

NSA1_-TX01B-E/S-E
NSA1_-TX1_B-E/S-E
NSA-CPU_-E
NSA-TY_B/S

DyaloX Industrial PC

QUICK START GUIDE

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Quick Start Guide DyaloX Industrial PC

Content

This Quick Start guide provides you a quick introduction to the DyaloX Industrial PC. All general topics are introduced and the most used items are explained briefly.

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For more information we refer you to the manuals and datasheets below:

Description	Filename
NSA1_-TX11_-E (panel type)	V238-E1-01.pdf
NSA1_-TX12_-E (panel type)	V238-E1-01.pdf
NSA1_-TX01_-E (Panel type)	V233-E1-02.pdf
NSA-CPU0...-E (Box type)	V235-E1-01.pdf
S8TS series S8T-DCBU-0x unit	T027-E1-02A[1].pdf

1. Introduction

The Omron DyaloX Industrial PC is an industrial designed PC platform specifically created for operating 24/7 in even the most demanding industrial environments. The DyaloX also features an Omron designed RAS (Reliability, Availability and Serviceability) solution in which a built-in RAS board, interfaced by RAS utility software, continually monitors and logs the status of the IPC.

The DyaloX Industrial PC's are delivered with a pre-installed extended version of the Windows XP Embedded operating system.

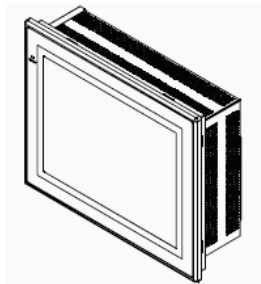
Features of the DyaloX:

- Industrial-grade 600MHz or 1.3 GHz Intel Celeron® M CPU
- Disk-On-Module silicon storage
- Fan-Less heat sink cooling
- Unique Embedded RAS solution
- Extended version of Windows XP Embedded
- Compact Flash slot for memory expansion
- Ethernet, serial, PS/2 and USB connectors
- Two PCI slots
- Beautiful TFT touch screen (IP65F)
- Slim and robust design

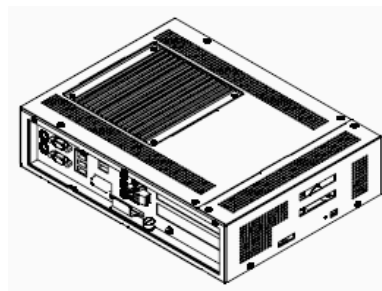
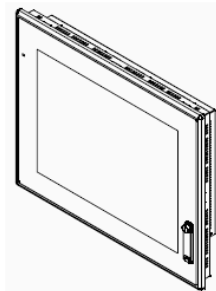
2. Hardware

We distinguish the DyaloX in two types:

- Panel Type (NSA1_-TX..._-E), available in 12 and 15 inches. The Touch screen and CPU are integrated in one product.



- Box Type (NSA-CPU0_-E), available in 15 and 17 inches. The Touch screen and CPU are separated from each other and connected through USB and DVI. It is possible to mount both as one Panel computer again.



2.1 Specifications of all the DyaloX models

Main specifications

Item		NSA12-TX1_ NSA15-TX1	NSA12-TX01 NSA15-TX01	NSA-CPU01-E	NSA-CPU02-E	NSA-CPU03-E	NSA-CPU04-E	
OS		CF with Windows XP embedded ^{*1}	Preinstalled Windows XP embedded					
Processor		600 MHz Intel Celeron-M Processor	1.3 GHz Intel Celeron-M Processor					
Storage device	Type	Industrial CF memory or HDD ¹	Disk-On-Module (Flash memory)					
	Capacity	CF: 2/4/8 GB (with OS) IDE I/F ¹ HDD: 80GB (without OS) SATA I/F ¹	2 GB	2 GB	4 GB	2 GB	4 GB	
	Service life (write cycles)	CF: 100,000 write cycle/block HDD: 2 years at 24 hours/day operation, 3 years at 8 hours/day operation	NAND flash memory: 100,000 write cycles (to the same block) ^{*2}					
Memory	Main memory	TX11: 256 MB DDR-SDRAM (non-ECC) TX12: 512 MB DDR-SDRAM (non-ECC)	512 MB DDR-SDRAM (non-ECC)			1 GB DDR-SDRAM (non-ECC)		
	Cache memory	512 KB Level 2 cache memory (built into the CPU)						
Interface	Keyboard	-	PS/2 keyboard with 6-pin MINI DIN connector					
	Mouse	-	PS/2 mouse with MINI DIN connector					
	Serial ports	2 ports conforming to EIA RS-232C for 9-pin D-SUB male connectors						
	Ethernet	2 x 10 BASE-T/ 100 BASE-TX RJ45 connector		10 BASE-T/100 BASE-TX port for an RJ45 connector				
	USB ports	2 x USB 2.0/1.1 for type-A connectors. 2 x USB 2.0/1.1 for type-A connectors (on front panel, cable 3 m max.)		2 x USB 2.0/1.1 for type-A connectors	2 x USB 2.0/1.1 for type-A connectors 2 x USB 1.1 for type-A connectors			
	Memory Card	1 CF Card slot						
	Video output	-			1 x DVI-I port			
Audio	-			Line-In/Line-Out/Mic-In for mini jack				
Expansion slots		PCI expansion bus, 1 slot	PCI expansion bus, 2 slots					
Special RAS board	External input port	3-pin connector port for the UPS power interruption signal						
	Status LED indicators	4 (RUN/BATLOW/ERR/DIAG)						
RAS functions	Special RAS board functions	Alive connection monitoring, device restart, timer start, startup and shutdown monitoring, backlight lit time measurement, UPS power interrupt signal output, and logging functions						
	Motherboard RAS functions	Standard PC RAS info, post error logging, post error retry, CMOS data recovery						
POWER LED indicator		Yes (green)						
Service life ^{*3}		50,000 hours at 40°C			50,000 hours at 30°C			
Battery life	Main board	5 years at 25°C (NSA-BAT03)	5 years at 25°C (NSA-BAT01)					
	RAS board	5 years at 25°C (NSA-BAT03)	5 years at 25°C (NSA-BAT02)					

^{*1} Sold separately

^{*2} Calculate condition

Free area: 500 MB (*excluding OS&Application)

Overwrite data size/time: 0.5 MB/time

Overwrite times/day: 10,000 times/day

MTBF: (500 MB *100,000 times) / (0.5 MB *10,000 times/day) = 10,000 days = 27 years

^{*3} The service life is a guideline that is provided strictly for reference. It varies with factors such as the installation location and operating conditions.

