SIEMENS UP0 EXTENDER

USER MANUAL

APPLICATION

Siemens Up0 Extender shall be used whenever there is a need to use Siemens TDM phones on remote locations (distance measured in kilometres from the PBX).

FEATURES

Up0 Extender increases the range of Up0 digital lines up to several kilometres. Its operation has been verified on a single pair AWG22 cable /φ = 0,643mm/ of length approx.12km, in industrial environment, loop resistance approx. 1200Ω.

Works with any Siemens TDM telephone (different OptiPoint and OpenStage phones were tested).

Two devices per single Up0 line are required.

The device is powered either directly from Up0 line of from external power source (DC 20-60V). Power consumption is below 1W.

APPEARANCE
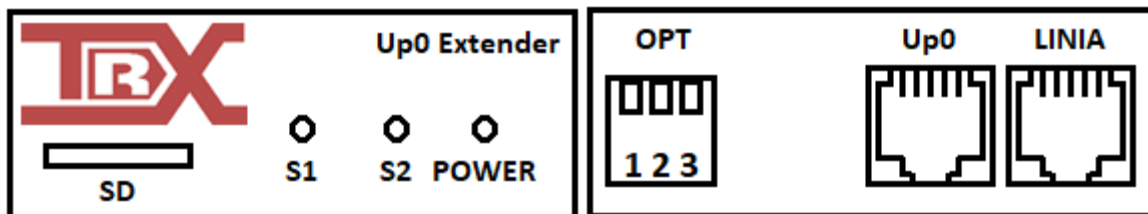
SD – micro SD card socket, for firmware upgrades,
S1 – LED signalling synchronisation on link between a pair of extenders,
S2 – LED signalling synchronisation on Up0 line,
POWER – LED signalling if the device is powered,
OPT – piano switches for device configuration,
USB – optional, for firmware upgrades,
Up0 – socket to connect Up0 line to,
LINIA – socket to connect the other extender to.

CONFIGURATION

For a pair of extenders to work correctly, it is necessary to setup one of them in _at PBX_ operating mode and another one in _at telephone_ operating mode. Piano switch OPT1 (first from the left) makes it possible.

 - _at telephone_ operating mode,

 - _at PABX_ operating mode.

Extenders will not connect to each other and solution will not work if both have the same operating mode set.

Options OPT2 and OPT3 are for fine tuning to UP0 line. For standard operation these do not need to be activated.

CONNECTIONS
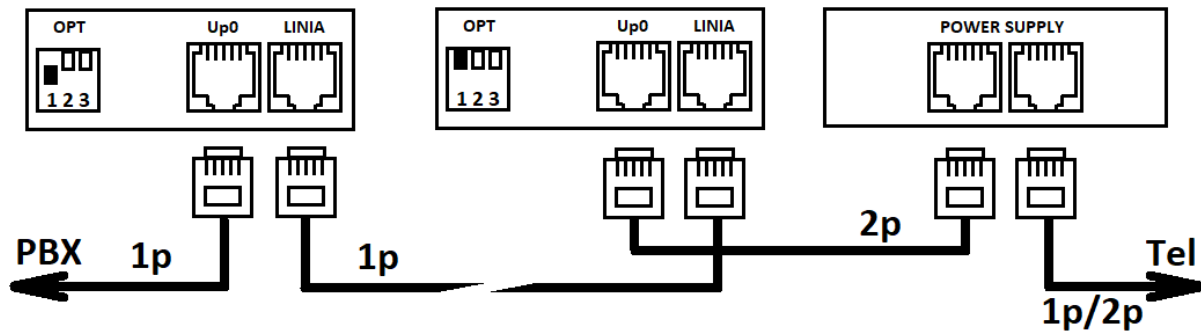
The first extender operates at PBX site and is being powered directly from Up0 line.

The second extender operates at system telephone site. Together with the telephone – it needs to be powered by an external power supply dedicated for system phones (i.e. Salcomp C39280-Z4-C510).

The power is being supplied on the second pair in a wire. The extender adds it to the digital signal on the first pair in wire and puts it back to the telephone via the power supply. This allows to connect the TDM telephone with a single pair wire and it will work.

CAUTION: A short on a pair of wire to the phone will cause the malfunction of the extender.

START UP

If all connections are correct, pair of extenders will try to connect to each other. This can take up to several seconds, especially in cases of long wire length in between them or/and in harsh industrial conditions.

After the link between expanders is established, they work in a transparent manner from the audio signal point of view. Audio signal is retransmitted bit-perfectly. There is an option to encrypt audio data. For the signalling data additional features were developed to protect it from corruption and to ensure its delivery to the other side of the link.

Up0 extenders maintain the sync in between PBX and the TDM telephone. All the clocks are locally synchronised with DPLL.

In operation, all LEDs shall glow in green colour. Short and spontaneous blinking of theirs means unusually big phase correction for internal DPLL circuits and shall not cause concerns about device operation.

FIRMWARE UPGRADE

Firmware upgrade procedure:
- turn the extender off,
- prepare uSD card with FAT32 filesystem in it,
- put firmware file in the root folder of the card, make sure it is called *upgrade.upg*.
- put the card into the extender and power it up,

The device shall update its firmware automatically, and start standard operation after a few seconds. **Upgrade file will be deleted if the upgrade process was successful.**