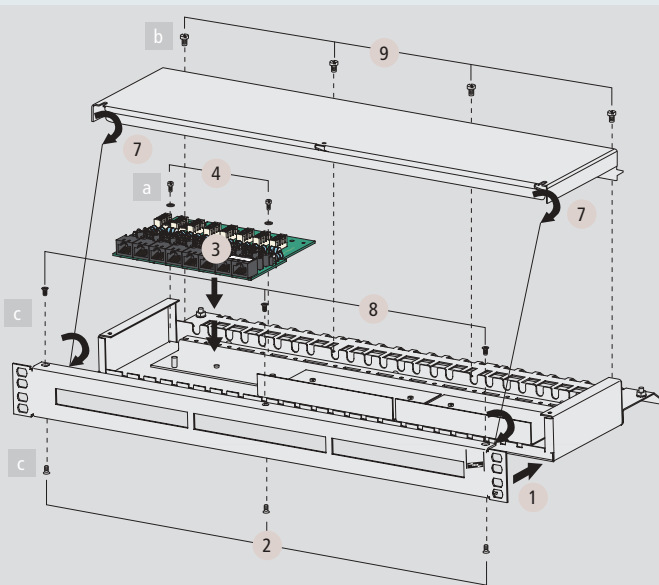


- Protects switches, HUBs and telecommunication systems
- Class D according to EN 50173 possible (Gigabit Ethernet)
- Variably equippable patch panels
- Units available with plug-in inputs and outputs for retrofitting

19" enclosure, equippable with surge protective boards for protection of network components (class D) or telecommunication systems.


19" enclosure, equippable with up to 3 surge protective boards for protection of active network components like HUBs, switches (class D) or telecommunication systems. Typical applications: Ethernet, Token Ring, E1 and ISDN.

NET Protector requires space of only 1 vertical module and is mostly installed into terminal boards. It is inserted as a patch panel with surge protection or as a retrofitted device for patching between the patch panel and the device to be protected.



Installation drawing

The structure of NET PRO is modular. The empty enclosure can be furnished optionally with 1, 2 or 3 surge protective boards.



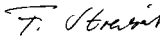
Zertifikat


| | |
|-----------------------------|--|
| Auftraggeber: | Dehn + Söhne GmbH + Co. KG Postfach 1640 D-92306 Neumarkt |
| Prüfung: | Überspannungsschutzpanel: Dehn + Söhne 19" Einbauehäuse Art.-Nr.: 929 034 mit Dehn + Söhne NET-Protector Art.-Nr.: 929 035 |
| Anschlussdose: | Ackermann AS-Dose WAEG6C-K50 Art.-Nr.: 18889KA |
| Verteilerfeld: | Ackermann 19"-WAEG6C-Verteiler 1HE Art.-Nr.: 12448BB |
| Installationskabel: | LEONI Q-LINE 4P23 SC 600 |
| Patchkabel: | Telegärtner S-FTP Cat.7 600MHz Patch Cable |
| Bewertungsstandards: | EN 50173-1:2003 Information technology – Cabling for customer premises. |
| Resultat: | Der Prüfling hält bei den im Prüfbericht genannten Prüfparametern die Grenzwerte der besagten Vorgabedokumente nach Klasse D im Channel von 99m ein. |

Die bei der Prüfung ermittelten Ergebnisse beziehen sich auf den beschriebenen und vom Auftraggeber vorgelegten Prüfling. Zukünftige technische Änderungen der Datenkabel und Steckverbinder unterliegen dem Verantwortungsbereich der Hersteller.

Dieses Zertifikat verweist auf den ausführlichen Prüfbericht **PB-Nr. P1177a-03-D** vom **24. Oktober 2003** und ist nur in Verbindung mit diesem gültig.