Touch panel specifications

Item		NSA12-TX11_-E NSA12-TX12_-E	NSA15-TX11_-E NSA15-TX12_-E	NSA12-TX01_-E	NSA15-TX01_-E	NSA-TX151	NSA-TY171	
Display panel	Type	TFT color LCD						
	Size	12.1 inches	15 inches	12.1 inches	15 inches	15.0 inches	17.0 inches	
	Resolution	1024×768 dots						
	Brightness	300 cd/m ² (typical)				270 cd/m ² (typical)		200 cd/m ² (typical)
	Viewing angle	130° left to right, 90° up and down						
	Colors displayed	262,144						
Backlight	Type	2 CCFL	4 CCFL	2 CCFL	4 CCFL	2 CCFL	4 CCFL	
	Brightness adjustment	Three-level software adjustment ^{*1}				10 level adjustment by rotary switch		
	Backlight not lit detection	The software reads the lamp burnout detection signal from the inverter ^{*2}				-	-	
	Service life	50,000 hours min. ^{*3}						
Touch panel	Type	Analog resistive type						
	Effective input area Size in mm (H×W)	185.5×247	229×305	185.5×247	229×305	229×305	272×340	
	Operating service life	10,000,000 operations (with non-stop key stroking using fingers to input) 100,000 characters (with non-stop character entry using a stylus to input)						
Interface	USB ports	4 x USB2.0/1.1 for type-A connectors (2 on front side)		2 x USB2.0/1.1 for type-A connectors		3 x USB 1.1 for type-A connectors (2 on front side) 1 x USB 1.1 (used for touch) for type-B connector		
	Video Input	-				1 x DVI-D port		
POWER LED indicator	Yes (green)							
Service life ^{*4}	50,000 hours at 25°C		50,000 hours at 40°C			50,000 hours at 30°C		

^{*1} The contrast cannot be adjusted significantly.

^{*2} It is not the service life, but rather lamp failure due to hardware problems such as a broken wire that is detected. Backlight not lit detection means both backlight lamps have burnt out.

^{*3} The service life is a guideline for maximum contrast at room temperature with normal humidity and is provided strictly for reference. It varies significantly with the ambient temperature.

The service life will be shorter under extreme (high or low) temperature conditions and falls off sharply particularly under low-temperature conditions.

^{*4} The service life is a guideline that is provided strictly for reference. It varies with factors such as the installation location and operating conditions.

General specifications

Item	NSA1_-TX11_-E NSA1_-TX12_-E	NSA1_-TX01_-E	NSA-CPU0_-E	NSA-TX151	NSA-TY171
Rated supply voltage	24 VDC				
Allowable supply voltage range	20.4 VDC to 27.6 VDC (24 VDC ±15%)	20.0 VDC to 27.6 VDC (24 VDC ±15%)			
Power consumption	12 inches: 65 W max. 15 inches: 75 W max.	12 inches: 80 W max. 15 inches: 100 W max.	60 W max.	40 W max.	55 W max.
Ambient operating temperature	0 to 50°C ^{*1}				
Ambient storage temperature	-10 to 60°C ^{*1}				
Ambient operating humidity	10% to 80% with no condensation ^{*1}				
Ambient storage humidity	10% to 85% with no condensation ^{*1}				
Operating atmosphere	Must be free of corrosive gases. Must be fairly dust free.				
Noise resistance	Conforms to IEC6100-4-4, power supply line: 2 kV				
Vibration resistance (in operation)	Conforms to JIS C0041, 0.05 mm amplitude at 10 to 55 Hz for 50 min. Each in the X, Y, and Z directions				
Shock resistance (in operation)	Conforms to JIS C0041, 196 m/s ² three times each in the X, Y, and Z directions				
Degree of protection	Front panel: IP65 or the equivalent ^{*1}		-	IP65F (front panel oil protection) ^{*1}	
Weight	12 inches: 5 kg max. 15 inches: 7 kg max.	12 inches: 5 kg max. 15 inches: 7 kg max.	4 kg max.	6 kg max.	7 kg max.
Dimensions in mm (HxWxD)	12 inches: 281×342×98 15 inches: 296.5×397.5×103	12 inches: 264×322×100 15 inches: 312×384×108	233x308x76.5	328x404x57	371x436x57

^{*1} For more information, please check the user manual.

CF & HDD

Item	NSA-CEX02	NSA-CEX04	NSA-CEX08	NSA-HEX80
Storage capacity	2 GB	4 GB	8 GB	80 GB
Interface	IDE			SATA

DyaloX ordering information

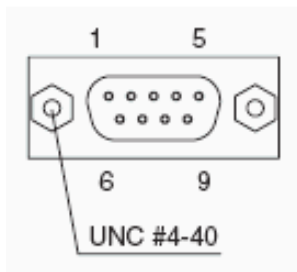
Type		Order Code
Industrial PC panel, 600 MHz CPU	12 inches, 600 MHz, 256 MB internal, black	NSA12-TX11B
	12 inches, 600 MHz, 256 MB internal, silver	NSA12-TX11S
	15 inches, 600 MHz, 256 MB internal, black	NSA15-TX11B
	15 inches, 600 MHz, 256 MB internal, silver	NSA15-TX11S
	12 inches, 600 MHz, 512 MB internal, black	NSA12-TX12B
	12 inches, 600 MHz, 512 MB internal, silver	NSA12-TX12S
	15 inches, 600 MHz, 512 MB internal, black	NSA15-TX12B
	15 inches, 600 MHz, 512 MB internal, silver	NSA15-TX12S
Industrial PC panel, 1.3 GHz CPU	12 inches, 1.3 GHz, 512 MB internal, 2 GB storage, black	NSA12-TX01B-E
	12 inches, 1.3 GHz, 512 MB internal, 2 GB storage, silver	NSA12-TX01S-E
	15 inches, 1.3 GHz, 512 MB internal, 2 GB storage, black	NSA15-TX01B-E
	15 inches, 1.3 GHz, 512 MB internal, 2 GB storage, silver	NSA15-TX01S-E
Industrial PC box, 1.3 GHz CPU	1.3 GHz, RAM: 512 MB, DOM: 2 GB	NSA-CPU01-E
	1.3 GHz, RAM: 512 MB, DOM: 4 GB	NSA-CPU02-E
	1.3 GHz, RAM: 1 GB, DOM: 2 GB	NSA-CPU03-E
	1.3 GHz, RAM: 1 GB, DOM: 4 GB	NSA-CPU04-E
Touchscreen panel	15 inches, black	NSA-TX151B
	15 inches, silver	NSA-TX151S
	17 inches, black	NSA-TY171B
	17 inches, silver	NSA-TY171S

