DYNACORD

PROMATRIX 9000

Public Address and Voice Alarm System

en Release notes

Table of contents

1 Introduction

1.1 Release history

Release date	Released version	Reason
2020-12	1.20	Official release.
2021-06	1.40	Official release.
2021-10	1.41	Official release.
2021-12	1.42	Official release.
2022-05	1.50	Official release.
2022-08	1.60	Internal release.
2022-11	1.61	Official release.
2022-12	1.70	Official release.
2023-02	1.71	Official release.
2023-04	1.80	Internal release.
2023-05	1.81	Official release.
2023-07	1.90	Internal release.
2023-08	1.91	Official release.
2024-04	2.00	Official release.
2024-07	2.10	Official release.

1.2 Scope

The release notes give an overview of new functionality compared to the previous release. It reports known limitations and possible workarounds.

1.3 Installation and configuration

Detailed installation and configuration instructions are provided in the installation manual and configuration manual of PROMATRIX 9000. Both manuals can be downloaded from www.dynacord.com in the PROMATRIX 9000 product section.

When a PROMATRIX 9000 system is installed for voice alarm purposes, take notice of the installation and configuration directions in the checklist for compliance to the EN 54-16 and EN 54-4 standards. The checklist can be found at the end of the installation manual.

1.4 Use latest software

Before operating the device for the first time, make sure that you install the latest applicable release of your software version. For consistent functionality, compatibility, performance, and security, regularly update the software throughout the operational life of the device. Follow the instructions in the product documentation regarding software updates.
The following links provide more information:

- General information: https://dynacord.com/support/product-security/

– Security advisories, that is a list of identified vulnerabilities and proposed solutions: https://www.boschsecurity.com/xc/en/support/product-security/security-advisories.html

Dynacord assumes no liability whatsoever for any damage caused by operating its products with outdated software components.

2 Supported products and compliance to voice alarm standards

PROMATRIX 9000 hardware products

<table>
<tr><th>Product</th><th>SW version</th><th>EN 54</th><th>ISO 7240</th><th>UL 2572</th><th>DNV-GL</th></tr>
<tr><td>PRA-PSM24</td><td colspan="5">–</td></tr>
<tr><td>PRA-PSM48</td><td colspan="4">–</td><td>✓</td></tr>
<tr><td>PRA-ES8P2S
PRA-SFPLX
PRA-SFPSX</td><td>–</td><td colspan="4">✓</td></tr>
<tr><td>PM9-SCL
PM9-AD608
PM9-EOL
PM9-MPS3
PM9-CSLD
PM9-CSLW
PM9-CSE</td><td>1.00</td><td colspan="4">✓</td></tr>
<tr><td>PRA-EOL-US
PRA-FRP3-US</td><td>1.00</td><td colspan="2">–</td><td>✓</td><td>–</td></tr>
<tr><td>PM9-AD604</td><td>1.10</td><td colspan="4">✓</td></tr>
<tr><td>PRA-ANS</td><td>1.40</td><td colspan="2">✓</td><td colspan="2">–</td></tr>
<tr><td>PRA-CSBK
PRA-CSEK</td><td>1.41</td><td colspan="4">–</td></tr>
<tr><td>OMN-ARNIE
OMN-ARNIS
IE-5000-12S12P-10G</td><td>1.50</td><td colspan="2">✓</td><td colspan="2">–</td></tr>
<tr><td>PRA-IM16C8
PM9-SCS</td><td>1.91</td><td colspan="2">✓</td><td colspan="2">–</td></tr>
<tr><td>PRA-WCP-EU
PRA-WCP-US</td><td>2.00</td><td colspan="4">–</td></tr>
</table>

PROMATRIX 9000 software licenses

License	SW version	EN 54	DNV-GL
PRA-LSPRA	1.50	✓	–
PRA-LSCRF	2.10	✓	–

3 Added functionalities

3.1 Release 2.10

- Added support for the call stacking and time-shifting functions through the installation of the PRA-LSCRF License call recording and forwarding. This license allows to record calls for automatic playback to previously occupied zones. It is also possible to time-shift recorded calls, which suppresses any acoustic feedback through delayed broadcast. Record and forward up to eight calls simultaneously. Storage a maximum of 30 minutes of live speech.
- Implemented a new configuration item in the *System settings* to disable the emergency control from the Open Interface client. When enabled, this option prevents the Open Interface client from triggering emergency calls and acknowledging and resetting the emergency state. This configuration setting is mandatory for DNV-GL Type Approval in Maritime applications.

