

ROBOTICS

Application manual

PickMaster[®] Twin - Operator



Trace back information: Workspace Main version a504 Checked in 2023-03-09 Skribenta version 5.5.019

Application manual

PickMaster® Twin - Operator Release 2.1.1

IRC5 and OmniCore

Document ID: 3HAC069977-001 Revision: H

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Overview of this manual

<u> </u>	
Adout this manual	This manual contains instructions for installation, configuration, and daily operation of PickMaster Operator.
Usage	This manual should be used during installation, configuration, and operation of a PickMaster system.
Who should read th	is manual?
	This manual is intended for:
	Installation personnel
	Programmers
	Integrators
	Operators
Prerequisites	
	Any maintenance/repair/installation personnel working with an ABB robot must be trained by ABB and have the required knowledge of mechanical and electrical installation/repair/maintenance work.
Disclaimer	PickMaster Operator is a robot application software that requires the user to ensure the safety of the robot or equipment during operation. If losses are caused by user negligence or improper operation, the corresponding responsibility shall be borne by the user.
Cybersecurity	
	This product is designed to be connected to and to communicate information and data via a network interface. It is your sole responsibility to provide, and continuously ensure, a secure connection between the product and to your network or any other network (as the case may be).
	You shall establish and maintain any appropriate measures (such as, but not limited to, the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB Ltd and its entities are not liable for damage and/or loss related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or loss related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.
	The PickMaster Operator will use the following ports:5000080

Continued

References

Reference	Document ID
Product specification - PickMaster® Twin	3HAC073650-001
Circuit diagram - PickMaster Twin	3HAC024480-020
Application manual - PickMaster Twin - PowerPac	3HAC064218-001
Operating manual - RobotStudio	3HAC032104-001
Application manual - Conveyor tracking	3HAC050991-001
Product manual - IRC5	3HAC047136-001
Product manual - IRC5 Panel Mounted Controller	3HAC027707-001
Operating manual - IRC5 with FlexPendant	3HAC050941-001
Operating manual - Troubleshooting IRC5	3HAC020738-001
Technical reference manual - RAPID Instructions, Functions and Data types	3HAC050917-001
Technical reference manual - RAPID Overview	3HAC050947-001
Technical reference manual - System parameters	3HAC050948-001

Revisions

Description	
First edition.	
 Published in release 21A. The following updates are made in this vision: Added information on supporting OmniCore controller. Minor corrections. Updated Zenon installation chapter. Added notes for real Runtime connection. Added Zenon license description. Updated whole solution folder from PickMaster Powerpac i needed when importing a solution in PickMaster Operator. 	
The following updates are made in this revision: Minor corrections. 	
 Published in release 21B. The following updates are made in PMTW 1.1.1 revision: Updated System requirements in chapter <i>Installing and uninstalling ABB ZENON on page 19</i>. Updated installation procedure in chapter <i>Installing and uninstalling ABB ZENON on page 19</i>. 	
 Published in release 22A. The following updates are made in PickMaster[®] Twin 2.0 revision: Updated software requirements to .Net Framework 3.5 in chapter <i>Installing and uninstalling ABB ZENON on page 19</i>. Updated preparation installation procedure in chapter <i>Installing and uninstalling ABB ZENON on page 19</i>. Updated ABB ZENON installation procedure in chapter <i>Installing and uninstalling ABB ZENON on page 19</i>. Updated ABB ZENON installation procedure in chapter <i>Installing and uninstalling ABB ZENON on page 19</i>. Updated ABB ZENON installation procedure in chapter <i>Installing and uninstalling ABB ZENON on page 19</i>. Added Recipe Manager function and Remote Controller signal definition. 	

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Continued

Revision	Description	
F	 The following updates are made in PickMaster[®] Twin 2.0.1 revision: Added RobotStudio software requirements to in chapter System requirements on page 17. 	
	 Updated Recipe Manager function and Remote Controller signal definition for Profinet. 	
	Minor corrections.	
G	Released with PickMaster [®] Twin 2.1 revision: Supported multiple languages. 	
	 Updated user management function. 	
	 Updated PackML information. 	
	 Added PMRT login function when connecting to PMRT. 	
	 Added ProfiNet slot in Appendix. 	
	Minor corrections.	
Н	Released with PickMaster [®] Twin 2.1.1: • Minor corrections.	

Safety

Safety of personnel			
	A robot is heavy and extremely powerful regardless of its speed. A pause or long stop in movement can be followed by a fast hazardous movement. Even if a pattern of movement is predicted, a change in operation can be triggered by an external signal resulting in an unexpected movement. Therefore, it is important that all safety regulations are followed when entering safeguarded space.		
Safety regulations			
	Before beginning work with the robot, make sure you are familiar with the safety regulations described in the manual <i>Safety manual for robot - Manipulator and IRC5 or OmniCore controller</i> .		
When using PickMa	ster [®] Twin products		
	 When using with PickMaster[®] Twin products, it is the user's responsibility to adhere to the relevant standards and safety directives. In addition, the application manuals for proper use must be observed. 		
	 Only personnel with appropriate training and required knowledge are allowed to use PickMaster[®] Twin products. 		
	• The integrator installing the PickMaster [®] Twin is responsible for the safety.		
	 Wherever possible, the auto mode of operation shall be performed with all persons outside the safeguarded space. 		
	 An emergency stop must also be available to make sure the emergency stop function is enabled. 		
	 PickMaster[®] Twin only provides Operational Stop (Program Stop). The integrator shall make sure that proper Normal Stop (machinery stop) is configured correctly in the system. 		
	 Make sure the hazardous situation that resulted in the emergency stop condition no longer exists. Release the emergency stop button manually to remove the emergency stop condition. 		
	 Stops for the machine is the responsibility of the integrator and must be addressed according to local legislation. 		
	 The integrator is responsible to conduct a risk assessment of the final application. 		
	 Sensitive body parts, such as the eyes and the larynx, must be protected by personal protective equipment (PPE). 		
	 Protective measures should be the precondition when using PickMaster[®] Twin products. PickMaster[®] Twin does not guarantee the robot targets are always in safe zone. It is integrator's responsibility to take protection measures, like using safe-move or setting proper robot work range etc. 		

- Safety related status and operations shall be handled on the controller and by safety rated systems. PickMaster[®] Twin status information shall not be used as input for safety related information and operations.
- Protective measures should be the precondition when install/adjust/replace hardware parts, for example, the camera.
- The stop functions in PickMaster[®] Twin can never be used to replace A-stop/E-stop or any other safety related stops.

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1.1 Introduction to PickMaster Operator

About PickMaster[®] Twin

PickMaster[®] Twin is an application product designed for vision based high speed picking of random flow products on the fly. PickMaster[®] Twin supports ease-of use configuration, simulation and operation of a big variation of smaller or larger line layouts composed of a multitude of robots, cameras, conveyors and fixed work areas. It is a production system that comprises all steps in the life cycle of a picking installation from proposal, engineering, commissioning, operation to maintenance and support.

PickMaster Operator can be customized for some of the following special needs:

- With the integrated vision system it can be used for full random operation on a continuously moving conveyors and for absolute accurate positioning on indexed feeders or trays.
- Without vision recognition it can be used as a tool for the efficient production with guided product flows on multiple conveyors.
- For efficient quality inspection and product categorization alone or together with the position recognition.

PickMaster[®] Twin is a modular product for controlling ABB robots in picking applications through the robot controller. It is configurable to perform pick and place operations of items. A vision system is used to find randomly placed items on conveyor belts or indexing static work areas. PickMaster Operator is the engineering software aimed at configuring and validating the application in offline simulation with a virtual system and in online mode directly connected to the real installation. It uses comprehensive graphical interfaces to configure powerful applications, where it can control multiple robots picking and placing sensor-detected items on different conveyor belts.



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PickMaster[®] Twin comprises the following modules:

PickMaster[®] Twin

Ease of Use software for offline and online configuration and commissioning in a visual 3D environment, powered by RobotStudio™.

1.1 Introduction to PickMaster Operator Continued

PickMaster[®] Operator

State-of-the art user interface for operating PickMaster on the shop floor, built on ABB's Ability[™] Zenon data management software.

PickMaster[®] Runtime

Efficient runtime operation software for orchestrating the coordination of the packaging process for a multitude of robots and conveyors including integrated vision software for precise robot guidance and guality inspection.

- Virtual Runtime: running the PickMaster process in a simulated virtual environment on a client system connected to virtual robot controllers.
- Real Runtime: running the PickMaster process in the real production ٠ installation on the host computer connected to real robot controllers.

The following illustration is showing an installation example with 10 robots, 4 cameras and 3 conveyors.



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PickMaster[®] Twin is delivered with different hardware configurations. For more information, see Product specification - PickMaster® Twin.

About PickMaster Operator

PickMaster Operator is the production interface providing intuitive control and data visualization to PickMaster Runtime. It provides modern comprehensive touch control interfaces for safe operation of a PickMaster installation with up to ten robots. PickMaster Operator is designed to run on an industrial PC with a multi-touch color panel.

The operator built on the ABB Ability[™] Zenon platform acts as a modern local control panel to run the line. Moreover, compliant with the OMAC PackML industry standard, it is easily connected to a cell PLC through modern fieldbus communication, understanding the same commands and status as related upstream and downstream packaging machinery. It also integrates with factory control systems for reporting and optimizing production pace and overall equipment efficiency (OEE).