Accessories

Description	Order Code
2 GB CF with XP Embedded English	NSA-CEX02-E
4 GB CF with XP Embedded English	NSA-CEX04-E
8 GB CF with XP Embedded English	NSA-CEX08-E
80 GB HDD, no OS	NSA-HEX80
512 MB DDR-SD RAM (non-ECC)	NSA-MR581
1 GB DDR-SD RAM (non-ECC)	NSA-MR191
DVI & USB cable 0.1 m	NSA-DU02
DVI & USB cable 2 m	NSA-DU22
DVI & USB cable 5 m	NSA-DU52
DVI cable 10 m	NSA-DV101
Set of 5 Anti-reflection sheets for 12 inches	NS12-KBA04
Set of 5 Anti-reflection sheets for 15 inches	NS15-KBA04

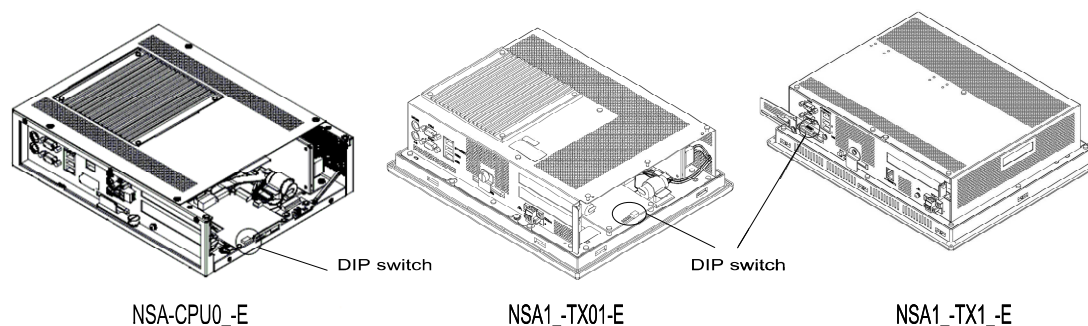
2.2 Communication ports

Pinning of the male RS-232C connector (COM port 1 and 2).



Pin No.	Signal	
1	CD	Carrier Detect
2	RD	Receive
3	SD	Send
4	DTR	Data Terminal Ready
5	GND	Signal ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator

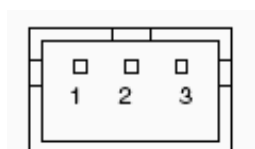
The following Dip Switches can be set for the DyaloX IPC.
To set the Dip Switches remove the side cover of the DyaloX IPC on the LED side.



Pin No.	Function
1	Reserved [Always OFF]
2	Reserved [Always OFF]
3	Reserved [Always OFF]
4	Reserved [Always OFF]
5	Specifies the operation for the external input port on the RAS board. ON: Connects a UPS system to the external input port. OFF: Not connects a UPS system to the external input port. Use it as a general Input port. [Default setting: OFF]
6	Specifies the ACFAIL signal input method for the external input port (UPS power interrupt signal connector) ON: Normally supplies 24V; open at PWR-FAIL OFF: Normally open; supplies 24V at PWR-FAIL [Default setting: OFF]
7	Always OFF
8	Enables/disables actions when the RAS Board detects a Startup/Alive/Shutdown failure. ON: Disables the actions. OFF: Enables the actions. [Default setting: OFF]

UPS Power Interrupt Signal Connector

This port can be used to notify the DyaloX IPC that a UPS has become active and starts to supply the power.



Pin No.	Signal
1	ACFAIL
2	NC
3	COM

Note: Set the ACFAIL input voltage to 24V \pm 10% (10 mA max.).

Connector: S3B-PH-K-S (JST)

Omron also supplies a backup power supply which can act as a UPS. This is the S8TS series power supply with the S8T-DCBU-0x unit. This unit is connected to a battery pack which can supply 24VDC for a long time.

The S8T-DCBU-0x unit has an output that can be connected to the Power Interrupt Signal Connector of the DyaloX IPC.

3. Software

The DyaloX IPC is installed with Microsoft® Windows XP Embedded SP2. This modular operating system is based on Microsoft® Windows XP Professional. Omron has carefully selected the items needed to give you flexibility to run and use many different kinds of software, but still be able to give you the best reliable operating system for industrial use.

3.1 Bios settings

In some occasions it might be needed to change some BIOS settings. All BIOS menus are explained in detail in the manual of the DyaloX. Below you find some basic information.

Perform the actions below to enter the BIOS setup menu.

When this message is displayed: Press <F2> to enter SETUP.

1. Press the F2 Key while the message box is displayed to launch the setup menu.
2. The Main Setting Screen will be displayed.
Note: You must enter a password if one has been set.
3. Use the Down, Left, or Right Arrow Key to go to the next item and use the Enter Key to select the item.

Select the Exit Screen to exit from the setup menu.

Note: The RAS Board's startup monitoring is performed (when enabled) even during BIOS setup. Disable the Start-up monitoring function when making the BIOS settings. If the startup monitoring function cannot be disabled, turn ON pin 8 of the DIP switch to disable the Action on Failure function.

3.1.1 BIOS Setup Menu Keys

BIOS setup items can only be set from a keyboard. The following table lists the keys that are available from the BIOS setup utility and how to use them.

Key	Action
← →	Switches menus.
↑ ↓	Selects the item that will be set.
-/+	Increases or decreases a value.
Tab	Moves to the next field.
Shift + Tab	Moves to the previous field.
F1	Displays the General Help Window for BIOS setup.
F9	Loads the default configuration value.
F10	Saves the settings to CMOS and exits the BIOS setup utility.
ESC	Moves to the Exit Menu or moves to the Main Menu from a Submenu.
Enter	Sets a value and moves to a submenu if one is available.

3.1.2 Advanced menu

In the Advanced menu there are some settings you might need or want to use. They are explained in the table below.

Function	Setting	Description
Legacy USB Support	[Disabled] Enabled	Enables or disables support for the Legacy Universal Serial Bus. Normally select the Disabled option.
Summary Screen	Disabled [Enabled]	Displays the System configuration when Booting.
Boot-time Diagnostic Screen	Disabled [Enabled]	Displays the Self-diagnosis Screen. The OMRON Logo is not displayed when this function is enabled.
QuickBoot Mode	[Disabled] Enabled	Quick Boot Mode will skip certain tests while booting. This makes booting faster.

Keyboard Features

Function	Setting	Description
NumLock	[Auto] On Off	Enables the NumLock Key on the keyboard.
Key Click	[Disabled] Enabled	Enables or disables the audible beep when a key is pressed on the keyboard.
Keyboard auto-repeat rate	[30/sec] 26.7/sec 21.8/sec 18.5/sec 13.3/sec 10/sec 6/sec 2/sec	Selects the number of times per second to repeat a keystroke when you hold a key down.
Keyboard auto-repeat delay	1/4 sec [1/2 sec] 3/4 sec 1 sec	Selects the delay time after a key is held down before it begins to repeat the keystroke.
KBC Error	[Disabled] Enabled	Enables or disables the keyboard connection check at startup. Normally select the Disabled option.

