

# DCS 6000

*User Manual*



**Digital Conference System**



**RP 6004 Repeater**



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## Document version

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## Important

### Compliance

The equipment has been tested and found to comply with the limits of the following standards for digital devices:

- EN55103-1 (Emission)
- EN55103-2 (Immunity)
- FCC rules part 15, class A (Emission)

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial or light industrial environment. The equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the user manual it may cause harmful interference to radio communications.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

### Installation precautions

Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place

exposed to direct sunlight, excessive dust or humidity, mechanical vibration or shock.

To avoid moisture condensations do not install the unit where the temperature may rise rapidly.

### Cleaning

To keep the cabinet in its original condition, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use organic solvents such as thinners or abrasive cleaners since these will damage the cabinet.

### Repacking

Save the original shipping cardboard box and packing material; they will become handy if you ever have to ship the unit. For maximum protection, re-pack the unit as originally packed from the factory.

### Warranty

The individual units in the DCS 6000 system are minimum covered by 12 months warranty against defects in materials or workmanship.

## Description of the DCS 6000 system

### Features

The DCS 6000 system has the following main features:

- Fully digital
- Excellent sound quality
- “State of the Art” fully digital integrated interpretation, discussion and voting system offering interpretation, language distribution, conference microphone and voting facilities with attendance check with Chip Card™.
- New, unique digital DATA and AUDIO bus.
- 39 incoming channels (8 floor channels + 31 interpreted channels) and one Line input.
- 33 distributed channels (2 x floor + 31 interpreted channels)
- The Delegate and Interpreter units are powered and controlled by the CU 6010 Central Unit, which drives up to app. 200 units on 4 chains.
- EX 6010 Extension Units or PS 6000 Power Supplies available if more units are required
- A total of 4000 units (delegate and/or interpreter units) can be connected to the system.
- Using screened CAT5 or CAT5e cabling (FTP or STP) ensuring a very cost effective installation and easy set-up of portable systems
- Firmware in Delegate units, Interpreter Units, Central Units etc. upgradeable through serial PC-connection (RS232 or RS422)
- Can be operated with or without a PC.
- Added functionality and comprehensive features provided by SW 6000 software package running on PC

RS232/RS422 connection on CU 6010 for external operation of the system of a PC or control system such as AMX or Crestron

The SW 6000 is an optional software package, which expands the functionality of the DCS 6000 system. The software runs on standard computer technology (Standard PC with Windows 2000 or XP).

Main features of the SW 6000 are:

- Microphone management
- Mimic panel operation
- Interpretation management
- Voting management
- Message handling
- Agenda handling
- Data stored on SQL data base for easy export/import of data as well as easy links to external databases
- Multi language user interfaces
- Supports different User types with different priorities, user interfaces and control possibilities

Variety of printing facilities such as speaker's log, voting results, delegates list etc.

## System components

The CU 6010 Central Unit supports all available units in the DCS 6000 series:

### Central equipment

CU 6010	Central Unit
EX 6010	Extension Power Unit
PS 6000	Power Supply
RP 6004	Repeater for four chains
AO 6008	Audio Output box
JB 6002	Junction Box with 2 outputs
JB 6004	Junction Box with 4 outputs

### Interpreter equipment

IS 6032P	Interpreter Set
IS 6132P	Interpreter Set
LS 6032P	Interpreter Loudspeaker

## Conference equipment and channel selectors

CS 6032FV/H	Channel Selector (flush mounted)
CM/DM 6010P	Conference Unit (portable)
CM/DM 6020P	Conference Unit (portable) with XLR microphone connector
CM/DM 6070P	Conference Unit (portable) with two built-in channel selectors
CM/DM 6090P	Conference Unit (portable) with two built-in channel selectors and XLR microphone connector
CM/DM 6060F	Conference Unit (flush mounted) with one built-in channel selectors
CM/DM 6510F	Conference Unit (flush mounted) with Chip-card and 3 voting buttons
CM/DM 6560F	Conference Unit (flush mounted) with one built-in channel selector, Chip-card and 3 voting buttons
MU 6040C/D	Microphone Unit for use with customised front plate with Loudspeaker, Microphone and Buttons. Available in Delegate (D) and Chairman (C) version
AM 6040	Ambient Noise Microphone

## Operating instructions

### RP 6004 Repeater

#### General description

The RP 6004 Repeater provides repeater and splitter functionality for the DCS 6000 system.

