

**More user availability**  
**Reduction in server loading using**

**SUSI 110\***

\*Switching Unit for Switched Interfaces

The FO port switch allowing 10 and 100 Megabit/s per user

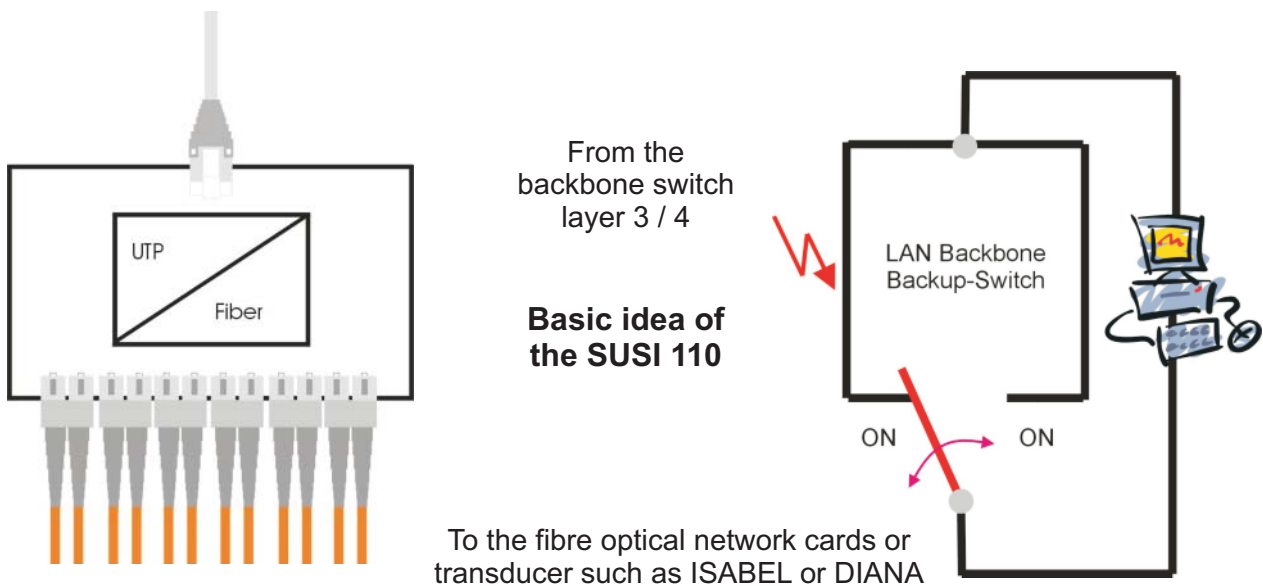


Diagram 1: SUSI 110 rack

## The reasons for using a fibre optic network (FO)

During the planning of large LANs the network administrator often has to consider the following problems:

1. The bandwidth requirements of individual computers for dedicated 10 or 100 Mbps networks.
2. The bridging of long links of approximately 100 m.
3. The server loading requirement control arising from each of the individual workstations.

One solution is to use a Switch Backup Extender SUSI 110, a development of the thousand times well-proven SUSI product family:

- Each PC workstation or group server can set to operate in the FO network using 10 or 100 megabits as desired.
- Up to 2km can be bridged easily by converting a 10 / 100 Base TX signal to a fibre optic signal.
- The control properties of the SUSI 110 enable a smooth reduction in the server loading.

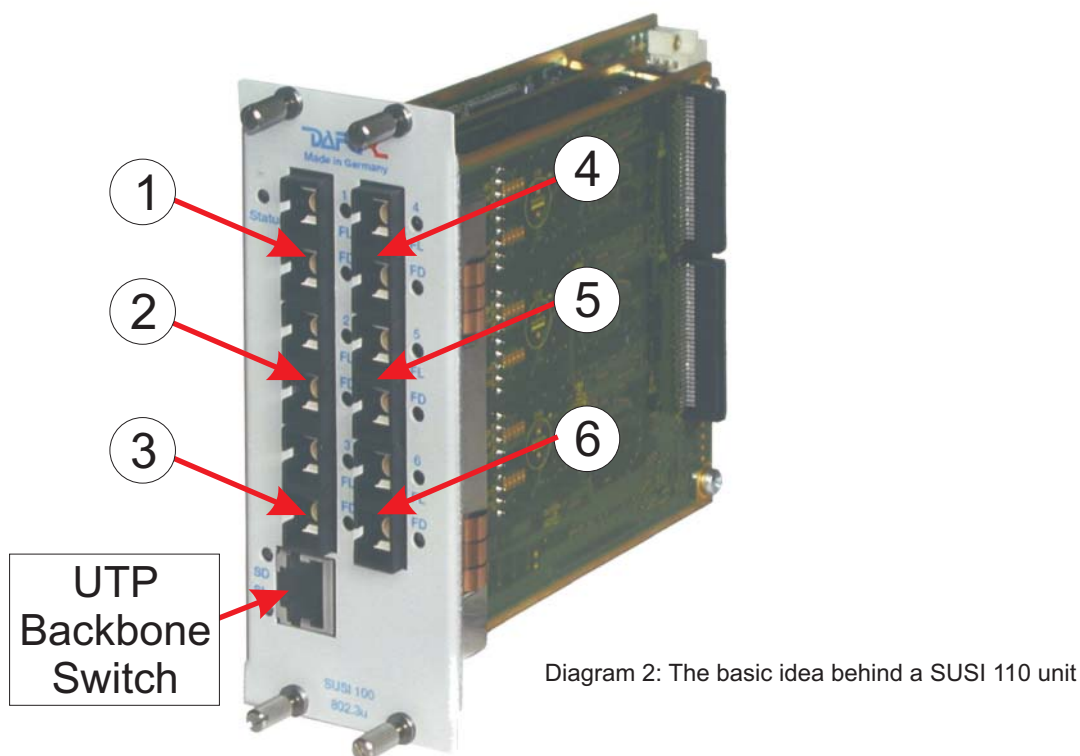
Each SUSI 110 rack has up to eight slide-in units, which give the user a clearly defined connection size, which means a network can be extended 3 FO port cards at a time which helps the user to more easily invest as required and in comparison better than the conventional number of cards needed, 12, 24 or even 48 cards, for each stage of network expansion.

