 /3DS - 3 poles with wire protector
 /4 - 4 poles
 /4D - 4 poles with 2 wire terminals per pole
 /5 - 5 poles
 /5D - 5 poles with 2 wire terminals per pole
 /5DS - 5 poles with wire protector

XX - two additional digit number may indicate size of strain relief for cable jacket with different outer diameters

3-pole:10 - 4.5-5.5 mm
 15 - 7.5-8.5 mm
 25 - 9.5-10.5 mm
 40 - 10.5-12.0 mm

4-pole:

10 - 7.3-8.3 mm
15 - 8.4-9.4 mm
25 - 10.0-11.3 mm

5-pole

10 - 5.5-6.5 mm
15 - 9.3-10.3 mm
25 - 11.3-12.3 mm

E. Color

F. Types of Material

(...deleted...)

* AC 166 G VLC /315 060 H05VV5-F schwarz- grau
 1 2 3 4 5 6 7

1 = AC 166 G = Basic type

2 = VLC = connection cable

315 = /first digit indicates the number of poles
 two digit number indicates wire size in mm² or AWG

05 = 0.5 mm²

075 = 0.75 mm²

10 = 1 mm²

15 = 1.5 mm²

25 = 2.5 mm²

14 = 14 AWG

16 = 16 AWG

18 = 18 AWG

*4 = Length of cable in cm

*5 = Cable Type

6 = Color of the connector

7 = Color of Cable

* AC 166 G AL BC /315 300 H05VV5-F schwarz -grau
 1 2 3 4 5 6 7 8

1 = AC 166 G = Basic type

2 = AL = extension cable

3 = BC - female

 SC - male

4 = /first digit indicates the number of poles
 two digit number indicates wire size in mm² or AWG

05 = 0.5 mm²

075 = 0.75 mm²

10 = 1 mm²

15 = 1.5 mm²

25 = 2.5 mm²

14 = 14 AWG

16 = 16 AWG

18 = 18 AWG

*5 = Length of cable in cm

*6 = Cable Type

7 = Color of the connector

8 = Color of Cable

NOMENCLATURE CODE: AC 164

Example: AC 164 ALSB /515 white GW
 A B C D E

- A. Basic series -
 AC 164
- B. Construction -
 BU ST - Plug / Connector, rewirable, screw type terminal, for
 built- in, with retaining means.
 BUF STF - Plug / Connector, rewirable, screw type terminal, with
 strain relief, with retaining means
 EBU EST - Plug / Connector, rewirable, screw type terminal, with
 strain relief, with retaining means, with frame for socket
 ALSB ALSS - Extension cable, connector / plug, rewirable, screw type
 terminal, with strain relief, with retaining means
 VLS - Extension cable, connector / plug, rewirable, screw type
 terminal, with strain relief, with retaining means
- C. Number of poles
 /2 - 2 pole
 /3 - 3 pole
 /4 - 4 pole
 /5 - 5 pole
- D. color-
 White
 Black
 Pastel blue
- E. Types of material

(...deleted...)

NOMENCLATURE CODE: AC 166 GVH

Example: AC 166 GVH 4/3 SW BL
 A B C D

- A. Basic Type -
 AC 166 GVH - connector (series current distributor/divider, H-shape)
- B. Construction / Number of poles -
 4/3 - number of 3 poles: each input pole is distributed to 3 different outputs
 6/3 - number of 3 pole: each input pole is distributed to 5 different outputs
- C. Types Designation
 SW - black color
 WS - white color
- D. Color -
 BL - fixing hole for screw fixing

NOMENCLATURE CODE: AC 164 VT

Example: AC 164 VT 3/6 SW
 A B C

- A. Basic Type -
 AC 164 VT - connector (series current distributor/divider)
- B. Construction / Number of poles -
 3/2 - number of 2 poles: each input pole is distributed to 2 different outputs
 3/3 - number of 3 poles: each input pole is distributed to 2 different outputs
 3/4 - number of 4 poles: each input pole is distributed to 2 different outputs
 3/5 - number of 5 poles: each input pole is distributed to 2 different outputs
 3/6 - number of 6 poles: each input pole is distributed to 2 different outputs
- C. Types Designation
 SW - black color
 WS - white color
 PB - pastel blue

NOMENCLATURE CODE FOR CAT NOS.: AC 166 GVTA ...