One CU 6010 Central Unit is needed in each DCS 6000 system, however for expansion of the system the RP 6004 Repeater is suitable.

The RP 6004 consist of the following main parts:

- Repeater board with 4 individual repeated outputs.

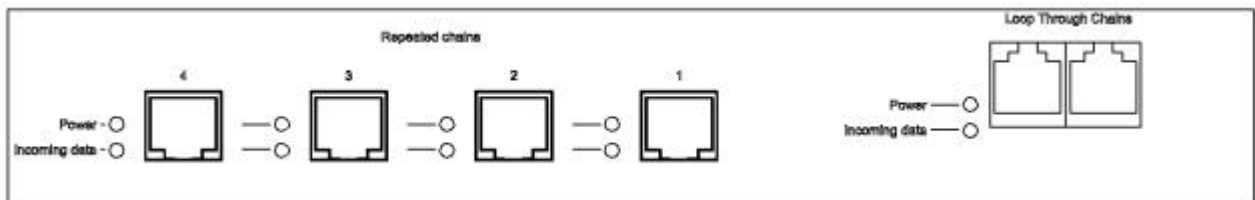
#### Features

The main features of the RP 6004 Repeater are:

- 4 outputs for connection to Delegate Units, Interpreter Units etc.
- Loop through connectors for connecting additional RP 6004 or other units, which are part of the DCS 6000 system.
- Delayed switching on of power to the four chains, to minimise the total 'switch-on' current on the Mains supply.
- Designed in compact cabinet for easy installing remotely.
- Optional 19" brackets.

### User Controls, indications & connectors

#### Front plate layout



#### Front plate controls

The RP 6004 Repeater does not feature any controls or displays, however the following indications and connectors are available:

##### ❑ **Loop through connectors**

RJ45 connector, 2 pieces

DCS-LAN connectors. Used for connection to one of the chain connector on the CU 6010 for repeating the DCS-LAN chain.

The second connector is for connection to other units with DCS-LAN connector, such as more RP 6004.

The loop through connectors has auto-termination.

##### ❑ **Repeated Chain 1, 2, 3 & 4**

RJ45 connector, 4 pieces

DCS-LAN connectors. Used for connection to DM/CM6xxx, CS6032, EX6010, AO6008, JB 6002/4 or IS6032 Interpreter Sets.

Unused repeated chains do not need termination

❑ **Power LED**

Those LED light up when Power is available on the connector next to the LED

❑ **Incoming data LED**

Those LED flashes, when the unit receives incoming data from connected units on the connector next to the LED.

**System design**

There are no settings to be done on the RP 6004 Repeater.

However it is important to observe, that the unit is only repeating one of the chains on the CU 6010 Central Unit.

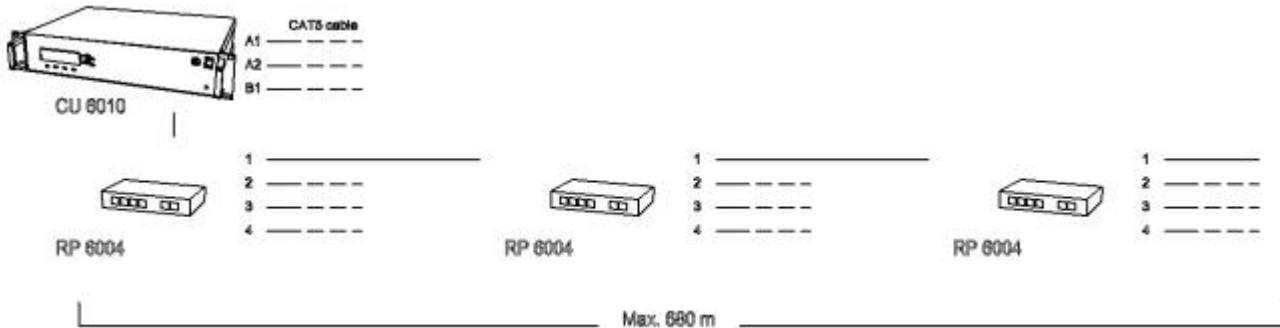
And as so, the specification, which applies to each of the chain outputs on the CU 6010 Central Units does also apply to all the repeated outputs in total.