In addition you pay only for the electricity that the SUSI 110 really uses. SUSI 110 has a cos phi of 1, which means that the reactive power to active power ratio is one. This is affected by the function Active PFC (Power Factor Correction).

## From "1" make "6", or 85% fewer backbone ports

No data is lost when connected users simultaneously access a base card (see diagram 2) this is because each user always has the entire memory (5 megabytes) available. For this reason there is no waiting time for the users, which can often be the case for larger switch systems (BURST action).

10- and 100 megabit users can be connected using FO in parallel to the base card.



## 99.98 % User availability

## All maintenance work can be carried out during normal daily operation

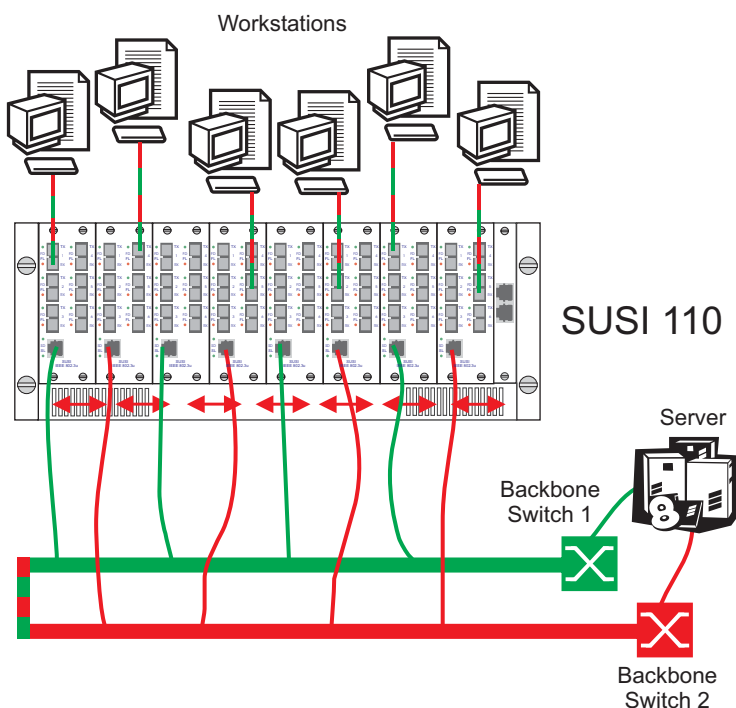
One of the most common sources of network errors is the backbone system (see diagram 3). An appropriate "alternative" jumpering to SUSI 110 (see diagram 3) functions so that in the case of a backbone switch malfunction any change in operation remains unnoticed by the user. UTP jumpering of both backbone switches to a SUSI 110, which generates a valid UTP signal to the SUSI 110 slide-in units, which then acquire master status. If a SUSI 110 slide-in unit loses this valid signal due to a cable error, switchboard malfunction or even an entire backbone switch failure. The affected SUSI 110 slide-in unit then changes to a slave status, which means it attaches itself to the nearest, located to the right or left, SUSI 110 slide-in unit with master status (valid UTP connection).

The network indeed expands itself from 6 to 12 ports but the connected users can still, if perhaps with reduced transfer rates, continue working undisturbed. Above all it is important that in many cases, that operation is still possible and using SUSI 110 you have the security that the switch-over even takes place within a few milliseconds, independent of whether six or more participants are affected.