3.2 Release 2.00

- Added support for the new Wall control panels, PRA-WCP-EU, EU-style, and PRA-WCP-US, US-style. Each device provides convenient local control of background music (BGM) in a zone covered by a PROMATRIX 9000 sound system.
- Release of the new PRA-CSEK Call station extension kit to create dedicated, fully customized operator panels. The PRA-CSEK can take the place of two PM9-CSE, as it offers the same functionalities without the integrated switches and indicators.
- Added the possibility to download network snapshots as .txt files that show the detected and the supervised network connections.
- Implementation of a visibility button in the passwords fields of the configuration software webpages. The default is for the password to be hidden.
- Fixed a critical-severity CVSS Rating (9.8) vulnerability. The addressed fix safeguards the system against improper External Control of Critical State Data. For more details, refer to our Security Advisory BOSCH-SA- 000000-BT, published at our Security Advisory web page https://www.boschsecurity.com/xc/en/support/product-security/security-advisories.html.
- Fixed a high-severity CVSS Rating (8.1) vulnerability. The addressed fix safeguards the system against improper Cleartext Transmission of Sensitive Information. For more details, refer to our Security Advisory BOSCH-SA- 000000-BT, published at our Security Advisory web page https://www.boschsecurity.com/xc/en/support/product-security/security-advisories.html.

3.3 Release 1.91

- Added support for the new PRA-IM16C8 Control interface module. Each device provides 16 configurable, supervised control inputs, eight voltage-free control outputs, and two trigger outputs with connection supervision. These control inputs and outputs provide an easy and logical connection to auxiliary equipment, such as fire alarm systems.
- Added support for the new PM9-SCS System controller, small. It has all the features of the large system controller except for some limitations regarding the size of the system:
  - Control of PROMATRIX 9000 systems with a maximum of six amplifiers.
  - The number of static Dante audio streams to use as interface with 3rd party systems is limited to eight.
- Implementation of a new way to recover from a failed upgrade.

Notice!
Do not downgrade the PRA-IM16C8 below 1.91
While the configuration of the PRA-IM16C8 Control interface module is already available with software version 1.81, the device does not support any version below 1.91. Do not use the PRA-IM16C8 with firmware version 1.81.

3.4 Release 1.81

- You can configure the minimum TLS version for the open interface protocol to increase the security of the communication. By default, TLS 1.2 is disabled to enforce TLS 1.3 for the web-server.
- A firmware upgrade of the PRA-ES8P2S to version V1.01.09 solves the unplanned restarts of the PRA-ES8P2S that happened when SNMP monitoring was enabled. Download the updated firmware from www.boschsecurity.com.

Notice!
Do not use the PRA-IM16C8 with the 1.81 software version.

3.5 Release 1.71

- The system controller can now connect to an increased number of devices. This improves the performance when starting systems with many call stations.

3.6 Release 1.70

- Implementation of a SIP/VoIP interface for telephone paging with live speech. A SIP extension number can be linked to a PROMATRIX 9000 call macro. It is possible to configure call priority, start and end chimes, and the destination of the call. Besides telephone paging, the SIP/VoIP function can be used as another interface for audio and control to PROMATRIX 9000 from 3rd party systems such as intercom, nurse call, and passenger information systems.
- Implementation of a lock function to protect a call station placed in public against unauthorized access. To gain access to the call station, the operator must enter a User number and a Pin code in the LCD. The call station will automatically lock out after the lock timer expires or when the user presses the logout button.

