

Cerberus PACE Compact

Voice alarm panel Compact 400

PC1001-A3, PV1001-A1



EN 54-16-certified audio components for demanding, digital, and network-based announcement and evacuation applications.

- Fully redundant configurable system with no single point of failure
- Ethernet interface ('PACE-Net') for networking with other system components
- Serial interface ('PACE-Bus') for connecting to internal and external components
- Real-time configuration, remote maintenance, and remote monitoring via the 'PACE-Design' system software
- Real-time audio transmission and integrated real-time recorder for delayed announcements
- Analog audio inputs and outputs, plus analog and digital control inputs and outputs
- Automatic volume control, compressor and limiter
- Speaker line monitoring with impedance monitoring or EOL element
- Integrated micro SD card for alarm messages and music
- Compatible, industry-standard network components available
- Networking via copper cables or fiber-optic cables

System

Cerberus PACE Compact is a network-based voice alarm and announcement system that complies with the requirements of EN 54-16 and allows for a decentralized and redundant system structure. It is an important feature of the system that the critical risks of single point of failure vulnerabilities are eliminated.

A typical Cerberus PACE Compact system is comprised of digital audio matrices, amplifiers, operating terminals, and call stations. Ethernet switches are used to link these components to a network via copper or fiber-optic cables.

Cerberus PACE Compact systems are configured in real-time using the 'PACE-Design' system software.

An EN 54-4-certified power supply guarantees uninterrupted operation and high system availability.

Cerberus PACE Compact is designed for the following applications:

- Alarm and evacuation
 - Automatic activation of acoustic alarm and evacuation announcements through a connected hazard detection system, such as a fire detection system
 - Manual activation of acoustic alarm and evacuation announcements by trained staff
 - Live announcements made by trained staff
 - Playback of announcements recorded in advance
- Announcements
 - Background music
 - Live announcements, with optional delay feature
 - Playback of announcements recorded in advance

Cerberus PACE Compact covers both applications within one integrated system. It complies with the stringent requirements that apply to voice alarm systems in line with EN 54-16 and the extremely high standards for the audio quality and convenience of a standard announcement system.

Wall cabinet

The robust wall cabinet provides a space-saving and secure solution for accommodating Cerberus PACE Compact system components, such as the audio matrix, power amplifiers, Ethernet switches, and the power supply.

It is pre-assembled in accordance with the requirements for Cerberus PACE Compact system components to provide maximum protection, even given tough ambient conditions.

The Cerberus PACE Compact cabinets provide an active ventilation system, to guarantee that system components can perform their maximum functions at the specified operating temperatures. This ensures that system components work reliably even at the limits of the specified workload and the outside temperature.

Digital audio matrix board

The Cerberus PACE Compact audio matrices process audio signals from the digital network, the internal digital memory (flash), the micro SD card, and the analog audio inputs. The audio matrices automatically digitize analog signals, so they can be processed further. Each audio signal is assigned to an audio channel. A Cerberus PACE Compact audio matrix can manage up to 255 audio channels.

Cerberus PACE Compact audio matrices are standard network participants. Audio matrices are connected to the network using Ethernet switches.

The parameters for audio transmission within the network are configured using the 'PACE-Design' system software. The audio matrices have sampling frequencies of up to 48 kHz / 24 bit to ensure compliance with the most stringent audio quality requirements. The Cerberus PACE Compact audio matrices transmit up to 64 audio channels simultaneously within the network. The constant latency of 4.6 ms presents in audio signals from the analog input, e.g., a microphone, up to the point of being converted back to analog and output at the speaker lines. This very slight delay allows for Cerberus PACE Compact systems to be used in 'pro sound' applications.

The network also transmits all the control signals simultaneously as the audio signals.

The Cerberus PACE Compact audio matrices PC1001-A3 and PC1002-A3 monitor the correct function of the installed amplifiers. In case of a fault, they can switch to the installed backup amplifiers.

The Cerberus PACE Compact audio matrices PC1001-A3 and PC1002-A3 monitor the connected speaker lines for open lines, short circuits and ground faults. The monitoring can be conducted via speaker line impedance supervision or via EOL elements PCA2004-A1. Speaker loops with short circuit isolators PCA2005-A1 can be connected to the audio matrices PC1001-A3 and PC1002-A3.

Power amplifiers

The power amplifiers PV1001-A1 amplify low-level audio signals to 100 V line voltage with a maximum output power of 200 W. The amplifiers use the latest digital technology for maximum effectiveness.

The power amplifiers PV1001-A1 are powered with DC 24 V.

In emergency power operation, the amplifiers boast lower power consumption in standby mode.

Each power amplifier is equipped with a maintenance-free fanless cooling system. The power amplifiers are also fitted with circuit breakers to provide protection against idling, short-circuit, overheating and power surges.

