



***SIC100
DVB Service
Information
Cache***

SIC100

- **Continuous monitoring and shadowing of the important DVB SI data stream** •
 - **Switch-back option to older versions in case of calamities** •
 - **Perfect alternative for redundant DVB SI generators** •
 - **User defined switch-over on any moment** •
 - **SNMP** • **ASI** and **GbE** •



ITNM Systems SIC100 DVB Service Information Cache

Operational excellence of digital television

Digital television distribution systems will serve the public more and more the next few years. For that reason the importance increases of quality and availability of the system supplying the signals. Hence it is most important to exclude crucial single points of failure, so that these components cannot affect the availability of the whole system. With maximum customer satisfaction, ITNM Systems develops applications that help to optimise the performance of digital television systems and to eliminate weak links in the chain.

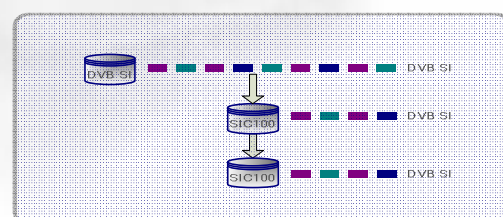
SIC100 DVB Service Information Cache

The SIC100 is a cost effective cache system for DVB Service Information. The purpose of the system is to shadow the data stream that contains DVB SI. The most important task is to back-up signal loss of the SI generator, by that means guaranteeing the availability of digital television.

The system can be applied in a chain or doubled configuration, excluding the need for more than one DVB SI-generator that otherwise would have to be carefully synchronised and updated.

Redundancy

The SIC100 is also an attractive solution for redundant head-ends en play-out systems built at different locations. By using the cache system, the DVB SI generator is no longer a crucial single point of failure and it is possible to interrupt normal operation of the generator to perform maintenance and configuration changes. In all cases, the SIC100 will take care of keeping the DVB SI system alive as much as possible.