PickMaster Operator features

Operational top information bar

Continues on next page

- 1.1 Introduction to PickMaster Operator Continued
- Graphical tile page selection
- Full user authentication management and login control
- Compliance with OMAC PackML standard and additional transparency control and status of individual robots in a PickMaster line
- Integrated soft PLC with PackML operation logics
- Two hand operation safety
- Recipe management system
- Production dashboard
- Online parameter tuning
- Customized graphical line layout
- Production control page
- Vision result display and recording

About this chapter

This chapter will guide you through the installation process, which consists of these steps:

- Installing and uninstalling ABB ZENON on page 19
- Installing PickMaster Twin Host on page 38
- Network setting on page 40

1.2 PickMaster[®] Twin Hardware connection illustration

1.2 PickMaster[®] Twin Hardware connection illustration





1.3.1 Hardware and software requirements

1.3 System requirements

1.3.1 Hardware and software requirements

Hardware and software requirements for PickMaster Twin Client

Hardware requirements

Following are the hardware requirements:

- A log on account with administrator rights on the computer.
- CPU: 2.0 GHz or faster processor. Multicore processor is recommended.
- Memory: 8 GB if running Windows 64 bit edition. 16 GB or more if working with heavy CAD models.
- Free disk space: 10+ GB free space, solid state drive (SSD) recommended.
- Graphics card: High-performance, DirectX 11 compatible, gaming graphics card from any of the leading vendors. For the Advanced lightning mode Direct3D feature level 10_1 or higher is required.
- Display settings: 1920 x 1080 pixels or higher resolution is recommended.
- Mouse: Three-button mouse
- If robot movement can be initiated from an external control panel then an emergency stop must also be available.



When running the software, close other software that consumes a lot of memory, otherwise it will affect the software normal use.

Software requirements

Following are the software requirements:

- Windows 10 (64 bit).
- Acrobat reader
- RobotStudio 2022.3.2
- IRC5 with RobotWare 6.15.01
- Omnicore with RobotWare 7.8.1.

Hardware and software requirements for PickMaster Twin Host

Recommended hardware

- Windows 10 (64 bit) IPC, 2GHz, 500 GBit SSD, 8 GBit RAM
- Recommended 17 inches 1920x1080 multi-touch screen
- Minimum two USB slots, one Ethernet port and one free PCI Express slot for a 168 mm x 110 mm size PCIE card
- Unmanaged Ethernet switch (robot network)

Software requirements

• Microsoft Windows 10, 64 bit (Home, Pro, Enterprise, Education, IoT, x64 versions) for touch panel

1.3.1 Hardware and software requirements *Continued*

- Environment Requirement : .Net Framework 3.5
- RobotStudio 2022.3.2
- IRC5 with RobotWare 6.15.01
- Omnicore with RobotWare 7.8.1.

1.4 Installing and uninstalling ABB ZENON

1.4 Installing and uninstalling ABB ZENON

Overview				
	This section describes the installation process for the ABB ZENON.			
	Тір			
	The ABB ZENON 8.0 installation file is included in the host installation package.			
	Note			
	Each ABB ZENON installation file contains at least one demo license.			
	This has a pre-defined duration or number of permitted starts. If these are used up, the product can continue to be used in demo mode, but production is ended after running for 10 minutes. You can find the usage period that is available in the License Manager in the License usage tab in the details of the license.			
Prerequisites				
	To start the installation process, the following must be available:			
	A computer that meets or exceeds the System requirements on page 17.			
	 A log on account with administrator rights on the computer. 			
Installing ABB ZE	ENON			
Preparation				
	Before installing ABB ZENON:			
	1 All current operating system updates must be installed.			
	Note			
	If you always use the latest version (Service Pack) of your operating system, you cannot only avoid compatibility issues but also security problems.			
	2 There must not be a restart pending.			
	3 The system requirements are checked before installation. If the requirements are not met, these will be shown on a separate page with notices on how to rectify this.			
	4 Automatic Windows updates influence the installation. If an update of the Windows operating system is carried out while the ABB ZENON setup is running, it can cause problems.			
	To prevent this: Deactivate the automatic Windows update during the ABB ZENON installation and carry out the Windows update before starting the ABB ZENON installation.			
	5 During the installation of ABB ZENON, the ABB Multiple Network Protocol Driver (cdprotdrv.sys) is installed. To start the driver, the operating system			

must be restarted after installation.

1.4 Installing and uninstalling ABB ZENON Continued



Installing ABB ZENON offline is recommended.

Due to the accidental network unstable issue, the online installation may be interrupted and cause problem.



The installation will take a long time.

Do not power off your computer during the installation.

Installing ABB ZENON

Use this procedure to install ABB ZENON offline:

1 Open the ABB ZENON installation folder in the host installation package and run the installation file start_menu.exe as administrator to open the installation window.



Note

Install ABB ZENON from the computer directly. If install ABB ZENON from a mobile device, for example an U-disk, PickMaster Operator may fail to work during the production.



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2 Choose the language.

ABB ABB	zenon					
Select the language for the installation from the choices below						
	English (United States)					
	OK Cancel					
	OK Cancel					

3 Click on Install Zenon Offline button to show next page.



xx1900000346

4 On the pop-up following page, read the **license agreement** and accept the terms. Then click on **Next**.

Zenon			
nformation Integrity I	nsight		ABB
iconso agroomont			
Please read the following license agreemen	carefully.		
ABB Abilitv™ Ope	rations Data Ma	anagement zenon	
End User License Agreemen	:	5	
English			
END-USER LICENSE AGREEMENT			
INPORTANT - READ CAREFULLY: This End-User ABB Oy, whose registered office is located at h Operations Data Management zenon" (hereina user manual, printed materials and electronic o works to the foregoing (hereinafter referred to void accert con the operation of the thereinafter of the content of the foregoing (hereinafter referred to	Icense Agreement ("EULA") is a legal agree Iomotie 13, 00380, Helsinki, Finland (herein ter referred to as "ABB zenon"), which inclu ocumentation as well as all modifications, as "Product").	ment between you (either an individual or a sin nafter referred to as "ABB"), for the software "Ai udes computer software, controller software, ar updates, upgrades, new versions or releases ar	yle entity) and 38 Ability™ sociated media, d derivative
COPYING OR OTHERWISE USING THE PRODUCT	IF YOU DO NOT AGREE, DO NOT INSTALL O	INCLUE AND ACCOMPANY THE PRODUCT, BY INCLUE THE PRODUCT.	INSTALLING,
GRANT OF LICENSE ABB grants you the following non-exclusive and	restricted rights, provided that you comp	אן with all the terms and conditions of this EULA	

1.4 Installing and uninstalling ABB ZENON *Continued*

5 On the pop-up following page, confirm the installation information and click on **Install** to start the installation.



xx1900001750

6 When the installation is complete, click **Finish**.

ABB zenon installer 2.2.3 Build 636 - Finish Page	- 🗆 X
Zenon Information Integrity Insight	АВВ
Image: Second 8.00 Image: Second Runtime 800 [8:00.052082] Image: Second Runtime 800 [8:00.052082] Image: Second Runtime 800 [8:00.052082] Image: Second Runtime (Supervisor) 8:00 [8:00.052082] Image: Second Runtime (Supervisor) 8:00 [8:00.052082]	Installation Success Setup has successfully installed ABB zenon on your computer. Show log Links And Information
	Finish

Uninstalling ABB ZENON

Note

Follow the procedure to uninstall the ABB ZENON. Or the ABB ZENON cannot be installed on the same computer normally.



Note

Return the license to release it before any uninstalling ABB ZENON work.

Or the license will be occupied by the uninstalled ABB ZENON and may not be reused anymore.

If this already happened, please contact ABB.

Use this procedure to uninstall ABB ZENON:

1 Start the ZENON 8.00 Installation Manager.



xx2000000311

2 Click Uninstall all on the pop-up window.



3 Click Yes on the pop-up dialog box.



xx2000000313

4 When the uninstallation is completed, click **Finish**.

ABB zenon 2.2.3 Build 636 - Finish Page	- 🗆 X
zenon Information Integrity Ins	iaht ABB
Uninstallation Status Image: Status I	 Uninstallation Success ABB zenon was successfully uninstalled. Show log Links And Information
	Return to installation manager home page

A notice to remove the ZENON 8.00 Installation Manager will pop up after clicking **Finish**.



xx2200002184

5 Remove the ZENON 8.00 Installation Manager from the control panel.

Programs and Features						
÷	← → → ↑ 🕅 > Control Panel > All Control Panel Items > Programs and Features					
	Control Panel Home	Uninstall or change a program				
	View installed updates	To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.				
•	Turn Windows features on or					
	off	Organize - Uninstall Repair				
	Install a program from the network	Name	Publisher			
		Microsoft Azure Information Protection #ABBFonts	Microsoft Corporation ABB			
		All zenon 8.00 SP0 Installation Manager	ABB Automation Products GmbH			
		ScodeMeter Runtime Uninstall	WIBU-SYSTEMS AG			
		Microsoft Visual Stu Repair - E	Microsoft Corporation			
		COPA-DATA Multiple Network Protocol Driver	Ing. Punzenberger COPA-DATA G			
xx2200002185						

Frequent sources of error during installation

1 The virus scanner is active and blocks the installation because the scanner may take it as a virus.

Solution: Separate the system from the network and disable the virus scanner, then execute the installation again.

