PMX-CSK

PROMATRIX 8000
CALL STATION KIT

Owner's Manual
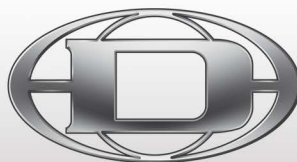
DYNACORD
GERMAN ENGINEERING EXCELLENCE

IMPORTANT SAFETY INSTRUCTIONS

⚠ **CAUTION**
RISK OF ELECTRIC SHOCK
DO NOT OPEN
⚠

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.
AVIS: RISQUÉ DE CHOC ELECTRIQUE - NE PAS OUVRIF

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
GROUNDING OF THE CENTRE PIN OF THIS PLUG MUST BE MAINTAINED

THIS DEVICE COMPLIES WITH PART 15 OF
THE FCC RULES. OPERATION IS SUBJECT
TO THE FOLLOWING TWO 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.

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INFORMATION
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The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated „dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not cover any ventilation openings. Install in accordance with the manufactures instructions.
8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or the grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. I the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for a long period of time.

14.   Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15.   Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
16.   To completely disconnect this equipment from the AC Mains, disconnect the power supply cord plug from the AC receptacle.
17.   The mains plug of the power supply cord shall remain readily operable.

IMPORTANT SERVICE INSTRUCTIONS

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Security regulations as stated in the EN 60065 (VDE 0860 / IEC 65) and the CSA E65 - 94 have to be obeyed when servicing the appliance.
2. Use of a mains separator transformer is mandatory during maintenance while the appliance is opened, needs to be operated and is connected to the mains.
3. Switch off the power before retrofitting any extensions, changing the mains voltage or the output voltage.
4. The minimum distance between parts carrying mains voltage and any accessible metal piece (metal enclosure), respectively between the mains poles has to be 3 mm and needs to be minded at all times. The minimum distance between parts carrying mains voltage and any switches or breakers that are not connected to the mains (secondary parts) has to be 6 mm and needs to be minded at all times.
5. Replacing special components that are marked in the circuit diagram using the security symbol (Note) is only permissible when using original parts.
6. Altering the circuitry without prior consent or advice is not legitimate.
7. Any work security regulations that are applicable at the locations where the appliance is being serviced have to be strictly obeyed. This applies also to any regulations about the work place itself.
8. All instructions concerning the handling of MOS-circuits have to be observed.

NOTE: **SAFETY COMPONENT (MUST BE REPLACED BY ORIGINAL PART)**

WEEE RECYCLING/DISPOSAL INSTRUCTIONS

The Wheelie Bin symbol found on the product or in the manual indicates that this product must not be disposed of with other waste. It is in our category the manufacturer's responsibility to properly dispose of their waste electrical and electronic equipment (WEEE) at the end of its life. Due to the differences in each EU country's management of WEEE, please contact your local distributor. We are committed to facilitate our own electronic-waste-management-system, for the free of charge return of all EVI Audio GmbH products: Telex, DYNACORD, Electro-Voice and RTS. Arrangements are made with the dealer where you purchased the equipment from, for the returning of all unusable equipment **at no cost**, to the factory in Straubing, for environmental protective disposa

1. Introduction

1.1 System overview

The PMX-CSK Call Station Kit contains a printed circuit board (PCB) that can be used to make custom-made call stations (e.g. a fireman's panel) and belongs to the PROMATRIX 8000 product family.

PMX-CSK is the kit version of the DPC 8015 with some small kit spec differentiations. Eg, the PMX-CSK provides a connection to the gooseneck microphone as known from the call station DPC 8015 but also provides a connection to connect to a Dynamic EMERGENCY microphone like the BOSCH LBB 9081. It provides 15 programmable contact closures and 5 preprogrammed contact closures for eventual menu access. Up to 3 alarm keys or key-locked switches can be connected. The PMX-CSK employs a lighted LC-display (122 x 32 pixel).

The call station includes the following features:

- condenser or dynamic microphone with pre-amplifier and compressor / limiter circuitry
- freely programmable key-assignment
- additional alarm keys or key-locked switches can be connected
- connection of an external PTT-microphone or audio source
- loudspeaker connection
- high resolution LC-display
- user menu allows additional parameter settings at the call station kit
- microphone and line surveillance
- error indication via LED connections, loudspeaker and text messages at LC-display
- all functions are processor-controlled
- processor surveillance via watchdog function
- configuration data is stored in non-volatile FLASH RAM

The call station kit is processor-controlled and extensive monitoring functions are provided. The watchdog function monitors the processor system. The line surveillance function recognizes any line-interruption and/or short-circuits in the audio and CAN cabling. The microphone surveillance and the PTT button surveillance checks functionality and recognizes any interruption and/or short-circuit.

The IRISNet software allows comfortably configuring the call stations kit. Its graphic, dialogue-oriented user interface offers effortless assign of key functions, priorities, options, and many other call station kit functions.

1.2 Scope of Delivery and Warranty

PMX-CSK
1 PMX-CSK CALL STATION KIT main board
1 PMX-CSK CALL STATION KIT display
1 Display connection cable (50 cm)
1 Owner's manual (this document)
10 Connector 10 pole
1 Connector 2 pole, additional +24V power input
1 Safety Instructions