Power

Function	Setting	Description
After Power Failure	Stay OFF Last State [Power ON]	Selects the operation executed after A power failure. Stay OFF: Always stay OFF Last State: Return to the most recent state. Power ON: Always stay ON

Note: Normally, select the Power ON setting because the DyaloX Industrial PC does not have a START switch.

Boot

Function	Setting	Description
Priority of the Boot Device	Removable Devices Hard Drive CD-ROM Drive Network Boot	Specifies the priority in the search for a startup device.

Note: Press the Enter Key to show additional devices when the setting has a plus (+) sign.

3.2 Windows XP Embedded

Windows XP Embedded for the DyaloX IPC contains the following software:

- .NET Framework 2.0
- Internet Explorer
- Visual Basic Runtime Library files v5.0 & v6.0
- C Runtime Library (4.0.1183.1)
- Remote Desktop support

Remarks on configuring Windows XP Embedded:

- The Windows firewall is enabled when the product is shipped from the factory. Make the appropriate settings as required.
- The administrator password is not set when the product is shipped from the factory. Set a password as required. If a password has been set, however, a keyboard will be required when logging on.
- To use a USB-connected floppy disk drive, keyboard, or mouse when starting Windows to update the BIOS or recover the Windows system, select *Advanced* from the BIOS set-up menu and set *Legacy USB Support* to *Enabled*.
- Windows XP Embedded is an OS designed for embedded use. Some application programs that operate on the Windows XP Professional OS may not operate on the Windows XP Embedded OS of an DyaloX Industrial PC. In addition, the Windows components cannot be added and deleted by selecting *Add or Remove Programs* from the *Control Panel*.

3.3 Enhanced Write Filter (EWF)

The Enhanced Write Filter (EWF) is a special function in Windows XP Embedded that protects a volume from write access. When you enable EWF for a certain volume you prevent any data to be saved to the storage disk. Instead all data is saved to the RAM. This means when you reboot the IPC the data is lost.

EWF provides the following features:

- Write protects one or more partitions on your IPC
- Keep original disk contents
- Data can be saved while EWF is disabled (commit) using EWF API

By default the EWF is disabled. You should be careful when big amount(s) of data is involved as RAM is used to store it.

Some EWF commands you can use:

- Show EWF status: *EWFMGR C:*
- Enable EWF: *EWFMGR C: -enable*
- Write data to disk: *EWFMGR C: -commit*
- Help information: *EWFMGR -?*

More information on EWF can be found in Appendix 2 of our manual or on:
<http://www.microsoft.com/embedded>

3.4 Available Tools

From the Start menu – All Programs – UPDD, there are several tools available. These tools will be shortly explained here.

Universal Pointer Device Driver (UPDD) software allows you to configure pointer devices used with the Industrial PC. Normally you will probably use the touch screen, but it is possible to use mouse and other devices also.

Calibrate

With this tool you can calibrate the touch screen. Start the program and follow the instructions.

Event Selector

The Event Selector is a simple tool to switch the pointer from the left to the right (mouse click) touch function. This tool can show a small window to easily use it and it can display an icon in the toolbar.

Beside this tool there is another way to use the right mouse click, by pressing the touch area for a defined time. Please contact your local Omron representative in case you want to use this functionality.

Test tool

This is a simple tool to test the touch grid of the Industrial PC.

Configuration Settings

This software allows you to configure the way you want to use the pointer device on the Industrial PC. You can also configure some display options with this tool.

On-Screen Keyboard

Windows XP Embedded provides a possibility to input alphanumeric characters from the touch panel. It acts as a standard keyboard on the screen. To start this on-screen keyboard, go to Start – All Programs – Accessories – Accessibility – On-Screen Keyboard. This keyboard does not work when you need to login into Windows XP Embedded.

4. RAS

RAS stands for Reliability, Availability and Serviceability and is a specific OMRON designed solution for the DyaloX to make it a true Industrial PC. Inside the DyaloX Industrial PC series, a separate board, interfaced by embedded RAS utility software, continually monitors the motherboard. Because this unique RAS board is a stand-alone board, it can gather data from the motherboard no matter what the Operating System or hardware conditions of the DyaloX are. The RAS solution can notify you when unstable hardware or software conditions are detected. It can if needed take action to automatically resolve the failure and enables you to investigate the causes of the failure.

Warning threshold levels can be set manually in the RAS utility. Data logged at time of failure, such as motherboard temperatures, voltages, date and time, and other relevant data can be uploaded from the RAS board for analysis.

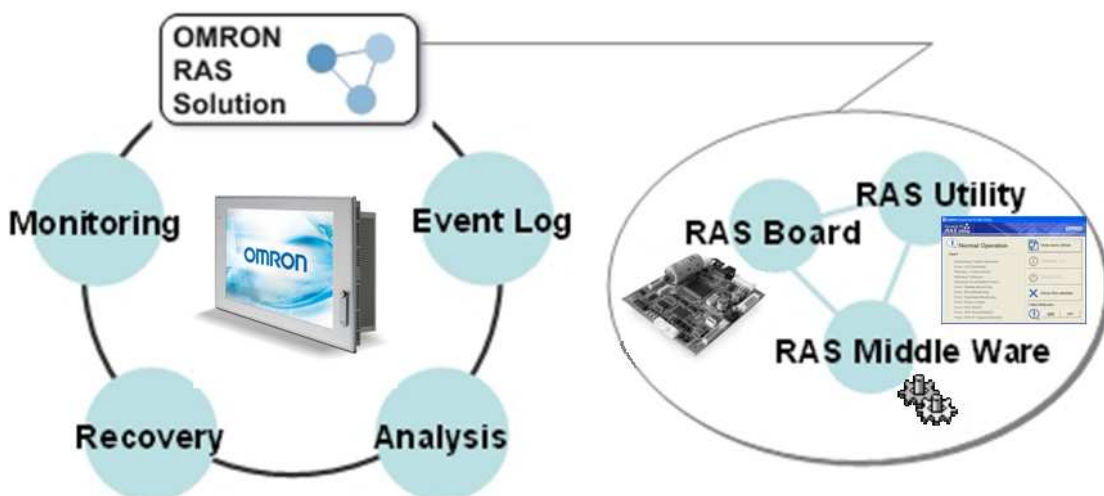
So whatever the reason for failure, the RAS board is able to provide a system snapshot just before failure occurs. By analyzing the log data, the trend and cause of failures can be quickly found and rectified for higher reliability in the future.

The DyaloX Industrial PC series with its RAS functionality will help you achieve the highest possible reliability in your PC Based application(s).