Integrated power supply

The integrated AC 230 V power supply unit provides DC 24 V to all Cerberus PACE Compact system components.

The power supply unit ensures that the Cerberus PACE Compact system and the externally mounted components continue to operate without interruption in case of an 'AC 230 V' line voltage failure by providing a DC 24 V from the emergency batteries.

The power supply unit also charges, monitors, and protects the emergency batteries. The batteries are charged in accordance with the standard EN 54-4 based on their nominal capacity.

The power supply unit is equipped with a converter, an over-voltage protection switch, and the battery deep discharge protection. The deep discharge protection ensures that the batteries never fully discharge, thus preventing battery damage.

The power supply unit is suitable for a supply system with a nominal voltage of 230 V / 50 Hz.

Fault messages are displayed visually on the front and with relay outputs reported.

PC1001-A3



'Voice alarm panel Compact 400'

Cabinet

- Robust wall cabinet, steel, with lockable front door
- External dimensions (W x H x D mm): 710 x 950 x 305
- Active ventilation
- Roof panel with cable entry points
- Integration into a 19" cabinet possible

Cabinet assemblies

- Pre-installed digital audio matrix board
- Option slots for up to 6x PV1001-A1 Power amplifier (1x200W)
 - 4 main amplifiers
 - 1 backup amplifier
 - 1 pilot tone amplifier
- 2 pre-installed main amplifiers PV1001-A1 Power amplifier (1x200W)
- Option slots for up to 2x PN1001-A1 Ethernet switch (1x4)
- Option slots for 1x PN1002-A1 RS485 module (1 port)
- Pre-installed EN 54-4 power supply

Digital audio matrix board

- 4 analog audio inputs and 4 analog audio outputs
- 16x 100 V speaker lines with jumper configuration
- 8 digital control inputs and 8 digital control outputs
- Ethernet-based 100 Mbit/s network interface
- Serial interface ('PACE-Bus') for connecting to internal and external components
- Card reader with pre-installed micro SD card for alarm messages and music
- Simultaneous transmission of up to 64 digital audio channels in studio quality (48 kHz/24 bit) with a constant latency of 1.33 ms
- Real-time audio transmission: Constant latency 4.6 ms analog-in/analog-out
- Integrated real-time recorder for delayed announcements
- Speaker impedance and line monitoring in alarm mode and non-alarm mode
- Speaker line monitoring via EOL element
- Speaker line monitoring and short-circuit isolation with loop isolators
- Automatic volume control, compressor and limiter

Power amplifiers

- 2 pre-installed PV1001-A1 Power amplifier (1x200W)
- Installed as main power amplifiers
- Can be mounted as backup or pilot tone amplifiers
- Total audio power of PC1001-A3: max. 800 W

Power supply

- EN 54-4-certified
- Charging, monitoring and protection of emergency power batteries
- Power supplied to all system components via DC 24 V
- Emergency power supply to all system components
- Input voltage 230 V / 50 Hz
- Max. capacity of emergency batteries: 100 Ah

PV1001-A1**'Power amplifier (1x200W)'**

- For expansion of the PC1001-A3 Voice alarm panel Compact 400
- 10 W in standby mode
- Protected against idling, short-circuit, overheating, DC
- Easy installation on the digital audio matrix board
- 3x status indicator LEDs: Operate, Fault, Clip
- 2x status indicator contacts: DC power supply, output

Inputs

- DC 24 V power supply
- Analog audio input or plug-and-play module

Outputs

- 1x 100 V power output, 200 W

Type Overview

Order numbers

Type	Designation	Order number
PC1001-A3	Voice alarm pan. Compact 400	S54451-B200-A1
PV1001-A1	Power amplifier (1x200W)	S54451-B204-A1

Product documentation

You will find more information on the Cerberus PACE Compact system and its components in the following documents:

Title	Document ID
IT security policies	
Cerberus PACE Compact – IT security policies	A6V11439692
System documentation	
Cerberus PACE Compact – planning	A6V11899877
'PACE-Design' – configuration	A6V10429097
Cerberus PACE Compact – mounting / installation	A6V11899867
Cerberus PACE Compact – operation	A6V11899865
Data sheets	
System data sheet	A6V11868429
Voice alarm panel Compact 400	A6V11940263
Voice alarm panel Compact 1000	A6V11940268
Network components	A6V11940273
Operating and call stations	A6V11940274
Power supply and batteries	A6V11940272
Accessories and options	A6V11940275
Loop isolator (100V)	
Loop isolator (100V) - technical manual	A6V11571319
Environmental declaration	
Cerberus PACE – environmental declaration	A6V11948779
Cerberus PACE Compact – environmental declaration	A6V12161830

Download center

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

Notes

Safety



⚠ CAUTION

National safety regulations

Failure to comply with national safety regulations may result in personal injury and property damage.