So when designing a system to incorporate RP 6004 Repeaters, bare in mind, that as the RP 6004

Repeater is repeating only one of the four outputs A (A1 or A2) or B (B1 or B2) the max. number of languages configured on the four outputs (1, 2, 3 and 4) is totally max. 16.

If more languages are required, Interpreter sets for those languages have to be connected either to an other RP 6004 Repeater, which is connected to the other of the two chains (A or B) on the CU 6010, or directly to the other of the two chains (A or B) on a CU 6010.

**'Repeated chain' connector**



When connecting the RP 6004 Repeaters to the CU 6010 the first RP 6004 is connected to the 'Loop through' connector. The next RP 6004 Repeaters can be connected to either the other 'Loop through' connector or to one of the 'Repeated out' connectors. If using the 'Repeated' outputs

maximum two more RP 6004 Repeaters can be connected extending the maximum cable length in one chain up to 650 m. The above schematic is showing the connection using the "Repeated out" connectors.

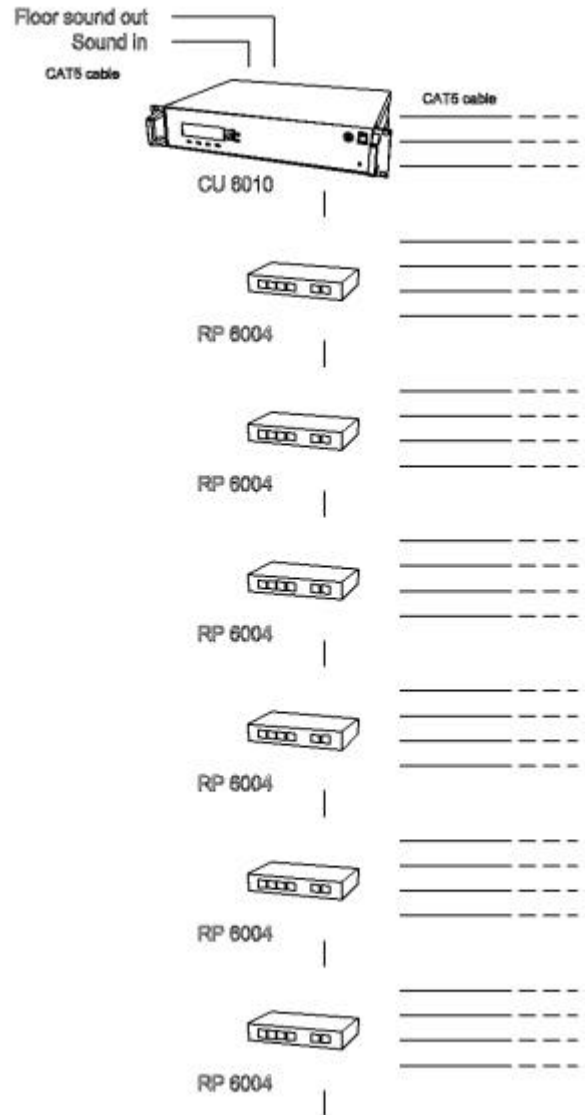


**‘Loop through’ connector**

When connecting a number of RP 6004 Repeaters to the CU 6010 an almost unlimited number of RP 6004 can be connected by using the ‘Loop through’ connector.

The practical limitation is the maximum cable length in one chain, which is 200 m and supply of power to the RP 6004 repeaters. The following schematic is showing the connections using the ‘Loop through’ connectors.