Bexbach, 24. Oktober 2003


 Dipl.-Ing. Frank Striebert
(Vorstand)

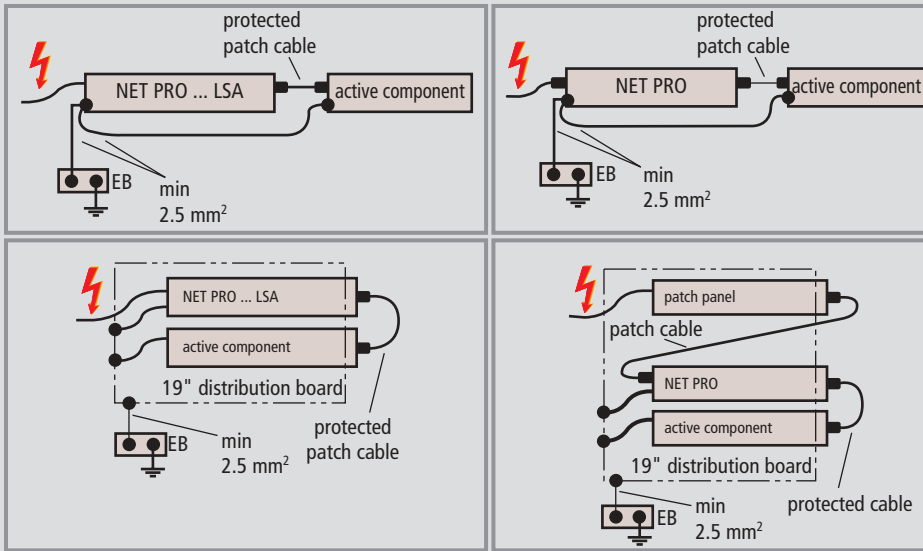


GHMT AG
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GHMT Aktiengesellschaft

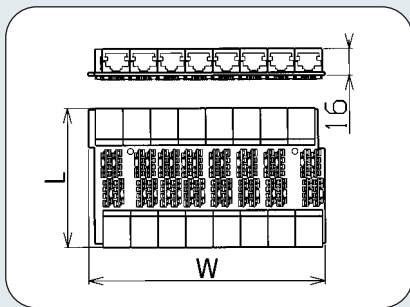
GHMT Certificate

The completely shielded 19" enclosure and the 4TP board allow the construction of networks, class D. This has been confirmed by the independent test institute GHMT.

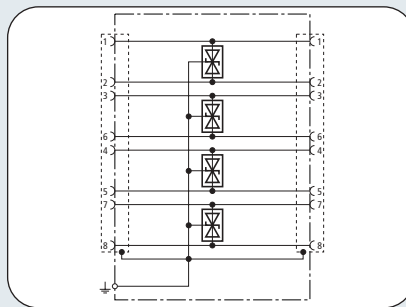


LSA unit as patch field (left) / Unit for retrofitting (right)

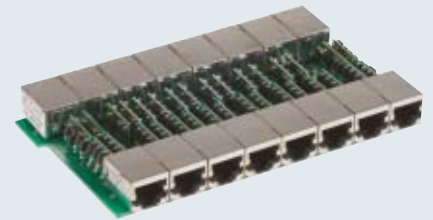
The protective boards do not only provide a different protective circuit, but also a different connection. While the protected output is always an RJ45 unit, the input can be an IDC termination or RJ45 unit. The IDC termination unit is often used for the first equipment of a new installation which does not include any patch panel yet. The RJ45 unit is described as retrofitting unit for existing systems, as it is patched easily between the patch panel and the active component.



Dimension drawing NET PRO 4TP



Fine protection for all pairs thanks to low capacitance diode matrix for each pair.



- GHMT certificate for class D channel link
- Low protection level for all lines
- For use according to the lightning protection zones concept at boundaries 1 – 2 and higher

Fine protection board with 8 shielded ports for universal cablings (class D). For universal use as protection for all 4 pairs (4 TP) is provided. To be installed into EG NET PRO 19" and mounted into the distribution cabinet as a patch field or retrofitting unit