- 2 The firewall was not configured correctly. Solution: Separate the system from the network and disable the firewall, then execute the installation again.
- 3 Erroneous SQL-installation on the system. Solution: Create project.
- 4 The ABB ZENON earlier version is not uninstalled correctly. For more details on correct uninstall method, see *Uninstalling ABB ZENON on page 23*. Solution: If this happens, please contact ABB.
- 5 Proxy configuration settings pops up during the installation.

1.4 Installing and uninstalling ABB ZENON *Continued*

For the ABB internal customer, please check the proxy settings before the installation. Select "Automatic detect settings".

The installer cannot download the package when it can't create a valid connection to the Amazon storage.

Please start installation again after resetting. If the problem still persists, please contact the IT service.

1.5 ABB ZENON license

1.5 ABB ZENON license

Introduction

The license is enclosed in an envelope with the hardware product when it is purchased.

Access to the **License Manager** from the **License Manager** button on the user interface or the start menu of the computer.

Overview of activated license on the computer

Get an overview of the activated license with following steps:

1 Open the License Manager.

🔎 License management	X
Please select:	
B45DS9XV	Activate license with license certificate ?
2	Apply license from hardware dongle
*	Advanced options
Do not show t	his dialog again Help Close

1.5 ABB ZENON license Continued

2 Click on License overview.

Dicense management	×
Please select:	
Activate license with license certific	ate 🕐
Apply license from hardware dong	e ?
Advanced options	
License overview	0
Update all licenses	?
Borrow/lend license	?
Relocate/return license	0
Mass activation	?
Advanced license administration	. ?
□ Do not show this dialog again	Help Close

xx2000000224

3 The all activated license show up in the pop-up window.

) Lo	cal li	censing				Refresh
cense	usa	ge License overview	Activate lice	ense Settings		
icens	es fr	om computer: Local host	:			
_		Serial number		Item name		Products
			aA 🏹		aA 🏹	
0	*	C00NW-DEM00-DEM00-	00000-00012	Demo Supervisor		ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB Pr
0	±	C00NK-DEM00-DEM00-0	00000-00011	Demo Operator		ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime
Ø	*	C00NU-DEM00-DEM00-	00000-00014	Demo DMS & Ene	rgy Edition	ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB P
8		C0045-7U3TB-NHD2C-0	0000-35654	zenon SU DEV Pac	:k	ABB zenon Logic Runtime, ABB zenon Editor, ABB zenon Runtime, ABB P
•						
1						Update license Return license

1.5 ABB ZENON license Continued

Activating a license

Activating a license online

If this computer is with internet access, active the license with following steps:

1 Open the License Manager.



xx1900000799

2 Click on Activate license with license certificate... to open the *Enter serial number* text box.

License management	
Please select:	
B45DS9XV	Activate license with license certificate ?
	Enter serial number
	Computer-based license (software dongle)
	O Hardware dongle
	Activate license
2	Apply license from hardware dongle
.	Advanced options
Do not show th	nis dialog again Help Close

- 3 Enter a valid license for the PickMaster Operator in the text box.
- 4 Click Activate license button.

1.5 ABB ZENON license Continued

Activating a license offline

If this computer is without internet access, active the license with following steps:

1 Open the License Manager.



1.5 ABB ZENON license Continued

2 Click on Advanced options... and then Advanced license administration....

License management		X
Please select:		
B45DS9XV	Activate license with license certificate	?
2.*	Apply license from hardware dongle	?
*	Advanced options	
	License overview	?
	Update all licenses	?
	Relocate/return license	?
	Mass activation	?
	Advanced license administration	0
Do not show th	nis dialog again	elp Close

1.5 ABB ZENON license Continued

icense usage	Licens	e overview	Activate license Settings		
Product selecti	ion	Change lic	ense order for selected product	0- 0	?
zenon Logic R zenon Editor zenon Runtim	untime e	1	zenon SU DEV Pack C0045-7U3TB-NHD2C-00000-35654 zenon Logic Runtime, zenon Editor, zenon Runtime, Process Gateway		
Process Gatew	vay	2	Demo Supervisor C00NW-DEM00-DEM00-00000-00012 zenon Editor, zenon Runtime, zenon Logic Runtime, Process Gateway The usage period for the product 'zenon Runtime' expired on 4/3/2019 4:42:29 PM. The usage period for the product 'zenon Logic Runtime' expired on 4/3/2019 4:42:39 PM.		
		3 3	Demo Pharma Edition C00NV-DEM00-DEM00-00000-00013 zenon Editor, zenon Runtime, zenon Logic Runtime, Process Gateway The usage period for the product 'zenon Runtime' expired on 4/3/2019 442:29 PM. The usage period for the product 'zenon Logic Runtime' expired on 4/3/2019 4:42:39 PM.	\bigcirc	=
		4 ■	Demo Energy Edition C00NU-DEM00-DEM00-00000-00014 zenon Editor, zenon Runtime, zenon Logic Runtime, Process Gateway The usage period for the product 'zenon Runtime' expired on 4/3/2019 442:29 PM. The usage period for the product 'zenon Logic Runtime' expired on 4/3/2019 4:42:39 PM.	\bigcirc	
		<u>ر</u>	Demo Operator C00NK-DEM00-DEM00-00000-00011 zenon Editor, zenon Runtime, zenon Logic Runtime		*

xx1900000691

3 Click on the Activate license tab.

cense r	management		and a state of the		
J Loc	cal licensing			Refresh	
icense.	e usage License overview Act	ivate license Settings			
On	line activation			?	
Off	fline activation			•	
Seria	l number				
Ente	er serial number				
Selec	t target dongle				
	Name	Dongle ID	Number of licenses	First existing license	
ъ	Software-Dongle Standard	130-149313499	1	zenon SU DEV Pack-C0045-7U3TB-	
Activ	vate license				
Show	start dialog				

1.5 ABB ZENON license Continued

- _ D X License management Local licensing Refresh License usage License overview Activate license Settings Online activation ? Offline activation Serial number Enter serial number Select target dongle Name Dongle ID Number of licenses First existing license 130-149313499 zenon SU DEV Pack-C0045-7U3TB-↑ E Software-Dongle Standard 1 1. Create a license request file by clicking on the "Create license request file..." button. Save this file. Create license request file. 2. Upload the license request file that has been created to the following website: https://abb-license.copadata.com This step can be carried out on any computer with internet access. You then receive a license update file. 3. You get a license update file. Import this license update file to the target computer on which you want to activate the Import license update file... 4. Create a license confirmation file by clicking on the "Create license confirmation file..." button. Save this file. Create license confirmation file... 5. Upload the license confirmation file that has been created to the following website: <u>https://abb-license.copadata.com/continue.php?step=3</u> ^E This step can be carried out on any computer with internet access. Show start dialog Help Close
- 4 Click on the **Offline activation** option.

xx1900000693

5 Follow the steps to access an available license and activate it on your PickMaster Operator computer.

) Local licensing			Refresh
icense usage License overview A	ctivate license Settings		
Online activation			2
Offline activation			•
Serial number			
Enter serial number			
Select target dongle			
	0 1 10	N 1 45	where the second
Name	Dongle ID	Number of licenses	First existing license
Software-Dongle Standard	130-149313499	1	zenon SU DEV Pack-C0045-7U3TB-I
Name Software-Dongle Standard 1. Create a license request file by clickin	g on the "Create license request file" b	1 utton. Save this file.	zenon SU DEV Pack-C0045-7U3TB-
Name Software-Dongle Standard Create a license request file by clickin Upload the license request file that hat	g on the "Create license request file" b is been created to the following website put out it is big on the strengt access. You then no	I I I I I I I I I I I I I I I I I I I	zenon SU DEV Pack-C0045-7U3TB-I
Software-Dongle Standard Software-Dongle Standard Create a license request file by clickin Upload the license request file that ha This step can be carried out on any com 3. You get a license update file. Import t license.	g on the "Create license request file" b s been created to the following website puter with internet access. You then reco his license update file to the target com	I Utton. Save this file. Ittps://abb-license.copadata.com Verse v	First existing license zenon SU DEV Pack-C0045-7U3TB-I Create license request file Import license update file
Software-Dongle Standard Software-Dongle Standard Create a license request file by clickin Upload the license request file that he This step can be carried out on any com 3. You get a license update file. Import t license. 4. Create a license confirmation file by c	g on the "Create license request file" b s been created to the following website puter with internet access. You then rec his license update file to the target com licking on the "Create license confirmati	I Utton. Save this file. I I I I I I I I I I I I I I I I I I I	First existing license zenon SU DEV Pack-C0045-7U3TB-I Create license request file Import license update file Create license confirmation file
Name Software-Dongle Standard Create a license request file by clickin Upload the license request file that ha This step can be carried out on any com 3. You get a license update file. Import t license. 4. Create a license confirmation file by c 5. Upload the license confirmation file t https://abb-license.copadata.com/conti	g on the "Create license request file" b s been created to the following website puter with internet access. You then reco his license update file to the target com licking on the "Create license confirmati hat has been creaed to the following we nue.php?step=3 This step can be cal	I Utton. Save this file. I Utton. Save this file. Ittps://abb-license.copadata.com ive a license update file. puter on which you want to activate th on file" button. Save this file. Disite: Tried out on any computer with internet	First existing license zenon SU DEV Pack-C0045-7U3TB-I Create license request file Import license update file Create license confirmation file et
Name Software-Dongle Standard Create a license request file by clickin Upload the license request file that ha This step can be carried out on any com 3. You get a license update file. Import t icense. 4. Create a license confirmation file t https://abb-license copadata.com/conti access.	ag on the "Create license request file" b s been created to the following website puter with internet access. You then reco his license update file to the target com licking on the "Create license confirmati hat has been creaed to the following we nue.php?step=3 ⊕ This step can be can	I Utton. Save this file. I I I I I I I I I I I I I I I I I I I	First existing license zenon SU DEV Pack-C0045-7U3TB-I Create license request file Timport license update file Create license confirmation file et

1.5 ABB ZENON license Continued



If a valid license is already activated but the user still use the Demo license when launching PickMaster Operator, this is caused by that the license is not mentioned in the first choice.

