CW-4852   CW-4854   CW-4858
TRANSPORT STREAM REMULTIPLEXER

DVB
Digital Video
Broadcasting

The most complex equipment of the digital television is very likely the transport stream remultiplexer, the device which permits building new program streams in the transport stream, removing the unrequired streams and changing the stream parameters. For implementing the cable TV operators' all ideas of free forming the transport stream, CableWorld has developed a remultiplexer family whose pricing allows the operators to use remultiplexers in front of even each QAM modulator.

The first three models of the Transport Stream Remultiplexer family differ in the number of inputs only. The data rate of the output signal can be set in a very wide range, but as a special feature, the clock signal (data rate) of Input 1 (Primary Input) can be carried over to the output without any change. The format of the output signal can be set to 188 and 204 bytes/packet. Each input is equipped with 254 programmable PID filters and 128 PID re-mapping modules. The inputs automatically recognize the format. For correcting the PCR errors 24 independent PCR correctors are available, which automatically find the PIDs and can be switched on and off. The device handles the PAT, PMT, SDT and NIT tables according to the user's requirements, moreover it permits building the user's own packets in the stream, thus making the remultiplexer suitable for measuring and testing purposes.

The remultiplexer does not use computer for working. An external PC is only needed for the time of preparing and loading those two configuration files (PID filter editor / programmer and PSI editor / programmer), which set the required operational parameters of the remultiplexer. The circuitry of the remultiplexer is built of integrated circuits designed specifically for this job. The circuitry works with a supply voltage as low as 1.2 V. The highest internal voltage of the device is 3.3 V. The low power consumption results in an extremely high reliability and long lifetime.
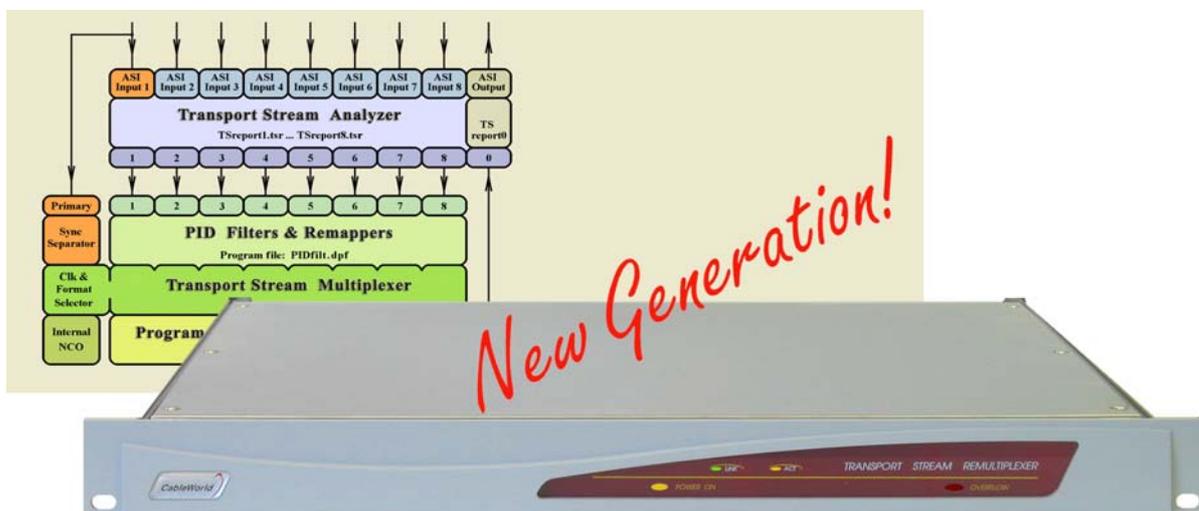

Main features:

- Output data rate range programmable in a wide range
- PID filtering and PID re-mapping facility
- Handling of the PAT, PMT, SDT and NIT tables, facility for inserting user packets
- Loop-through ASI inputs and double ASI output
- Facility for analyzing transport stream at all inputs and the output
- Setting and programming with external PC in Windows environment, operation without computer
- 24 on-off switchable automatic PCR correctors
- 19" × 1 HU frame, low power consumption, continuous service

CableWorld's Transport Stream Remultiplexer family represents the new generation of digital television devices: it has been designed using the latest achievements of computer technology and IP technology. The remultiplexer is connected to the computer via the CW-Net system (100 Mbit/s LAN), and it is provided with an own IP address. Preparing the configuration files for setting the device's operational status and their loading into the device are made in IP environment, thus the number of devices to be connected to the computer is not limited. During operation, the management and supervision of the devices is made by the computer via this network, too.