Example: AC 166 GVTA 3/3 SW
 A B C

- A. Basic Type:
 AC 166 GVTA - connector (current T-shape distributor/divider)

- B. Construction / Number of poles -
 3/3 - 3 poles: each input pole is distributed to 2 different outputs

- C. Types Designation
 SW - black color
 WS - white color
 HR - light red color

ENGINEERING CONSIDERATIONS (NOT FOR UL REPRESENTATIVE USE):

Use - For use only in complete equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability - In order to be judged acceptable as a component of electrical equipment, the following conditions should be met.

1. These devices have not been tested for interrupting the flow of current by connecting or disconnecting the mating connector. If the devices will be routinely connected or disconnected under load in the end-use application, tests to evaluate the devices' ability to withstand the resulting electrical arc should be considered. The number of make-and-break cycles, the supply voltage and power factor, and the current carried by each pole of the device in the test are to be developed based upon the conditions that will be present in the end-use. The Overload, Temperature and Resistance to Arcing test sequence in UL 1977, the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications, is an example of a test program that can be used in such an evaluation.

* 2. Series 160 BU followed by /3 or /5 with or without DS and 163 ST followed by /3 or /5 with or without DS and AC 166 followed by BUF/, STF/, EBU/, EST/, GBU/, GST/, GBUF/, GSTF/, GEBU/ or GEST/ followed by 3 and AC 166 followed by BU/, ST/, BUD/ or STD/ followed by 2,3,4 or 5 and AC 166-1 followed by BU/3, ST/3, and AC 166 GVTA, followed by 3/3 have not been evaluated for its suitability as a protective conductor.

3. The mounting means was not evaluated .

4. The electrical and mechanical suitability of the wiring terminals shall be determined in the end use.

5. The placement of these devices within the equipment enclosure should be such that spacings between the live parts and the equipment are suitable for the particular application.

6. These devices have been investigated for a current of 16 A carried by each pole.

7. The operating temperature of these devices should not exceed the temperature ratings of the insulating materials as indicated under item 13 of the Conditions of Acceptability or Construction Details. These materials may be used interchangeably.

8. These devices employ terminals, which are not suitable for field wiring.

9. The strain relief's are to be investigated for the application.

*

10. Mold Stress Relief testing were conducted at a temperature of 135°C for (...**deleted**...), and 120 °C for (...**deleted**...). Except: 140°C for cat. nos.: AC 164 VT and AC 166 GVH molded of (...**deleted**...) and AC 166 GSTF/3 GW and AC 166 GBUF/3 GW molded of (...**deleted**...).

Cat. No. AC 166 GVTA 3/3 SW, molded of (...**deleted**...) was tested at a temp of 135°C.

Cat. No. AC 166 GVTA 3/3 SW, molded of (...**deleted**...) was tested at a temp of 120°C. (...**deleted**...) was tested at a temp. of 140°C.

11. These devices have been subjected to the Temperature test described in UL 1977, the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications, with the rated currents and maximum temperature rise values tabulated below. The conductors terminated by the device and other associated components are to be reviewed in the end-use to determine whether the temperature rise from the connector exceeds their maximum operating temperature ratings.

