

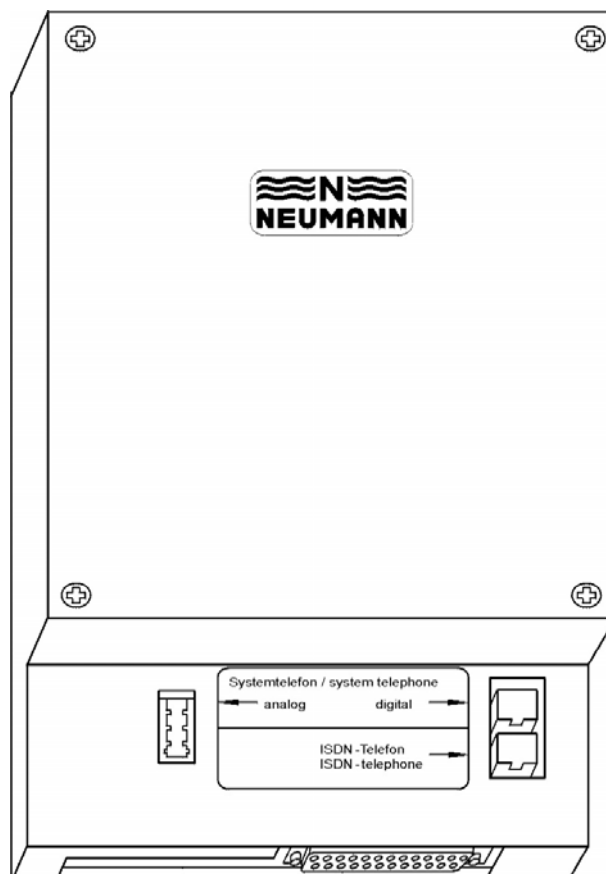
Technical Description

MTSD Wall-Mounted Terminal Box

L.No. 1 787 3

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1. General Remarks

This wall-mounted terminal box is intended for the connection of the following devices:

- MTSD call station or ISDN telephone
- System telephone, digital
- System telephone, analog

The interior of the terminal box has facilities to hold a plug-in power supply unit and two NT modules U/S0.

The system telephone is a combination of a telephone and the MTSD call station. This is frequently operated as a multiple telephone or as a central control unit in emergency call systems, and it permits additional functions compared with individual units.

A single telephone can be connected via this wall-mounted terminal box, but this can be equally well connected via a simple standard connecting socket.

2. Design

The terminal box consists of an enamelled, 2-part steel-plate housing that is designed for wall mounting. Inside the housing on the base there are two cable clamps to secure the incoming cables and connect them to separate terminal strips for the mains and telephone network. Corresponding, externally accessible connecting sockets are provided for the call station and telephone connection. Two information signs on and inside the housing give the most important connection instructions.

Above the connection pc-board there is a mounting point on the left- hand side for a plug-in power supply module, and one or two NT modules U/S0 on the right-hand side.

3. Equipment

3.1 NT module U/S0 (22 2 0301 787 2)

A network terminator (NT) is necessary when the cable length to the MDK central cabinet exceeds approx. 1 km. For distances up to 1 km the existing four-conductor digital S0 interface is sufficient to connect the telephone station and telephones to the central cabinet. The two-conductor digital U-interface is envisaged for cable distances of up to 6 km. An NT in the wall-mounted terminal box ensures transmission from U-interface to the S0 interface. Each digital terminal requires its own NT. Consequently, the connection of a digital system telephone (consisting of an MTSD telephone station and a digital telephone) requires two NTs.

3.2 Power supply plug-in modules

The envisaged terminals require the following operating voltages:

MTSD call station	± 5V
ISDN telephone	40V
Telephone section of digital system telephone	40 oder 48V
Telephone section of analog system telephone -	(direct from telephone a/b line)
NT module U/S0	5V

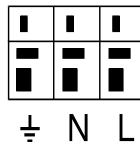
The following power supply variants are currently available:

Connection of equipment	Required plug-in power supply module	
	With 48/60 V power supply from MDK centre	With 230 V power local mains voltage
MTSD call station	2 075 4 (up to 16 lines) 2 072 1 (more than 16 lines)	2 074 3
ISDN telephone	2 071 0	2 073 2
System telephone digital	as MTSD call station	currently not possible
System telephone analog	as MTSD call station	as MTSD call station
NT module U/S0	as MTSD call station	as MTSD call station

4. Connecting instructions

4.1 Mains and ground connection

The following 3-pole, screwless terminal strip X2 is envisaged for the 230 V power supply from the local mains:



Key to the designations:



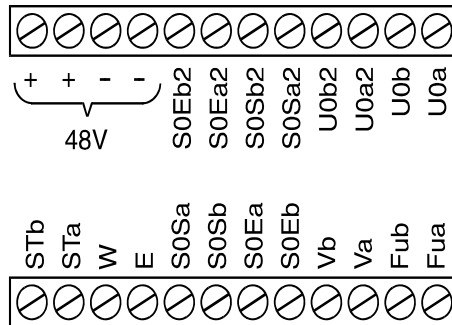
Protective earth (green-yellow). This protective earth connection linked with the housing must always be connected to the local earth potential. Proper electromagnetic compatibility (EMC) protection is not guaranteed without this connection.