3.7 Release 1.61

- Support of static IP address allocation is now available in addition to DHCP and Link Local address allocation. The Network configurator facilitates the assignment of IP addresses to either DHCP or static IP mode. It is a separate PC-based software tool included in the release package available at www.dynacord.com.
- It is possible to assign up to 10 standby controllers to one duty controller. All system controllers must be in the same subnet. This feature is especially convenient for a large setup with multiple system controllers. If a connection between system controllers fails, they continue to operate as separate self-sufficient systems, within their locally connected audio zones and call stations.
- The bug where a keypad extension mismatch of a Call station was not always reported correctly was fixed.

3.8 Release 1.50

- Support of the multi-controller functionality to allow the installation of a PROMATRIX 9000 system with multiple subsystems, each with its own system controller. Every additional system controller expands the system scalability. All subsystems are self-contained as they can operate independent of the other subsystems. The subsystems can also operate as a single large system under the control of a master or a superordinate system. In a multi-controller system, it is possible to make calls from the master system to the subsystems. For emergency purposes, the multi-controller system operates as a single large system: The emergency state and the fault state are propagated from subsystem to master and from master to subsystem. This feature complies with emergency standards, but it is not compliant with DNV-GL Type Approval.
- Support of the licensing mechanism to enable multi-controller systems, as well as other future functionalities.
- OMNEO platform upgrade to enable multi-VLAN support for PROMATRIX 9000. PROMATRIX 9000 can now be installed in networks that are divided by a router in multiple sub networks.
- Support of OMN-ARNIE and OMN-ARNIS supervision. In case of redundant deployment, both the primary and the secondary devices are supervised. Multi-VLAN installations require the use of OMN-ARNIE devices to enable device discovery and audio clock synchronization.
- Switch supervision based on secure SNMP V3: The Cisco IE-5000-12S12P-10G router/switch and the PRA-ES8P2S (software version 1.01.06 or higher) are part of the network supervision to be able to detect defective or redundant network connections The switches are supervised for presence and power supply.
- Support of the single press push-to-talk button (PTT) for a business call station: A call station in sleep mode is activated with the first press of the PTT button. The call starts immediately. This feature is especially convenient when no extension keypad is connected and a handheld microphone is in use.
- The bug fix that a battery leakage fault could not be reset after disconnecting the battery was resolved.
- High audio level on amplifiers no longer leads to audio interruptions due to false positives in the 100 V line supervision.

3.9 Release 1.42

- A potential weak point in the audio path supervision has been fixed. In rare cases, it could happen that an Amplifier channel fault (caused by a broken H-bridge MOSFET) was not detected.
- A bug fix has been implemented to resolve the issue that in some cases a System controller watchdog reset occurred while making a call on a Zone where volume was controlled by an Ambient Noise Sensor.
- In accordance with the North American standard for Mass Notification Systems, the software language set of English (UL 2572) has been revised and expanded in UL 2572 terminology.
- The Call station indicator test has been extended to the LCD display, in cadence with the microphone LED ring, the display will show the identical colors.

3.10 Release 1.41

- A bug fix has been implemented to resolve the issue that under certain conditions an “Amplifier channel fault” with “Severity: High” got the status “resolved” when on the same amplifier channel a fault occurred with “Severity: low” priority.
- For compliance to the Chinese GB16806 standard the translation of “EOL fault” into Simplified Chinese language was changed to a translation in standard-compliant terminology.
- A bug fix has been implemented to solve an issue that appeared when Background music was muted. When automatic volume control was configured in combination with BGM there was a possibility that when BGM was muted, amplifiers started to disconnect/connect to the system.
- A bug was fixed that in rare cases a high priority call stopped all running calls that were playing a message in the start chime phase.