A combination of the two methods of connection can be seen in the ‘CU 6010 User Manual’.



## System Setup

### General guidelines

Connect the RP 6004 to the various units using Cat 5 FTP or STP cables. Please observe the following guide lines:

- Maximum cable length in one chain is 200 m without repeater. This includes interconnection cables between the units. The max. usable cable length depends on the units connected and length of feeding cables etc.
- Maximum cable length in one chain when using repeaters is 650 m.
- As the RP 6004 Repeater is repeating only one of the four outputs A (A1 or A2) or B

(B1 or B2) the max. number of languages configured on the four outputs (1, 2, 3 and 4) is totally max. 16.

If more languages are required, Interpreter sets for those languages have to be divided between both chains (A or B) on the CU 6010. Normally the languages are supposed to be divided equally on chains A (A1 or A2) and B (B1 or B2).

- If the last unit in one chain is a CS 6032 Channel Selector, this unit has to be terminated with an external termination, as the CS 6032 does not have an internal termination.

### Built into 19" Racks

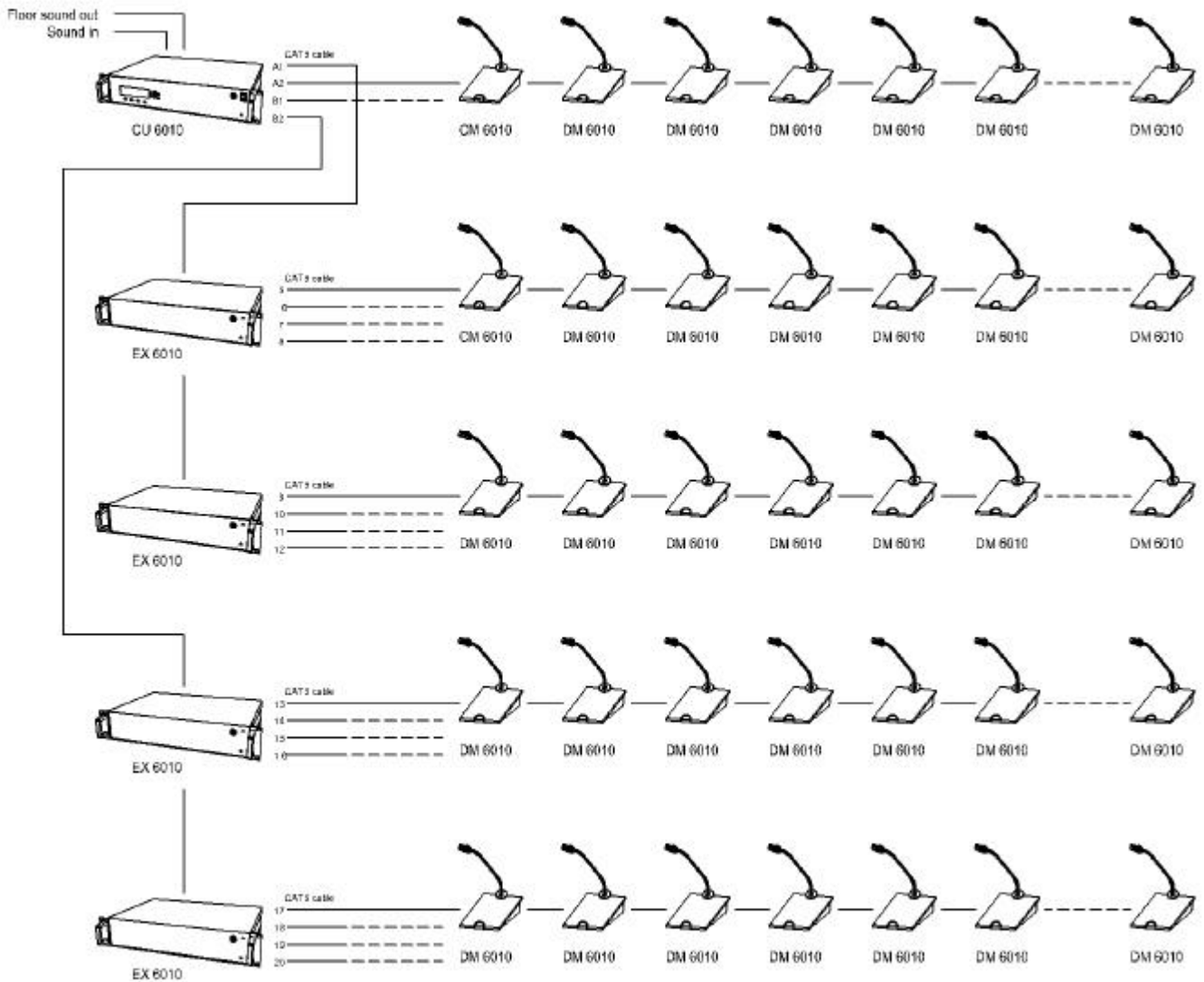
The optional 19"-Brackets allow the unit to be mounted in a rack with either the front (connector side) or the blank backside to the front side of the rack. The height is 1HU and allows units to be stacked using only 44mm rack height.