*Types	Insulation Material	Wire Size	Current , A	Torque ,Nm	Maximum Temperature Rise, °C.
163 ST/3 w. 160 BU/3	(...deleted...)	14 AWG SOL, Cu	16	0.6	31.4
AC 166 BU/5 w. AC 166 ST/5	(...deleted...)	14 AWG STR, Cu	16	0.6	19.4
AC 166 GBUF/3 w. AC 166 GSTF/3	(...deleted...)	14 AWG SOL, Cu	16	0.4	24.4
AC 166 EBU/3 w. AC 166-1 ST/3	(...deleted...)	14 AWG SOL, Cu	16	0.6	26.8
AC 166 EST/3 w. AC 166-1 BU/3	(...deleted...)	14 AWG STR, Cu	16	0.6	28.7
AC 166 GBUF/5 AC 166 GSTF/5	(...deleted...)	14 AWG sol/str	16	0.6	42
AC 166 GEBU AC 166 GEST	(...deleted...)	14 AWG sol/str	16	0.6	40
AC 166 GBULH/4 AC 166 GSTLH/4	(...deleted...)	--	16	--	45
AC 166 GEBU/5 AC 166 GEST/5	(...deleted...)	18 AWG sol/str	16	0.6	64
AC 166 GEBUF/5 AC 166 GESTF/5	(...deleted...)	18 AWG sol/str	16	0.4	65.7
AC 164 BUF AC 164 STF	(...deleted...)	16 sol	16	0.5	42.1
AC 166 GVH 4/3 WS BL mated with both together cat. nos.: AC 166 GBUF/3 GW and AC 166 GSTF/3 GW	(...deleted...)	18 AWG STR	16	N/A	49.0
AC164VT3/5SW mated with cat. nos.: AC164BUF/5SW and AC164STF/5SW	(...deleted...)	16 AWG SOL	16	N/A	53.2
AC164VT3/6SW mated with cat.nos.: AC164BUF/2PB, AC164STF/2PB, AC164BUF/4SW and AC164STF/4SW	(...deleted...)	16 AWG SOL	16	N/A	50.2

*Types	Insulation Material	Wire Size	Current , A	Torque ,Nm	Maximum Temperature °C
AC166 GVTA 3/3 mated with Cat. Nos.:	(...deleted...)	18AWG STR	16	N/A	56.8
AC166 GSTF/3 AC166 GBUF/3		18AWG SOL			56.4

12. These devices may be used at potentials not exceeding 600 V based on Dielectric Voltage-Withstand testing conducted at 2200 V ac in accordance with UL 1977, the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications.

13. The insulating materials used in these devices comply with the requirements of UL 1977, the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications. See table below for manufacture and type.

Series	Manufacturer	Material	Base Material Temperature Rating.
*	(...deleted...)	(...deleted...)	110 °C
160	(...deleted...)	(...deleted...)	110°C
163	(...deleted...)	(...deleted...)	110°C
AC 166	(...deleted...)	(...deleted...)	110°C
AC 166-1	(...deleted...)	(...deleted...)	110°C

Cat. No.	Insulating Material (#)	Measured Minimum Thickness	Flame Class	HWI	HAI	RTI Elec	Max Operating Temp, °C
AC 166 GVH	A	1.7 mm	V-2	3	0	125	110 (1)
	B	1.7 mm	V-2	3	0	130	
AC 166 GSTF/3 GW	C	0.85 mm	V-0	3	0	130	130
AC 166 GBUF/3 GW		1.6 mm					
*AC166 GSTF/3	A	0.85mm	V-2	4	0	125	110
	B		V-2	4	0	130	
	D		V-2	4	0	110	
*AC166 GBUF/3	A	1.6mm	V-2	3	0	125	115
	B		V-2	3	0	130	
	D		V-2	3	0	115	
*AC 164 VT	A	0.75mm	V-2	4	0	125	110 (2)
	B	0.75mm	V-2	4	0	130	
*AC 166 GVTA 3/3	A	0.8mm	V-2	4	0	125	110 (3)
	B		V-2	4	0	130	
	D		V-2	4	0	110	

Note:

- 1 - the lowest RTI value of all insulating materials applicable with Series AC 166 GVH and all insulating materials of all mating parts.
- 2 - the lowest RTI value of all insulating materials applicable with Series AC 164 VT and all insulating materials of cat. nos.: AC 164 STF and AC 164 BUF used as a mating part for current circuit.
- 3 - the lowest RTI value of all insulating materials applicable with Series AC 166 GVTA and all insulating materials of Cat. Nos.:

* AC166 GSTF/3 and AC166 GBUF/3 used as a mating part for current circuit.