4.1 RAS Functions

The RAS system in OMRON Industrial PC provides the following main functions:

- **Monitoring Function** that constantly monitors the hardware and software of an industrial PC and gives the user failure notification when an error is detected or a failure occurs.
- **Auto-recovery Function** that forcefully shuts down the system when a failure occurs to prevent further faults and reboot the system for recovery.
- **Logging Function** that saves events in operating an industrial PC (such as Power Supply ON/OFF, OS startup/shutdown, etc.), system status when a failure occurs and conditions of the Motherboard (temperature, power supply) onto the RAS Board's power-backed-up memory.
- **Log Analysis Function** that analyzes cause and/or tendency of failures using numerous amounts of logs saved on the memory.



4.1.1 Monitoring and Auto-recovery

Monitoring Functions

The RAS functions enable users to monitor operation status and detect failures. The DyaloX provides the following monitoring functions.

- Startup Monitoring: Provides notification of failures that occur while starting (i.e., from turning ON the power supply until startup has been completed).
- Alive Monitoring: Provides notification of failures that occur while the OS is running (i.e., from startup to shutdown).
- Shutdown Monitoring: Provides notification of failures that occur while shutting down or rebooting.
- External Power Supply Under voltage/Interruption Monitoring: Detects abnormal power interruptions for the external power supply.
- Temperature Monitoring: Detects abnormal temperatures in the Motherboard.
- Voltage Monitoring: Detects abnormal power supply voltages in the Motherboard.
- Cumulative Operating Time Monitoring: Detects excessive cumulative operating time.
- RAS Board Monitoring: Detects failures with the RAS Board.
- LCD Monitoring: Detects failures with the LCD.

Action on Failures (forced shut down/forced reboot)

RAS can take action where a failure is detected. The following functions are provided:

- Rebooting the system automatically when the operating system freezes
- Starting the system and restoring operation automatically after the Motherboard stops because of a failure, such as overheating
- Repeating reboot attempts automatically until the system is successfully activated, if the system hangs-up at startup
- Forcefully terminating the system automatically when the system takes too much time to shut down.

Failure Notification

The Failure Notification function reports a failure when it occurs or after the system recovers from the failure. It notifies the user of a failure with a pop-up message that allows the user to immediately identify the situation.

- The user is notified of power failure that causes shutdown of the system.
- When the system goes down due to some failure, this function notifies the user of the nature of the failure and the status of the Industrial PC after the system recovers from the failure.
- The user is immediately notified of any abnormal temperature or voltage in the Motherboard.
- The user is notified that LCD Backlight lifetime is nearing its limit.

4.1.2 Logging Function and Log Analysis Function

The system keeps a log of operational events as well as of the status of the Industrial PC (temperature, voltage, etc.) in memory. The logs are saved in the RAS Board memory even if the Industrial PC cannot start due to a failure, so the user can analyze the log based on the information stored in the RAS memory in order to identify the cause of the failure. The RAS Utility includes Filter and Find functions to analyze logs.

These functions allow the user to analyze the logs more effectively by specifying events in a particular period or classifying events in categories.

The RAS Utility allows the user to import/export log files. The user may export log files to save logs to a file on a regular basis. The user may also import log files to compare and analyze past logs with logs currently in the memory or to conduct log analysis on another PC.



4.2 RAS Utility software

The RAS utility software is the GUI to the RAS system. This software informs the user of failures, warnings, and statuses and also allows the user to configure RAS.

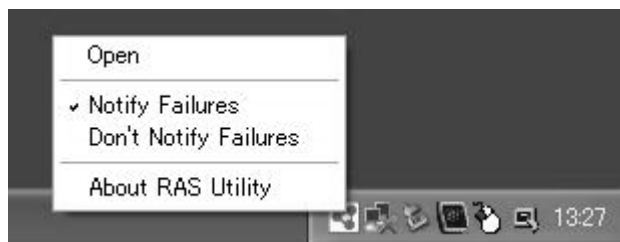
The RAS utility is started when the users logs in on Windows. The small icon shown in the picture below (icon in red square) shows this.

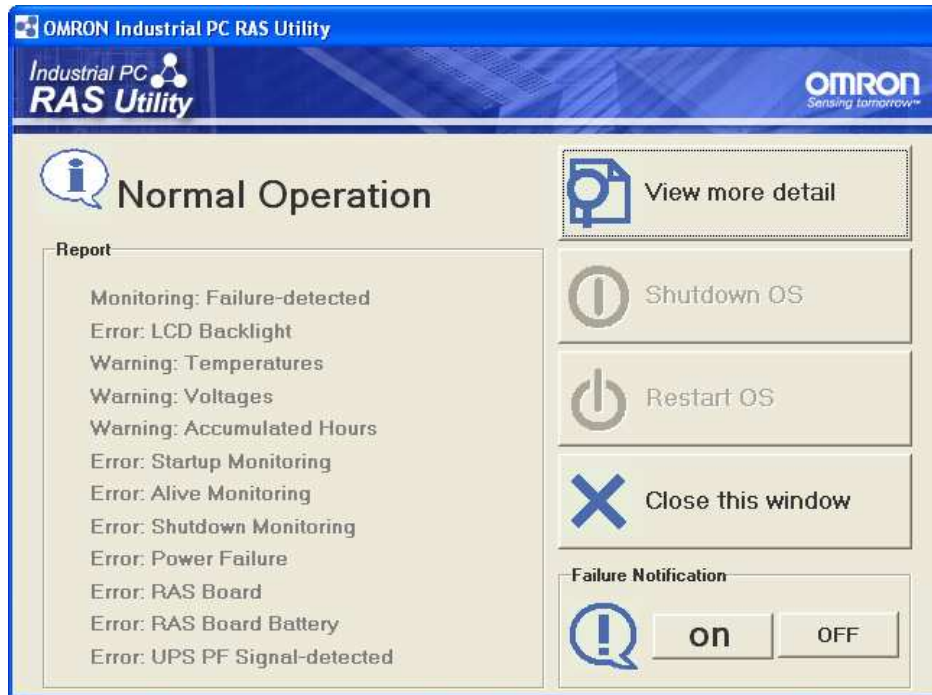


This icon shows the present status of the RAS. With the RAS utility you can also disable the notification of failures.

Icon	Status
 10:47 AM	The Failure Notification is enabled.
 10:48 AM	The Failure Notification is disabled.




When you click on the RAS icon it will present you a small popup menu. If you choose "Open" from the menu the main window of the RAS utility will be shown.





The Main window of RAS has two areas, namely the Status information area and the Operation menu.

Status Information

Status	Description
 Normal Operation	No Failures are detected by RAS.
 Failure-detected	A failure was detected. Open the Detail Window to identify the failure.
 Connection Failed	RAS Utility cannot communicate with the RAS Board. Check the status of the RAS service (OMRON RAS Scheduler).