SIC100: a shadow system for DVB SI

SIC100

SIC100 Product description

The solution

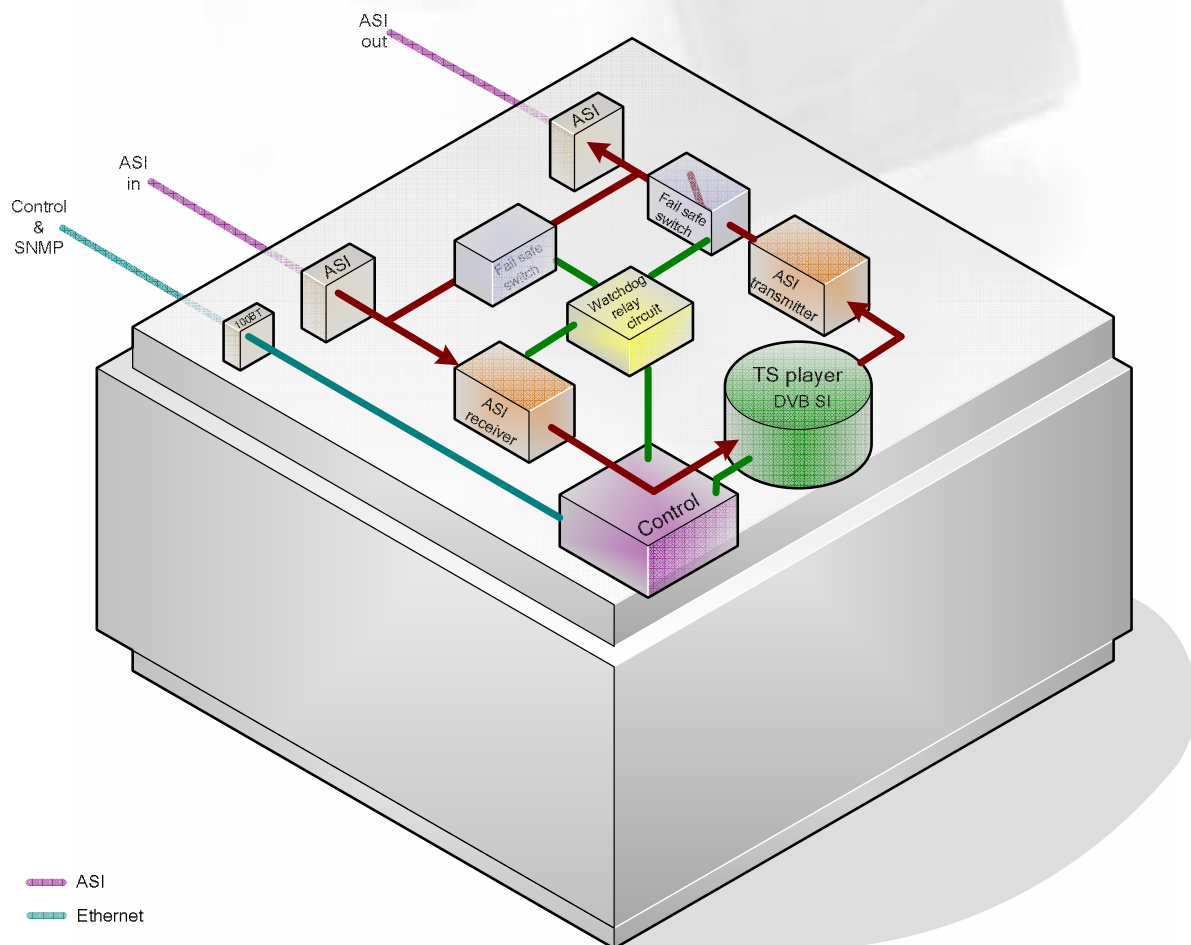
The SIC100 Service Information Cache is a stand-alone system working as a shadow for DVB Service Information. It can simply be added to a multiplex system for digital television.

Basics

Signal coming from a DVB SI generator is fed into the SIC100 by means of an ASI-signal line. In a switched off condition, the system loops through the original DVB SI-stream. The same is done in case of normal operation. The incoming 270 Mbit/sec signal is equalized and processed

by the ASI receiver. DVB Service Information is filtered out, saved on the local hard disk and played out again internally. Time tables are compensated by using the system clock in order to maintain the integrity of the information. DVB Service Information is encapsulated into a compliant transport stream that includes all the necessary descriptors and is prepared to be sent out again through an ASI transmitter.

The drawing below shows an overview of the internal construction.



Schematic overview SIC100

SIC100

SIC100 Product description

Switch over

If the bandwidth of the incoming DVB SI data is below or above user defined thresholds for the individual PIDs, the SIC100 no longer considers the data as being valid. It then disconnects the original stream and starts to play out the last valid version out of the cache, until the failure has been resolved. An SNMP-generator - suitable to display the status of the system - is standard.

User control

Disabling live data coming in from the DVB SI-generator and switching over to the local hard disk cache can also be done on user request. It is even possible to switch back to previous DVB SI versions - for example the version of one day, one month or one year ago - at any time. In manual mode, version numbers can be modified as well. The Time Offset Table can be programmed according to the local summer and winter time schedule.

Normal operation

The SIC100 normally does not require active management by the operator. However, the unit can be managed by means of an Ethernet connection for control and reading error messages. The same connection is used for SNMP.

Availability

A smart watchdog circuit automatically detects continuity problems in normal operation, by this means preventing to be a single point of failure of itself and improving overall stability of the DVB system.

Options

The system is preconfigured and ready to install. Adaptation according to customer demands is possible as well.