A. (...deleted...)

B. (...deleted...)

C. (...deleted...)

D. (...deleted...)

14. Miscellaneous

14.1 Connectors series AC 166 GVH can not be employed with wires but applicable only with other connectors, details see table of Electrical Ratings.

14.2 Those connectors are current distributor/divider which have following poles:

- one input with 3 poles (L,N,PEN),
- 3 or 5 outputs with 3 poles (L,N,PEN) each.

14.3 Connection between inputs and outputs, details see ill. 30, 31 and 32

14.4 Connectors series AC 164 VT can not be employed with wires but applicable only with other connectors, details see table of Electrical Ratings.

14.5 Those connectors are current distributor/divider which have following poles:

- one input with 2,3,4,5 or 6 poles (L1,L2,L3,N,PEN,+,-),
- two outputs with 2,3,4,5 or 6 poles (L1,L2,L3,N,PEN,+,-).

14.6 Connection between inputs and outputs, details see ill. nos.: 58-60.

14.7 Connectors series AC 166 GVTA can not be employed with wires, but applicable only with other connectors, details see table of Electrical Ratings.

14.8 Connectors series AC 166 GVTA are current distributor/divider, which have following poles:

- one input with 3 poles (L, N, PEN),
- two outputs with 3 poles (L, N, PEN).

14.9 Connection between inputs and outputs, details see ill. nos.: 65-66.

*

15 Mating Connectors

These devices have only been assessed for use with specific types of connectors within their product family. They have not been assessed to operate with any other similar devices from any other manufacturer. These devices have been assessed with the mating connectors as tabulated below.

*Series, Cat Nos.	Mating Connector Series, Cat Nos.	Mating Connector Manufacturer
AC 166 GVH	AC 166 GBUF/3(1), AC 166 GSTF/3(1), AC 166 GBUPF/3(1), AC 166 GSTPF/3(1), AC 166 G VLC(1), AC 166 G ALBC(1), AC 166 G ALSC(1)	Adels-Contact Elektrotechnische
AC 164 VT	AC 164 BUF (2) and AC 164 STF (2)	Adels-Contact Elektrotechnische
AC 166 GVTA	AC166 GSTF/3 (3) AC166 GBUF/3 (3)	Adels-Contact Elektrotechnische

Note:

1 - all used as a mating part Cat. nos. have maximum operating temperature RTI Index equal 110°C, which could limit the operating temperature to 110°C for connectors Series AC 166 GVH (only if RTI index of connectors Series AC 166 GVH is higher than 110C).

2 - all used as a mating part Cat. nos. have maximum operating temperature RTI Index equal 110°C, which could limit the operating temperature to 110°C for connectors Series AC 164 VT (only if RTI index of connectors Series AC 164 VT is higher than 110°C).

3 - all Cat. Nos. used as a mating parts have maximum operating temperature RTI Index equal 125°C, which could limit the operating temperature to 125°C for connectors Series AC 166 GVTA (only if RTI index of connectors Series AC 166 GVTA is higher than 125°C).

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CONSTRUCTION DETAILS:

The details of construction are illustrated in the following descriptive pages and accompanying photographs.

Spacings - Minimum of 1.2 mm (3/64 in.) for devices rated 250 V or less, minimum of 3.2 mm. (1/8 in.) for devices rated greater than 250 V provided through air and over surface between live-metal parts of opposite polarity and between live parts and exposed dead-metal parts.

MARKING - The marking of a Component Connectors for Use in Data, Signal, Control and Power Applications shall include:

1. Recognized Company's name, trade name or trademark shall appear on the device.
2. The catalog number or series designation shall appear on the device, shipping carton, or stuffer sheet, placed in the shipping carton.
3. The Factory Identification which may be marked on the device, shipping carton, or stuffer sheet, placed in the shipping carton.
4. The electrical rating in both volts and amperes (if assigned), whether ac or dc (if restricted) and Flammability class (if identified), shall appear on the device, shipping carton, or stuffer sheet, placed in the shipping carton.
5. "Not for current interrupting", "For disconnect use only", or with an equivalent statement, shall appear on the device, shipping carton, or stuffer sheet, placed in the shipping carton.