Select the activated license and click the up button to bring the activated license to the first choice of the license.

License usage		-w	Activ	ate license Settings			
literine anage	Electise overvice		Activi	ate reense settings			
	C	hang	e licens	se order for selected product			?
Product selection	on Li	cens	es from	n computer: Local host	÷	0	-
ABB zenon Edi ABB zenon Ru ABB zenon Log ABB Process G	itor ntime gic Runtime iateway	1	!	zenon SU DEV Pack C0045-7U3TB-NHD2C-00000-35654 ABB zenon Logic Runtime, ABB zenon Editor, ABB zenon Runtime, ABB Process Gateway The license expired on 10/16/2019 7:59 AM.		C	
		2	()	Demo Supervisor C00NW-DEM00-DEM00-00000-00012 ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB Process Gateway	•	C	
		3	()	Demo Operator C00NK-DEM00-DEM00-00000-00011 ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime	0		
		4	D	Demo DMS & Energy Edition C00NU-DEM00-DEM00-00000-00014 ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB Process Gateway	0	D	
		<					
Show start dialo	pg				Help	p	Clos

Retuning a license

When a license need to be released from one computer, return it first. During the validity period, it's allowed to activate the returned license on another proper computer.

1.5 ABB ZENON license Continued

Return a license with the following steps:

1 Open the License Manager.



xx1900000799

2 Click on License overview.

License management		×
Please select:		
B45DS9XV	Activate license with license certificate	
2	Apply license from hardware dongle	
*	Advanced options	
	License overview	
	Update all licenses	
	Borrow/lend license	
	Relocate/return license	
	Mass activation	
	Advanced license administration	
□ Do not show th	nis dialog again Help	Close

xx2000000224

35

1.5 ABB ZENON license Continued

3 Click on the license to be returned.

/	cal li	censing			Refrest
cense	e usa	ge License overview	Activate lice	ense Settings	
icens	es fr	om computer: Local host	:		
		Serial number		Item name	Products
			aA V	aA V	
0	*	C00NW-DEM00-DEM00-	00000-00012	Demo Supervisor	ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB F
0	±	C00NK-DEM00-DEM00-0	00000-00011	Demo Operator	ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime
O		C00NU-DEM00-DEM00-	00000-00014	Demo DMS & Energy Edition	ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB F
ч	æ	C0045-7U3TB-NHD2C-0	0000-35654	zenon SU DEV Pack	ABB zenon Logic Runtime, ABB zenon Editor, ABB zenon Runtime, ABB F
•	_				
					Update license Return license

xx2000000227

4 Click on Return License.

	cal li	censing				Refrest			
cense	usa	ge License overview	Activate lice	ense Settings					
icens	es fr	om computer: Local host							
		Serial number		Item name		Products			
			aA 🏹		aA 🟹				
0		C00NW-DEM00-DEM00-	-00000-00012	Demo Superviso	r	ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB Pro			
O	*	C00NK-DEM00-DEM00-	00000-00011	Demo Operator	ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime				
0		C00NU-DEM00-DEM00-00000-00014 Demo DMS & Energy Edition ABB zenon Editor, ABB zenon Runtin		ABB zenon Editor, ABB zenon Runtime, ABB zenon Logic Runtime, ABB R					
ъ	æ	C0045-7U3TB-NHD2C-0	0000-35654	zenon SU DEV Pa	ack	ABB zenon Logic Runtime, ABB zenon Editor, ABB zenon Runtime, ABB F			
•	_								
						Update license Return license			
1.5 ABB ZENON license Continued

license	e usa	ge License overview Activate lice	nse Settings	
Licens	ses fr	om computer: Local host		
		Serial number	License management	× 1
		aA V		^
0	.et	C00NW-DEM00-DEM00-00000-00012		on Runtime, ABB zenon Logic Runtime, AB
0	٠	C00NK-DEM00-DEM00-00000-00011	The license has been successfully returned.	on Runtime, ABB zenon Logic Runtime
0	٠	C00NU-DEM00-DEM00-00000-00014		on Runtime, ABB zenon Logic Runtime, AB
			OK	
4				
				Update license Return licen

5 Click OK when the license is successfully returned.

xx2000000229



Note

Return the license to release it before any uninstalling ABB ZENON work.

Or the license will be occupied by the uninstalled ABB ZENON and may not be reused anymore.

If this already happened, please contact ABB.

1 Introduction and installation

1.6 Installing PickMaster Twin Host

1.6 Installing PickMaster Twin Host

Overview	
	This section describes the installation process for the PickMaster Twin Host.
	The PickMaster Twin Host contains the PickMaster Operator and real Runtime for production.
Prerequisites	
	To start the installation process, the following must be available:
	 A computer with ABB ZENON installed.
	• A computer that meets or exceeds the <i>System requirements on page 17</i> .
	 A log on account with administrator rights on the computer.
	PickMaster Twin Host installation package
	A license certificate
	Note
	The PickMaster Twin Client and PickMaster Twin Host are not recommended to
	be installed on a same PC.
Installing PickMa	aster Twin Host
5	Use this procedure to install the PickMaster Twin Host:
	1 Browse to the PickMaster Operator installation package PickMaster Twin Host and double-click setup.exe.
	The installation starts.
	🔩 setup.exe

xx1900001752

2 Click Next.

1.6 Installing PickMaster Twin Host Continued

3 I	Read the	license	agreement	and acce	pt the terms.
-----	----------	---------	-----------	----------	---------------

PickMaster Twin Host 2.1.1 - InstallShield Wizard	×
License Agreement Please read the following license agreement carefully.	B
END-USER LICENSE AGREEMENT ABB PICKMASTER TWIN IMPORTANT - READ CAREFULLY: This End-User License Agreement ("EULA") is a legal agreement between you (either an individual or a single entity) and ABB AB ("ABB") for the ABB product you are about to install, which may include computer software, controller software, associated media, printed materials and electronic documentation ("PRODUCT").	^
YOU AGREE TO BE BOUND BY THE TERMS OF THIS EULA, including any amendment or addendum which may accompany the PRODUCT, BY INSTALLING, COPYING OR	~
I accept the terms of the license agreement I do not accept the terms of the license agreement	
<pre>Installshield</pre>	cel

- 4 Choose the destination location folder and click Next.
- 5 Choose to install the **Congnex vision driver** and click **Next**.
- 6 Choose a folder for the application to set SFTP and click Next.
- 7 Choose an IP address for network adaptor configuration and click Next.
- 8 Click Next to start the installation.
- 9 When the installation is complete, choose to restart the computer now or later and click **Finish**.

1.7 Network setting

1.7 Network setting

Overview

This chapter describes the procedures on setting up the Internet. Otherwise the PackML function cannot work normally.

Renaming the Network Adaptor

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If the Network Adaptor is not renamed correctly, the PickMaster Operator cannot work normally.

Use this procedure to rename the Network adaptor:

1 Right click on the Wifi icon in the lower right corner of desktop.



xx1900000797

2 Click Open Network and Sharing Center option.



xx1900000798

3 Click the "Change adapter settings" option.

Settings			-	٥	×
	Status				
Find a setting	Network status	Have a question?			
Network & Internet	$\Box = e = \Phi$	dechap			
🕭 Status	Association				
∠⊊ Wi-Fi	You're connected to the Internet				
💬 Ethernet	metered connection or change other properties.				
😤 Dial-up	Change connection properties				
% VPN					
nga Airplane mode					
的 Mobile hotspot	Change adapter options View network adapters and change connection settings.				
🕑 Data usage	B Sharing options For the networks you connect to, decide what you want to share.				
Proxy	Network troubleshooter Disgroos and fix network problems.				
	View your network properties				
	Windows Firewall				
	Network and Sharing Center				
	Network reset				
xx1900001502					

Continues on next page

1.7 Network setting Continued

4 Enter the **Network Connections** setting page, right click on the network you are currently using for connecting PickMaster Operator and rename the network name to "ProfinetIOAdapter".