Note: You can check the status of the RAS service by [Control Panel] - [Administrative Tools] - [Services].

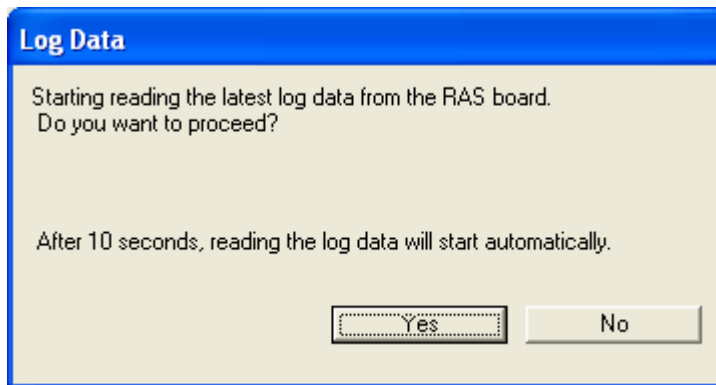
The following Failures are detected and notified by RAS

Report	Description
Monitoring: Failure-detected	A Monitoring failure is detected.
Error: LCD Backlight	The LCD backlight has a failure.
Warning: Temperatures	The temperatures of the Motherboard exceed the threshold.
Warning: Voltages	The voltages of the motherboard exceed the threshold.
Warning: Accumulated Hours	The accumulated hours exceed the threshold.
Error: Startup Monitoring	A Startup failure was detected.
Error: Alive Monitoring	An Alive failure was detected.
Error: Shutdown Monitoring	A Shutdown failure was detected.
Error: Power Failure	A Power failure was detected.
Error: RAS Board	The RAS Board has a failure.
Error: RAS Board Battery	The battery on the RAS Board is low or disconnected.
Error: UPS PF Signal-detected	The UPS Power Failure signal was detected.

Operation menu

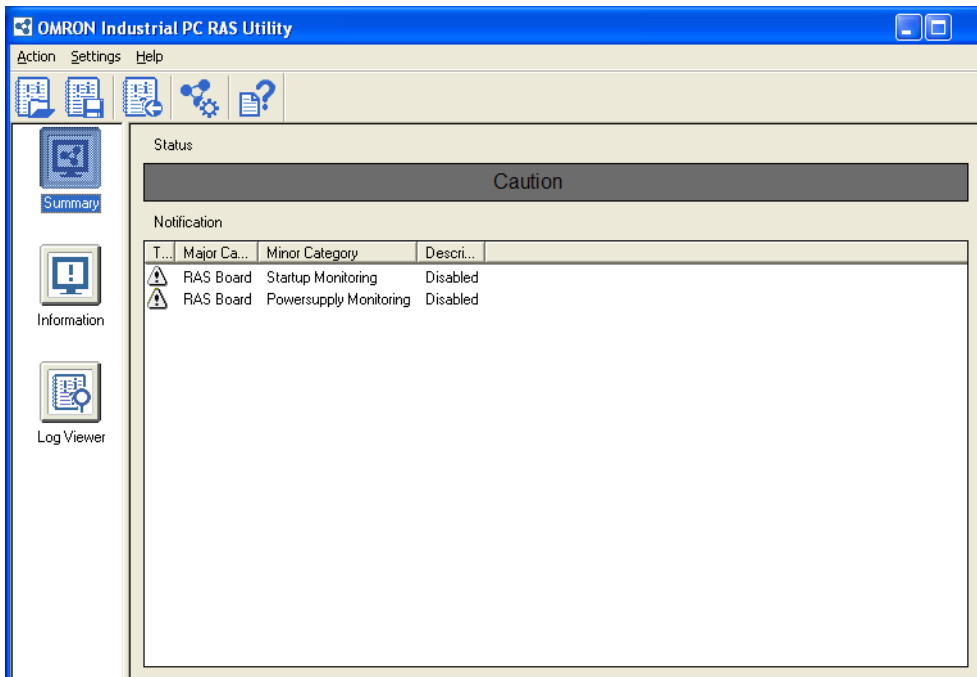
Button	Description
View more detail	Displays the Detail window.
Shutdown OS	Shuts down the operating system.
Restart OS	Restarts the operating system.
Close this window	Closes this Main window.
Failure Notification: ON	Enables the Failure Notification. The Main window automatically pops up when a failure is detected.
Failure Notification: OFF	Disables the Failure Notification. The Main window does not automatically appear even when a failure is detected.

When you choose “View more detail” in the menu, you will see the following popup window:



Choose “Yes” to upload the latest log file from the RAS board. This will take 1 or 2 minutes. Choose “No” if you do not want to look at the log files. You can always upload them at a later time. The Summary information window is now displayed. From this window you have access to all the functions of RAS.

Summary window








The Summary information window shows the status of RAS and the information why this status is shown. RAS can show the following statuses in this window:

Status	Color	Description
Normal	Green	Shows the RAS status is normal.
Caution	Yellow	Shows the RAS detected a recoverable error or some monitoring functions are disabled.
Warning	Orange	Shows the RAS detected an error to be recovered by an operator.
Failure	Red	Shows the RAS detected a serious error such as an Alive Error.

Note: You can change a message of the RAS status in [RAS Utility Settings] - [Others].

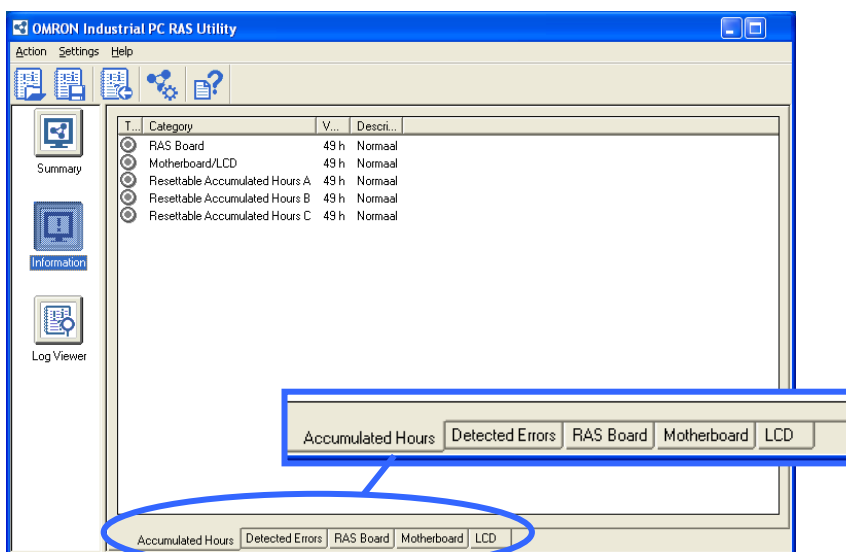
RAS Utility Toolbar buttons

Icon	Name	Description
	Open Log File	Opens a log data file and displays the contents in the Log Viewer.
	Save Log File	Saves the log data displayed in the Log Viewer to a file.
	Read Latest Log Data	Reads the latest log data from the RAS Board and displays the log data in the Log Viewer.
	RAS Settings	Displays the RAS Settings.
	Help	Displays the RAS Utility Help.