*

Insulating materials - R/C Plastic (QMFZ2), used in these devices comply with the requirements of UL 1977, the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications. The following QMFZ2 is employed in these devices.

Series	Manufacturer	Material	Base Material Temperature Rating.	
160	(...deleted...)	(...deleted...)	110 °C	
163	(...deleted...)	(...deleted...)	110°C	
AC 166	(...deleted...)	(...deleted...)	110°C	
AC 166-1	(...deleted...)	(...deleted...)	110°C	
AC 164	(...deleted...)	(...deleted...)	110°C	
AC 164	(...deleted...)	(...deleted...)	110°C	
AC 164 VT	(...deleted...)	(...deleted...)	125	110°C
AC 164	(...deleted...)	(...deleted...)	110°C	
AC 164 VT	(...deleted...)	(...deleted...)	130	110°C
AC 166 GVH	(...deleted...)	(...deleted...)	125	110°C
	(...deleted...)	(...deleted...)	130	
AC 166 GSTF/3 GW AC 166 GBUF/3 GW	(...deleted...)	(...deleted...)	130	
*AC166 GSTF/3	(...deleted...)	(...deleted...)	125	110
	(...deleted...)	(...deleted...)	130	
	(...deleted...)	(...deleted...)	110	
*AC166 GBUF/3	(...deleted...)	(...deleted...)	125	110
	(...deleted...)	(...deleted...)	130	
	(...deleted...)	(...deleted...)	115	
*AC 166 GVTA	(...deleted...)	(...deleted...)	130	110
	(...deleted...)	(...deleted...)	125	
	(...deleted...)	(...deleted...)	110	

Model differences - Models with suffix "A" are identical to type AC 166 followed by BU/ or BUD/ followed by 2,3,4 or 5 and type AC 166 followed by ST/ or STD/ followed by 2,3,4 or 5.

- A. 160 BU/3 (REPRESENT AC 160 BU/3DS, 160 BU/5 with or without DS)
 B. 163 ST/3 (REPRESENT AC 163 ST/3DS, 163 ST/5 with or without DS)
 - FIG.1 (D0100783) and Ills. 6

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill. 1 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
160 BU/3	16.5	23.7	26.8	1.0	1
163 ST/3	16.5	24.1	29.5	0.7	1

2. Male/female contact - Plated Copper steel, provided with one hole for M3 screw and one hole for wire entry. For male/female ground contacts the overall length may vary. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness
160 BU/3	5.8	4.5	13.7	0.7
163 ST/3	5.8	4.5	18.5	0.7

3. Screw - Plated steel, Slot-headed. Overall dimensions are tabulated below in mm.

Type	Screw Size	Overall Diameter	Overall Length	Overall Thread Length
160 BU/3	M3	3.6	6.9	5.5
163 ST/3	M3	3.5	7.5	5.9

- C. AC 166 BU/5 (REPRESENT AC 166 FOLLOWED BY BU/ OR BUD/ FOLLOWED BY 2,3 or 4 AND AC 166 GBU/3)
- D. AC 166 ST/5 (REPRESENT AC 166 FOLLOWED BY ST/ OR STD FOLLOWED BY 2,3 or 4 AND AC 166 GST/3) - FIG.2 (D0100784) and Ills. 6

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill. 2 for assembly and dimensional details. The above-mentioned types represents models with suffix "A".

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. The length varies with number of poles. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
AC 166 BU/5	33.6	19.5	48.0	0.67	2
AC 166 ST/5	34.0	19.5	48.0	0.57	2

2. Male/female contact - Plated Copper steel, provided with one hole for M3 screw and one hole for wire entry. For male/female ground contacts the overall length may vary. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness
AC 166 BU/5	6.1	4.7	17.5	0.7
AC 166 ST/5	5.9	4.7	17.9	0.9

3. Screw - Plated steel, Slot-headed. Overall dimensions are tabulated below in mm.

Type	Screw Size	Overall Diameter	Overall Length	Overall Thread Length
AC 166 BU/5	M3	4.0	8.0	6.0
AC 166 ST/5	M3	4.0	8.0	6.0