Can also be mounted at the back of the rack cabinet freeing the space at the front of the rack. The cabinet shall then be deep enough to allow this.

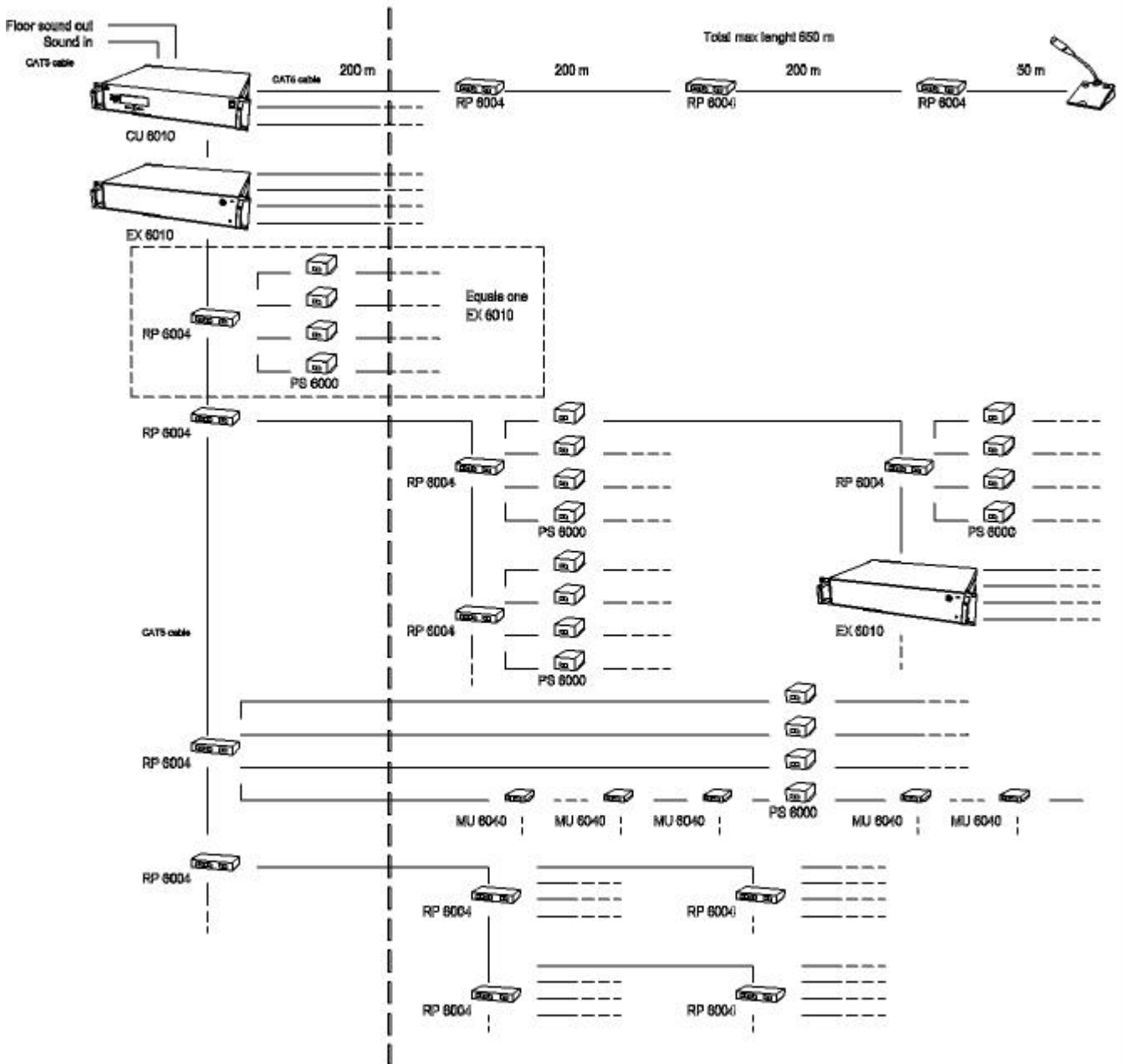
### Typical schematics

The following schematics are showing various configurations :

### Large sized conference microphone system



Various configurations with RP 6004 Repeater and PS 6000 Power Supply



# Technical appendix

## Cabling

### CAT5

The DCS 6000 system uses CAT5, CAT5e or CAT6 FTP or STP cables with screened RJ45 connectors.

**It is important to use only FTP or STP (screened) cables and screened RJ45 connectors and not UTP cable, which is unscreened.**

EIA 568-B wiring shall be used. How to wire a CAT5 (EIA 568-B) Cable:

Pin	Function	Connector #1	Connector #2
1	In-going +	ORG/WHT	ORG/WHT
2	In-going -	ORG	ORG
3	+48V	GRN/WHT	GRN/WHT
4	0V	BLU	BLU
5	0V	BLU/WHT	BLU/WHT
6	+48V	GRN	GRN
7	Outgoing -	BRN/WHT	BRN/WHT
8	Outgoing +	BRN	BRN

Note. If other colour codes are used then the four pairs are connected as follows:

Pair 1: Pin 1 & 2

Pair 2: Pin 3 & 6  
 Pair 3: Pin 4 & 5  
 Pair 4: Pin 7 & 8

The phase of the pairs must be correct and the wiring spec. as stated in CAT5 (EIA 568-B) have to be followed.