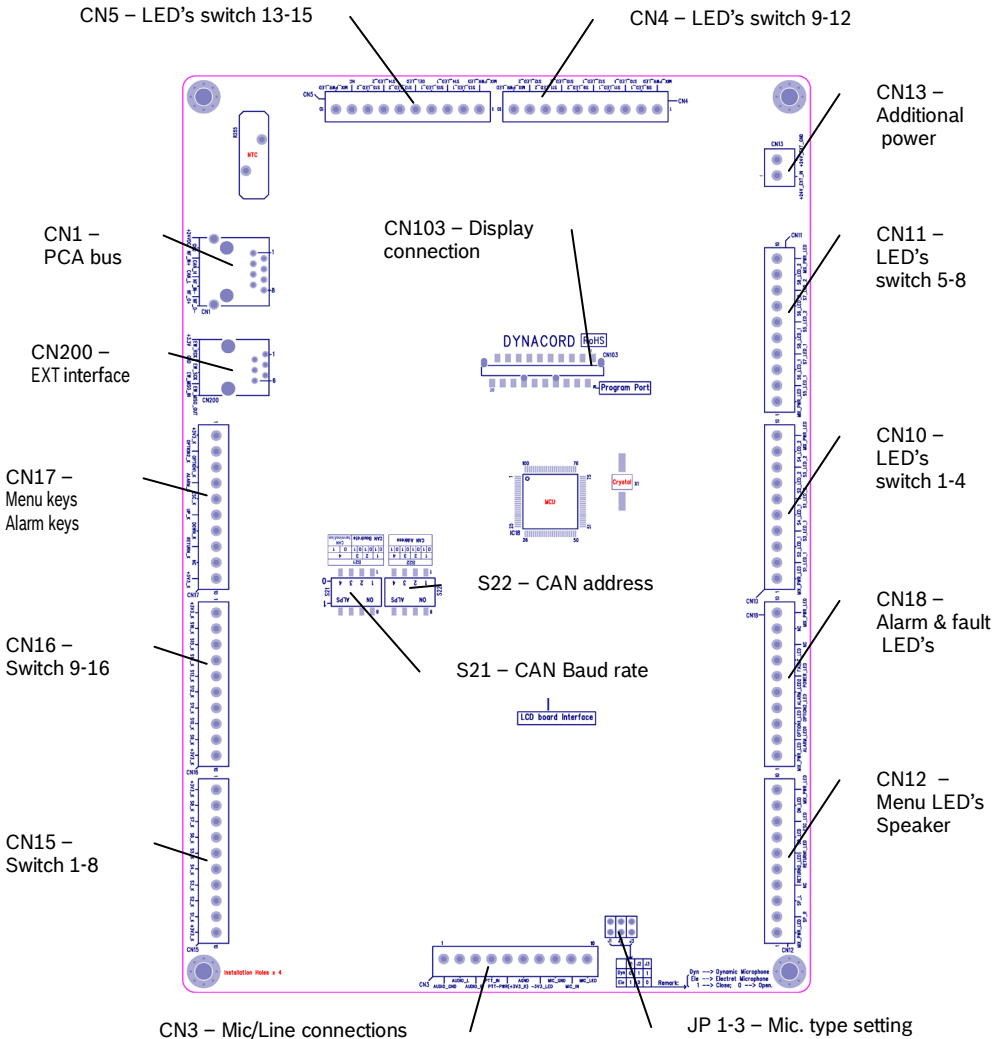Visit www.dyncord.com for warranty information.

HINT: **This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.**

2. Description

2.1 Main Features

Buttons (Through Screw-terminal Connectors)	5 Pre-programmed 15 Programmable Zone/Function Keys 3 supervised programmable optional emergency keys 2 connections for each button; 23 buttons share 6 common VCCs (3V3 - DC) Each button has short circuit protection
LEDs connected to Buttons (Through Screw-terminal Connectors)	PMX-CSK support open drain outputs with max. 5mA per output. Using the internal supply max 100mA can be sourced for all outputs. The PMX –CSK also provides an external power supply for Lighting LEDs of external normal buttons. 2 connections (VCC & open Collector) are available for each LED connected to a button. In total 38 LEDs share 10 common MIX_PWR_LED Using the Internal Power Supply (5VDC) is provided to those LED. Using the external power supply, 24VDC is provided to the connected LED's Each LED circuits has short circuit protection.
Power LED (Through Screw-terminal Connectors)	Driven by MIX_PWR_LED (5VDC or 24VDC) 2 connections(VCC & open collector)
Fault LED (Through Screw-terminal Connectors)	Driven by MIX_PWR_LED (5VDC or 24VDC) 2 connections(VCC & open collector)
Alarm LED (Through Screw-terminal Connectors)	Driven by MIX_PWR_LED (5VDC or 24VDC) 2 connections(VCC & open collector)
Included LCD Display kit	A flat ribbon cable with connects the Display to the Call Station Kit main Board. Ribbon cable length is +/- 300mm
Others (Through Screw-terminal Connectors)	1 Audio Source(Line In) 1 Supervised microphone input (LBB9081/00) capsule and PTT button connection (Input & VCC) with short circuit protection. 1 Loudspeaker connection 1 Additional +24VDC Power Supply
External Connectors	1 PCA BUS Connector (Control Data + Audio + Power Supply, RJ45) 1 EXT Connector(RJ12 for eg Call station extension)

2.2 Top view

CN5 – LED's switch 13-15

CN4 – LED's switch 9-12

CN13 – Additional power

CN1 – PCA bus

CN103 – Display connection

CN11 – LED's switch 5-8

CN200 – EXT interface

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CN103

Program Port

CN17 – Menu keys Alarm keys

CN10 – LED's switch 1-4

MCU

Crystal

S22 – CAN address

CN18 – Alarm & fault LED's

CN16 – Switch 9-16

S21 – CAN Baud rate

LCD board interface

CN12 – Menu LED's Speaker

CN15 – Switch 1-8

Installation Holes x 4

CN3 – Mic/Line connections

JP 1-3 – Mic. type setting

2.3   Connection table

Number	Element	Description (default configuration)
CN 1	PCA BUS port	PCA connection for PROMATRIX 8000 CONTROLLER
CN 200	EXT interface	Interface for DPC 8120 CALL STATION EXTENSION
CN3	Call station Kit Mic/line connection	Audio line input
		Press to Talk connection (PTT)
		PTT activation (LED connection)
		Microphone connection
CN4	LED's switch 9-12	Connection to Primary and secondary LED Belonging to switch 9-12
CN5	LED's switch 13-15	Connection to Primary and secondary LED Belonging to switch 13-15
CN11	LED's switch 5-8	Connection to Primary and secondary LED Belonging to switch 5-8
CN10	LED's switch 1-4	Connection to Primary and secondary LED Belonging to switch 1-4
CN18	Alarm & Fault LED	Connection to ALARM button Led & Alarm & Fault LED's
CN12	Menu LED's + Speaker	Connection to Menu LED's & CSK speaker
CN15	Switch 1-8	Connection for buttons 1-8
CN16	Switch 9-16	Connection for buttons 9-15 + Menu DEL key (S16)
CN17	Menu & Alarm Keys	Connection for the CSK menu & Alarm buttons
CN13	Additional Power	Puts CSK operation to 24V power instead of 3V. E.g. Used for connection with industrial LED/blub buttons
CN103	Display connection	Flat cable connection to the CSK Display module
S21	CAN address	Dip switches to set the CSK CAN address
S22	Can Baud rate	Dip switches to set the CSK baud rate & termination
JP1-3	Mic type setting.	Jumper for microphone type selection. Electret / Dynamic

Table 1.1

2.4   Selection tables

2.4.1.   Address setting

The address of the PMX-CSK should be set by DIP switch S22.
Set the address conform table 1.1.

