

# Data Sheet



## VS Standard Modules

## 1. VS Standard

### 1.1 General data

Criterion	Data/Value	Standard
Application class (weatherproof, not temperature-controlled environment)	Class 3.3	ETS 300 019-1-3
Temperature range for storage	-40... + 85° C	-
Operational temperature range	-25... + 55° C	ETS 300 019-1-3
IDC contact	Corresponding to	IEC 60 352-4
Insulation design for wiring	PVC / PE / PTFE	-
No. of connectable wires (depending on module type) per contact	1 cable side 1, 2 patch side	-
Multiple wiring up to	> 250	IEC 60 352-4
Wiring force at 0.40 – 0.50 wires	< 80 N	-
Wiring force at 0.60 – 0.80 wires	< 120 N	-
Air gap conductor – conductor	> 2.5 mm	DIN VDE 0110 Part 1
Leakage path conductor – conductor	> 3.0 mm	DIN VDE 0110 Part 1

#### About this technical data sheet

The greatest possible care has been taken in preparing this document, which represents the current technological situation at the time of its printing. Any revisions and/or corrections to this document will be incorporated edition without announcement into the next new. Subject to technical changes.

Edition 1.0, August 2006

## 1.2 Materials

Designation	Material	Identification
Modules base	polycarbonate	PC-GF 10
Modules upper part	polycarbonate	PC-GF 10
Connection contact	spring bronze	CuSn8
Surface treatment		5 – 10 µm Ag / passivated

## 1.3 Connection module

Criterion	Data/Value	Standard
Base colour RAL (after May 2001)	light grey 7035	-
Top connection module colour RAL	light grey 7035	-
Top disconnecting module colour RAL	ivory 1014	-
Top earth module colour RAL	fire-red 3000	-
Wire diameter range on jumper side (double wiring)	2 x 0.40 – 0.65 mm 2 x 26 – 22 AWG	- -
Insulation diameter range on jumper side (double wiring)	2 x 0.85 – 1.25 mm	-
Wire diameter range cable and jumper side (single wiring)	1 x 0.40 – 0.80 mm 1 x 26 – 20 AWG	- -
Insulation diameter range cable and jumper side (single wiring)	1 x 0.85 – 1.60 mm	-

## 1.4 Combustibility

Criterion	Indications/Value	Standard
Combustibility	Class V-0	UL 94
Flame protection agent	halogen-free	IEC 60 472 Part 815

## 1.5 Mechanical data

Criterion	Indications/Value	Standard
Vibrations/oscillation	1 g / 10 – 150 Hz	IEC 60 068-2-6
Axial lead pulling force		
∅ 0.4 mm	> 25 N	DIN 47 608-2
∅ 0.5 mm	> 40 N	
∅ 0.6 mm	> 50 N	
Radial lead pulling force		
∅ 0.4 mm	> 4 N	DIN 47 608-2
∅ 0.5 mm	> 6 N	
∅ 0.6 mm	> 8 N	

## 1.6 Climate load

Criterion	Indications/Value	Standard
Laboratory storage (15 weeks / 23° C / 55 % relative humidity)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	PTT 839.76
Low temperature (16 hours / -25° C)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-1
Dry head (15 weeks / 85° C)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-2
Humid head (15 weeks / 40° C / 93 % relative humidity)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-3
Fast temperature change (- 40° to + 60° C / 10 times 1h)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-14
Climate sequence (15 weeks / 22 – 55° C / 90 – 95 % relative humidity)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-30
Corrosive gas test SO <sub>2</sub> 10 ppm (10 days / 25° C / 75 % relative humidity)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-42
Corrosive gas test H <sub>2</sub> S 1 ppm (10 days / 25° C / 75 % relative humidity)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-43
Salt spray test 5 % NaCL (48 h / 35° C / 75 % relative humidity)	$\Delta R_L < 10 \text{ m}\Omega$ $R_{INST} < 5 \text{ m}\Omega$	IEC 60 068-2-11