Note: CAT6 cables can normally only be terminated in sockets (female) and not in cable plugs. CAT6 should thus only be used for long cable draws terminating in wall outlets or patch panels.

## Accessories (not supplied)

### Cat 5e Connection Cables (AWG24)

EC 6000-.5 Connection Cable 0,5 m .....	10 03 12500
EC 6000-01 Connection Cable 1 m .....	10 03 13101
EC 6000-02 Connection Cable 2 m .....	10 03 13201
EC 6000-05 Connection Cable 5 m .....	10 03 13501
EC 6000-10 Connection Cable 10 m .....	10 03 14102
EC 6000-20 Connection Cable 20 m .....	10 03 14202
EC 6000-50 Connection Cable 50 m .....	10 03 14502
Set of 1HU - 19" Brackets .....	

## Technical specifications

### General

Power consumption .....max. 10W  
 Temperature to guarantee specified performance  
 ..... 5 Deg C. to 40 Deg C. (35 to 80% humidity)  
 Storage temperature  
 ..... -20 Deg C. to 60 Deg C. (10 to 80% humidity)  
 Weight..... 1 kg

Dimensions (W x H x D) .....264 x 42 x 128 mm  
 Dimensions with 19" brackets .....482,6 x 44 x 128 mm

### Connectors

DCS-LAN loop through .....2 pieces RJ45  
 DCS-LAN repeated output .....4 pieces RJ45

**Specifications are subject to change without notice.**



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