SIC100

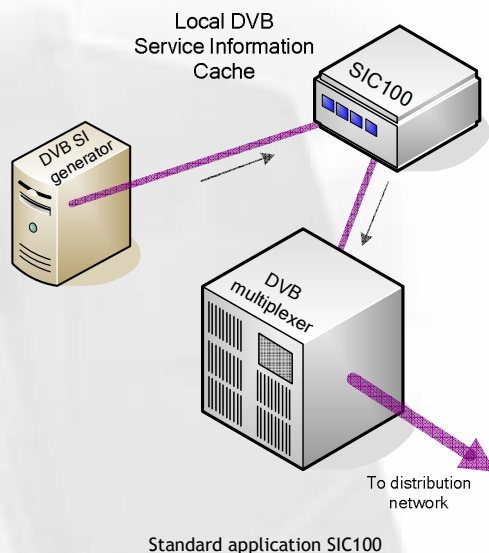
SIC100 Networks

Integration in networks

The SIC100 is applicable in several kinds of network architecture. Implementation is possible in DVB-C/S/T and IPTV-networks.

Implementation

Normally the system is placed at the location where centralised processing of digital radio and television services is performed; the head-end or digital play-out centre. In the standard set-up, all DVB SI transmission is done by ASI signal (Asynchronous Serial Interface). Communications with the SIC100 for maintenance and SNMP is done by common Ethernet.



Examples

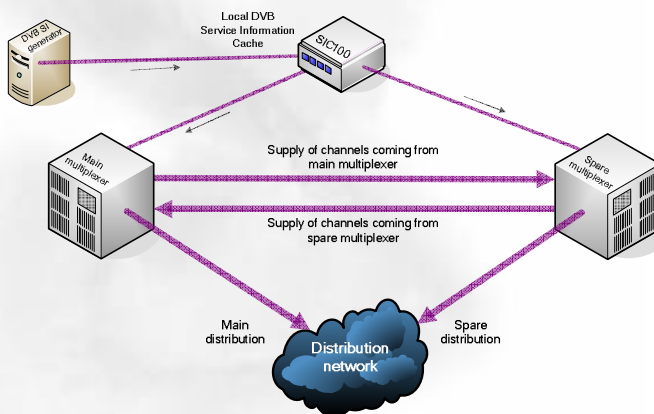
The following drawings show examples of implementation of the SIC100 in several kinds of network design. However, the possibilities are not limited to these examples.

Application in a redundant design

Redundant multiplexers can both be supplied by the SIC100. The functionality is the same as in the previous example.

Application in the multiplexer centre

According to user preference, the SIC100 can be supplied by the SI generator or by the multiplexer. In case of malfunction of the generator, the SIC100 starts to play out the DVB Service Information as a shadow system.