| | NET PRO 4TP | NET PRO LSA 4TP | NET PRO 4TP 30 |
|--|-------------------------------|--------------------------|-------------------------------|
| Nominal voltage U_N | 5 V | 5 V | 24 V |
| Max. continuous dc voltage U_c | 6 V | 6 V | 30 V |
| Max. continuous ac voltage U_c | 4.2 V | 4.2 V | 21.1 V |
| Nominal current I_L | 100 mA | 100 mA | 100 mA |
| C2 Nominal discharge current (8/20) per port I_n | 2.4 kA | 2.4 kA | 0.8 kA |
| C2 Nominal discharge current (8/20) per line I_n | 0.3 kA | 0.3 kA | 0.1 kA |
| Voltage protection level line-line at I_n C2 U_p | ≤ 35 V | ≤ 35 V | ≤ 60 V |
| Voltage protection level line-PG at I_n C2 U_p | ≤ 35 V | ≤ 35 V | ≤ 60 V |
| Voltage protection level line-line at 1 kV/ μ s C3 U_p | ≤ 13 V | ≤ 13 V | ≤ 40 V |
| Voltage protection level line-PG at 1 kV/ μ s C3 U_p | ≤ 13 V | ≤ 13 V | ≤ 40 V |
| Bandwidth line-line at 100 Ohm f_G | 165 MHz | 170 MHz | 300 MHz |
| Insertion loss at 100 MHz | < 0.4 dB | < 0.3 dB | < 0.4 dB |
| Capacity line-line C | ≤ 35 pF | ≤ 35 pF | ≤ 16 pF |
| Capacity line-PG C | ≤ 50 pF | ≤ 50 pF | ≤ 20 pF |
| Response time line-line t_a | ≤ 1 ns | ≤ 1 ns | ≤ 1 ns |
| Response time line-PG t_a | ≤ 1 ns | ≤ 1 ns | ≤ 1 ns |
| Operating temperature range | -40°C...+80°C | -40°C...+80°C | -40°C...+80°C |
| Degree of protection | IP 00 | IP 00 | IP 00 |
| Mounting in | enclosure | enclosure | enclosure |
| Connection input/output | RJ45 shielded / RJ45 shielded | LSA-PLUS / RJ45 shielded | RJ45 shielded / RJ45 shielded |
| Pinning | 1/2, 3/6, 4/5, 7/8 | 1/2, 3/6, 4/5, 7/8 | 1/2, 3/6, 4/5, 7/8 |
| Earthing via | enclosure | enclosure | enclosure |
| Dimension W x L | 135 x 77 mm | 135 x 107 mm | 135 x 77 mm |
| Test standards | VDE 0845-2, IEC 61643-21 | VDE 0845-2, IEC 61643-21 | VDE 0845-2, IEC 61643-21 |
| Approvals, Certifications | Class D | — | — |

| Ordering information | | | |
|----------------------|-------------|-----------------|----------------|
| Type | NET PRO 4TP | NET PRO LSA 4TP | NET PRO 4TP 30 |
| Part No. | 929 035 | 929 036 | 929 037 |
| Packing unit | 1 pc(s) | 1 pc(s) | 1 pc(s) |

Accessory Part for NET Protector

Enclosure 19

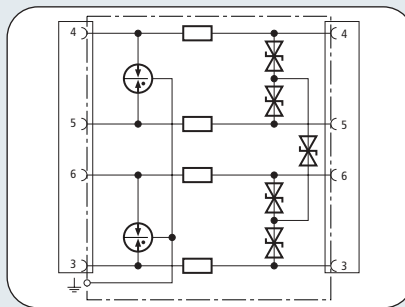
Completely shielded empty enclosure for equipping up to 3 NET Protector protective boards.

| | | |
|--------------------|--|----------|
| Type | EG NET PRO 19" | |
| Dimension | 1 vertical module | |
| Enclosure material | stainless steel front / galvanized sheet metal | |
| Type | PU pc(s) | Part No. |
| EG NET PRO 19" | 1 | 929 034 |

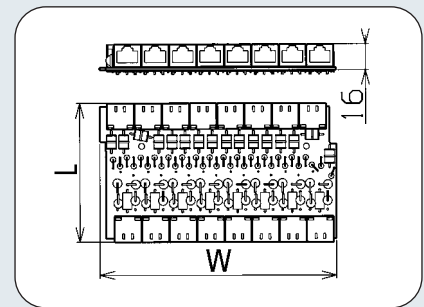




- Patch panel or retrofitting unit
- Protection integrated for the remote power supply
- For use according to the lightning protection zones concept at boundaries $0_B - 2$ and higher



Energy-coordinated ISDN 4-wire protective circuit with additional protection of the remote power supply.