Organize • Connect	To Disable this	network device	Diagnose this connection	Rename this connectio	n View status of this connection	Change settings of this connection
Cisco AnyConn Client Connect Disabled	ect Secure Mobility	Ether Netw Intel	net irork cable unplugged R) Ethernet Connection (2) I2	WiFi abb.co Intel(R) ©	Disable Connect / Disconnect Status Diagnose Bridge Connections Create Shortcut Delete Rename Properties	I

xx1900001503

For example: If the your computer is using wi-fi. Rename the network name "WiFi" to "ProfinetIOAdapter".



xx1900001504

5 If your computer uses a wired network, rename the network name from "Ethernet" to "ProfinetIOAdapter" with the same way.



If the button of control mode selection disappeared, check whether the network name is changed to 'ProfinetIOAdapter' or not.

If not, change the name to fix the problem.

←	System Setup				
	Browse solution file	Fieldbus Selection No fieldbus selected	Remote control Disable Enable	Control method Basic Control PackML control	Two hand operation Disable Enable
	No. Name 1 Solution87		Creatio 2019-	in date 08-02 11:36:42	
xx1	900001727				

1.8 Accessing the user interface

1.8 Accessing the user interface

Overview

This chapter describes the procedures before login.



After install PickMaster Twin Client and PickMaster Twin Host on different PC as recommended, there will be two real Runtime available but only the one connected to controller or camera should be used. This is the one that user should connect PickMaster Operator with and login.

The real Runtime on Host PC and Client PC are identical but the one on Host is for production. Robot controllers and cameras should also be connected to this one.

Prerequisites

To start the PickMaster Operator, the following must be available:

- ABB ZENON must have been installed to the computer.
- PickMaster Operator must have been installed to the computer.
- A log on account with administrator rights on the computer.

Opening PickMaster Operator

Use this procedure to start PickMaster Operator:

1 Double click the PickMaster Operator file to open the Welcome to ABB PickMaster window.



xx1900001506

2 Enter the IP address of the PickMaster Runtime which need to be connected.



Check the IPv4 address of the computer which the PickMaster Runtime is installed on.



Loopback address is NOT allowed to use as the PickMaster Runtime IP address, for example 127.0.0.1.

Loopback address will cause errors in vision function.

1.8 Accessing the user interface *Continued*



xx1900001507

3 If needed, click **Advance** to open the setting view for Runtime user and language.



The user should change the password of the default user account for higher Cyber Security.

1 Introduction and installation

1.8 Accessing the user interface Continued

	Welcome to ABB Pi	ckMaster®	
ABB PickMaster®	 PickMaster Runtime Runtime status 		
	IP:	192.168.10.52	Connect
	Advanced		
	User name:	admin	
	Password:	•••••	
	Language:	English ×	
		License manager	
All rights reserved 2023		Close	Start

xx2200002005

4 Click Connect button.



When the SSL dialog box pops up during the first operation of the PickMaster Operator, click Yes.

Otherwise the PickMaster Operator cannot work normally.

	Welcome to ABB P	ickMaster®	
ARR	PickMaster Runtime		
PickMaster ®	🗸 Runtime status		
	IP:	192.168.10.52	Connected
	Advanced		
	User name:	admin	
	Password:	•••••	
	Language:	English ~	
All rights reserved 2023		Close	Start

xx2200002006

5 Click the License Manager button to open the License Management window. For more detail on activating the license, see ABB ZENON license on page 27.

Continues on next page

1.8 Accessing the user interface *Continued*

6 Click Start button to open the login interface.

	Welcome to ABB P	ickMaster®	
ABB PickMaster®	PickMaster Runtime Runtime status IP: Advanced	192.168.10.52	Connected
		License manager	
All rights reserved 2023		Close	Start



	Note
lf th	e user meets any problem when building connection between
Picł	Master Operator and real Runtime, please check from below possible
reas	sons:
а	Using a host account that is not administrator;
b	Firewall blocking;
С	VPN interference;
d	Host IP address incorrect;
е	The network name not renamed to "profinetIOAdapter".

1 Introduction and installation

1.8 Accessing the user interface *Continued*

7 Login with an effective user account.



2 PickMaster Operator main navigation bar

Structure of the main navigation bar

The PickMaster Operator main navigation bar provides a series of basic functions.

PickMaster 🗅		✤ Stopped	B No Recipe	A 0	EN	0	÷	superuser
xx190000032	1							
ID	Object	Description						
1	Home Page icon	Go back to the	e main page v	vhen you o	pen ar	ту ра	ge.	-
2	Status indicator	Shows the sta	Shows the status of the production.					
3	Recipe indicator	Shows the recipe in use. No recipe : No recipe is loaded or no mandatory robot is selec- ted. Recipe partly loaded : Mandatory and option both exist. Recipe Loaded : All robots are mandatory. For more information, see <i>Recipe Settings on page 70</i> .						
4	Bell	Shows the me I have of the Accepted da Limit Low number. The value of the Recepted da Limit Low number. The value of the Receded da Limit Low number. The value of the Accepted da Limit Low number. Associations Associations Associations Xx1900000324	Aboard below ard below Limit oard below shiboard below					
5	Language	Change the la Available lang • English • Simplifi • Germar • Italian • Spanish • Japane • French • Korean	nguage. uages: ed Chinese 1 1 se					

Continued

ID	Object	Description
6	Help	Link to the manual of the PickMaster Operator.
7	Login	Log in, log off, manage PickMaster Operator user password and exit application.

3.1 Overview

Overview

The following figure shows the PickMaster Operator main page.



3.1 Overview *Continued*

Elements on the main page

Group	Menu	Description
PRODUCTION	Dashboard	xx1900000325 Shows the status of the robots. For detailed description, see Dashboard on page 54.
	Operation	xx1900000326 Send commands from PickMaster Operator and reflect the states of PackML in PickMaster Operator. For detailed description, see Operation on page 55.
	Tuning	۲uning xx1900000327 Adjust recipe parameters during operation. For detailed description, see <i>Tuning on page 61</i> .
RECIPE MANAGER	Recipe Manager	Recipe Manger xx190000328 Choose a recipe. For detailed description, see <i>Recipe Manager</i> on page 69.

3.1 Overview Continued

Group	Menu	Description
MONITORING	SoftPLC Live Data	xx1900000790 Monitor the live data of the softPLC. For detailed description, see SoftPLC Live Data on page 72.
ANALYSIS	Alarm	Alarm xx1900000791 Monitor the alarms that are not acknowledged. For detailed description, see <i>SoftPLC Live Data</i> <i>on page 72</i> .
	Alarm History	Alarm History xx1900000792 Monitor all the alarms. image: constraint of the state of the stat
	Log	Log xx1900000793 Monitor all the operations that happened. For detailed description, see <i>SoftPLC Live Data</i> <i>on page 72</i> .

3.1 Overview *Continued*

Group	Menu	Description	
SYSTEM	Exit Runtime	Ð	
		Exit	
		xx1900000329	
		End the PickMaster	Operator.
		For detailed descript	tion, see <i>Exit on page 80</i> .
	System Setup		
		19	
		System Setup	
		xx1900000330	
		Import solutions.	
		For detailed descript <i>page 80</i> .	tion, see <i>System Setup on</i>

3.1 Overview Continued

Group	Menu	Description
ADMINISTRATOR	Account	Account xx1900000331 Manage the account in use. For detailed description, see Account on page 86.
	User Management	Image: wide wide wide wide wide wide wide wide
	Role Management	xx1900000333 Manage the roles. For detailed description, see Role Management on page 88.
DOCUMENTATION	PickMaster	Documentation xx1900000334 Open the related documents. For detailed description, see <i>PickMaster on</i> <i>page 93</i> .

3.2 PRODUCTION group

3.2 PRODUCTION group

Dashboard

Overview

Dashboard allows you to show the layout of the solution, the quantity and status of the components in the solution, the status of the robots and the live data of pick/place rate.



Parameter	Description
Overall pick rate	The pick rate for all robots in current solution.
Overall Picked Products	The total number of the picked products in current solution.
Overall products rejected	The total number of the rejected products in current solution.
Overall products accepted	The total number of the accepted products in current solution.
2D Layout	Shows all equipment in current solution.
Trend	Shows the trend of the overall pick rate.

Operation

What is PackML?

PickMaster[®] Twin includes an internal SoftPLC, which controls a state machine following the PackML standard according to OMAC (Organization for Machine Automation and Control: omac.org). PackML stands for Packaging machine language and it defines a unified way of operating packaging machinery as well as the inter-machinery communication.



xx1900000796

- A transition State (Green in picture) is a state that holds a process until certain conditions are met.
- A Wait State (Orange in picture) A stable state used to identify that a unit/machine has achieved a defined set of conditions.
- Dual state (Blue) The unit/machine is in a stable acting state unit/machine is producing; but in case of batch production, it can be a transition state.

The states in orange and blue are stable states, i.e. they can be valid for a longer period of time. The states in green are states that are only valid for a certain period of time and transfer to the next state without intervention from an operator. The transition is automatically done if the state is complete (SC = State Complete).

Shown above is the full state diagram with the state Execute (in blue) the producing state. The loop under-neath, via Suspended, is a waiting loop for material to be worked upon. The loop above, via Held, is the loop where the operator holds the system out of the producing state.

After all products are made, the producing state Execute is left via Complete, and ready for a new production order.

At power on, the state Stopped is valid. After a Reset it moves to the state Idle via Resetting.

Issuing 'Start' gets the unit to 'Execute' via 'Starting'.