"0" = off   "1" = on

S22				
DIP Switch				
4	3	2	1	Address
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	0	0	0	8
1	0	0	1	9
1	0	1	0	10
1	0	1	1	11
1	1	0	0	12
1	1	0	1	13
1	1	1	0	14
1	1	1	1	15

Table 1.2

2.4.2.   Baud rate setting

The baud rate of the PMX-CSK should be set by DIP switch S21 and can be set to 10, 20 and/or 62,5 kbps. The baud rate setting can be found in the table 1.3:

"0" = off   "1" = on   "x" = don't care

S21			Speed
DIP Switch			kbps
3	2	1	
x	0	0	10
x	0	1	20
x	1	x	62,5

Table 1.3

2.4.3.   PCA Termination

The termination of the last Call station in the chain should be set.
For the PMX-CSK is this done by DIP switch S21.
S21-4 set to "0" = no termination
S21-4 set to "1" = PMX-CSK terminated

2.4.4.   Microphone type setting

The PMX-CSK is able to connect a Dynamic or an Electret Microphone.
This can be selected by setting jumpers 1-3 as shown in the table 1.4.

"0" = open   "1" = closed

JP 1-3			Microphone type
Jumper setting			
3	2	1	
x	1	1	Dynamic
1	0	0	Electret

Table 1.4

2.5   Default functions & Indications

Functions and indictors for the PMX-CSK are inherited from the Promatrix DPC 8015 CALL STATION.
Table 1.5. gives an overview of the default functions and indications assigned to switches and LED's on the DPC 8016.

Element	Description (default configuration)
Selection switches	Selecting single zone or group with green/yellow LEDs
Optional Key-Slots	For up to 2 covered buttons or key-locked switches
POWER LED	Green if power supply active
FAULT LED	Yellow if a fault occurred
ALARM LED	Red if alarm is active
Microphone	Supervised Dynamic microphone
Speaker	Playback of signal tones
Display	Shows information on system state or error messages of the call station or the PROMATRIX 8000 system
ESC input	Cancels an acoustic signal, step forward in list of error messages
Up input	Switch on/off the PROMATRIX 8000 system
DEL input	Selects all zones and groups
Down input	Program assign mode for background music
Enter input	Activates a message for pre-selected areas or groups

Table 1.5

2.5.1.　　　LED indications

Table 1.6 provides an overview of LED states assigned to the LED's on the DPC 8015. The LED functions for the PMX-CSK are inherited from the DPC 8015.

LED	Status	Description
Selection (green)	off	No group or area selected
	lights green	Area or group selected / special function activated
Selection (yellow)	off	Group or area available
	flashing	Group or area busy (alarm signal)
	on	• Operation mode: Group or area busy (alarm signal or background music is not indicated) • Program assign mode: Background music assigned to group or area
↑	off	System is off (stand-by mode)
	lights green	System is on and ready for operation
	blinks green	System has been turned on and is booting (initialization)
↓	off	Call station is in message mode or setup mode
	lights green	Call station is in program assign mode
ESC	off	No signal can be stopped
	lights green	Pressing the ESC button aborts a signal
DEL	off	No collective call selected
	lights green	Collective call pre-selected
↵	off	Selected groups or areas not busy, clear for call
	on	During own message
	slow blinking, green	Low priority call station launches a call in selected areas; interruption on cost of the momentary microphone terminal is possible
	fast blinking, green	System is busy with a higher priority transmission (message, gong, alarm), interruption is not possible, already launched call is interrupted by events with higher priority setting
POWER	off	Power supply is deactivated/broken
	lights green	Power supply is activated
FAULT	off	PROMATRIX 8000 system ok
	lights yellow	A fault exists in the PROMATRIX 8000 system, see LC-display for details
	blinks yellow	A new fault occured in the PROMATRIX 8000 system, see LC-display for details

Table 1.6

2.6 Factory Presets

When shipped, the selection keys S1 – S15 are assigned to the corresponding areas 1 - 15 offering real plug'n'play;
The menu, navigation and function keys (CN17 + CN16-S16) are also assigned.
The CALL STATION KIT is ready for operation direct after installation.

CAUTION: **When connecting several call stations and/or call station kits to one DPM 8016, every single CALL STATION (KIT) connection needs it's individual, exclusive address (1...16).**

The CALL STATION KIT provides the following characteristics:

Parameter		Setting / Description
CAN address		0 (disconnected)
Priority		5 (priority for messages)
Name		PMX-CSK
Password		Setup menu password protected, Default password: 2222
Pre-gong signal		Off
Buzzer		On (acoustic alert signal)
Compressor		Off
Options	Alarm button	Not programmed
	Key-lock switch	Not programmed
	PTT microphone	Not programmed
Button assignment	Selection buttons 1-n (s1-s15 – CN15 & CN16)	Selecting areas 1...n (button 1 = area 1, button 2 = area 2,...)
	↵ (Return - CN17)	Call in pre-selected areas, priority 5
	↑ (Up - CN17)	Switching the system on / off, priority 5
	↓ (Down - CN17)	Assigns a program to pre-selected areas
	ESC (Esc - CN17)	Terminates any locally launched signal (gong, text, alarm)
	DEL (s16 – CN16)	Selecting collective call / deselecting selected areas
Microphone selection		Dynamic
Special functions		Not programmed