Dimension drawing NET PRO ISDN

Surge protective board with 8 unshielded ports for ISDN S_0 systems. Installation into EG NET PRO 19" and mounting in distribution boards upstream of the telecommunication system. Retrofitting or patch panel unit (LSA)

| | NET PRO ISDN | NET PRO ISDN LSA |
|--|--------------------------|--------------------------|
| Nominal voltage U_N | 5 V | 5 V |
| Nominal voltage pa-pa U_N | 40 V | 40 V |
| Max. continuous dc voltage U_c | 7.5 V | 7.5 V |
| Max. continuous ac voltage U_c | 5.3 V | 5.3 V |
| Max. continuous dc voltage pa-pa U_c | 60 V | 60 V |
| Nominal current I_L | 200 mA | 200 mA |
| C2 Nominal discharge current (8/20) per port I_n | 10 kA | 20 kA |
| C2 Nominal discharge current (8/20) per line I_n | 2.5 kA | 5 kA |
| Voltage protection level line-line at I_n C2 U_p | ≤ 30 V | ≤ 35 V |
| Voltage protection level line-PG at I_n C2 U_p | ≤ 600 V | ≤ 600 V |
| Voltage protection level pa-pa at I_n C2 U_p | ≤ 130 V | ≤ 130 V |
| Voltage protection level line-line at 1 kV/ μ s C3 U_p | ≤ 17 V | ≤ 17 V |
| Voltage protection level line-PG at 1 kV/ μ s C3 U_p | ≤ 600 V | ≤ 600 V |
| Voltage protection level pa-pa at 1 kV/ μ s C3 U_p | ≤ 100 V | ≤ 100 V |
| Coordination characteristics KK | X/1 | X/1 |
| Series impedance per line | 1 Ohm | 1 Ohm |
| Bandwidth line-line f_G | 2 MHz | 2 MHz |
| Capacity line-line C | ≤ 3 nF | ≤ 3 nF |
| Capacity line-PG C | ≤ 20 pF | ≤ 25 pF |
| Capacity pa-pa C | ≤ 0.6 nF | ≤ 0.06 nF |
| Response time line-line t_a | ≤ 1 ns | ≤ 1 ns |
| Response time line-PG t_a | ≤ 100 ns | ≤ 100 ns |
| Response time pa-pa t_a | ≤ 1 ns | ≤ 1 ns |
| Operating temperature range | -40°C...+80°C | -40°C...+80°C |
| Degree of protection | IP 00 | IP 00 |
| Mounting in | enclosure | enclosure |
| Connection input/output | RJ45 / RJ45 | LSA-PLUS / RJ 45 |
| Pinning | 4/5, 3/6 | 4/5, 3/6 |
| Earthing via | enclosure | enclosure |
| Dimension W x L | 135 x 77 mm | 135 x 107 mm |
| Test standards | VDE 0845-2, IEC 61643-21 | VDE 0845-2, IEC 61643-21 |

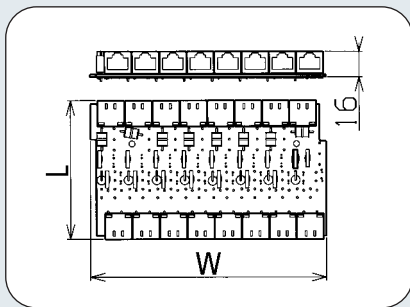
| Ordering information | NET PRO ISDN | NET PRO ISDN LSA |
|----------------------|--------------|------------------|
| Type | NET PRO ISDN | NET PRO ISDN LSA |
| Part No. | 929 067 | 929 068 |
| Packing unit | 1 pc(s) | 1 pc(s) |



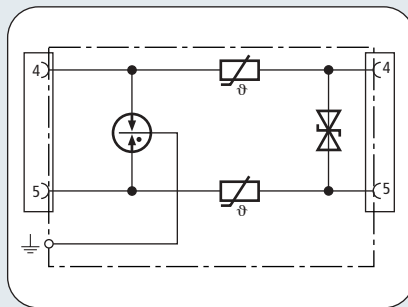
Enclosure 19

Completely shielded empty enclosure for equipping up to 3 NET Protector protective boards.

| | | | |
|--------------------|--|---------|--|
| Type | EG NET PRO 19" | | |
| Dimension | 1 vertical module | | |
| Enclosure material | stainless steel front / galvanized sheet metal | | |
| Type | PU | Part | |
| EG NET PRO 19" | pc(s) | No. | |
| | 1 | 929 034 | |



Dimension drawing NET PRO TC



PTC thermistors decouple the protective stages and thus protect the terminal systems additionally at "power crossings". Please consider the reservation depending on the type.