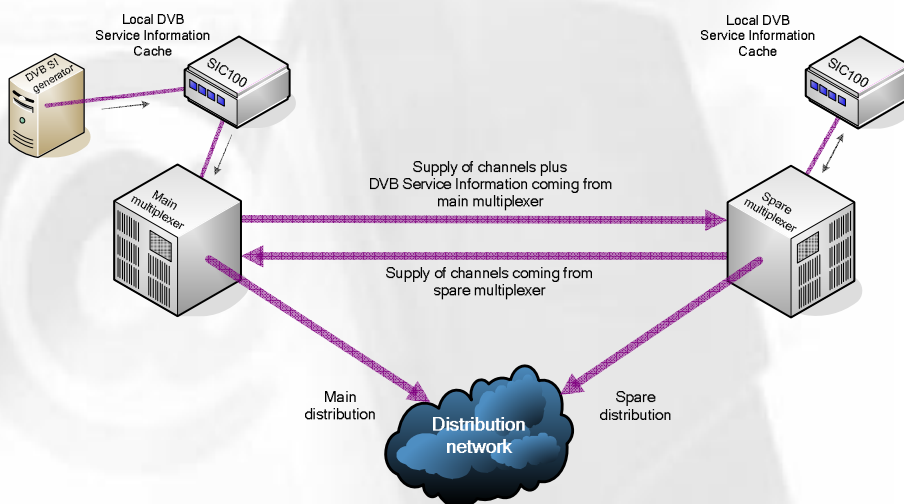


SIC100

SIC100 Networks

Application in a serial redundant design

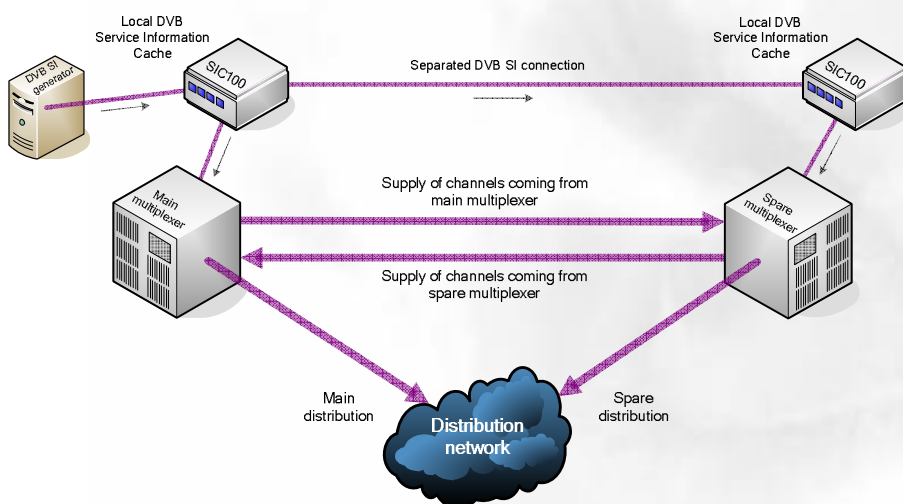
In a redundant design, the SIC100 can also be applied redundantly, for example if a part of the equipment is installed at a separated location. In a serial design, the DVB SI stream is passed on by the main multiplexer.



Application SIC100 in a serial redundant design

Application in a parallel redundant design

In a parallel design, the SI traffic is not passed on by the main multiplexer but directly supplied. The functionality is the same as in the previous example.



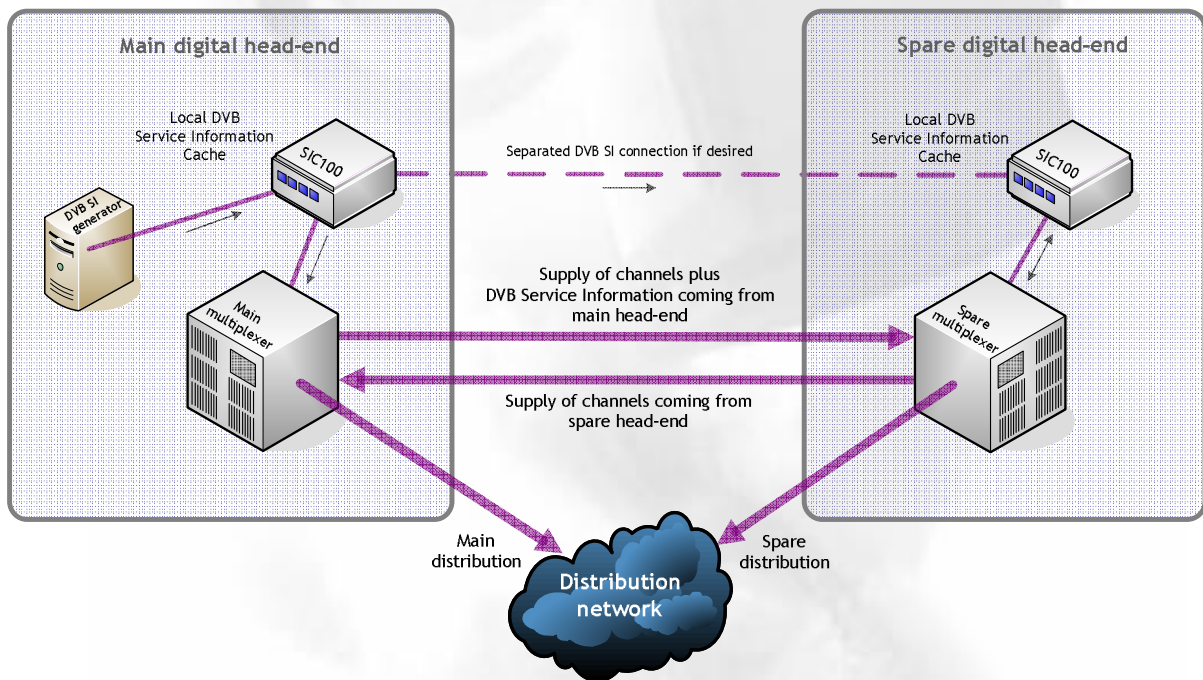
Application SIC100 in a parallel redundant design