Table 1.7

2.7   Bock Diagram
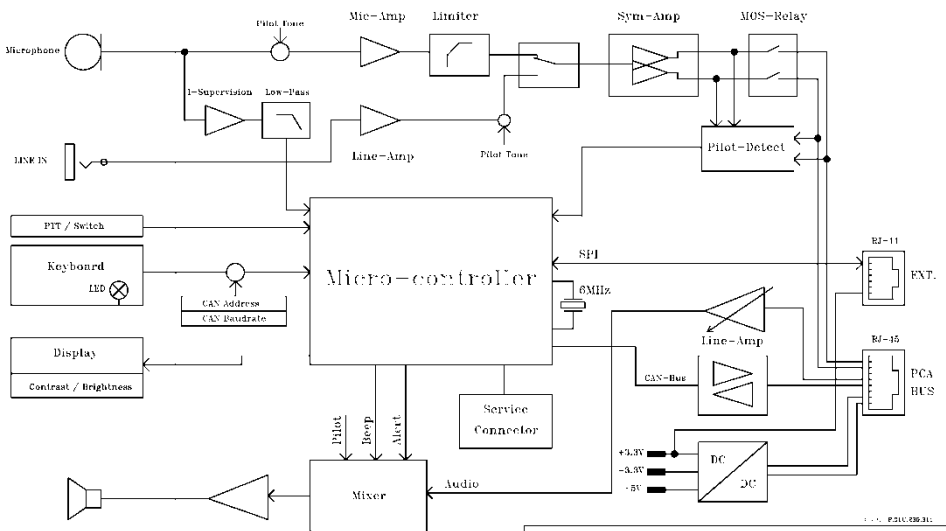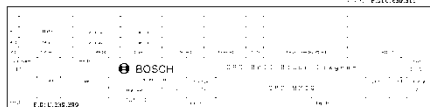
2.8   Connections

This chapter provides the way of wiring the contacts and LED's
The CALL STATION KIT inputs and outputs provide default functions as shown in
table 1.7.

2.8.1.   LED connection

The CALL STATION KIT provides LED connections without any additional
resistors etc.
LEDs should be connected as shown in figure 1.1
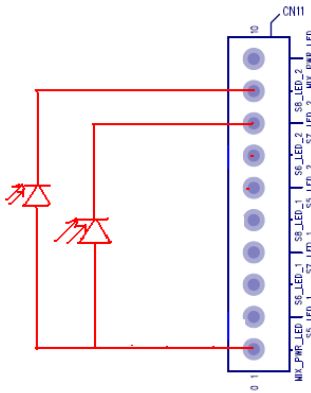
Figure 1.1

The mix_pwr_LED connections on both ends are similar.
Both can be used to drive the LED's.
The additional mix_pwr_LED is provided to enable multiple wire connections.

> **Note:**
> The Mix_pwr_LED can either be 3V3 or 24Volt, depending the
> connected power on CN13.
> If the CALL STATION KIT is not provided with an extra 24V power
> connection, the CALL STATION KIT is powered via the DPM 8016
> with limited current.
> In case larger industrial buttons and /or bubs are used, the CALL
> STATION KIT can provide 24 Volt with extended current to the bulbs.

2.8.2.   Connecting a switch

The CALL STATION KIT provides Switch connections without any additional resistors etc.
LED's should be connected as shown in picture 1.2
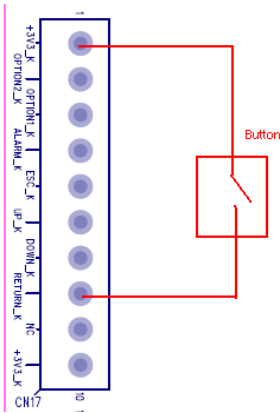
The +3V3_K connections on both ends are similar.
Both can be used to drive the Switches.
The additional +3V3_K is provided to enable multiple wire connections.

3. Operation

3.1   LC-display

Depending on the actual operational status of the PROMATRIX 8000 system,
the LC-display shows information on time, operation mode, user notes,
set- ting up, fault messages including precise device / module
specification, etc.

STATUS MESSAGES

During error free operation of the PROMATRIX 8000 system the LC-
display shows the name / description of the call station kit in line 1 and the
current date and time in line 2.

ERROR MESSAGES

An error within the PROMATRIX 8000 system is indicated by the call
station kit in following way:

- The FAULT LED output is toggling on/off and a warning signal is activated via the loudspeaker.
- The description of the error is indicated via the LC-display.
- By activating the ESC input, the acoustic warning output signal stops and the FAULT LED output changes is set permanently on.

If another error occurs in the system, the ESC input has to be activated again.

- The FAULT LED is activated as long as the error in the PROMATRIX 8000 system exists.

The error indication and the warning signal must be configured in the IRIS-
Net software.

3.2　　　Operation mode

After power on the call station kit is in *operation mode*. For configuring the call station kit the *setup mode* is used. Several key functions differ between setup mode and operation mode, see following table.

	Operation mode (default configuration)	Setup mode
Up_K (↑ Up key)	The U P input turns the system's power on or off. Turning the power on can take several seconds. The LED output toggles on and off while the system boots. The UP LED output is steadily when the system is operational. To prevent inadvertent erroneous operating closing the up input for at least 3 seconds is necessary when turning the power off. It is also possible to prohibit the operation of the up input during the configuration procedure.	In setup mode this input is used to select the previous parameter/ menu item.
ESC_K (ESC key)	Closing the ESC input confirms an error in the PROMATRIX 8000 system and cancels an output alarm output signal.	This input is used to cancel the editing of a parameter or to move upwards in the menu tree.
Down_K (↓ Down key)	Closing the Down input stops a currently running audio signal (chime, alarm, text). Use the IRIS-Net software for configuring the input functionality in detail.	In setup mode this input is used to select the next parameter/menu item.
DEL_K (DEL key)	The DEL input allows the selection of all programmed areas at once for transmitting messages, chime or alarm signals, vocal messages, or to assign programs. On time pressing selects all areas. The corresponding selection LEDs and the DEL LED outputs are set. Subsequent closing cancels (clears) the selection. Following modes are available in the IRIS-Net software for this input: • Toggle between all and clear • Select All • Deselect All	Deletes the currently selected parameter.
Return_K (↵ Enter Key)	The enter input activates a message for pre-selected areas or groups. The LED output toggles on and off when one or several areas are busy or when an event with higher priority setting interrupts the output message. The optional toggle mode of the key is configured via IRIS-Net.	Confirms the parameter change or selects the highlighted menu item.