CableWorld's CW-Net system is a complete solution for processing digital signals: the TS Remultiplexers are directly suitable for analyzing, storing, displaying etc. of the input and output streams. The SW-4851 TS Remultiplexer software for programming the device is available at our web site www.cableworld.hu for free download. At the same place is available also the SW-4811 TS Analyzer software, which permits analysing the signal of any inputs and the output without using an external TS Analyzer unit.

For configuring the device only both programming files need to be loaded. Skilled users can prepare these files also in other environment e.g. at home, and they can also modify them afterwards. Loading both programming files needs some minutes only, and the same program can be loaded in multiple devices. The data used in the program and also the program itself are stored in the external computer.

Among the inputs Input 1 has a distinguished function: beyond the internal NCO (Numerically Controlled Oscillator) also this input's clock signal can be used for generating the output signal. The device has also a mode, where the packets transmitted from the input to the output stay at their places, thus they avoid being burdened with PCR error. This facility is especially advantageous if only smaller modifications are to be made to the stream. At adding streams, in case of overflow, discarding of the packets starts at the input with the highest input sequence number. The block diagram of the remultiplexer is shown in the figure below:
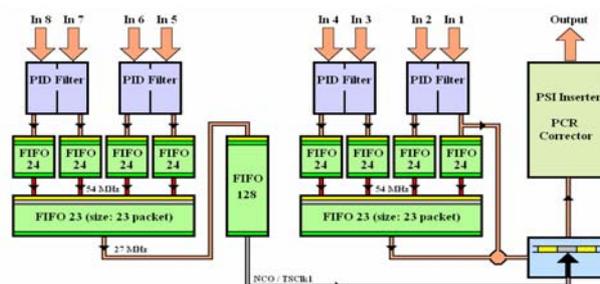
Due to the loop-through inputs, no ASI distributors are needed when using multiple remultiplexers; the double output permits beyond driving the modulator also driving measuring and test equipment, media converters etc. The remultiplexers are capable to supply their input and output signals into IP environment without any additional unit.

TECHNICAL DATA

INPUT DATA

Number of inputs

CW-4852	2 × loop-through ASI
CW-4854	4 × loop-through ASI
CW-4858	8 × loop-through ASI

ASI inputs	according to TM 1449 Rec.1
Input voltage	200 - 880 mV$_{(P-P)}$
Input impedance	75 Ω
Input connectors	BNC socket (insulated)
Data format	burst or continuous
Packet format	188 or 204
Loop-through output	regenerated ASI (see output data)
Input data rate	0 … 56 Mbit/s (tested)
Data format recognition	automatic
Number of PID filters	254 at each input
Number of PID re-mappers	128 at each input

OUTPUT DATA

Number of outputs	2 (identical signals)
ASI output	according to TM 1449 Rec.1
Output voltage	min. 800 mV$_{(P-P)}$
Output impedance	75 Ω
Output connectors	BNC socket (insulated)

TRANSMISSION CHARACTERISTICS

Data rate	0.008 ... 56 Mbit/sec
Adjustability	in 8 bit/s steps
Accuracy	better than 1 × 10^{-4}
Data format	188 or 204 byte (variable)

Tables handled	PAT, PMT, SDT, NIT
PAT repetition time	40 … 500 ms (variable)
Overflow indicator	front panel LED

GENERAL DATA

Service period	continuous
Power requirement	90 ~ 264 V ac 47 ~ 440 Hz
Power consumption	max. 35 VA
Type of connectors	BNC socket (insulated)
CW-Net	RJ45 socket
Mass	approx. 3.8 kg

Physical dimensions: 19" × 1 HU

Width	483.0 mm
Height	43.6 mm
Depth	473.0 mm

Environmental data

Operating temperature range	+5 ... +40 ^{o}C
Relative humidity	max. 80 %
Non-operating	-25 ... +45 ^{o}C
Relative humidity	max. 95 %, non-condensing