If defective backbone switch is repaired then SUSI 110 will automatically rebuild the original connections. If the connection of a redundant server (load balancing) to a SUSI 110 rack is provided for, then even if the main path fails this then will not lead to the LAN breaking down but the SUSI 110 will automatically divert the users to the secondary path of the server.

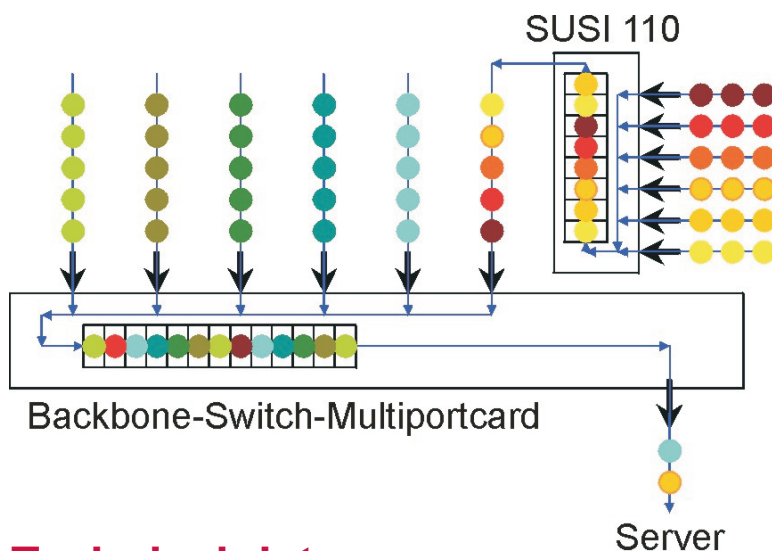
A backbone switch can be completely switched off, even during operational running, this means that **maintenance or update work** on either of the two backbone switches does not have to be carried out after normal working hours or even at weekends, but can always be done during **normal times of the working week**. This saves the administrator time and the nerves of the user. In the field tests show an **availability of 99.98 %**.

SUSI 110 is a quality product built to German standards. It is a reliable piece of hardware, you will certainly get good value for money. Should however, the backbone switch one day malfunction the SUSI 110 will make sure that none of the users will notice.



## SUSI 110 relieves a bottlenecked server

ASUSI 110 preselects and presorts the data between user and server as well as the backbone switch but more importantly it reduces the loading placed on the server. Backbone switch system multi-port cards usually provide 1 megabyte of memory per input port for regulating the data flow, in order to bring the data bursts of each individual connection into a sequential order, so that they fit the bottleneck at the server port. However, if this memory becomes full, any further packets arriving will be deleted. In the following diagram this pre-sorting is clearly shown. 5 PCs are directly connected to the backbone switch. The sorting only takes place in the backbone switch. At the last port the pre-sorting by the SUSI 110 can be clearly seen. The SUSI 110 decides to what strength or intensity packets are given processing preference (prioritising). The number of prioritised packets as opposed to none prioritised packets that need to be processed can be set-up and managed using the function PWF (priority weight factor). This can be chosen to be between 1:1, 2:1, 4:1, 8:1, 12:1 or all:0. Your load behaviour can even be more finely controlled. For example speech packets using All:0 they then can be processed using the highest priority. The speech quality is then significantly raised.



SUSI 110 relieves the backbone switch by carrying out a presorting of 6 PC's (first level cache). This gives the backbone not only more memory but also makes available additional processor performance enabling for a smooth usage of the server port! Using SUSI 110 you get additional memory that reduces the backbone loading and lowers the **bottleneck at the Server** (See diagram 4).

## Technical data

Modular 19" rack for housing up to 8 x SUSI 110 base cards for graded fibre optics or single mode fibre optics, including two redundant power supplies and a network management card.

SUSI 110 slide-in switch card for 19" rack, a UTP port 10/100 Base TX as uplink and 2 x 3 FO ports with 10Base FL and / or 100 Base FX as downlink. 9 port store and forward switch (ASIC), cross bar with 4 MB SD / 1 MB SG-RAM pro module, 12.000 MAC addresses.

**Height/width/depth/slots** 4 HE, 19" (84 HP), 360 mm, 8 + 1

**Power supply** 2 x 230 Volt / 50 Hz / max. 120 - 185 W

**Power consumption** max. 225 VA / 221,5 W / PFC

**Cooling** 1 fan per power supply including a sensor for various functions and error messages

**Height / width** 3 HE / 10 HP

**Standard** 802.3, 802.3u, 10Base FL, 100Base FX, 802.1p; 802.1q

**Ports:** 1 x Rj45 (UTP), 2 x 3 FO for Ethernet (ST) / Fast Ethernet (SC)

**LEDs:** Power, fibre link, fibre data, switch link, switch data, 10/100 status

**Functions:** Transparent mode, store and forward, 12.000 MAC addresses via a WEB browser or SNMP

Subject to technical changes  
Release 04.November 2003  
SUSI 110 availability for user brochure.cdr