	Operation mode (default configuration)	Setup mode
Sx_K Selection inputs	The 15 switch inputs with corresponding (green / yellow) LED outputs are used to pre-select areas or groups for the reproduction of messages, chime or alarm signals, vocal messages, or to assign programs (close this input once = on, subsequently closing again = off). The Sx_LED outputs indicate the momentary selection status. It is also possible to assign special functions or no function at all (no function assigned) to those inputs. Assigning functions is performed during the configuration procedure via IRIS-Net..	Enter the corresponding number of the input.

SELECTIVE CALL

The user can launch calls or announcements into freely selectable areas or groups.

Activating a single or several selection inputs defines areas or groups where a call is launched into – corresponding green LEDs outputs will be set. By activating the key input of an already pre-selected line once again deactivates that line and the corresponding green LED output goes off. If the Sx_LED (yellow LED) output belonging to a Sx_K input (selection) contact is activated, the corresponding area or group is busy.

After making a selection, activating the enter input ignites the call. Prior hereto, the corresponding LED output allows checking whether all lines and the call station kit input are actually free. If single lines or the terminal input are busy with lower priority transmissions, the enter (return) LED will be toggle slowly. Whilst making an announcement is possible, this will interrupt any other transmitted event. If single lines or the terminal input are busy with higher priority signals, the enter LED output will toggle fast and the calling attempt is ignored.

The enter LED output is stable on during the transmission of an announcement. The enter input has to be closed during the whole announcement.

The enter LED output starts toggling during an announcement when one or several areas are busy and / or when an event with a higher priority interrupts the announcement. In those cases it is necessary to repeat the announcement..

Until the user makes any changes, the defined selection stays memorized, even after deactivating the enter connection. Closing the DEL button two times deselects the entire selection.

COLLECTIVE CALL

The announcement is launched into all areas of the entire installation.

The procedure is similar to making a selective call. First, all areas of the installation are selected by activating the DEL input. Activating the enter input activates the collective call.

During the transmission of a call, all area and/or group LED outputs as well as the DEL LED output will be activated. The enter input has to be activated until the end of the announcement. Busy LED output activation is equivalent to the selective call.

GENERAL ALARM

CAUTION: **The launch of an alarm does not depend on a call station (kit) priority setting it had been activated from. Launching an alarm is possible from any microphone terminal at any time, even when the system is in stand-by mode. A running alarm is optically and occasionally also acoustically indicated at every call station (kit)**

A general alarm signal is always transmitted to all lines of the entire installation.
Activating the covered ALARM button launches the assigned alarm. The corresponding alarm LED output is activated during the transmission of the alarm signal. The alarm has priority over any announcement or other event, except for those that were ignited from the directing call station.
Activating the ESC input cancels the alarm.

SELECTIVE ALARM

CAUTION: **The launch of an alarm does not depend on a call station's (kit) priority setting it had been activated from. Launching an alarm is possible from any microphone terminal at any time, even when the system is in stand-by mode. A running alarm is optically and occasionally also acoustically indicated at every call station (kit.)**

A selective alarm allows transmitting alarm signals into selected lines. Similar to the procedure for making a selective call you first have to select areas or groups to which the alarm signal shall be transmitted. Afterwards, activating the covered ALARM key input starts the selective alarm. The corresponding ALARM LED output lights during the transmission of an alarm. Already now, you are able to enter the lines for the following alarm.
Activating the ESC button cancels the alarm.

CANCELING SIGNALS

Activating the Down_K input cancels alarms, chime signals and text message transmissions. The functionality of the ESC button (e.g. priority, local events) is configurable via IRIS-Net. Events can only be terminated at the call station kit they were launched from with the exception of the directing terminal (call station with the highest priority). Through the directing station it is possible to cancel any signal in progress.

SYSTEM ON / OFF

The Up_K button switches a PROMATRIX 8000 system on or off. Mostly, it is not intended that any call station kit be provided with the possibility to do so. However, this function can be programmed via IRIS-Net.

When the system is in stand-by mode, the up LED is deactivated. Activating the up contact turns the PROMATRIX 8000 system's power on which can take several seconds, while the corresponding up LED output is toggling on/off. Once the system is ready for operation, the up LED output is activated continuously (which also applies for all call stations (kit) of the entire installation).

To switch the system off, you have to activate the down_k for approximately 3 second. This is to prevent inadvertently turning off the system.

Activating an ALARM input or igniting an alarm sequence at external terminals automatically switches the PROMATRIX 8000 system's power on and boots the system.

SPECIAL FUNCTIONS

Generally, assigning a function to each input contact is possible. This allows utilizing a call station kit to control the lighting, door openers, blinds, etc.;

Even controlling volume settings is possible with the use of the up_k or down_k contacts.

When shipped, there are no special functions assigned. Please refer to the IRIS-Net documentation for more details.

3.3   Call station Kit Setup mode configuration

Configuring call station kit is preferably performed on the central unit via computer and using the IRIS-Net software. This represents the most convenient way without any limitation, while a call station kit itself offers only limited programming ability. For configuring the call station kit via the LC-display the call station kit has to be switched to setup mode as described in following section.

USING THE SETUP MODE

In setup mode the configuration of the call station kit itself and parts of the PROMATRIX 8000 system can be edited via the LC-display. Please note that several activation contact has different functionality between setup mode and operation mode. If needed, alternative functions should be marked for the end users.

1.   Activating first the up_k input and then the down_k input simultaneously engages a call station kit setup mode.
       The first menu item is indicated in the LC-display.
2.   Use the call station kit key inputs for menu navigation and editing parameters.
       See following pages for a detailed description of the call station kit menu.
3.   Activation from the ESC_k input by a several times returns to operation mode.

