Modelo: S100	ESPECIFICACIONES TECNICAS	Wire Tech
Fecha: 2013		
Hojas 1 de 2		
Asunto	SCRAMBLER para Codificar	

S100 scrambler is the TS(Transport stream) scrambler compatible with the DVB-SimulCrypt standard. It can scramble the input real-time video stream using the DVB common scramble algorithm. The scrambler could be remotely managed using the explorer in the computer.

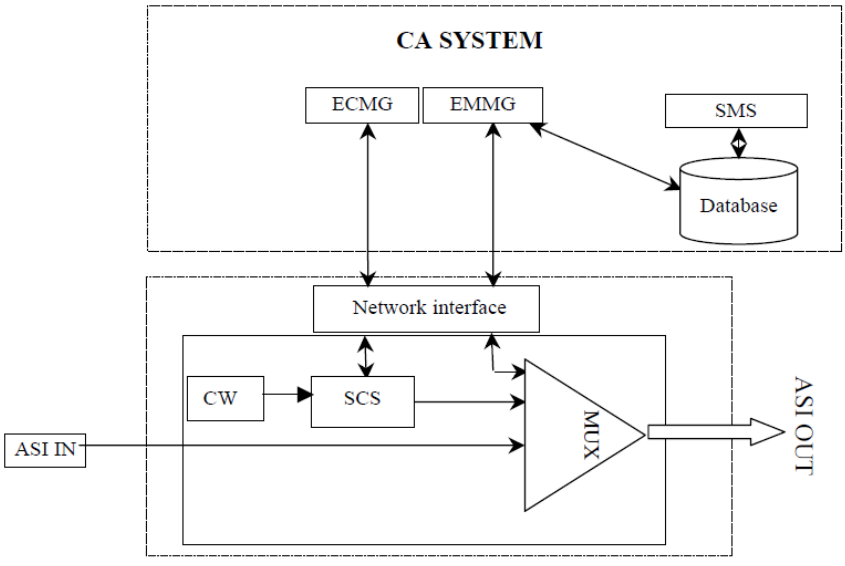
The multiplexing of the base-band signal and the additional data is compatible with ISO/IEC-13818 standard. The transport output port is the DVB-standard ASI port. The scrambler uses TCP/IP protocol and RJ45 Ethernet port to connect with the network management.

1.1Product features

- Low delay. The delay is less than 100 ms for the MPEG 2 video program
- Proving PCR adjust
- Support web-based remote control (LAN and WAN)
- Support DVB common scramble algorithm, and support scramble based on service and component
- Monitor the real-time input status
- Generating scrambler word
- Support ECM and EMM information insert
- ASI input and output
- To deal with the CA-related SI information
- Embedded design

1.2Basic principle

The basic principle schematic of the scramble part of the S100 scrambler is as follows:



1. Scrambler receives the program transport stream
2. Using STC to adjust the PCR(Program Clock Referenc)
3. The scrambler module uses DVB common scramble algorithm and uses CW (control word) to scramble the program information. The ECM, EMMs imported from the Ethernet port is multiplexed and outputted by ASI port

CW:

The encryption or scramble algorithm needs a key. The key used in the CAS (conditional access system) is called CW (control word). It is generated in the scrambler. For there are many CAS available, the S100 scrambler is design compatible with many CAS. The S100 scrambler can operate with many CAS.

For compatibility, the communication protocol used in the scrambler and CAS is defined in the TS103 197 standard.

ECM and EMM:

CW cannot be transmitted to the receiving end in the plaintext. It needs to be scrambled. The scrambled CW is sent to the receiving end in the ECM.

An ECM can correspond to one or more services (components).

The authentication is required before the de-scrambling the signal in the receiving end; this is the function of the EMMG and SMS. EMMG connects to the scrambler via TCP/IP or UDP protocol and then the scrambler inserts the EMM into the TS.