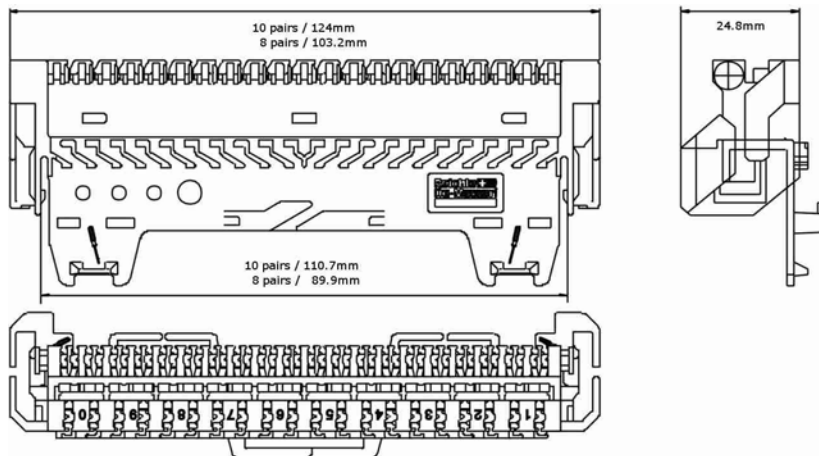
## 1.7 Electrical data

Criterion	Indications/Value	Standard
IDC contact resistance $R_K$	$\leq 3 \text{ m}\Omega$ Type $< 0.5 \text{ m}\Omega$	IEC 60 352-4
Transmission resistance connection module $R_{CM}$	$\leq 10 \text{ m}\Omega$ Type $< 4 \text{ m}\Omega$	IEC 60 512-2-1
Transmission resistance disconnecting module $R_{DM}$	$\leq 10 \text{ m}\Omega$ Type $< 7 \text{ m}\Omega$	IEC 60 512-2-1
Instability $R_{INST \text{ ab}}$	$\leq 5 \text{ m}\Omega$	PTT 839.76.XI
Insulation resistance $R_{IS}$ (100 V normal climate)	$> 5 \times 10^5 \text{ M}\Omega$	IEC 60 512-3-1
Alternating voltage dielectric strength $U_{eff}$ (50 Hz / 60 s)		
Lead – lead	$> 2000 \text{ V}$	IEC 60 512-4-1
Lead – earth	$> 2000 \text{ V}$	DIN 47 608-2
Surge voltage resistance $U_{SS}$ (10 V / 700 $\mu\text{s}$ )	$> 3600 \text{ V}$	DIN 47 608-2
Alternating current resistance $I_{eff}$ (230 V / 50 Hz / 10 x )	10 A	FTZ 477 93 PS 1
Surge current resistance $I_{SS}$ (8 / 20 $\mu\text{s}$ / 10 x )	2 x 5 kA	ITU-T K 20 FTZ 477 93 PS 1
Rated current $I_N$	2 A	IEC 60 512-5-1
Rated voltage $U_N$ (a-b / a-G / b-G with DC and AC peak)	125V	-
Switching capacity PT for disconnecting module	$\leq 50 \text{ W}$	-
Coupling capacitance $C_K$	$< 0.4 \text{ pF}$	PTT VL 26.124 U
Coupling inductance $I_K$	$< 2.5 \text{ nH}$	PTT VL 26.124 U