- E. AC 166 EBU/3 (REPRESENT AC 166 GEBU/3)
 F. AC 163 EST/3 (REPRESENT AC 166 GEST/3) - FIG.3 (D0100785) and Ills. 6

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill. 3 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
AC 166 EBU/3	16.7	37.5	38.5	0.3	3
AC 166 EST/3	16.7	37.5	38.5	0.3	3

2. Male/female contact - Plated Copper steel, two parted construction, provided with spring for wire entry. For male/female ground contacts the overall length may vary. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness
AC 166 EBU/3	8.8	5.8	23.9	0.3
AC 166 EST/3	8.8	5.8	24.3	0.3

- G. AC 166 GBUF/3 (REPRESENT AC 166 BUF/3)
 H. AC 166 GSTF/3 (REPRESENT AC 166 STF/3) - FIG.4 (D0100786) and Ills. 6
 AC 166 GSTF/3 GW and AC 166 GBUF/3 GW

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill. 4 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
AC 166 GBUF/3	12.6	28.0	68.2	0.9	4
AC 166 GSTF/3	12.6	28.0	68.2	0.7	4

2. Male/female contact - Plated Copper steel, provided with one hole for M3 screw and one hole for wire entry. For male/female ground contacts the overall length may vary. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness
AC 166 GBUF/3	5.1	4.5	21.8	0.7
AC 166 GSTF/3	5.1	4.5	22.0	0.7

3. Centre screw - Plated steel, Slot-headed. Overall dimensions are tabulated below in mm.

Type	Screw Size	Overall Diameter	Overall Length
AC 166 GBUF/3	M3	2.9	4.1
AC 166 GSTF/3	M3	2.9	4.1

- I. AC 166-1 BU/3 (REPRESENT AC 166)
 J. AC 163-1 ST/3 (REPRESENT AC 166) - FIG.5 (D0100787) and Ills. 6

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill.5 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
AC 166-1 BU/3	19.5	31.6	28.0	0.7	5
AC 166-1 ST/3	19.5	31.6	28.0	0.7	5

2. Male/female contact - Plated Copper steel, provided with one hole for M3 screw and one hole for wire entry. For male/female ground contacts the overall length may vary. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness
AC 166-1 BU/3	6.0	4.7	21.5	0.8
AC 166-1 ST/3	6.0	4.7	22.0	0.8

3. Screw - Plated steel, Slot-headed. Overall dimensions are tabulated below in mm.

Type	Screw Size	Overall Diameter	Overall Length	Overall Thread Length
AC 166-1 BU/3	M3	4.0	8.0	6.0
AC 166-1 ST/3	M3	4.0	8.0	6.0

AC 166 GKU (coupler)

Fig. 6

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
AC 166 GKU	12.5	28.0	39.0	0.7	7

2. Contact - Plated Copper alloy. For shape and dimensions see Ills. 8.

AC 166 GVT (distributor)

Fig. 7

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill.9 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
AC 166 GVT	42.9	28.2	58.0	0.7	9

2. Male/female contact - Plated Copper alloy. For shape and dimensions see Ills. 10 & 10A.

AC 166 GBUL (H- horizontal, V- vertical)
(connector with soldering pins, 90° and 180° angled)

Fig. 8

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill.11 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Type	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
AC 166 GBUL	13	24	*	1.7	11

* varies with the number of poles (3 through 4 poles)

2. Male/female contact - Niquel plated copper alloy, provided with solder pin integrated. For vertical and horizontal connection. See Ills. 12 & 13 for shape and dimensions.

AC 166 G VLC, AC 166 G ALBC, AC 166 G ALSC

General - AC 166 G VLC, AC 166 G ALBC, AC 166 G ALSC connectors are AC 166 G connectors where cable type H05VV5-F is attached.

AC 164

Fig. 9, 10, 11, 12 and 13

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type. Overall dimensions are tabulated below in mm.