55

The PackML state diagram leaves its normal loop via either Abort or Stop. The Abort is coupled to the error handling from every state. The Stop is for the operator interface.

PackML state diagram

	State Commands					State				
Current State	Start	Reset	Hold	Un-hold	Suspend	UnSus- pend	Clear	Stop	Abort	Com- plete
IDLE	START- ING							STOP- PING	ABORT- ING	
START- ING								STOP- PING	ABORT- ING	EX- ECUTE
EX- ECUTE			HOLD- ING		SUS- PEND- ING			STOP- PING	ABORT- ING	COM- PLETING
COM- PLETING								STOP- PING	ABORT- ING	
COM- PLETE		RESET- TING						STOP- PING	ABORT- ING	
RESET- TING								STOP- PING	ABORT- ING	
HOLD- ING								STOP- PING	ABORT- ING	
HELD				UNHOLD- ING				STOP- PING	ABORT- ING	
UNHOLD- ING								STOP- PING	ABORT- ING	
SUS- PEND- ING								STOP- PING	ABORT- ING	
SUSPEN- DED						UNSUS- PEND- ING		STOP- PING	ABORT- ING	
UNSUS- PEND- ING								STOP- PING	ABORT- ING	
STOP- PING									ABORT- ING	
STOPPED		RESET- TING							ABORT- ING	
ABORT- ING										
ABOR- TED							CLEAR- ING			
CLEAN- ING									ABORT- ING	

Continues on next page

Command	Step 1: Active state	Step 2: PickMaster actions	Step 3: Robot and controller ac- tions	Step 4: Expected command result	Step 5: Expected active state
Reset	Resetting	Create line and project files; Initiate vision; Start vision; Initiate robots (position sources, pipes, RAPID program, etc).	Controller Motors ON; Robots move to Safe pos- ition.	Controller Motors on; Init vision finished; Init robots finished.	Idle
Start	Starting	Start robots.	Running pickplace routine	Robots is in running state.	Execute
Stop	Stopping	Stop vision; Stop robots; Stop project; Close pro- ject.	Moving to safe positions	Robots stopped; Project stopped and closed.	Stopped
Hold	Holding	Hold robots.	Executing holding opera- tion Robots; stopped in HOLD position.	Robots reached hold position.	Held
Un-hold	Un-Holding	Start robot to pick/place.	Restarting pick or place	Robots is running.	Execute
Suspend	Suspending	Suspend robots.	Executing Suspending operation; Robots stopped in SUSPEND po- sition.	Robots reached sus- pend position.	Suspended
Un-Sus- pend	Un-Suspend- ing	Start robot ready to pick/place.	Restarting pick or place	Robots is running.	Execute
Abort	Aborting	Stop vision; Stop robots; Stop project.	Moving to safe positions	Robots stopped in safe position.	Aborted
Clear	Clearing	Close project.	Stopped in safe position	Close project com- pleted.	Stopped

Actions for each command

Self-diagnosis processing PackML state

Mandatory robot command result when PML is Execute					
Robot command (UI buttons or remote commands)	Production State	Optional Robot	Other Mandatory Ro- bot	Remark	
Pause	Holding	Pause in Safe position	Pause in Safe position	/	
Stop	Holding	Pause in Safe position	Pause in Safe position	/	
Start (not allowed)	/	1	1	/	
AutoStop (A-stop)	Holding	Pause in Safe position	Pause in Safe position	/	
E-stop	Stopping	Stop	Stop	/	

3.2 PRODUCTION group Continued

Optional robot command result when PML is Execute				
Robot command (UI buttons or remote commands)	Production State	Other Optional Robot	Mandatory Robot	Remark
Pause	no effect	no effect	no effect	Only the commanded
Stop	no effect	no effect	no effect	robot is influenced
Start(after robot stopped or paused)	no effect	no effect	no effect	
AutoStop (A-stop)	no effect	no effect	no effect	
E-stop	no effect	no effect	no effect	

When Mandatory robot enters stop state (not E-stop)					
PML states when robot stop happens	PML state reactions	Remark			
Restting/Idle	PackML automatically go to stopping				
Starting/Un-Holding/Un-suspending	Stay in current state	Other robots will be started and PML state goes to Execute, at this moment it fulfills the condition to go to Held, then PML goes to Held.			
Holding/Suspending/Held/Suspen- ded/Aborting/Aborted/Clearing/Stop- ping/stopped	Do nothing	/			
Execute	PackML automatically go to Holding	/			

PackML for PickMaster Operator

This function is used to send commands from PickMaster Operator and reflect the states of PackML in PickMaster Operator.

Two hand operation bar
Two hand operation bar
r Hald Unhold Suzgend
s already stopped.
Age en o 📤
Two Hand Operation Date Table Cells Creation date 2022-07-19 15-48-29

3.2 PRODUCTION group Continued

Production

Production is the basic operation of the state machine.



xx1900000336

Batch production

Batch production is the basic operation with the complete operation of the state machine.

Pick Number or **Pick Time** can be set as the judgment condition. If the set condition is reached, the system will enter the **Complete** process automatically.

Note

If need to use the batch production function in remote control mode, the **Pick Number** or **Pick Time** need to be set before changing to remote control mode. Or the batch production function cannot be used.

3.2 PRODUCTION group Continued



xx1900000965

Tuning

Overview

This function is used to change the parameters of the conveyors, robot and items during operation, such as positions, speed, offset and timing.



xx1900000786

Click on the icon to open the tuning windows. Clicking the camera icon opens the detail vision window, which displays the camera images with the object hits. The



images and results can be recorded and saved to a file for later analysis with the PickMaster Vision Viewer.

xx2100000697

Tuning the robot



xx1900000787

Item	Description
Start	Start the selected robot.
Stop	Stop the selected robot. A robot stop empties all targets in the position queue. At a re- start after a stop, the robot waits until new targets are generated from the position source.
Pause	Pause the selected robot. A robot pause keeps all targets in the position queue. At a re- start after a pause, the robot resumes operation immediately with the next target in the queue.

Continues on next page

3.2 PRODUCTION group Continued

Item	Description		
Reset	Reset the selected robot from emergency stop activated.		
Speed	Change the speed of the selected robot in mm/s .		
	∑ Robot_1		
	► Start ■ Stop II Pause C Reset		
	Speed 4000 mm/s Cancel Update		
	xx1900000966		
	Note		
	When the data in the tuning is updated, it will be saved to the recipe.		

Tuning the item

Item1					
Grip					
х		Y		Z	
0.0	mm	0.0	mm	0.0	mm
GripAngle					
Х		Υ		Z	
0.0	deg	0.0	deg	0.0	deg
				Cancel	Update

	Description
GripX	Set the location of the gripper when doing the picking and placing operation in X direction.
GripY	Set the location of the gripper when doing the picking and placing operation in Y direction.
GripZ	Set the location of the gripper when doing the picking and placing operation in Z direction.
GripAngleX	Set the angle of the gripper when doing the picking and placing operation in X direction.

3.2 PRODUCTION group Continued

	Description
GripAngleY	Set the angle of the gripper when doing the picking and placing operation in Y direction.
GripAngleZ	Set the angle of the gripper when doing the picking and placing operation in Z direction.
No When adju	te Isting the angles. IRB 360 does not support adjusting the angles in the

X and Y direction.



When the data in the tuning is updated, it will be saved to the recipe.

Tuning the work area

ConveyorWorkAr	ea_1				×
Pick Setting					
Pick Elevation		Pick Time		Vacuum Activation	
30.0	mm	0.035	S	0.020	s
Conveyor WA					
Enter		Exit		YMax	2
-250	mm	50	mm	200	mm
YMin					
-200	mm				
	/				
Position					
TuneX		TuneY		TuneZ	
0.0	mm	0.0	mm	0.0	mm
				Cancel	Jpdate

ConveyorWorkAr	ea_2				
Place Setting					
Place Elevation		Place Time		Vacuum Reversion	
30.0	mm	0.035	s	0.020	s
Vacuum Off					
0.020	s				
Conveyor WA					
Enter		Exit		YMax	
-250	mm	50	mm	200	mm
YMin					
-200	mm				
	Į				
Position					
TuneX		TuneY		TuneZ	
0.0	mm	0.0	mm	0.0	mm
				Cancel	Jpdate

	Description
Pick/PlaceEl- evation	Pick/PlaceElevation is the distance, in negative z-direction relative to the tool, from where the robot approaches the item target.
Pick/Place- Time	Pick/PlaceTime is the time the robot is in the pick/place position. If the conveyor is moving during the pick/place time, the robot will track along the conveyor to keep the relative position on the moving conveyor.
Vacuum Ac- tivation	Vacuum Activation is the time in seconds before the middle of the corner path of the approaching position, when the vacuum I/O should be set. If a negative value is entered, the vacuum I/O will be set the time after the middle of the corner path. This value is only valid for work areas of type Pick or Other .

