Line 21

Simultaneous transmission of analogue telephone signals and Ethernet using a SINGLE existing telephone line

Technology:
It is not necessary to install an additional line. The existing telephone sockets are simply replaced by Line 21 connections. This converts the existing telephone line (4-core) to an extended network for two services - analogue telephony and PC networking.

Possible applications include analogue telephony plus:

- Networking all PCs in the house or
- Extending a DSL line or
- Connecting a digital video recorder to the network or
- Connecting surveillance cameras with networking capability or
- Using printers in a shared network

! It is not possible to combine a Line 21 with ISDN applications (S_0).

Note:
A Line 21 can be installed in a multi-core cable alongside other services/applications without any problems.

The technology
Line 21 is based on the “Phantom technology” principle. This means that missing transmission cores are simulated - here by Line 21 components at the beginning and end of the transmission path. A separate supply voltage or special terminal devices are not necessary.

Using Line 21, the 6 cores required for transmitting analogue telephone services/conversations and digital data are reduced to 4, which are provided by every conventional telephone line.

Installation
Normally, 2 telephone line cores are assigned to analogue telephony. The two spare cores are used by the Line 21 installation for telephone and networking. At the connection points of the terminal units, the connection boxes are replaced by Line 21 connection boxes. The telephone lines are connected using screw terminals. The connection boxes at the front have the plug-in faces (TAE/RJ45) that are required for the terminal units.

If not only single lines but the whole network is to be retrofitted, then the Line 21 Patch panel is required as a central distribution board for assembling up to 6 Line 21 lines.

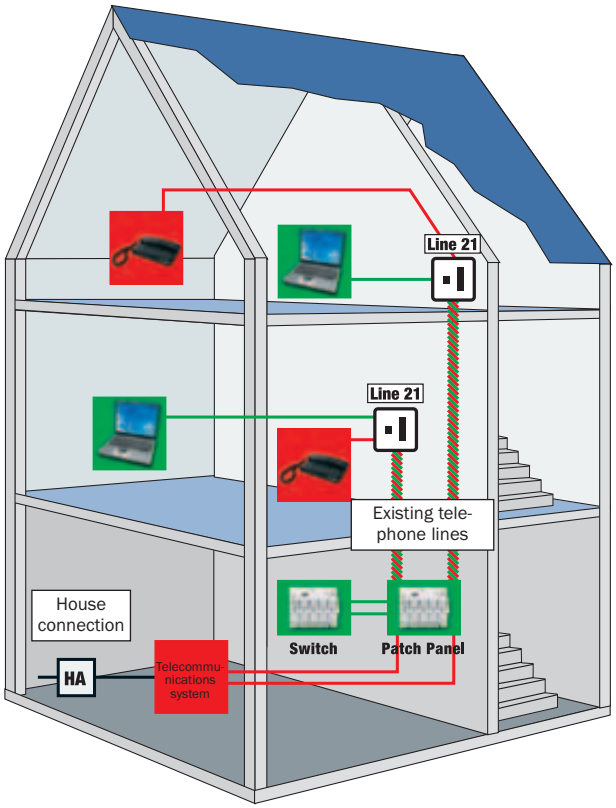
Line 21 - Components/network components

Line 21 Combination socket-outlet RJ45/TAE	**Art. no. 465709**
Line 21 RJ45 insert 8/8	**Art. no. 465708**
Line 21 Patch panel REG, 6-gang	**Art. no. 465714**
Line 21 Patch cable RJ45/TAE	**Art. no. 465713**
Patch panel REG, 6-gang	**Art. no. 465712**
Switch REG, 5-gang	**Art. no. 465711**
Patch cable RJ45/RJ45	**Art. no. 465710**