Version	poles	Overall Height	Overall Width	Overall Length	Minimum Thickness	Illustration
STF and BUF	2	11.35	18.4	51.1	0.9 mm	14
	3	11.35	21	53.6		15
	4	13.45	26.4	56.3		16
	5	13.45	31.7	56.3		17
EBU and EST	2	17.8	21.6	29.7	0.9 mm	21 and 22
	3	17.8	26.0	29.7		23 and 24
	4	17.8	30.4	29.7		25 and 26
	5	19.4	36.8	29.7		27 and 28

2. Male/female contact - tin plated Copper alloy. For shape and dimensions see Ills 18 and 19.
3. Clamping screw - M3 plated steel head screw. For shape and dimensions see Ills 20.

Series: AC 166 GVH

FIG. 14 and Ill. 29

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ill. 31, 32, 39, 40 and 43-50 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type please see for cat. no. AC 166 GVH 4/3 ill. 33 and for cat. no. AC 166 GVH 6/3 see ill. 34.

Cat no.	Ill. No.
AC 166 GVH 4/3	33
AC 166 GVH 6/3	34
AC 166 GVH 4/3 BL	41
AC 166 GVH 6/3 BL	42

2. Live, Neutral pins - material (...~~deleted~~...)
3. Live, Neutral contacts - material (...~~deleted~~...)
4. PE earth pin - material (...~~deleted~~...)
5. PE earth contact - material (...~~deleted~~...)

Series: AC 164 VT

General - The general design, shape and arrangement shall be as illustrated except where variations are specifically described. See Ills. nos.: 51 - 57 for assembly and dimensional details.

1. Insulating Body - R/C Plastic (QMFZ2). Refer to Construction Details for manufacture and type please see for cat. no. AC 164 VT

Cat no.	Ill. No.
AC 164 VT 3/2	51,52
AC 164 VT 3/3	53
AC 164 VT 3/4	54
AC 164 VT 3/5	55,56
AC 164 VT 3/6	57

2. Live, Neutral, "+" and "-" pins - material (...~~deleted~~...). Details of dimensions see ill. nos.: 62 and 64.

Cat. no. of contact	type	Ill. No.
ST84310	Live, "+", "-"	62
ST84330	Neutral	64

3. Live, Neutral, "+" and "-" contacts - material (...~~deleted~~...). Details of dimensions please see ill. no. 61.

Cat. no. of contacts	type	Ill. No.
ST84300	Live, Neutral "+", "-"	61

4. PE earth pin - material (...~~deleted~~...). Details of dimensions please see ill. no. 63.

Cat. no. of contact	type	Ill. No.
ST84320	PE	63

5. PE earth contact - material (...~~deleted~~...)Details of dimensions please see ill. no. 61

Cat. no. of PE contact	type	Ill. No.
ST84300	PE	61

Series: AC 166 GVTA

Ill. 65

General - The general design, shape and arrangement shall be as illustrated, except where variations are specifically described. See Ill. 65 for assembly and details.

1. Insulating Body - (...~~deleted~~...) Refer to Construction Details for manufacturer and type. Min. thickness of 0.8mm. See Ills. 67- 69 for dimensional details.

Cat no.	Ill. No.
AC 166 GVTA 3/3 SW	67-69
AC 166 GVTA 3/3 WS	
AC 166 GVTA 3/3 PHR	

2. Live, Neutral pins - one live and one neutral provided.
Material (...~~deleted~~...).

Details of dimensions, see Ill. 70.

Cat. No. of pins	Type	Ill. No.
ST81311	Live, Neutral	70

3. Live, Neutral contacts - one live and one neutral provided.
Material (...~~deleted~~...).

Details of dimensions, see Ill. no. 71.

Cat. no. of contacts	Type	Ill. No.
ST81301	Live, Neutral	71

4. PE earth pin - one provided.

Material (...~~deleted~~...).

Details of dimensions, see Ill. 72.

Cat. no. of PE pin	Type	Ill. No.
ST81321	PE	72

5. PE earth contact - one provided.

Material (...~~deleted~~...).

Details of dimensions, see Ill. 71.

Cat. no. of PE contact	Type	Ill. No.
ST81301	PE	71