3.2 PRODUCTION group *Continued*

	Descrip	tion
Enter	After you can defin of the St	u define a start entry in a work area which may called Start X , you ne a same start entry which may called Start Y at the vertical direction tart X.
		A C D / E F C C C C C C C C C C C C C
	xx18000017	47
	A	Camera and Baseframe origin
	В	Camera
	С	Enter
	D	Start
	E	Stop
	F	Exit
	G	Robot
	н	Image frame
	1	Center of Robot
	J	UpperLimit
	К	LowerLimit
	Enter is work are of the ro relative limit can	the limit from where the robot starts to execute item targets on the ea (Start X). The distance is calculated in millimeters from the center bot. The range is positive if the limit is beyond the center of the robot, to the moving direction of the conveyor. Make sure that the enter be reached by the robot.
Exit	Exit is the work are of the ro relative passes I within the position position	he limit from where the robot considers an item target as lost on the ea (Start X). The distance is calculated in millimeters from the center bot. The range is positive if the limit is beyond the center of the robot, to the moving direction of the conveyor. When the tracked item beyond this limit it will be dropped. This limit must be chosen well e maximum reach of the robot. The robot must be able to reach this from an arbitrary position in the robot's working area before the is out of reach.

	Description					
Max	YMax is the lim work area in En of the robot. The relative to the m enter limit can b	it form where robot d Y.The distance is a range is positive if noving vertical direct be reached by the r	considers a calculated the limit is t ction of the obot.	an item ta in millime beyond the conveyor.	rget as lost on t ters from the ce center of the ro Make sure that	the ant ob th
	Note					
	To enable this f this function in	unction, you need t the recipe configur	to select the ation page.	Use Star	t/ Stop checkbo	x 1
	Name	Recipe 1				•
	Record scenes file path	C:\PMTWTempFiles				
	Properties	Pick/Place elevation(mm)	30.0	•		
	Available Devices	Pick/Place time[s]	0.035	• 1		
	Available Workareas	Vacuum activation[s]	0.020	:		
	ConveyorWorkArea	Vacuum reversion[s]	0.020	\$		
	IndexedWorkArea	 Load Time[ms]	0.0	÷		
	Operations					
		Enter(mm) (!)	-250.000			
		Start(mm) 🕛	-150.000			
		Stop(mm) (!)	-50.000			
		Exit(mm) (!)	50.000			
		Y Max[mm]	200.000			
		Y Min[mm]	-200.000			
		🗌 Use Start/Stop (!				
		Start with production				
		🔽 Use Y Max/Y Min				
	Add Operation	Record scenes				
	Delete Operation					
	OK C	ancel				

3.2 PRODUCTION group Continued

he limit forn tart Y. The . The range o the movin the item's p So when th must be c Note e this funct tion in the r evices orWorkArea_1 war var corWorkArea_1 corWorkArea_1 corWorkArea_1	m where robot distance is cal e is positive if t ng vertical dire- position is grea te tracked item thosen well with tion, you need t recipe configur trecipe configur trecipe configur trecipe configur trecipe configur trecipe configur trecipe configur trecipe configur trecipe configur	starts to exe culated in n he limit is b ction of the ter than the passes beyo hin the maxi to select the ation page.	ecute item ta nillimeters fro eyond the ce conveyor.If t 'YMax, the ro ond this limit imum reach e Use Start/S	rgets on the wor om the center of enter of the robo the y coordinate obot will not gra it will be dropped of the robot.
ile path C:.F evices Pic orkareas Vac rorWorkArea_1 Vac dWorkArea_1 Loc Ent	ipe_1 PMTWTempFiles :k/Place elevation[mm] :k/Place time[s] cuum activation[s] cuum reversion[s] ad Time[ms]	30.0 0.035 0.020 0.020	• •	
tile path C:.F evices Pic forkareas Vac rorWorkArea_1 Vac dWorkArea_1 Loc Ent	ipe_1 PMTWTempFiles :k/Place elevation[mm] :k/Place time[s] cuum activation[s] cuum reversion[s] ad Time[ms]	30.0 0.035 0.020 0.020	:	
rile path CC.FF evices Pic forkareas Vac rorWorkArea_1 Vac dWorkArea_1 Los Ent	IPE_1 PMTWTempFiles :k/Place elevation[mm] :k/Place time[s] cuum activation[s] cuum reversion[s] ad Time[ms]	30.0 0.035 0.020 0.020	:	
rile path C:\F evices Pic orkareas Vac rorWorkArea_1 Vac dWorkArea_1 Loa	PMTWTempFiles :k/Place elevation[mm] :k/Place time[s] cuum activation[s] cuum reversion[s] ad Time[ms]	30.0 0.035 0.020 0.020	: :	
evices Pic iorkareas Vac rorWorkArea_1 Vac dWorkArea_1 Loa	ck/Place elevation[mm] ck/Place time[s] cuum activation[s] cuum reversion[s] ad Time[ms]	30.0 0.035 0.020 0.020	÷ ;	
evices Pic forkareas Vac rorWorkArea_1 Vac dWorkArea_2 Loa dWorkArea_1 Loa	ck/Place time[s] cuum activation[s] cuum reversion[s] ad Time[ms]	0.035 0.020 0.020	*	
torkareas Vac rorWorkArea_1 Vac rorWorkArea_2 Vac dWorkArea_1 Loa Ent	cuum activation[s] cuum reversion[s] ad Time[ms]	0.020 0.020	:	
vorWorkArea_1 vorWorkArea_2 dWorkArea_1 Loa Ent	cuum reversion[s] ad Time[ms]	0.020		
dWorkArea_1 Loa	ad Time[ms]		\$	
	ad hine(his)	0.0		
Ent		0.0	Ŧ	
	ter(mm) 🕛	-250.000		¢
Sta	art(mm) (!)	-150.000		ţ
Sto	op(mm)	-50.000		÷
Evi	it(mm)	50,000		•
		50.000		•
YN	Max(mm)	200.000		
YN	Min[mm]	-200.000		;
	Use Start/Stop 🕛			
	Start with production			
	Use Y Max/Y Min			
eration	Record scenes			
peration				
scrution				
Cancel				
6				
ffset of the	gripping location	on on the x-o	direction in tl	he conveyor bas
ffset of the	gripping location	on on the y-o	direction in tl	he conveyor bas
ffset of the	gripping location	on on the z-o	direction in th	ne conveyor bas
	ffset of the ffset of the	ffset of the gripping location ffset of the gripping location ffset of the gripping location	ffset of the gripping location on the x-r ffset of the gripping location on the y-r ffset of the gripping location on the z-r	ffset of the gripping location on the x-direction in the gripping location on the y-direction in the ffset of the gripping location on the z-direction in

When the data in the tuning is updated, it will be saved to the recipe.

3.3 RECIPE MANAGER group

3.3 RECIPE MANAGER group

Recipe Manager

Overview

This function is used to select the working recipe.

Pick	Naster 🗅		.≜. Stopped	No Recipe	* 8	EN 🕲	📥 admin
~	Recipe Manager						
	All Recipes						Recipe Settings
	No. Name 1 Recipe_1	Version 1.0	Creation date 2022-10-28 15:22:08			Select	
	No. Name 2 Recipe_2	Version 1.0	Creation date 2022-10-28 16:22:08			Select	

xx1900000337

Click on the **Select** to activate the recipe you need.

When the recipe is selected, the selected recipe will be highlighted as pink.

PickM	laster û				40			📥 admin	
←	Recipe Manager								
•	All Recipes							Recipe Sett	ings
	No. Name 1 Recipe_1	Version 1.0	Creation date 2022-10-28 16:22:08			Selecte	d		
	No. Name 2 Recipe_2	Version 1.0	Creation date 2022-10-28 16:22:08			Sele	ct		

3.3 RECIPE MANAGER group Continued

Recipe Settings

Click on the Recipe Settings to open the recipe settings window.



Parameter		Description			
Dashboard-Limit	Overall pick rate	The pick rate for all robots in current solution.			
Values	Overall Picked Products	The total number of the picked products in current solution.			
	Overall products rejected	The total number of the rejected products in current solution.			
	Overall products accepted	The total number of the accepted products in current solution.			
PackML-Robot Relevence	Optional	The robot is optional for this production. If this robot stops, it will not influent the other robots and the production.			
	Mandatory	The robot is mandatory for this production. If this robot stops, it will stop the whole production. Note There is at least one robot set as mandatory for each recipe. Or the PackML can not work normally.			
		If there are more than one robot in the recipe, and partially robots are selected as mandatory, then it will show Recipe partially loaded . on the main navigation bar, which means that there are both mandatory robots and optional robots in the recipe. If all the robot's in the recipe are selected as mandat- ory, then it will show Recipe loaded on the main nav- igation bar, which means that all the robots in the re- cipe are mandatory.			

3.3 RECIPE MANAGER group Continued



xx1900000695

	Parameter	Description
A	Min Number	The lowest value of the dashboard.
В	LimitLowLow	Extreme low value: if the data is lower than this limit, there will be an alarm on the screen and the color of the real time data will be red.
С	LimitLow	Early warning for low value: if the data is lower than this limit, there will be an alarm on the screen and the color of the real time data will be red.
D	LimitHight	Early warning for high value: if the data is higher than this limit, there will be an alarm on the screen and the color of the real time data will be orange
E	LimitHightHight	Extreme high value: if the data is higher than this limit, there will be an alarm on the screen and the color of the real time data will be red.
F	Max Number	The highest value of the dashboard.



Please set the parameters according to the actual situation of the system, then the warning on the dial has practical significance.

Only when the data is between **LimitLow** and **LimitHight**, the robot works normally. The color for the real time data will be blue.