3.11 Release 1.40

- Support for the new PRA-ANS Ambient noise sensor. The unit monitors changing ambient noise levels for automatic adjustment of announcement or background music levels (AVC - Automatic Volume Control). This insures the public address audio is set at a configurable level above the ambient noise in order to guarantee intelligibility of announcements, yet at a comfortable level. Upon failure or disconnection of the device, the announcement volume of the subscribing amplifier channels is automatically set to its maximum within the applicable control range.
- Support for the PRA-CSBK Call station kit, basic, which will be available by November 2021. The Call station kit, basic is an open frame call station to create dedicated, fully customized control panels with a CAN bus interface.
- Make announcement with zone selection is now available as an additional function for extension buttons. This function can be assigned to buttons and is similar to the Make announcement function, but without the pre-configured zone / zone groups selection. Using the Make announcement with zone selection function, a pre-recorded message, based on a call definition, can be started aborted/stopped in one or more manual selected zones / zone groups.
- Zones and zone groups can now be configured to the call station’s Push-To-Talk button to make live announcements without connecting to a call station extension. It simplifies the handling of basic calls that are always going to the same zone or zone group. Zone selection from a Call station extension can be done in parallel.
- Traditional Chinese is available and added to the language selection for the Graphic user interface of the PM9-CSLx.
- Functionality is added in preparation for certification to the North American standard for mass notification systems:
  - English (UL2572) is available for language selection. This language selection is used for mass notification systems and will set Configuration software and Graphic user interface of the PM9-CSLx to a specific English, that complies to UL terminology.
  - For each device a check box is added to General setting, which is set to Emergency relevant on default. Troubles (faults) that occur on devices that have assigned Emergency relevant will reported as Mass notification system faults.
  - Class Mass notification is a new option in General settings of PM9-CSLx. Class Mass notification let the Call station act as a First responder panel for Mass Notification Systems (MNS). Emergency group is a new set of functionality, that

    allows multiple first responders (fire fighters) to control the evacuation of a building from multiple locations in which each has, one or more, First responder panel(s) (FRP’s) in use.
  - Transfer of control is a new function, that is only available when Class: Mass notification and Emergency group are set. In order to avoid confusion among the first responders (fire fighters), actions are only possible on one First responder panel at the time. That First responder panel is then 'in control'. It is possible to force the 'in control' state and to grant or deny a request.
- A bug fix was implemented to resolve the problem causing false positives on the amplifier fan supervision.

3.12 Release 1.20

- An important bug fix has been implemented. A Call station may lose its state when going through a reset. When a high priority call was started from this Call station before the reset and the call is configured as a continued call, it might have the consequence that it is impossible to stop the continued call or to change to other emergency calls during an evacuation. Users of the previous 1.00 and 1.10 software release must upgrade!
- The configuration webpages are available in additional languages: Czech, German, Spanish, English, French, Italian, Dutch, Korean, Polish, Portuguese, Russian, Slovakian, simplified Chinese.
- UL amplifier mode is added to system settings. When the amplifiers run in this mode, they comply to the requirements of UL with regards to temperature limitations.
- In a system with System controller redundancy, the Dante audio routing for inputs and/or outputs is synchronized with the redundant System controller. The Dante audio routing is configured for the duty System controller. As soon as the backup System controller takes over the Dante audio routing is automatically recreated.
- Fixes have been applied to the following security vulnerabilities of the configuration web interface. These changes only affect the web interface which is only used during configuration of the system:
  - In the web configuration of the System controller a Cross-Site Request Forgery (CSRF) vulnerability has been found. This has been solved by adding verification data to the web pages.
  - In the web configuration of the System controller a Cross-site Scripting (XSS) vulnerability has been found. This has been solved by sanitizing the data that is received from the web pages better to avoid that script data is fed back to the browser.
  - Additional HTTP headers are added to the web pages giving instructions to the browser in helping to avoid cross-site attacks.

4 Notices

System characteristics that are normal and intended, but possibly not expected.

4.1 Documentation and software download

PROMATRIX 9000 product documentation and software is available from www.dynacord.com > PROMATRIX 9000 product section.

4.2 Software update

If an updated configuration was created with a newer software version, it should not be used on an older software version.
Always store and keep backups of the current configuration before upgrading.

4.3 Fault event - Temperature too high

If the amplifier detects temperature higher than +90 °C, the output level is attenuated by -3 dB in order to counteract this. The -3 dB attenuation is removed after the fault is acknowledged and reset. Before the fault can be cleared the temperature needs to drop below +80 °C.

4.4 Load measurement

The amplifier loudspeaker load measurement is part of the configuration (Diagnose > Amplifier loads). It is an essential step in the system configuration to do a load measurement to check whether the amplifier channels and the amplifier are not overloaded. Without this check, the amplifier channel volume is automatically set to -12 dB to protect the amplifier from unexpected overload conditions in case of an alarm situation.