Menu structure

```
┌─────────────────────────┐   PROGRAM    ┌──────────────────────────────────────────────────┐
│    Operation mode       │─────────────▶│              PROGRAM 1 - 4                       │
└─────────────────────────┘              │                                                  │
            │                            │   ┌──────────────┐        ┌──────────────┐        │
      PROGRAM + ON                       │   │  Program 1   │◀──────▶│   Volume 1   │        │
            │                            │   └──────────────┘        └──────────────┘        │
            ▼                            │          ↕                                        │
  ┌───────────────────┐                 │   ┌──────────────┐        ┌──────────────┐        │
  │ Program assignment│◀────────────────│   │      :       │◀──────▶│      :       │        │
  └───────────────────┘                 │   └──────────────┘        └──────────────┘        │
            ↕                            │          ↕                                        │
  ┌───────────────────┐                 │   ┌──────────────┐        ┌──────────────┐        │
  │     Pre-Gong      │                 │   │  Program 4   │◀──────▶│   Volume 4   │        │
  └───────────────────┘                 │   └──────────────┘        └──────────────┘        │
            ↕                            └──────────────────────────────────────────────────┘
  ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
  │      Buzzer       │
  └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
            ↕                            ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
  ┌───────────────────┐                        SETUP
  │    Date / Time    │                 │                                │
  └───────────────────┘                     ┌──────────────────┐
            ↕                            │   │   CAN address    │        │
  ┌───────────────────┐                     └──────────────────┘
  │   LCD contrast    │                 │          ↕                     │
  └───────────────────┘                     ┌──────────────────┐
            ↕                            │   │   CAN baudrate   │        │
  ┌───────────────────┐                     └──────────────────┘
  │  LCD brightness   │                 │          ↕                     │
  └───────────────────┘                     ┌──────────────────┐
            ↕                            │   │  CAN termination │        │
  ┌───────────────────┐                     └──────────────────┘
  │     LED test      │                 │          ↕                     │
  └───────────────────┘                     ┌──────────────────┐
            ↕                            │   │ Firmware version │        │
  ┌───────────────────┐                     └──────────────────┘
  │     Password      │                 │                                │
  └───────────────────┘                 └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
            ↕
  ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
  │    Setup Menu     │◀────────────────────────┘
  └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```
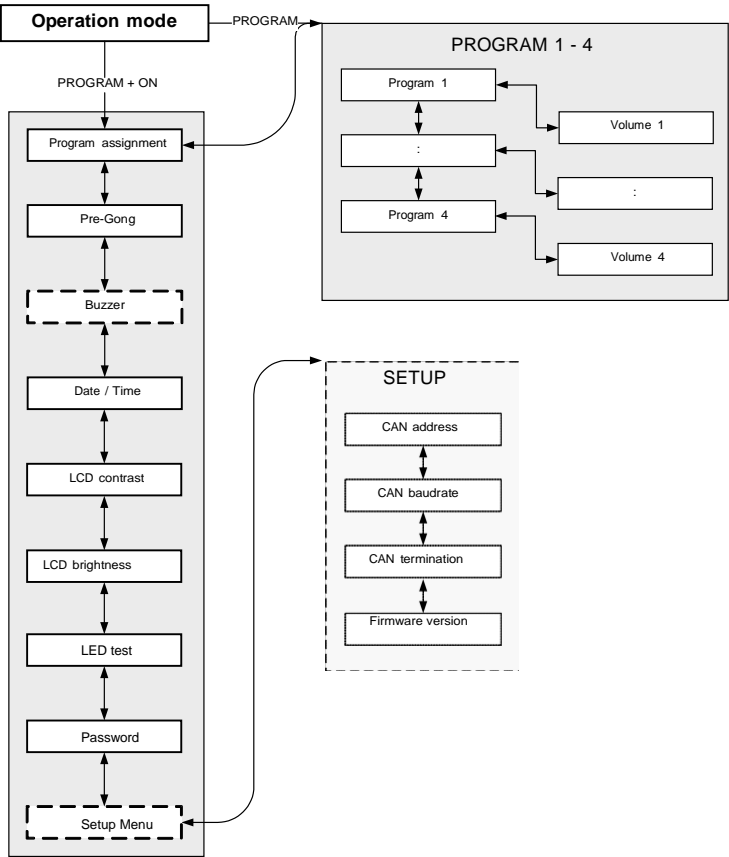
3.4   User menu

BUSINESS MUSIC ASSIGNMENT

This menu item allows the assignment of business music to individual areas and groups of the entire installation. Business music transmission has always the lowest priority. In single-program configuration the business music reproduction into all areas of the installation is attenuated for the time of an announcement. In double-program configuration parallel transmission of a business music program into rooms that are not part of an actual announcement selection is possible as well. If every line incorporates its own LF-output and separate power amplifiers, mixing announcements and business music is possible in any way.

Activating the return_k opens the *Program* sub menu. The sub menu is described in the following sections.

Program X

The list of available business music programs is shown. Select a program by activating the up_k or down_k inputs. If there are already areas or groups assigned to the currently selected program, the corresponding LED_1outputs are activated.

Activating a single or several switch inputs assigns the outputted program (business music channel) to the selected areas and groups.

HINT: The program assignment becomes effective immediately.

The program assignment stays memorized until the selection keys are activated again. If the led_1 of a selection input is activated, the program can not be assigned to this area or group

Activate the return input to open the *Volume X* menu, see following section.

Volume X

This menu item indicates the currently set volume of the business music program. The volume can be adjusted with a step size of 1 dB by using the up_k or down_k inputs. Activate and hold the up_k or down_k inputs for fast increment or decrement of volume.

HINT: The volume adjustment becomes effective immediately.

Activating the return_k input stores the set volume level and the display returns to the *Program X* menu.

PRE-GONG

It is possible to program a pre-chime signal that is heard before an announcement. The pre-chime signal is transmitted into the selected areas when activating the return_k input. You can begin with your announcement during the transmission of the pre-chime signal; you can talk "through" the pre-chime. Activating the return_k input opens the *Pre-Gong* dialog box where the current state of the chime („on" or „off") is indicated. Activate the up_k or down_k input to activate/deactivate the pre-chime. Activating the return_k input stores the setting and returns to the user menu.