Information window

The information window will show specific information for each of the following areas:

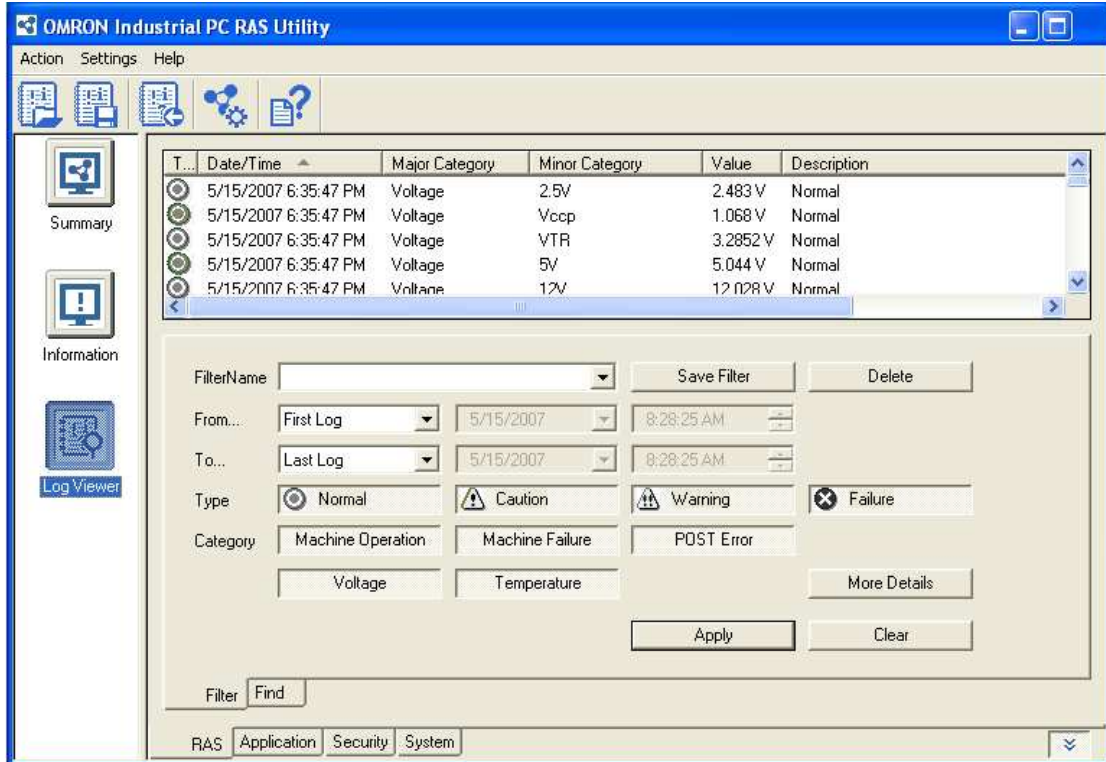
- Accumulated Hours
- Detected Errors
- RAS Board
- Motherboard
- LCD



Log Viewer window

After you uploaded the log files from the RAS board you can view those log files here. This window allows you to filter all the log files and even find a specific error in the files.

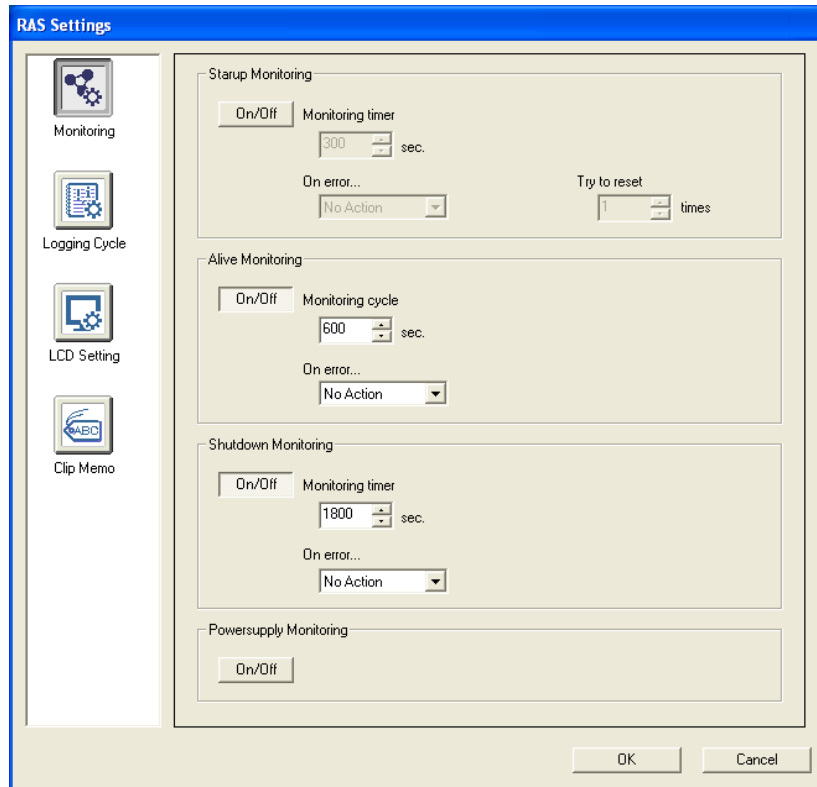
Beside the RAS log files it also allows you to view the Windows Event log files that are logged on the D:\ partition.



4.2.1 RAS Settings

To change the default behavior of RAS, you have to change some settings as explained here. In the RAS utility go to the “Settings” menu and choose “RAS Settings”.

The following window appears:



Click an icon in the list to show the specific page.

Icon	Page	Description
	Monitoring	To configure the Startup/Alive/Shutdown Monitoring.
	Logging Cycle	To configure the Logging Cycle to acquire voltages/temperature information from the Motherboard.
	LCD Setting	To configure the LCD Setting.
	Clip Memo	To configure the Clip Memo to store memo's in the RAS Board.

For each page the settings are explained below.