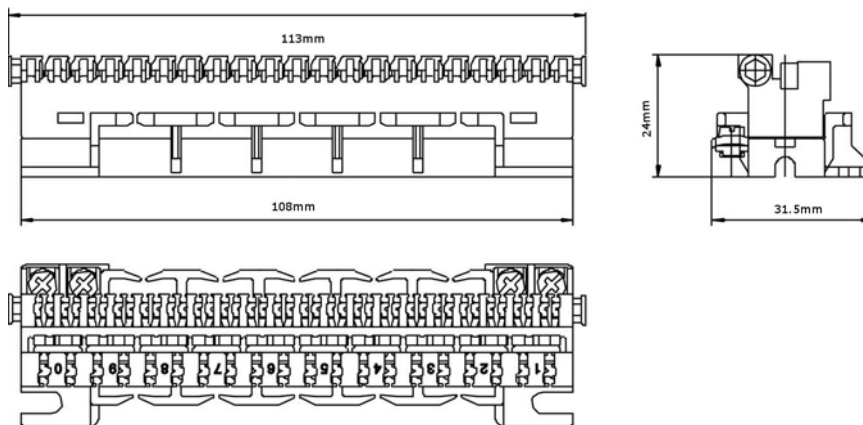
Criterion	Indications/Value	Standard
NEXT (600Ω) 0.30 – 3.40 KHz 3.40 – 10.00 KHz 0.01 – 1.20 MHz	> 110 dB > 100 dB > 60 dB	PTT VL 26.124 U
NEXT (100Ω / adjacent pairs) 1 MHz 16 MHz 100 MHz	> 80 dB > 55 dB > 40 dB	ISO / IEC 11801
Insertion loss (I <sub>L</sub> ) 1 MHz 16 MHz 100 MHz	< 0.01 dB < 0.15 dB < 0.25 dB	ISO / IEC 11801
Return loss (R <sub>L</sub> ) 1 MHz 16 MHz 100 MHz	> 40 dB > 30 dB > 19 dB	ISO / IEC 11801

## 1.8 Dimensions

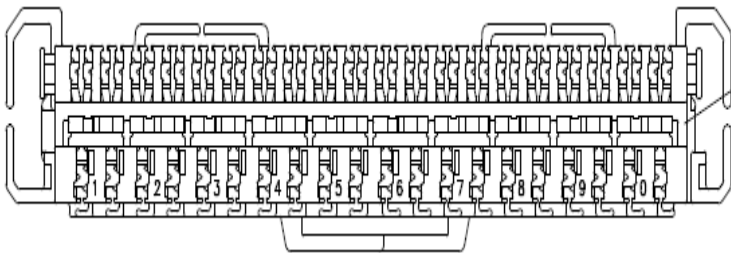
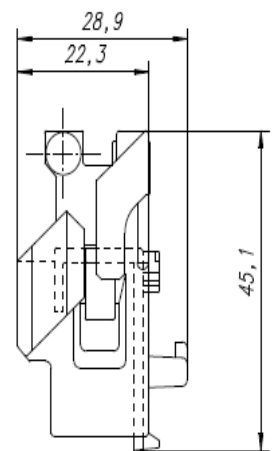
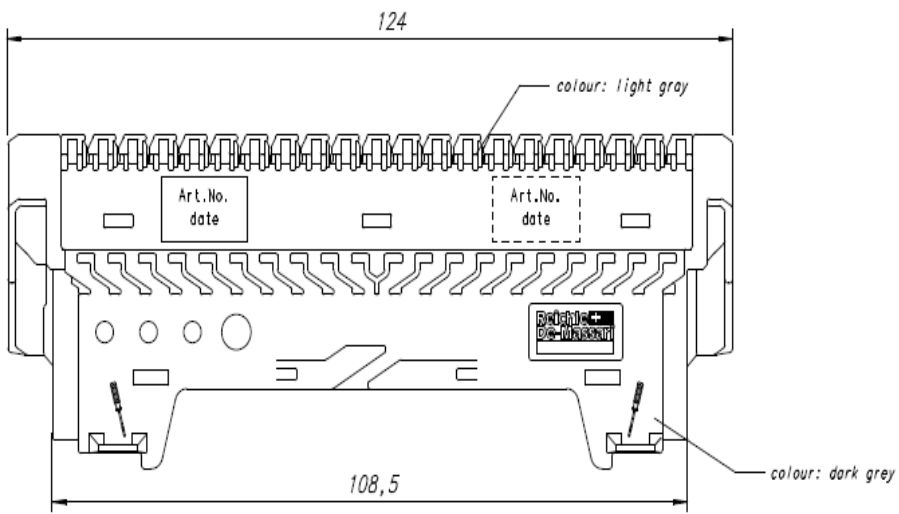
### Connection- and disconnection module



### Direct mounted Module



# Adapter Module



2. Mutation Protocol

Date	Kind of mutation	Reason for mutation	Name
Aug 06	Adapted		DV