BUZZER

The speaker output contacts can be programmed as acoustic alert signal. A speaker must be connected to the speaker output contacts before a sound can be heard. There is no integrated speaker on board. During failure, malfunction, or as general alert a buzzing sound is heard. When an alarm has been launched, the buzzing can be heard for the whole period of the alarm.

Activating the return_k input opens the *Buzzer* dialog box where the current state of the buzzer („on" or „off") is indicated. Activate the up_k or the down_k to activate/ deactivate the pre-chime. Activating the return_k input stores the setting and returns to the user menu.

HINT: This menu item is only available after entering the correct password.

DATE / TIME

The connected call station kits allow setting the date and time of the PROMATRIX 8000 system.
Activating the return_k input opens the *Date / Time* dialog box, which allows selecting
day, month, year, hour, minute or seconds by activating the up_k or down_k inputs.
Edit the parameters by activating the Key_1 to 10 inputs.
Key_s1 corresponds with "0", Key_s2 with "1" an so on. Up to key_s0 which corresponds with "9".
Activating the return_k input stores the setting and returns to the user menu.

LCD CONTRAST

Call station kits with use of a display allow the user to individually adjust LCD contrast and viewing angle. This allows optimum legibility from the user's location.
Activating the return_k input opens the *LCD contrast* dialog box where the user
can select a contrast setting in the range of 0 % to 100 % by activating the up_k or
down_k inputs.
Activating the return_k input stores the setting and returns to the user menu.

LCD BRIGHTNESS

Activating the return_k input opens the *LCD brightness* dialog box where the user can set the display brightness by activating the up_k or down_k inputs.
Activating the return_k input stores the setting and returns to the user menu.

LED TEST

This menu item allows a test of all call kit station LED output contacts including call station extension if connected to the call station kit. Activate the return_k button for activating the LED test, all LEDs output contact are toggling on and off. Activating the return_k input again deactivates the LED output contact test and returns to the user menu.

PASSWORD

HINT: The default password for enabling the menu items *Setup Menu* and *Buzzer* is: 2222

Activating the return_k input opens the *Password* dialog box where the user can enter a password by activating the Key_1 to 10 inputs. (as explained at "date/time" settings. Activate the return_k input to commit the password.

SETUP MENU

Activating the return_k input opens the Setup sub menu, see following section. If this menu item is not available, then it has to be activated via the *Password* dialog box.

3.5   Setup menu

FIRMWARE VERSION

This menu item shows version of the firmware that is actually installed in the call station kit.

CAN BUS:

The CAN bus address and the CAN BUS speed are set by hardware switches. (see chapter 2.4):

CAN TERMINATION:

The CAN bus termination is set by a hardware switch. (see chapter 2.4):

4. APPENDIX

4.1 CAN Bus principles

The communication with the Call station Kits is done by a CAN bus protocol.
The network topology used by the CAN bus is based on the so-called "bus or line topology", i.e. all participants are connected via a single two-wire cable (Twisted-Pair cable, shielded or unshielded) with the cabling running from one participant on the bus to the next, allowing unlimited communication among all devices. In general, it does not matter if the bus member is a call station, a DPM 8016 or another device. Thus, in fact, the call station kit can be connected at any place of the CAN bus.
However, the DPM has multiple CAN bus controllers on board. Each of them is used for his own purposes to optimize the system performance.
The CAN bus has to be terminated with a 120 ohms terminating resistor at both ends. If the termination is missing or an improper resistor value is used, network errors can occur as a signal is reflected on the bus at both bus ends. Because of the superposition of the reflection with the original signal, the original signal is blurred. This may result in the loss of data. In order to prevent or minimize reflections at the bus ends, terminators are used as they "absorb" the energy of the signal. Since the CAN interfaces of all EVI Audio appliances are galvanically separated from the rest of the circuitry, network cabling also carries a common ground conductor (CAN_GND) ensuring that all CAN interfaces in the network are connected to a common ground potential.

Illustration 4-1: CAN network
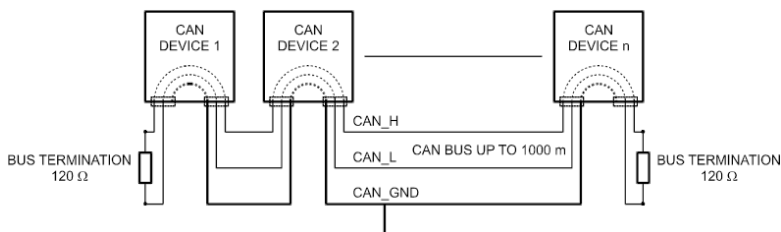
4.2 PMX-CSK interfaces

PCA BUS INTERFACE

The PROMATRIX CAN Audio (PCA) BUS interface is used for connecting the DPC 8015 CALL STATION or PMX-CSK CALL STATION KIT to the PROMATRIX 8000 system.

The 8-pole RJ-45 connector provides power supply, control interface (CAN bus), and audio connections. The microphone terminal has to be connected to a corresponding RJ-45 wall outlet using the supplied connection cord (3 m). The following figure shows the pin-assignment of PCA BUS socket and RJ-45 network cable.

HINT: **For wiring CAN, AUDIO IN or AUDIO OUT a twisted wire pair must be used in each case.**

Illustration 4-3: Assignment of PCA bus port