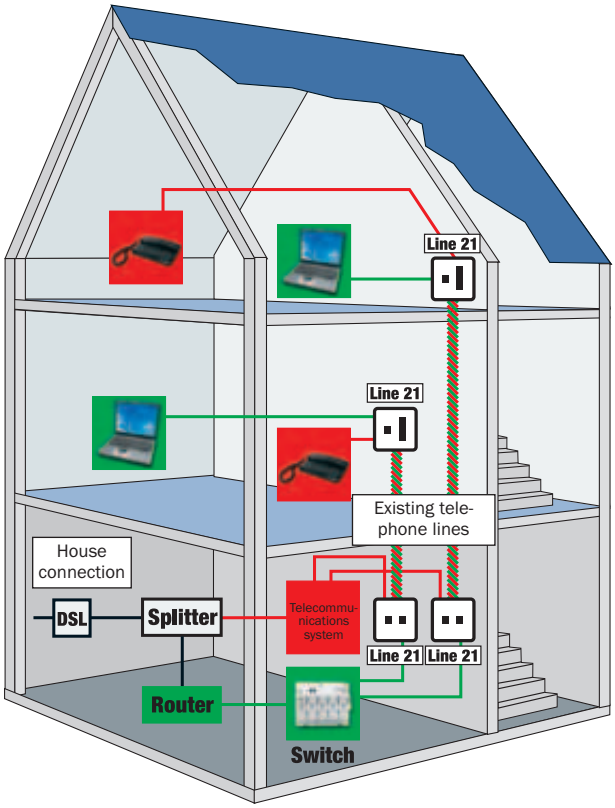
Line 21 - Technical data

Temperature range	
Operation:	-5 °C to 45 °C
Storage:	-25 °C to 70 °C
Cable type:	2 x 2 cores, twisted pair or star quad, no shielding necessary, e.g. IY(St)Y 2x2x0.6
Transmission data	
Cable length ≤ 30 m:	100 Mbit/s
Cable length ≤ 50 m:	10 Mbit/s
Type of protection:	IP 20 in accordance with EN 60529
Protection class:	II

Retrofitting a network installation



Retrofitting a network installation with DSL connection



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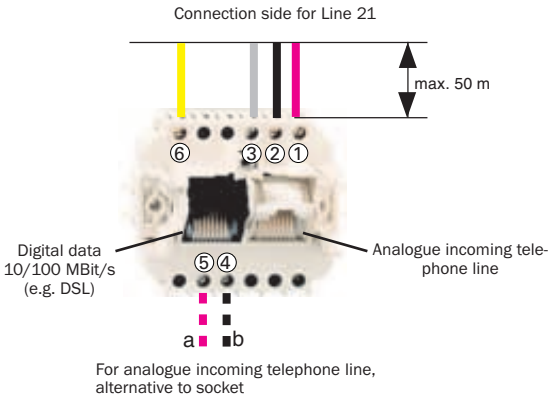
Connection of Line 21 components

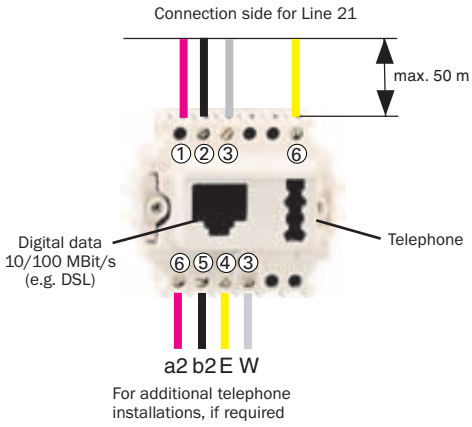
Line 21 RJ45 insert 8/8: Art. no. 465708

Terminal number	Core colour	Core pair	Function
1	red	1	Line 21
2	black	1	Line 21
3	white	2	Line 21
6	yellow	2	Line 21
4 bottom	red	-	Analogue incoming telephone line**
5 bottom	black	-	Analogue incoming telephone line**