4.5 Audio equalizer

The DSP audio equalizers have an internal headroom of 18 dB. Do not use audio equalizer settings with an accumulated gain of more than 18 dB at any frequency, as this will cause audio clipping for full scale input signals. It is good practice to do most of the frequency response corrections by attenuation of prominent frequency bands.

4.6 Minimum message length

The minimum message length for repeating messages is 500 ms.

4.7 System controller redundancy configuration

When a second System controller is added to a system for redundancy, the second System controller must be reset to factory default.

4.8 Network snapshot

A new network snapshot is required after a device is added, removed or replaced.
A system with redundant cabling and network supervision enabled requires a new network snapshot after a device is added, removed or replaced.
As long as a new network snapshot is not taken, a fault in the new device will not be reported.

4.9 Multi-VLAN

In systems with VLANs in combination with the OMN-ARNIE and the OMN-ARNIS, the lifeline between an amplifier and an PM9-MPS3 only works if both devices are part of the same subsystem.

4.10 Multiple redundant system controllers

Each standby system controller can take up to five minutes to synchronize with the duty controller. The synchronization is sequential, one standby system controller after the other. When the recorded message storage of the duty system is at full capacity, the maximum time per standby system controller is five minutes.

Do not disturb the network during the period of synchronization. Make sure the duty controller remains operational until all standby controllers have finished synchronizing. If local conditions allow, check the Link LEDs of all standby controllers:

- Yellow: the standby controller is not yet synchronized.
- Blue: the synchronization is over and the controller is ready.

4.11 Static IP in fail safe mode

When a system controller or a power amplifier switches to fail-safe mode, its static IP-address is set to a DHCP or a link-local address.
If necessary, use the PRAESENSA Network Configurator to check the network mode and return it to a static IP.

4.12 ARNI V8.41

In a life safety system, version 1.61 of PROMATRIX 9000 cannot be used in combination with an 8.41 or early versions of the OMN-ARNIE/OMN-ARNIS devices.

4.13 License for Multi-controller functionality

One PRA-LSPRA License for PRAESENSA subsystems is required per subsystem. Contact Bosch to request the license.

5 Known limitations

System functions that are implemented but with limitations. In some cases workarounds are given.

5.1 Firmware upload to call station fails

The MTU (Maximum Transmission Unit) of the call stations is 1468. When the MTU of the PC network adapter that is used is set to a lower value than 1472 (1468 + 4), the data packets are split across different frames; the FWUT (Firmware Upload Tool) cannot handle this and will disconnect.
Check the actual MTU value of the network adapter by opening a **cmd-**window (with administrator rights) and enter:

```
    netsh interface ipv4 show subinterface
```

If the MTU value is too low, it can be increased temporarily to a higher value by entering:

```
     netsh interface ipv4 set subinterface
"<name of interface>" mtu=1500
store=persistent
```

Then try again.

5.2 Dante multicast

Only use Dante unicast streams between a Dante device and the system controller to prevent multicast addressing conflicts, that can result in audio distortion or not being able to setup a call.

5.3 Scheduled calls

If a scheduled call is activated by a button of a call station extension, the scheduled time intervals are ignored and the call starts immediately. Scheduled calls can only be started from a control input.

5.4 Load measurement

When a load measurement on an amplifier channel is done with a shorted loudspeaker line, the web page will indicate: “Not measured”. Remove the short circuit and redo the load measurement.

5.5 Firmware upgrade

Before using the firmware upgrade tool, make sure the released PROMATRIX 9000 firmware files have been installed also.
In some rare cases the upgrade of a device will not be successful in the first attempt. If this occurs please retry for the device for which it failed.

5.6 Enable Network Time Protocol (NTP)

NTP is configured on the “Time settings” page. Enable “Set time automatically (NTP)” and press submit. Wait for the reboot system page; this will take a few seconds. Press “System reboot” to activate NTP. If you navigate away to another configuration page too early and don’t wait for the reboot system page, a non-responsive web page will show "Loading" and NTP will remain disabled.