- Patch panel or retrofitting unit
- Protection integrated against power crossing
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Protective board with 8 unshielded ports against surges and ac current influences on telecommunication systems with analogue or system transmission technology. For installation into EG NET PRO 19" as retrofitting or patch panel unit (LSA)

| | NET PRO TC 1 | NET PRO TC 1 LSA | NET PRO TC 2 | NET PRO TC 2 LSA |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| Nominal voltage U_N | 130 V | 130 V | 130 V | 130 V |
| Max. continuous dc voltage U_c | 170 V | 170 V | 170 V | 170 V |
| Max. continuous ac voltage U_c | 120 V | 120 V | 120 V | 120 V |
| Nominal current I_L | 150 mA | 150 mA | 150 mA | 150 mA |
| C2 Nominal discharge current (8/20) per port I_n | 5 kA | 10 kA | 10 kA | 20 kA |
| C2 Nominal discharge current (8/20) per line I_n | 2.5 kA | 5 kA | 2.5 kA | 5 kA |
| Voltage protection level line-line at I_n C2 U_p | ≤ 250 V | ≤ 275 V | ≤ 250 V | ≤ 275 V |
| Voltage protection level line-PG at I_n C2 U_p | ≤ 600 V | ≤ 600 V | ≤ 600 V | ≤ 600 V |
| Voltage protection level line-line at $1 \text{ kV}/\mu\text{s}$ C3 U_p | ≤ 230 V | ≤ 230 V | ≤ 230 V | ≤ 230 V |
| Voltage protection level line-PG at $1 \text{ kV}/\mu\text{s}$ C3 U_p | ≤ 600 V | ≤ 600 V | ≤ 600 V | ≤ 600 V |
| Coordination characteristics KK | X/2 | X/2 | X/2 | X/2 |
| Series impedance per line | 10 Ohm | 10 Ohm | 10 Ohm | 10 Ohm |
| Bandwidth line-line f_G | 10 MHz | 10 MHz | 10 MHz | 10 MHz |
| Capacity line-line C | ≤ 300 pF | ≤ 300 pF | ≤ 300 pF | 300 pF |
| Capacity line-PG C | ≤ 15 pF | ≤ 15 pF | ≤ 15 pF | 15 pF |
| Response time line-line t_a | ≤ 1 ns | ≤ 1 ns | ≤ 1 ns | ≤ 1 ns |
| Response time line-PG t_a | ≤ 100 ns | ≤ 100 ns | ≤ 100 ns | ≤ 100 ns |
| Operating temperature range | -40°C...+80°C | -40°C...+80°C | -40°C...+80°C | -40°C...+80°C |
| Degree of protection | IP 00 | IP 00 | IP 00 | IP 00 |
| Mounting in | enclosure | enclosure | enclosure | enclosure |
| Connection input/output | RJ45 / RJ45 | LSA-PLUS / RJ45 | RJ45 / RJ45 | LSA-PLUS / RJ45 |
| Pinning | 4/5 | 4/5 | 4/5, 3/6 | 4/5, 3/6 |
| Earthing via | enclosure | enclosure | enclosure | enclosure |
| Dimension W x L | 135 x 77 mm | 135 x 107 mm | 135 x 77 mm | 135 x 107 mm |
| Test standards | VDE 0845-2, IEC 61643-21 | VDE 0845-2, IEC 61643-21 | VDE 0845-2, IEC 61643-21 | VDE 0845-2, IEC 61643-21 |

| Ordering information | | | | |
|----------------------|--------------|------------------|--------------|------------------|
| Type | NET PRO TC 1 | NET PRO TC 1 LSA | NET PRO TC 2 | NET PRO TC 2 LSA |
| Part No. | 929 069 | 929 070 | 929 071 | 929 072 |
| Packing unit | 1 pc(s) | 1 pc(s) | 1 pc(s) | 1 pc(s) |

