Delta informatika
ISO 9001 14001 KONFORMITÁS
H-1033 Budapest, Szentendrei út 39-53. Tel.: +36 1 437 5200; Fax: +36 1 437 5299; www.delta.hu

POS Rack Calling Concentrator 1U Variable Speed

With the rapid spreading of datacommunication and money-saving payment methodologies there are more and more bank terminals where we can purchase with our credit or debit card.

The bigger stores, institutions and service companies (e.g. public transport ticket-offices, post offices, toll roads' gate) operate even more than 10 POS terminals within which the limited number of incoming communication channels must be split.

The ***POS Rack Calling Concentrator 1U Variable Speed*** is a 1U high 19" rack-mount device. The device is supplied from the 230 V mains, and its purpose is to concentrate and multiplexate the communication between up to 15 POS terminals connected to its ***POS port***s and 2 modems behind ist ***C/I. port***s and/or 1 analogue PSTN line behind its ***Line port***. The ***POS port***s supplied via the built-in pair of 15 VDC stabilized power supply units.

Communication interface ports

The ***C.I. port***s ensure the transfer of the concentrated incoming call initiations to the communications network infrastructure behind. It is obvious that in case the establishment of the connection is slow it will result in growth of the customer queue length as well as the idle time spent by the customers willing to pay, finally the efficiency of the service point will be decreasing rapidly. The modems have special firmware making them possible to establish connection at the shortest possible time with the call-initiator POS terminal's built-in modem. After the connection is established the communications network infrastructure is reachable by the POS terminal and the authorization of the transaction can be done. The interface of the connected network device can be a router or even a special packet assembler/disassembler with a serial port.

The intelligence built-in the ***C.I port***s makes possible more than only transferring the data via the established communication channel from the POS terminal to the devices in the background. The application specific built-in firmware might be able to even initiate an X.25 call on ISDN Channel-D via the serial port of ISDN NT with X.25 pad supplied by the telco. This sequence can be executed parallel with the establishment of the modem communication with the built-in modem of the POS terminal thus resulting no growth in the communication cycle. This function gives possibility to realise data-communication for Customer service centre, etc. via public communication networks like PSTN or ISDN.

The modems of the ***C.I. port***s connected to the communications network infrastructure behind via RS-232 serial interface having RJ-45 socket. The ***C.I. port***s have independent power supplies, thus in case a ***C.I. port*** having

failure it will not have effect on the other still working well. The ports also have current and overvoltage protection.

POS ports

The ***POS port***s are ready to be connected with up to 15 POS terminals. The actual number of the POS terminals connected and the ***POS port***s chosen for them are eligible. Every initiated call of a POS terminal is competing for the free internal communication channels which number and the number of the ***C.I. port***s are equal. The modem of the first free ***C.I. port*** will link up with the built-in modem of the POS terminal calling, and the connection is established. If there are no free communication channels available, the call initiation of the POS terminal will not be answered. In this case the POS terminal will retry to establish connection after a delay set until success or the number of attempts set reached. As long as the connection establishment needs 6-8 seconds and the experiences show a roughly balanced distribution of the incoming demands 10-12 POS terminals can be served by one communication channel (modem).

The built-in modems of the POS terminals are not capable to communicate via a physical pair of wires, thus ***POS port***s are able to supply provide the necessary powering (prestressing) upon request.

The POS terminals can be connected to the ***POS port***s with standard phone wires mounted with RJ-11 plugs having length of even up to 100's of meters. The ports also have current and overvoltage protection.

Line port

The ***Line port*** can be connected to an analogue PSTN line and supports two operational modes selectable with a switch fitted in the front panel.

When "DTMF" mode has been activated by the selector of the ***Line port*** the authentication of the transactions are done via the ***C.I. port***s using the communications network infrastructure behind. In case a special call is initiated by the POS terminal with "outgoing call" prefix the handling of the call is passed from the ***Line port*** and the POS terminal will be able to dial an external number using the analogue PSTN line of the ***Line port***. This function supports dialling of an emergency number, download remote firmware upgrades for the POS terminals.

"DTMF" mode is a smart mode. While one of the POS terminals using the analogue PSTN line of the ***Line port*** the standard calls of the other POS terminals handled by the ***C.I. port***s on the internal communication channels, the authentication of the transactions remain continuous.

When "Upgrade" mode has been activated by the selector of the ***Line port*** the ***C.I. port***s are forced out of service by internal control signals. In this mode the ***Line port*** is the master and it makes ***POS Rack Calling Concentrator 1U Variable Speed*** able to multiplex the call initiations of the POS terminals directly to the analogue PSTN line of the

Line port. In case communications network infrastructure goes down for some reason the ***Line port*** can be set as a backup communication channel by making a simple position change on a selector switch.

The analogue PSTN line can be connected to the ***Line port*** with standard phone wires mounted with RJ-11 plugs having length of even up to 100's of meters. The port also has current and overvoltage protection.

Operation, maintenance, possibility of expansion

The architectural implementation of ***POS Rack Calling Concentrator 1U Variable Speed*** guarantees 24-hour uptime even in industrial environment. The control on the ***C.I. port***s is a 10-state selector switch supporting the mode adjustment of the modems (serial port speed). The controls on the ***Line port*** are a selector switch between the two operational modes which also lets the backup communication channel activated immediately via the analogue PSTN line of the ***Line port*** in case communications network infrastructure behind goes down for some reason, and a 10-state selector switch supporting the adjustment of the prefix of the outgoing calls.

Technical data

Function	POS terminal reception, data connection with the terminal's modem, multiplexed gateway for the communications network infrastructure behind
Modes	From 1 200 bps to 9 600 bps, up to choice
Configuration	1 pc main phone line input 2 pcs RS-232 serial interface input 15 pcs POS terminal input
Overvoltage protection	Suitable to the IEC 802.3 class rules
Design, size	19" rackmount 1 U high cover 490 * 45 * 300 mm (w*h*d)
Indicators	1 pc LED – POWER 1 pc LED – POWER FAIL 1 pc LED – Phone line active 1 pc LED – Modem #1 DCD 1 pc LED – Modem #1 PWR 1 pc LED – Modem #2 DCD 1 pc LED – Modem #2 PWR 15 pcs LED – Port activity of POS terminals
Connectors	1 pc RJ-11 socket – for main phone line 2 pcs RJ-45 sockets – RS-232 interface 15 pcs RJ-11 sockets – POS port 2 pcs 230V power supply cables back-side
Controls	1 pc 10-state selector switch – Outgoing call's prefix selector 1 pc 2-state switch – Line/Upgrade mode selector 1 pc 10-state selector switch – Port speed
Nominal ratings	230 VAC, max 30 Watts

Accessories

- 1 pc data cable with cable boots (DB-25 female/RJ-45)

- 1 pc Cisco router cable (DB-25 male/Smart Serial)
- 1 pc UTP patch, 1 m with RJ-45