5.7 Audio missing on systems with multiple subnets

In systems with multiple subnets, live paging from a Call station is possible without chimes, recorded messages and Dante audio channels from the system controller.
To solve the problem of missing audio signals, update the system to software version 1.50 and perform a factory reset of the system controller, in that order.
Before doing a factory reset of the system controller hardware, make sure you do a backup so that your configuration can be restored afterwards.
Note that recorded messages are not part of the backup configuration .tar.gz file. Make sure to save them so that they can be uploaded again after restoring the configuration file.

5.8 Dante audio outputs

A system with System controller redundancy does not support secure Dante 4-digit PIN (Personal Identification Number) on the Dante audio outputs.
You might want to use Dante audio outputs to interface with 3rd party devices like amplifiers or devices for recording purposes. When control is switched from duty system controller to redundant System controller, the transmit of the Dante output channels of the duty system controller is moved to the redundant System controller in order to make the Dante audio outputs redundant.
The persistent Dante audio channels cannot be authenticated and not encrypted, so they form a security risk, as no precautions are taken against malicious or accidental attacks via their network interfaces. For highest security, these Dante output channels in combination with System controller redundancy must not be used as part of the PROMATRIX 9000 system.

5.9 Multiple redundant System controllers

Release 1.20 is tested with one duty and one redundant System controller. There is no built-in limit, and it is possible to add multiple redundant System controllers. A system setup with more than one redundant System controller was not tested and proper operation cannot be confirmed.

5.10 DHCP server

When the DHCP server is not available when the system starts it can happen that some devices do not receive an DHCP IP-address and will remain in link-local. The consequence is that these devices do not connect to the System Controller. If the System Controller does not receive a DHCP IP-address it cannot connect to the system devices. It is strongly recommended to have the DHCP server available when the system starts.

5.11 Sticky faults

Sticky faults might occur in a system with a Cisco IE-5000-12S12P-10G switch. Take a new network snapshot to solve it.
This might happen after a restart of an ARNI device or of the Cisco switch itself.

5.12 Multi-subnet

Before using a PROMATRIX 9000 system on multiple VLAN, contact Bosch support.

5.13 Firmware upload of CST and PRA-ANS with static IP-addresses

A firmware upload of the PM9-CSLx Call stations and PRA-ANS Ambient noise sensors produced with firmware prior to V1.60 will fail if the devices are set to static IP.

For every firmware upload of these devices, you must:

1. Change the static IP-addresses of the devices to a DHCP- or link-local address.
2. Update the devices to the new software version.
   - You can now change the DHCP-addresses to static IP-addresses.

5.14 Network snapshot exceptions

As of software release 2.00, the network snapshot available in the **Network supervision** page does not detect:

- PRA-ANS Ambient noise sensors, and
- Certain PCs for configuration or PCs with customized configuration.

As such, even when these devices are connected to the network and working as expected, they are excluded from the downloadable snapshot.

5.15 Call stacking and time-shifting features

The following functions are not implemented with release 2.10:

- Listen to the announcements through the call station’s internal loudspeaker before the public broadcast to the intended zones.
- Create temporary messages to playback afterwards.
- Create repeated calls from a single original announcement.

They will be implemented with future releases of the PROMATRIX 9000 software.

6 Security precautions

PROMATRIX 9000 is an IP-connected, networked Public Address and Voice Alarm system. In order to ensure that the intended functions of the system are not compromised, special attention and measures are required during installation and operation to avoid tampering of the system. Many of such measures are provided in the PROMATRIX 9000 configuration manual and installation manual, related to the products and the activities described. This section provides an overview of precautions to be taken, related to network security and access to the system.