Accessory Part for NET Protector

Enclosure 19

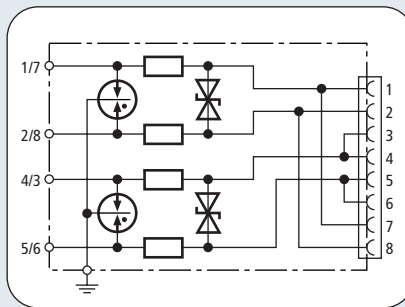
Completely shielded empty enclosure for equipping up to 3 NET Protector protective boards.

| Type | EG NET PRO 19" | | |
|--------------------|--|----------|--|
| Dimension | 1 vertical module | | |
| Enclosure material | stainless steel front / galvanized sheet metal | | |
| Type | PU pc(s) | Part No. | |
| EG NET PRO 19" | 1 | 929 034 | |

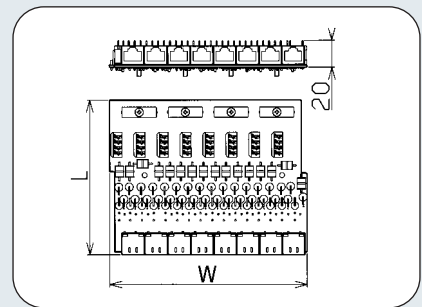


NET Protector

NET PRO E1 LSA



Energy-coordinated 2 TC protective circuit for 2 plug-in reservations at the protected port.



Dimension drawing NET PRO E1 LSA

- Patch panel unit
- Suitable for different RJ45 reservations
- For use according to the lightning protection zones concept at boundaries $O_B - 2$ and higher

Surge protective board, patch panel unit, with 8 unshielded ports for E1 interfaces. Installations into EG NET PRO 19" and mounting in distribution boards upstream of the telecommunication system. Variable connection by reservation of several socket pins

NET PRO E1 LSA

| | |
|--|----------------------|
| Nominal voltage U_N | 12 V |
| Max. continuous dc voltage U_c | 14.5 V |
| Max. continuous ac voltage U_c | 10.2 V |
| Nominal current I_L | 200 mA |
| C2 Nominal discharge current (8/20) per port I_n | 20 kA |
| C2 Nominal discharge current (8/20) per line I_n | 5 kA |
| Voltage protection level line-line at I_n C2 U_p | ≤ 35 V |
| Voltage protection level line-PG at I_n C2 U_p | ≤ 600 V |
| Voltage protection level line-line at 1 kV/ μ s C3 U_p | ≤ 19 V |
| Voltage protection level line-PG at 1 kV/ μ s C3 U_p | ≤ 600 V |
| Coordination characteristics KK | X/1 |
| Series impedance per line | 1 Ohm |
| Bandwidth line-line f_G | 2.9 MHz |
| Capacity line-line C | ≤ 2 nF |
| Capacity line-PG C | ≤ 25 pF |
| Response time line-line t_a | ≤ 1 ns |
| Response time line-PG t_a | ≤ 100 ns |
| Operating temperature range | -40°C...+80°C |
| Degree of protection | IP 00 |
| Mounting in | enclosure |
| Connection input/output | LSA-PLUS / RJ45 |
| Pinning | 1/2 (7/8), 4/5 (3/6) |
| Earthing via | enclosure |
| Dimension W x L | 135 x 107 mm |
| Test standards | IEC 61643-21 |

Ordering information

| | |
|--------------|----------------|
| Type | NET PRO E1 LSA |
| Part No. | 929 074 |
| Packing unit | 1 pc(s) |

Accessory Part for NET Protector



Enclosure 19

Completely shielded empty enclosure for equipping up to 3 NET Protector protective boards.

| | |
|--------------------|--|
| Type | EG NET PRO 19" |
| Dimension | 1 vertical module |
| Enclosure material | stainless steel front / galvanized sheet metal |

| Type | PU pc(s) | Part No. |
|----------------|----------|----------|
| EG NET PRO 19" | 1 | 929 034 |