



UT-N101 & UT-N201
Control Signal Surge Protector
RJ45

User Manual

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1. General

UT-N101 lightning surge protector is designed by reference to the standard IEC61643-21:2000/GB/T18802.21. With the development of the national economy in China, there is increasing development in the Internet era and rapid progress in the development of Internet technology. However, it is inevitable that we cannot ignore problems arising in the development, and the issue of safety should be considered above all else. In our daily life, damage to electronic equipment caused by lightning is the most serious and potential threats from static electricity can be seen everywhere. In order to create a safer environment for extensive users, the need for improving equipment reliability is becoming greater and greater.

2. Product Features

This product is applicable for accurate overvoltage protection in the monitoring system integrating control signals, computer network signals, concentrator, network card, network switch, Modem, facsimile, and data communication so as to protect the system from damage caused by induced overvoltage, switching overvoltage, and electrostatic discharge. This product has such advantages as multi-level protection, large discharge current capacity, low limiting voltage, fast response, and small insertion loss.

3. Operating Environment

Temperature: $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$;

Relative humidity: 5% ~ 95%;

Barometric pressure: 70 kPa ~ 106 kPa

4. Operating Principle

The lightning surge protector is connected in serial at the front end of the equipment to be protected. When the transmission line is under impact from induced thunder or other transient overvoltage, the surge current is discharged through the protecting circuit of the protector to the ground. The output voltage clamp is within permissible voltage range to ensure safety in equipment operation.

5. Specifications

Model	UT-N101	UT-N201
Rated operating voltage (U_n)	5 V	5 V
Max. DC operating voltage (U_c)	6 V	6 V

Max. AC operating voltage (Uc)	4.2 V	4.2 V
Nominal operating current (IL)	0.12 A	0.12 A
Nominal discharge current (8/20 us) (In)	3 KA	5 KA
Maximum discharge current (In)	5 KA	10 KA
Limiting voltage (Upl)	≤12 V	≤12 V
Series impedance characteristic of wire (Ro)	10 Ohm	10 Ohm
Wire-to-wire capacitance (Cll)	≤3 pF	≤3 pF
Wire-to-earth capacitance (Cpe)	≤3 pF	≤3 pF
Response time (ta)	<1 ns	<1 ns
Range of operating temperature	-40°C ~ 85°C	-40°C ~85°C
Testing standard	IEC61000-4-5	IEC61000-4-5
Testing level	X	X
Insulation resistance	>1 MΩ	>1 MΩ
Insertion loss (dB)	≤0.5 dB	≤0.5 dB
Enclosure protection class	IP30	IP30
Overall dimension	25 x 40 x 75	25 x 40 x 75
Enclosure material	Shielded metallic aluminum	Shielded metallic aluminum
Type of wiring	Connection terminal (RJ45)	Connection terminal (RJ45)
Protection pairs	2 pairs (1-2, 3-6)	2 pairs (1-2, 3-6)
Anti-static level	Class 4	Class 4
Transmission rate (bps)	500 M	500 M

6. Installation, Use and Maintenance

6.1 Installation

6.1.1 Prior to connection of the protector to the system, check whether ground resistance of the grounding grid meets specification requirements.

6.1.2 Connect the protector to the front end of the equipment to be protected. A reliable connection must be established.

6.1.3 Connect the ground lead of the protector to the ground bus, keeping the distance as short as possible.

6.2 Precautions

6.2.1 There are marks of input (IN) and output (OUT) on the protector. The output end shall be connected to the equipment to be protected. Do not connect equipment incorrectly, or else it may result in damage to the equipment or failure in protection for the equipment.

6.2.2 In case of increased loss due to poor connection at the plug, socket, or otherwise, re-connect the plug/socket or replace the protector.

6.2.3 To avoid damage which could affect normal operation, the user is not allowed to randomly dismantle fasteners at each position of the protector.

6.3 Protector Inspection

6.3.1 Use an avometer to check (at the level of $\Omega \times 1$) whether resistance between input core wire and output core wire of the protector is about 10 Ω . If it is an open circuit, then it is abnormal and the protector shall be replaced.