



VOICE COMMUNICATION SYSTEMS



# Maritime Voice Communication Systems

**TCS990** THE RELIABLE SYSTEM THAT GROWS WITH YOUR NEEDS



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## **TCS990** THE RELIABLE SYSTEM THAT GROWS WITH YOUR NEEDS

The TCS990 is a non-blocking, redundant, digital voice switch for crucial voice and data communications, such as radio, telephone, public address, intercom, voice logging etc.

Even a mix of these types of communications can be combined in one and the same system. Due to its modularity and flexibility it can easily be adapted to every size, supporting from one channel to a main port system. In the maximum configuration the system can support over 1000 voice data channels. Since its introduction in 2004 the TCS990 has proven to be extremely reliable, even in a non-redundant set-up. Main ports and airports all over the globe rely on the system every second of every day.

The system is designed in such a way that it allows for additional user requirements in an easy way. We know that during the lifetime of the system, your requirements can change. All kinds of interfaces are supported such as: Ethernet, ISDN, 64Kbps and analogue leased lines.

The TCS990 is widely used in The Maritime Market. This popularity is based (among others) on the unique specific functionalities such as Simulcast and Diversity which are possible to implement making use of standard infrastructures and existing Base Stations.

The TCS990 is a land-based communication system that enables ship-land, ship-ship and land-land communication. It's the intelligent and most cost effective solution of its kind. The non-blocking design and built-in redundancy ensures high system availability, allowing it to be used in normal and safety critical communication. Due to the combination of radio and telephone communication in one system, it is easy to use.

A safe investment during the entire life-time The TCS990 design is modular, flexible, easy to configure and has a special focus on reliability. This guarantees availability, a long life-span and low service costs. The TCS990 is built for reliability. The robust system works every second of the day. With upgrades the system can grow with your needs and making it a safe investment.



**TBP990**

There are several types of dedicated operator consoles available:

- **TBP990** For greater and/or more complex systems. This is the top model of our standard operator consoles and consists of a bright 15" multifunctional touch screen with integrated loudspeakers and microphone.
- **TCP990** Is targeted on the operator positions where the panel must be built in the desk. This 12" touch screen unit has a high brightness 1000 cd/m<sup>2</sup> LED lightened display with a wide viewing angle.
- **STP990** The STP990 is the smallest touch screen. The panel has a 5.7" TFT touch screen. It can be mounted in a 19" rack or be built into a desk.
- **PPU990** For bridges and Locks there is a simple water-resistant unit for intercom purposes

Upon request the consoles can be produced in a different colour (fe red for emergency). MEP is committed to fulfil all customer needs. All electronics and software are designed and built by MEP, enabling us to manufacture specialized modules and firmware.

## REMOTE EQUIPMENT

Just like the central equipment there are two types of remote equipment housings:

- **Remote line interface, CVS990**

The CVS990 is suitable for locations with a maximum of 32 configurable in-or outwards voice channels. It consist of a 1U 19" unit, including a power supply and connections for battery back-up. By adding the appropriate module, different types of lines can be connected. Implementation of FM simulcast (co-channel) functionality is possible by fitting a GPS module to this unit. Timing and transmitter frequency stability (ref freq 0,05 ppm) are based on this GPS module (standard option).

- **Compact Line interface CLI990**

The CLI990 is used at sites where only one transceiver is needed and can connect to all standard telecom communication lines.

## INTERCONNECTION

Standard Ethernet (TCP/IP) is used to interconnect the central equipment with the operator consoles. All kinds of standard telecom communication lines are supported. These lines are used to connect one or more remote sites to the central equipment. The switch is capable to support all signalling and control in a complete VoIP solution. Challenging coverage problems involving diversity or simulcast can be implemented on a TCP/IP network.



STP990

## BENEFITS

The benefits of the TCS990 are:

- **Optimum cost performance** high quality at unmatched cost level
- **Reliability** proven technology with large installed base and years of experience
- **Flexibility by design** versatility, scalability, client specific adaptability, configuration options
- **Simple Serviceability** built-in self testing modules, one type of system card, hot swappable, remote diagnostics and maintenance.

## NEXT STEP

We invite you to visit our premises in Landsmeer which is located in the vicinity of Amsterdam, The Netherlands.

### TBP990 Technical Information Touch screen panel

#### External connections:

**Ethernet:** IEEE 802.3 10/100 baseT

**Headset:** 150  $\Omega$ , 6,6mW  $\pm$  15%

**Handset:** 150  $\Omega$ , 6,6mW  $\pm$  15%

**Microphone:** electret 10mV (adjustable)

**Volume:** 10K  $\Omega$  potentiometer

**Footswitch:** free contact

**Mounting:** VESA 100

#### Temperature Range:

- **operational:** -10° to 40°C

- **storage:** -40° to 60°C

**Relative Humidity:** 5% to 95% non-condensing

**Dimensions:** 355 x 343 x 46 mm (w x h x d)

**Weight:** 3,100 grams

**Display:** touch sensor TFT

**Resolution:** 1024 x 768 pixels

**Technology:** resistive touch

**Size:** 15 inch

**Operation live:** 1 million touches

**Brightness:** 1000 cd/m<sup>2</sup> (option 1)

**Contrast Ratio:** 500:1

**Colours:** choose from 256 out of 65.535 colors

**Viewing Angle:** 140° Horizontal and 130° Vertical (170° / 150° option 1)

**Power Supply:** 12VDC  $\pm$  1VDC at 3A

**Loudspeaker:** two build-in loudspeaker with separate volume control

**Emission:** EN 55022, EN61000-3-2 / 3-3 / 4-2 / 4-3 / 4-4 / 4-5 / 4-6 / 4-11

**Immunity:** EN55024

**Safety:** EN60950



TCS990

## FEATURES

Some of the features of the TCS990 are:

- **non blocking digital voice and data switch**
- **cost effective flexibility through it's Hardware and Software modularity**
- **a gateway to all kinds of voice communications , such as; radio, telephone, intercom and PA**
- **integration of long-and short-term voice logging**
- **a versatile PBX**
- **ATIS suppression at operator position and ATIS decoding**
- **DSC (GMDSS compliant) and NAVTEX decoding**
- **Easy to configure and service by using CMSpro**
- **Inter-switch connectable**
- **Integration of receiver diversity (best sound selection), simulcast (co-channel)/CLIMAX**

## CENTRAL EQUIPMENT

There are two types of central equipment housings:

- **For small systems from 1 up to 16 radio channels and up to 4 operator consoles** the Compact Voice Switch, CVS990, is the most cost effective choice. It consists of a 1U 19" unit, including a power supply and connections for battery back-up. The CVS990 can also be used as a remote unit.

- **If the number of voice channels is more than 16,** now or in the future, the TC990 rack is the right choice. The minimum configuration is one 3U 19" rack, which is suitable to support a maximum of 128 voice channels. By adding more MB990 racks the number of voice channels can be easily expanded.

A typical voice switch is made out of a number of DMI990/LLI990 cards with the appropriate expansion modules placed in a TCS990 rack. Every system uses at least one duo card as server.

The design of the DMI990/LLI990 duo card is based on distributed processor technology and can be used in a fully redundant set-up. This assures a system with an extremely high availability figure. Two or more systems on different locations can be connected to each other. For the operator it will look like one large system. This creates operational benefits like intercom, sharing of radio channels and fall back scenarios.

A typical TCS990 system is made of a digital voice switch, several types of operator consoles and remote control equipment. By means of thorough testing, modular software design and a field proven real time operating system, this reliable system meets all customers needs. A highly advanced control and monitoring tool is available to control and monitor the system remotely (named CMSpro). All system events are logged and SNMP messages can be sent to allow remote alerts.

# LOUD AND CLEAR, ALWAYS

## Technical information voice switch and CVS990 | DMI990 | LLI990 | TCS990

### Power Supply:

**Main:** 230VAC -20/+15%

**Telephone:** ISDN30 Primary Rate

**interfaces:** ISDN2 Basic rate, E&M Interface, G.703 CoDir 64Kbit, CB line FXO/FXS, LB line E&M, Q1/Q8, and RIRO

**Radio:** Transformer, isolated 600 Ohm -10dBm nominal

**Interfaces:** PTT, photocoupler out, SQL, photocoupler in, inbound signaling

**Emission:** EN 55022, EN61000-3-2 / 3-3 / 4-2 / 4-3 / 4-4 / 4-5 / 4-6 / 4-11

**Immunity:** EN55024

**Safety:** EN60950

**Digital Ethernet:** IEEE 802.3 10/100 baseT

**interfaces:** ISDN G.703/G.704

**Data link:** X.21/RS232/RS422/RS485

### Temperature Range:

- **operational:** -10° to 70°C

- **storage:** -40° to 85°C

**Relative Humidity:** 5% to 95% non-condensing

### Dimensions:

TCS990 | 435 x 132 x 340 mm (H x W x D)

CVS990 | 430 x 45 x 331 mm

DMI990 | 19 x 100 x 160 mm

LLI990 | 17 x 120 x 141 mm

## CLI990 Technical Information compact remote control equipment

**Power Supply:** 12VDC  $\pm$ 25%

**Radio Interfaces:** Transformer, isolated 600 Ohm, -10dBm nominal, PTT, photo coupler out, SQL, photocoupler in

**Analog line:** M1040 / transformer, isolated 600 Ohm, -10dBm nominal

**Best signal select:** RSSI 0-2.5 or 0-5 or 0-10VDC

**Digital interfaces:** Ethernet IEEE 802.3 10/100 baseT

**Data link:** RS232/RS422/RS485

**I/O:** 3 opto inputs and 3 opto outputs

### Temperature Range:

- **operational:** -10° to 70°C

- **storage:** -40° to 85°C

**Relative Humidity:** 5% to 95% non-condensing

**Dimensions:** CLI990 / 19 x 100 x 160 mm (H x W x D)

**Emission:** EN 55022, EN61000-3-2 / 3-3 / 4-2 / 4-3 / 4-4 / 4-5 / 4-6 / 4-11

**Immunity:** EN55024

**Safety:** EN60950