- Observe national provisions and comply with the appropriate safety regulations.

Disposal



The device is considered an electronic device for disposal in accordance with the European Guidelines and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.
- Dispose of empty batteries in designated collection points.

Environmental compatibility

The Environmental Product Declarations (EPDs) for 'Cerberus PACE VANSYS' and 'Cerberus PACE Compact VANSYS' contain data and information on the product's environmentally compatible design features and its ratings; for example, its RoHS conformity, composition, packaging, environmental benefits, and disposal information.

You can obtain the documents A6V11948779/A6V12161830 via the following Internet address:

<https://siemens.com/bt/download>

Enter the document ID in the search field.

Guarantee

The application-specific technical data is guaranteed only in combination with 'Cerberus PACE' and 'Cerberus PACE Compact' Siemens products. If third-party products are used, any guarantee provided by Siemens will be invalidated.

Voice alarm panel Compact 400

	PC1001-A3
Supply	
Power supply	AC 230 V
Current consumption	6 A
Number of inputs / outputs	
Audio inputs 0 dB (external source)	4
Audio inputs 100 V (amplifier)	4
Audio outputs 0 dB (to amplifier / external)	4
Speaker lines 100 V	16
Analog control inputs 0...10 V	8
Digital inputs	8 Schmitt trigger inputs
Digital outputs	8 open collector outputs
Fault indicator relay	1
Digital inputs	
Input voltage	Low <3 V / High >7 V
Max. permissible voltage	36 V
Input current at 10 V / 12 V / 24 V	~5 / - / - mA
Digital outputs	
Max. voltage	48 V
Max. current	500 mA per output
Analog measuring inputs	
Measuring range	DC 0...10 V
Resolution	8 bit
Input current at 10 V	~0.3 mA
Interfaces	
Serial interfaces	1x RS485 9600, 19200, 57600, 115200 Baud
Ethernet connection	2x RJ45 (CAT 5) 100Base-TX (IEEE 802.3u)

	PC1001-A3
Audio properties	
Standard audio output power	400 W
Max. audio output power	800 W
Frequency band	60 Hz...20 kHz / -1 dB
Distortion factor	<0.05 %
Total dynamic range	103 dB
Inputs:	Symmetrical Max. amplification freely selectable -20 dB...+60 dB
<ul style="list-style-type: none"> Phantom voltage 	12 V Optional +24 V or +48 V
<ul style="list-style-type: none"> Input impedance 	6.6 kOhm
Outputs:	Symmetrical
<ul style="list-style-type: none"> Max. output level 	+15 dB
<ul style="list-style-type: none"> Output impedance 	300 Ohm
Ambient conditions	
Operating temperature	-5...+40 °C
Air humidity	10...90 % rel.
Dimensions and weights	
W x H x D mm	710 x 950 x 305
Weight	55 kg (without batteries)
Weight for max. configuration	125 kg (with batteries)
Protection category and color	
Protection category (IEC 60529)	IP30
Standards	EN 54-16

Power amplifier (1x200W)

	PV1001-A1
Output 100 V	1x 200 W (Burst) 1x 100 W (RMS)
Supply voltage, AC	-
Supply voltage, DC	DC 24 V (18...30 V)
Distortion factor at 1 kHz/100 V	<0.1 %
Frequency band -3 dB	25 Hz...22 kHz
Input sensitivity	1 V at 20 kΩ
Input impedance at 1 kHz	20 kΩ
Unweighted signal-to-noise ratio at 1 kHz	95 dB
Signal-to-noise ratio	102 dB
Signal inputs	Electronically symmetrical
Current consumption	
Efficiency	<91 %
Operation, no signal, all 'Ch' active at DC 24 V	0.35 A / 8.4 W
Operation, no signal, all 'Ch' active at AC 230 V	-
Full load sine at DC 24 V	10 A
Full load sine at AC 230 V	-
Protection	Over-current, overheating
Operation/fault messages	
Open collector outputs	Fault, Clip
LED at amplifier	Operate, Fault, Clip
LED at adapter board	-
Remote activation	
Input amp. ON (optional)	ON: open Off: >2.8 V @ 100 R Max. DC 5 V
Connections	
Signal inputs, operation/fault messages	Board-to-board connector
Power outputs	Board-to-board connector
DC inputs	Board-to-board connector
Mains voltage input	-

	PV1001-A1
Ambient conditions	
Operating temperature	-5...+40 °C
Storage temperature	-40...+85 °C
Operating in humid environments (without moisture condensation)	10...90 % rel.
Storage in humid environments (without moisture condensation)	5...90 % rel.
Dimensions and weights	
W x H x D mm	120 x 100 x 60
Housing type	Open frame
Weight	380 g
Protection category and color	
Protection category (IEC 60529)	-
Color	-
Included in delivery	Mounting material
Standards	EN 54-16

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