```
1: +24V DC
2: CAN_GND
3: AUDIO IN +        8: AUDIO OUT -
4: CAN_H (+)         7: AUDIO OUT +
5: CAN_L (-)         6: AUDIO IN -
```
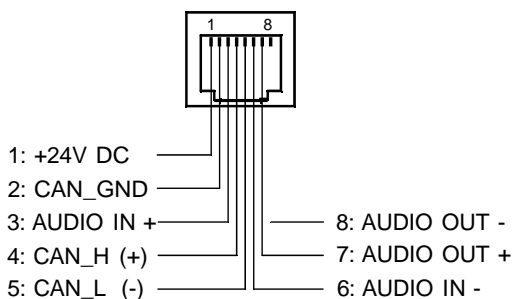
Illustration 4-4: Assignment of PCA bus jack

8: AUDIO OUT -
7: AUDIO OUT +
6: AUDIO IN -
5: CAN_L (-)
4: CAN_H (+)
3: AUDIO IN +
2: GND (CAN_GND)
1: +24V DC
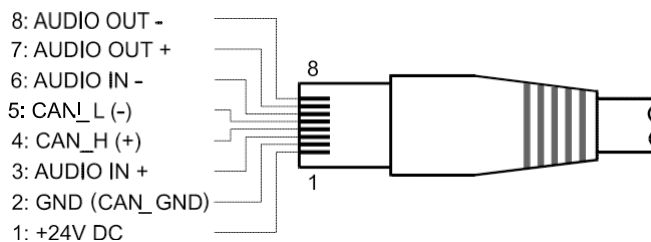
LINE INTERFACE

LINE interface used as audio input

External audio devices (e.g. CD player) can be connected to the LINE interface.
If configured in IRIS-Net this signal can be used for business music. The Call station kit LINE interface converts a stereo signal to a mono source.

Supervised PTT interface driven microphone connection

For connecting a supervised PTT microphone to the Call station kit the PTT in contact on the PMX-CSK must be used as input to activate the PTT microphone (like a fireman microphone DBB 9081/00). The PTT function of the corresponding call station kit must be configured within IRIS-Net software. Ensure that the correct jumper settings are assigned for the type of microphone used. The following figure shows the correct assignment of a DBB 9081/00 for using the PTT input.

Illustration 4-6: Assignment of PTT contact input

PMX-CSK

Connector	PMX-CSK signal
5 - Blue	PTT_PWR (VCC 3,3V)
4 - Black	PTT_in
3 - Red	Mic_in
1 - White	Mic_gnd
2 - Blank / Blanc	Agnd
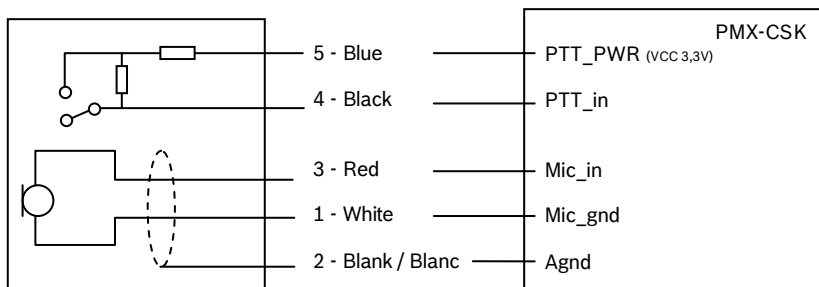
MIC INTERFACE
The mic input is used for a connection to a microphone.
A standard (PC / electret) microphone (V_{CC} = 3,3 V) may be used.
The following figure shows the wiring assignment.
Connect a LED to the Mic_LED to get feedback if the microphone is activated or not.

EXT INTERFACE
The EXT interface is used for connecting a DPC 8120 CALL STATION EXTENSION.

4.3 DPC 8120 CALL STATION EXTENSION

Up to five DPC 8120 CALL STATION EXTENSIONS can be connected to a PMX-CSK CALL STATION KIT. The call station extension provides 20 freely programmable function or zone keys having a green and yellow LED each. CALL STATION EXTENSIONS are employed whenever a higher amount than 15 lines need to be accessed and when all stations kits can be connected or when an installation's requirement of group and special function keys exceeds the existing amount of selection keys. The call station extension has a provision of Key labeling.

Illustration 4-2: DPC 8120

INSTALLATION

1.   Disconnect the call station kit
2.   Put the call station Kit and call station extension side by side. The CN200 Call station Kit extension connection must be used to connect a DPC 8120 to the call station kit.

3.   Connect the CN200 output to the EXT port of the call station extension using the connection wire (3) which comes with the call station kit extension. (the connector has to snap into the port)
4.   Assign a unique address to each call station extension using the EXTENSION ADDRESS dip switch. For settings, please refer the Call station extension manual

HINT: If more than one call station extensions are used, ascending EXTENSION addresses (1...5) must be assigned from left to right.

5.   Reconnect call station kit
6.   Configure call station extension using IRIS-Net PC software
HINT: If a DPC 8120 is replaced the same extension ADDRESS must be assigned to the new DPC 8120.

5. Technical data

5.1 Overview

Main Section*

CAN Interface	10, 20 and 62.5 Kbps
Maximum MIC Input Level	-21dBu
Maximum LINE Input Level	+4dBu
Maximum NF Output Level	+12dBu
Frequency Response	200 Hz ~ 16KHz, +0 / -3 dB
Nominal NF Output Level	+6dBu, balanced
Nominal Voltage of Main Power Supply	24 VDC (-10% / +30%)
Nominal Current Consumption for Main Power Supply	< 100 mA
S/N Ratio(MIC and LINE Input; NF Output.)	≥60 dB
Operational Temperature Range	-5°C ~ +45°C
Max. Line length	1000 m @10kbps

Customer Section
- Buttons

Nominal Voltage	3.3VDC
Max. current	< 100 mA

- PTT Input Switch

Nominal Voltage	3.3VDC
Max. current	< 100 mA

- LED's

Nominal Drive Current	5 mA for each LED
Maximum Drive Current	20 mA for each LED
Nominal Drive Voltage	5Volts by internal power supply for 5V point lighting LEDs 24Volts by external power supply for 24V ring lighting LEDs

Additional Power Supply for Industrial buttons Backlight

Nominal Voltage	24 VDC (-10% / +30%)
Nominal Current Consumption	< 300 mA
Maximum Supply Current	< 500mA @24 V

External Speaker

Nominal Resistance	8 ohm
Power Rating	1.5 Watts
Power Maximum	2 Watts
Nominal Operating Voltage	3.5 Volts

Normal Microphone (LBB9081/00 reference)

Sensitivity	3.1mV/Pa +/-4 dB
Frequency response	280Hz to 14KHz
Rated Output Impedance	500 ohm
Polar Pattern	Omnidirectional
Switch	On/off with remote control contact

5.2   CALL STATION KIT limits

Main Power Supply Voltage	15 to 58 VDC
Maximum Supply Current (External Power Supply for Lighting; Without Extensions)	< 80mA / 24 V < 110mA / 18 V
Maximum Supply Current (Internal Power Supply for Lighting; Without Extensions)	< 150mA / 24 V < 200mA / 18 V
Maximum Supply Current (External Power Supply for Lighting; With 5 Extensions DPC 8120)	< 180mA / 24 V < 250mA / 18 V
Maximum Supply Current (Internal Power Supply for Lighting; With 5 Extensions DPC 8120)	< 260mA / 24 V < 350mA / 18 V

5.3   ACCESOIRES

- DPC 8120 Call station extension kit
- EB DPC (button with cover)
- Key-Lock Switch (NRS 90231)

5.4   STANDARDS

CE Emission EN55103-1
CE Immunity EN55103-2
Environmental IEC60068
Safety EN60065 & IEC60065

EN54-16 and EN60849,
EN60945
IEC/EN60065, CE/EMC EN55103-1/2 should be also included.

The product is conform to
WEEE (Waste Electric and Electronic Equipment)
RoHS (Restriction of the Use of Hazardous Substances)