Monitoring

Function	Item	Description	
All	On/Off	Enables/disables the function.	
Startup	Monitoring timer	Specifies a monitoring time for startup. If the startup process was not completed within the specified period, the RAS Board detected a Startup failure.	
	On error...	No Action	No action when a Startup failure occurs.
		Reset	The RAS Board forces the Motherboard to reset on a Startup failure. If the next startup process was not completed within the specified period again, the trial repeats up to a specified number of times in [Try to restart].
		Power OFF	The RAS Board forces the Motherboard to Power Off when a Startup failure occurs.
	Try to reset	Specifies a number of times to repeat the restart cycle.	
Alive	Monitoring Cycle	Specifies monitoring intervals for the Alive check. If the RAS service does not respond within the specified period, the RAS Board detected an Alive Failure.	
	On error...	No Action	No action when the Alive failure occurs.
		Reset	The RAS Board forces the Motherboard to reset when an Alive failure occurs.
		Power OFF	The RAS Board forces the Motherboard to Power Off when an Alive failure occurs.
Shutdown	Monitoring timer	Specifies a monitoring time for Shutdown. If the shutdown process was not completed within the specified period, the RAS Board detected a Shutdown Failure.	
	On error...	No Action	No action when the Shutdown failure occurs.
		Reset	The RAS Board forces the Motherboard to reset when a Shutdown failure occurs.
		Power OFF	The RAS Board forces the Motherboard to Power Off when a Shutdown Failure occurs.

Note: The Startup Monitoring is active even during the BIOS setup! Therefore, disable the Startup Monitoring to configure the BIOS settings. With Dip Switch pin no. 8 on the RAS Board you can disable RAS monitoring functions.

Logging Cycle

Here you configure the logging cycle of the RAS board.

Item	Description
On/Off	Enables/disables the RAS logging.
starts	Specifies a time after the IPC startup for the Initial logging.
at intervals of	Specifies intervals for the periodic logging.

LCD Setting

Item	Description
ON/Off	Enables/disables the LCD Backlight monitoring.
LCD Backlight Brightness	Selects a level of the LCD backlight brightness among from High, Middle and Low. Default is High.

Note: For NSA-CPU0x-E models the LCD Backlight monitoring is not supported.




Clip Memo

Here you can store short memos in the RAS Board for maintenance reasons.

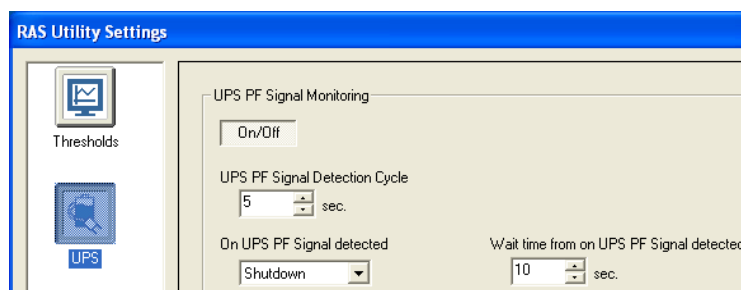
Item	Description	Example
Clip Memo A	Any text up to 20 characters	Last Update
Clip Memo B	Any text up to 20 characters	RAS Setting
Clip Memo C	Any text up to 20 characters	22-02-2006
Clip Memo D	Any text up to 20 characters	Battery
Clip Memo E	Any text up to 20 characters	03-03-2006

Beside the RAS settings there are also some RAS Utility settings. In the RAS Utility settings you can configure the Thresholds and UPS settings. The RAS Utility settings can be found from the "Settings" menu by choosing "RAS Utility Settings".

Click an icon in the list to show the specific page.

Icon	Page	Description
	Thresholds	To tune the Thresholds for the Accumulated Hours, Voltages and Temperatures of the Motherboard.
	UPS	To configure settings at the time of the Power Failure Signal detection from the UPS.
	Others	To configure messages for errors and the status refresh cycle.

For the Threshold settings please check the online help file of the RAS Utility. The UPS settings are explained below.

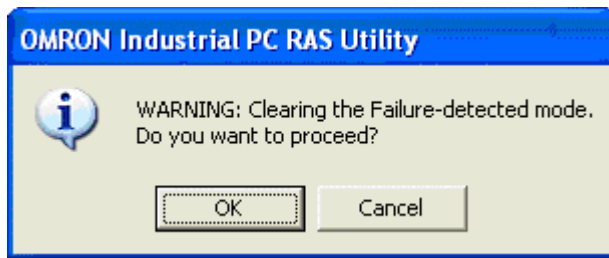


Item	Description	
On/Off	Enables/disables the UPS Power Failure Signal monitoring.	
UPS PF Signal Detection Cycle	Specifies a monitoring time for UPS Power Failure Signal. Every cycle RAS will detect the input in the RAS board.	
On Signal detected	No Action	No action when the UPS Power Failure Signal is detected.
	Shutdown	RAS Utility executes OS shutdown when the Power Failure Signal is detected.
Wait time from on PF Signal detected	The time RAS waits until it shuts down the DyaloX after detecting a PF signal. Normally this time is set according to the battery capacity of the UPS and the time needed to safely close the applications currently running on the DyaloX.	

4.2.2 Clear Failure(s)

Most failures will automatically be removed from the Main RAS window, however some monitoring failures will remain visible even if the original failure has been resolved already. You can manually clear the RAS errors when the failure itself has been resolved. To do this, follow the instructions below.

1. Click “Clear Failure-detected Mode” in “Action” menu.
2. The following confirmation dialog box appears:



3. Click the “OK” button to clear the Failure(s) detected.
4. You can confirm the current monitoring status in the Main window or Summary/Information window.

5. Restore image with USB stick

In the same box where you found this manual, you will also find a USB stick. This USB stick acts like a Startup disk so that you can boot the DyaloX IPC with this USB stick. For this it is necessary that you configure in the BIOS to boot from the USB stick first else it will just boot from the default disk.

To do this, follow the steps below:

1. Boot the DyaloX IPC
2. When you see the message “Press <F2> to enter SETUP”, press F2
3. Select the “Boot” menu
4. Select “Hard Drive” and press Enter
5. Now you see a list of drives. In this list you should also see the SanDisk USB stick. Select the SanDisk entry and move the SanDisk drive above the InnoDisk drive by pressing the plus (+) key.
6. Select the “Exit” menu and choose “Exit Saving Changes”. Confirm saving changes.
7. The DyaloX IPC will now reboot and show the Windows Startup Menu.

The USB stick contains some Windows startup files and a free tool to restore and save a disk image. This tool is provided free of charge and Omron is not liable for any damaged caused by using this tool. It is advised that when you need more than this basic functionality, that you buy a commercial imaging tool, like Acronis or Norton Ghost.

From the Microsoft Windows Startup Menu you can choose to save or restore a disk image. See the About option for more information about the tool.

The image file that will be restored is located on the USB stick and when you create an image it will also be saved to the USB stick by default. It is advised that you create a backup of this USB stick.