N }
L }

230V mains connection

4.2 Telephone cable from MDK central cabinet

The telephone cable from the MDK central cabinet is conducted to two 12-pin terminal strips (X1) with the following designations:



Key:

- | | | | |
|---|---|-----|-----------------------|
| + | } | 48V | 48V operating voltage |
| + | | | |
| - | | | |
| - | | | |

- | | | |
|-------|---|--|
| S0Eb2 | } | S0 - interface 2 (system telephone, digital) |
| S0Ea2 | | |
| S0Sb2 | | |
| S0Sa2 | | |

- | | | |
|------|---|---|
| U0b2 | } | U - interface 2 (system telephone, digital) |
| U0a2 | | |

- | | | |
|-----|---|---|
| U0b | } | U - interface (MTSD call station or ISDN telephone) |
| U0a | | |

- | | | |
|-----|---|--------------------------|
| STb | } | System telephone, analog |
| Sta | | |
| W | | |
| E | | |

- | | | |
|------|---|--|
| S0Sa | } | Input (!) |
| S0Sb | | S0 - interface (MTSD call station or ISDN telephone) |
| S0Ea | | |
| S0Eb | | Output (!) |

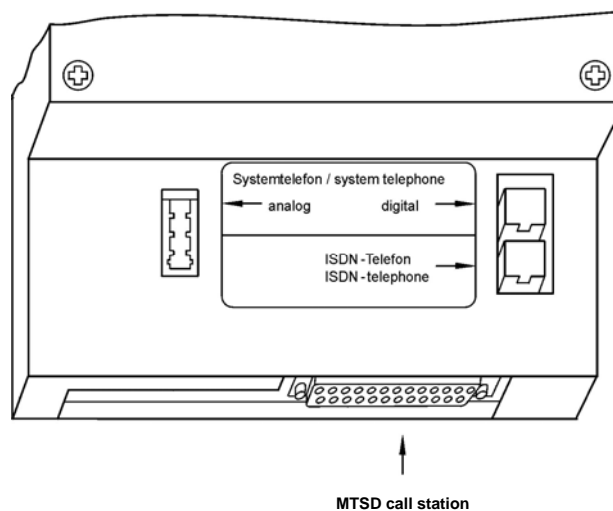
- | | | |
|----|---|--|
| Vb | } | Analog AF output connection for an additional speaker for the call station |
| Va | | |

- | | | |
|-----|---|---|
| Fub | } | Analog call station AF input connection for radio monitoring signal, level 775 mV |
| Fua | | |

4.3 NT module U/S0

The wall-mounted terminal box is prepared for equipment with two NT modules U/S0 for a MTSD call station or ISDN telephone and/or for the digital system telephone. The plug connectors of the module ribbon cables must be inserted in the corresponding connector strips X9 (for MTSD call station or ISDN telephone) or X10 (system telephone, digital) of the basic pc-board.

4.4 Pluggable external connections



5. Technical Data

Connection for MTSD call station:	25-pin Sub-D socket
Connection for ISDN telephone:	8-pin modular socket (Western socket)
Connection for digital system telephone:	8-pin modular socket (Western socket)
Connection for analog system telephone:	TAE6F socket
Permissible ambient conditions:	3K4 acc. to DIN IEC 721 Part 3-3 (5... 40 °C, 5... 95 %rel.humidity)
Dimensions:	268 x 157 x 60 mm
Weight:	approx. 1,4 kg (without plug-in power supply module and without NT module)

6. NT module U/S0 (22 2 0301 787 2)

NT modules are available under a separate module number 22 2 0301 787 2. A network terminator (NT) is necessary when the cable length to the MDK central cabinet exceeds approx. 1 km. For distances up to 1 km the existing four-conductor digital S0 interface is sufficient to connect the call station and telephones to the central cabinet. The two-conductor digital U-interface is envisaged for cable distances of up to 6 km. An NT in the wall-mounted terminal box ensures transmission from U-interface to S0 interface. Each digital terminal requires its own NT. Consequently, the connection of a digital system telephone (consisting of an MTSD call station and a digital telephone) requires two NTs.

Both interfaces - S0 and U - are used to transmit digitized speech data and control data between the MDK central cabinet and the call station. Both operate in full duplex mode (i.e. simultaneously in both directions) at the same data rate (144 kbits/s). The U-interface only requires two line conductors, and it has a higher range than the S0 interface. This is possible due to the application of an echo compensation procedure which greatly reduces disturbing line reflections when separating transmitting and receive data with (incomplete) fork circuit. The echo compensator and the corresponding equalizer must be able to operate in nested control loops with variable coefficients. These complex functions are taken over by one highly integrated ISDN chip (D1). The chip is electrically isolated from the interface connections, and features a corresponding protective circuit against overvoltages. Proper automatic start after the operating voltage is applied is assured by the reset signal within the D1 module or when the reset key is actuated manually.

The module is fitted with a V1 light-emitting diode.

The following states are indicated by the LED:

LED	U-interface deactive	U-interface active	S0-interface active
OFF	1	x	x
8Hz	0	0	x
1Hz	0	1	0
ON	0	1	1

Check by pressing the reset key:

LED OFF Neither U- nor SO-interface connected

LED ON After releasing the reset key

When U-interface active

When U- and SO-interface active

⇒ flashing frequency 8Hz

⇒ flashing frequency 1Hz

⇒ permanent light

Technical data of the NT module:

Operating voltage:	5 V \pm 5%
Operating current:	max. 75 mA
Total dissipation power:	approx. 0,4 W
Interfaces:	U-interface: 2- conductor full duplex, 144 kbit/s, 2B1Q block Code
	S0-interface: 4- conductor full duplex, 144 kbit/s, AMI-Code
Interference immunity:	ESD \Rightarrow ANSI/EOS/ESD-S 5.1-1993 (CDM), EIA/JESD22-A114B(HBM);2kV Latch-up \Rightarrow JEDEC EIA/JESD 78
Permissible ambient conditions:	3K4 acc. to DIN IEC 721 Part 3-3 (5... 40 °C, 5... 95 %rel.humidity)
Weight:	approx. 72 g