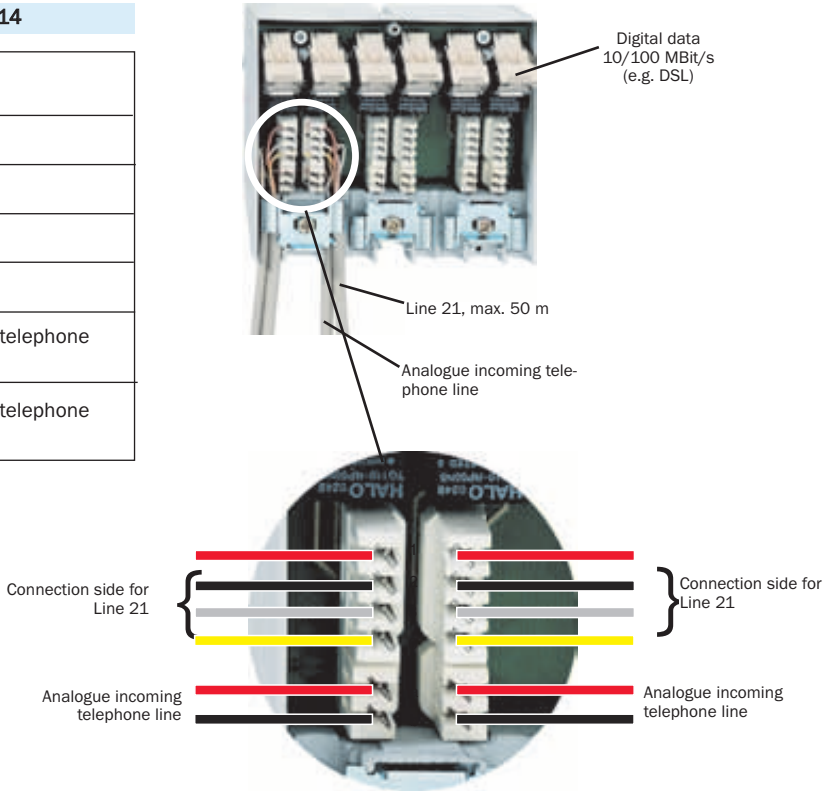
Line 21 Combination socket-outlet RJ45/TAE: Art. no. 465709

Terminal number	Core colour	Core pair	Function
1	red	1	Line 21
2	black	1	Line 21
3	white	2	Line 21
6	yellow	2	Line 21
6 bottom	red	-	For additional telephone installations, if required
5 bottom	black	-	For additional telephone installations, if required
4 bottom	yellow	-	For additional telephone installations, if required
3 bottom	white	-	For additional telephone installations, if required



Line 21 Patch panel REG, 6-gang Art. no. 465714

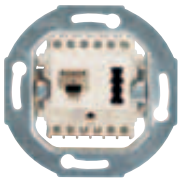
Terminal number	Core colour	Core pair	Function
1	red	1	Line 21
2	black	1	Line 21
3	white	2	Line 21
6	yellow	2	Line 21
a	red	-	Analogue incoming telephone line
b	black	-	Analogue incoming telephone line

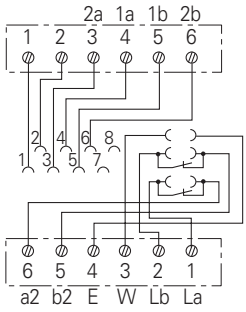


**Alternative to socket connection

Communication inserts

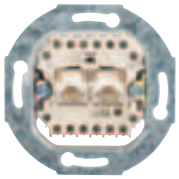
Combination socket-outlet RJ45/TAE (Cat 3), art. no. 465707

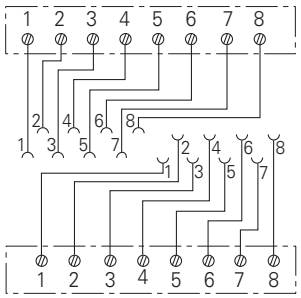




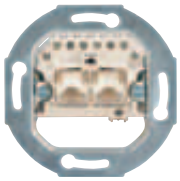
Assignment for the upper connection strip (RJ45)							
Connecting terminal		1	2	3	4	5	6
analogue	DTAG			b			a
	int. standard				a	b	
digital	ISDN (S_0)			2a	1a	1b	2b
	Up_0					a	b
DSL		TX+	TX-	RX+			RX-
Assignment for the lower connection strip (TAE)							
Connecting terminal		1	2	3	4	5	6
analogue	DTAG	La	Lb	W	E	b2	a2

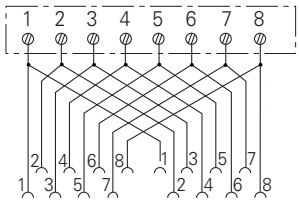
RJ45 insert 8/8, art. no. 465701





RJ45 insert 2x8, art. no. 465702





Colour code		
Connecting terminal	EIA/TIA-568-A	EIA/TIA-568-B
1	white/green	white/orange
2	green	orange
3	white/orange	white/green
4	blue	blue
5	white/blue	white/blue
6	orange	green
7	white/brown	white/brown
8	brown	brown