- Follow the installation instructions with respect to the location of equipment and the permitted access levels. Refer to the chapter *Location of racks and enclosures* in the PROMATRIX 9000 Installation manual for more information. Make sure that call stations that address very large areas and operator panels that are configured for alarm functions only have restricted access using a special procedure, such as being mounted in an enclosure with lockable door or by configuration of user authentication on the device.
- It is highly recommended to operate PROMATRIX 9000 on its own dedicated network, not mixed with other equipment for other purposes. Other equipment may be accessible by unauthorized people, causing a security risk. This is especially true if the network is connected to the Internet.
- It is highly recommended that unused ports of network switches are locked or disabled to avoid the possibility that equipment is connected that may compromise the system. This is also the case for PROMATRIX 9000 call stations that are connected via a single network cable. Make sure that the connector cover of the device is in place and properly fixed, to avoid that the second network socket is accessible. Other PROMATRIX 9000 equipment should be installed in an area that is only accessible by authorized people to avoid tampering.
- Use an Intrusion Protection System (IPS) with port security where possible to monitor the network for malicious activity or policy violations.
- PROMATRIX 9000 uses secure OMNEO for its network connections. All control and audio data exchange use encryption and authentication, but the system controller allows the configuration of unsecure Dante or AES67 audio connections as an extension of the system, both as inputs and as outputs. These Dante/AES67 connections are not authenticated and not encrypted. They form a security risk, as no precautions are taken against malicious or accidental attacks through their network interfaces. For highest security, these Dante/AES67 devices should not be used as part of the PROMATRIX 9000 system. If such inputs or outputs are needed, use unicast connections.
- For security reasons, by default the PRA-ES8P2S Ethernet switch is not accessible from the Internet. When the default (special link-local) IP-address is changed to an address outside the link-local range (169.254.x.x/16), then also the default (published) password must be changed. But even for applications on a closed local network, for highest security the password may still be changed. Refer to the *Ethernet switch* chapter in the PROMATRIX 9000 Installation manual for more information.
- To enable SNMP, for example to use the Dynacord Network analysis tool OMN-DOCENT, use SNMPv3. SNMPv3 provides much better security with authentication and privacy. Select the authentication level SHA and encryption via AES. Refer to the *Ethernet switch* chapter in the PROMATRIX 9000 Installation manual for more information.
- From PROMATRIX 9000 software version 1.50 onwards, the PRA-ES8P2S switches and the CISCO IE-5000 series switches report their power fault and network connection status directly to the PROMATRIX 9000 system controller through SNMP. The switches can be daisy-chained without an OMNEO device between them for connection supervision. The PRA-ES8P2S is preconfigured for this purpose from custom firmware version 1.01.05 onwards.
- The system controller webserver uses secure HTTPS with SSL. The web server in the system controller uses a self-signed security certificate. When you access the server via https, you will see a Secure Connection Failed error or warning dialog indicating that the certificate was signed by an unknown authority. This is expected and to avoid this message in the future you have to create an exception in the browser.

- Make sure that new user accounts for system configuration access use sufficiently long and complex passwords. The user name must have between 5 and 64 characters. The password must have between 4 and 64 characters.
- The PROMATRIX 9000 system controller provides an Open Interface for external control. Access through this interface requires the same user accounts as for the system configuration access. In addition, the system controller generates a certificate to setup the TLS secure connection between the system controller and the Open Interface client. Download the certificate and open/install/save the crt-file. Activate the certificate on the client PC. Refer to the chapter *System security* in the PROMATRIX 9000 Configuration manual.
- System access to the devices of this system is secured via the OMNEO security user name and passphrase of the system. The system uses a self-generated user name and long passphrase. This can be changed in the configuration. The user name must have between 5 and 32 characters and the passphrase must have 8 to 64 characters. To update the firmware of the devices, the firmware upload tool requires this security user name and passphrase to get access.
- In case a PC for event logs is used (PROMATRIX 9000 logging server and viewer), make sure that the PC is not accessible by unauthorized persons.
- Use secure VoIP protocols (SIPS) whenever possible, including verification through VoIP server certificate. Only use non-secure protocols when the SIP server (PBX) does not support secure VoIP. Only use VoIP audio in the protected sections of the network, because the VoIP audio is not encrypted.
- Anyone with the ability to dial one of the extensions of the system controller can make an announcement in the PRAESENSA system. Do not allow external numbers to dial the system controller extensions.

Find all documentation and software related at www.dynacord.com in the **Downloads** section of the PROMATRIX 9000 products.

Whenever you think you have identified a vulnerability or any other security issue related to a Bosch product or service, contact the Bosch Product Security Incident Response Team (PSIRT): https://psirt.bosch.com.

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