SIC100

SIC100 Networks

Application in a redundant network design

In this case, there are completely separated locations. The SIC100 does the same job as being a local and temporarily back-up of the DVB Service Information. In case of a malfunction of the generator or the connection, the geographical separated back-up head-end will continue to work as if there is nothing wrong.



Application SIC100 in a redundant network design

SIC100

SIC100 Specifications

Capacity

- 1 DVB SI data stream

Functionality

- Continuous monitoring and shadowing of the important DVB SI data stream
- Perfect alternative for redundant DVB SI generators
- User defined switch-over on any moment
- Switch-back option to older versions in case of calamities
- ASI connections (with automatic built-in loop-through switch)
- SNMP

Options

- Automatic switch over to shadow system
- Automatic correction of time tables
- Manual switch over to previous versions
- Gigabit Ethernet connections
- User specific demands

ITNM Systems reserves the right to change the specifications.

SIC100

SIC100 Foundation

Construction

The foundation of the SIC100 is a Supermicro industrial server controlled by Linux operation system. The power supply and hard disk can be swapped from the outside. A watchdog circuit is monitoring the availability continuously. Communications for maintenance and SNMP can be done by means of common Ethernet. The foundation can optionally be equipped with redundant power supplies and ditto hard disks. Delivery based on a HP Proliant server is also an option.



Front and rear panel of the industrial server

Standard configuration

Industrial server
 Watchdog circuit
 Swappable power supply and hard disk
 No keyboard or mouse needed to start up
 Mains 230 V 50 Hz (other available on request)
 Used power 150-250 W*
 Colours beige and black

Dimensions (width x depth x height):

1 RU = 438 x 681 x 43 mm

Environmental conditions:

Temperature range storage 0 - 50 °C
 Temperature range operating 10 - 35 °C
 Humidity 8%-90% non-condensing

Safety and EMC:

CE compliant (EN 60950/IEC 60950)

Connections:

1 x SPTS input (ASI)
 1 x SPTS output (ASI)
 1 x Control/SNMP (10/100/1000Base-T)

Connection options:

2 x MPTS/SPTS input/output (GbE 1000Base-SX,
 LC duplex connector)

* Dependent on the configuration.

ITNM Systems reserves the right to change the specifications of the configuration.

SIC100

SIC100 Management

Purpose

Besides powerful and advanced functionality and cost-effective design durability of a part in a digital television broadcast system is of course of vital importance. A service level agreement is the appropriated means for a user defined improved or continuous availability.

Service level agreement

A service level agreement covers preventive as well as corrective maintenance of the whole system as well as possible bugs in the applications. The standard rate is 7 % of the installed base per year. The standard coverage in the Netherlands implies a maximum response time of one hour during seven days a week between 9 o'clock in the morning and 11 o'clock in the evening. The response time at the location is four hours maximum. Spare material can be included on customer's demand as part of the delivery.

Contact

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