3.4 MONITORING group

3.4 MONITORING group

SoftPLC Live Data

Overview

This function is used to monitor the live data of the softPLC.

ckMaster 🗅	<u>۸</u>	Stopped B No Recipe		40	EN 🛛 🛔 superus
- SoftPLC Live Data					
Name [©]	Actual value	Minimum	Maximum	Status	
Filler fext					
DACK_ML(Clobal/DmLUaitModeCurrent	0	2147492649	2147492647	SDONTT STD ET STD	
PACK_ML/Global/PmLUnitModeCorrent	0	-2147403040	2147403047	SPONTT STD ET STD	
PACK_ML/Clobal/Pml_Sts_UnitModeCurrent	1	-2147483648	2147483647	SPONTT STD ET STD	
PACK ML/Global/PmL Str. StateCurrent	2	-2147483648	2147493647	SPONTT STD ET STD	
PACK MI /Global/Pml Sts MachSpeed	0	-2147483648	2147483647	SPONTT STD E T STD	
PACK_ML/Global/Pml_Sts_EquipmentInterlockStarved	0	0	1	SPONTT STD F T STD	
PACK ML/Global/PmL Sts EquipmentInterlockBlocked	0	0	1	SPONUT STD F T STD	
PACK ML/Global/PmLSts_CurMachSpeed	0	-2147483648	2147483647	SPONTT STD F T STD	
PACK ML/Global/PmL State CntrlCmd	0	-2147483648	2147483647	SPONUT STD FIT STD	
PACK ML/Global/PmL State_CmdChangeRequest	0	0	1	SPONTT STD F T STD	
PACK_ML/Global/PmL Robot_Sts[9]	0	-32768	32767	SPONTT STD FT STD	
PACK ML/Global/Pml Robot Sts[8]	0	-32768	32767	SPONTT STD E.T STD	
PACK ML/Global/Pml Robot Sts[7]	0	-32768	32767	SPONT T STD E.T STD	
PACK ML/Global/Pml Robot Sts[6]	0	-32768	32767	SPONT T STD E.T STD	
PACK ML/Global/Pml Robot Sts[5]	0	-32768	32767	SPONT T STD E.T STD	
PACK ML/Global/Pml Robot Sts[4]	0	-32768	32767	SPONTT STD E.T STD	
PACK ML/Global/Pml Robot Sts[3]	0	-32768	32767	SPONT,T STD E,T STD	
PACK_ML/Global/Pml_Robot_Sts[2]	0	-32768	32767	SPONT,T_STD_E,T_STD	
PACK ML/Global/Pml Robot Sts[1]	0	-32768	32767	SPONT,T STD E,T STD	
PACK_ML/Global/Pml_Robot_Sts[0]	0	-32768	32767	SPONT,T_STD_E,T_STD	
PACK ML/Global/Pml Robot Cmd[9]	-1	-32768	32767	SPONT,T STD E,T STD	
PACK_ML/Global/Pml_Robot_Cmd[8]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[7]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[6]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[5]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[4]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[3]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[2]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[1]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Robot_Cmd[0]	-1	-32768	32767	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Ref_MachSpeed	0	-2147483648	2147483647	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Admin_StopReason	0	-2147483648	2147483647	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Admin_ProdProcessedCount	0	-2147483648	2147483647	SPONT,T_STD_E,T_STD	
PACK_ML/Global/Pml_Admin_ProdDefectiveCount	0	-2147483648	2147483647	SPONT,T_STD_E,T_STD	
PACK_ML/Global/FieldbusSelection	0	-32768	32767	SPONT,T_STD_E,T_STD	

xx1900000795

According to the definition of the smallest order Packtag from the standard **ANSI** / **ISA-TR88.00.02-2015** chapter 7.5 Tag details, Table 7 PackTags Minimum required for information / machine monitoring and Table8 PackTags Minimum required for supervisory control:

PACK_ML/Global/Pml_UnitModeCurrent -> UnitName.Command.UnitModeCurrent

Data Type: INT (32bit)

Value: 1 - Production; 4 - Batch production

Tag Descriptor: Unit Mode in current use

This value is predefined by the user / OEM, and are the desired unit modes of the machine. The UnitMode tag is a numerical representation of the commanded tag. There can be any number of unit modes and for each unit mode there is an accompanying state model. Example unit modes are Production, Maintenance, Manual, Clean Out, Dry Run, Setup, etc.

PACK_ML/Global/Pml_UnitModeChangeRequest -> UnitName.Command.UnitModeChangeRequest Data Type: Bool

Tag Descriptor: Request Unit Mode Change

Value: 0 - False; 1 - True

When a unit mode request takes place a numerical value must be present in the Command.UnitMode tag to change the unit mode. Local processing and conditioning of the requested mode change is necessary in order to accept, reject, or condition the timing of the change request.
3.4 MONITORING group Continued

The request for changing the unit mode in the remote command. The changed working mode can only take effect when the change request is set as **True**.



xx1900000964

PACK_ML/Global/Pml_State_CntrlCmd -> UnitName.Command.CntrlCmd

Data Type: INT (32bit)

Tag Descriptor: Control Command

The tag holds the value of the command that provides the state command to drive a state change in the Base State Model, this tag is typically manipulated locally. Local processing of this tag can be combined with remote or local machine conditions to drive the state model from Wait state to a Transient state. This tag can be set by a local or remote source. All values in the table below are reserved.

0	Undefined
1	Reset
2	Start
3	Stop
4	Hold
5	Unhold
6	Suspend
7	Unsuspend
8	Abort
9	Clear

PACK_ML/Global/Pml_State_CmdChangeRequest -> UnitName.Command.CmdChangeRequest

Data Type: Bool

Tag Descriptor: State Change Request

Value: 0 - False; 1 - True

This CmdChangeRequest bit will command the machine to proceed to change the state to the target state. The tag can be used to condition when a change of state can occur. The target state will be one of the states in the base state model.

3.4 MONITORING group Continued

The request for changing state machine command in the remote command. The command can only take effect when the command is set as **True**.

PACK_ML/Global/Pml_Sts_UnitModeCurrent -> UnitName.Status.UnitModeCurrent

Data Type: INT (32bit)

Tag Descriptor: Unit Mode in current use

Value: 1 - Production; 4 - Batch production

This value is predefined by the user / OEM of the available unit modes of the machine allowing a possible different set of states for the base State Model and could provide completely different functionality in the same machinery such as Cleanout, Production, Etc.

0	Invalid
1	Production
2	Maintenance
3	Manual
4-31	User Definable

PACK_ML/Global/Pml_Sts_StateCurrent -> UnitName.Status.StateCurrent

Data Type: INT (32bit)

Tag Descriptor: Current State Number

The StateCurrent status tag specifies the current state in the current unit mode of the unit machine. The numerical values are in the table below are reserved.

0	Undefined
1	Clearing
2	Stopped
3	Starting
4	ldle
5	Suspended
6	Execute
7	Stopping
8	Aborting
9	Aborted
10	Holding
11	Held
12	UnHolding
13	Suspending
14	Unsuspending
15	Resetting
16	Completing
17	Complete

PACK_ML/Global/Pml_Ref_MachSpeed -> UnitName.Command.MachSpeed Data Type: REAL

Continues on next page

3.4 MONITORING group Continued

Units: Primary packages/minute

Tag Descriptor: Current Machine Speed

This describes the set point for the current speed of the machine in primary packages per minute. Keeping speed in a primary package unit of measure (UOM) allows for easier control integration. The primary package UOM is the normalized rate for the machine, normalized to a value chosen on the line. The following example is for a bottle line running at balance line speed of 1000 packages/minute. The UOM chosen is equivalent to be the actual count of the Filler, or Labeler.

Machine	Actual Pack Counts	Primary packages (UOM)
Bulk Depalletizer	41.6666 (24 pack equiv)	1000
Filler	1000	1000
Labeler	1000	1000
Packer	66.666 (15 packs)	1000

PACK_ML/Global/Pml_State_CurMachSpeed -> UnitName.Status.CurMachSpeed

Data Type: Real

Tag Descriptor: Current Machine Speed in primary packages/minute

This the actual value of the machine speed. Keeping units in primary package unit of measure (UOM), allows for easier control integration. The primary package UOM is the normalized rate for the machine, normalized to a value chosen on the line. Pack Counts are parameters stored in the Administration tags or downloaded parameters stored in Command tags parameters.

PACK_ML/Global/Pml_State_EquipmentInterllockBlocked -> UnitName.Status.EquipmentInterllock.Blocked Data Type: Bool

This bit indicates that a downstream system is not able to accept product. In this condition, the equipment is capable of producing product but is in a suspended state due to a downstream system. This tag is necessary for external equipment monitoring so that the reason for the machine being in a suspended state can be identified.

PACK_ML/Global/Pml_State_EquipmentInterllockStartved -> UnitName.Status.EquipmentInterllock. Startved

Data Type: Bool

This bit indicates that an upstream system is not able to supply product. In this condition, the equipment is capable of producing product but is in a suspended state due to an upstream system. This tag is necessary for external equipment monitoring so that the reason for the machine being in a suspended state can be identified.

PACK_ML/Global/Pml_Admin_ProdProcessedCount -> UnitName.Admin.ProdProcessedCount.count Data Type: INT (32bit)

> This tag represents the number of products processed by the production machine. An example of tag usage would be the number of products that were made, including all good and defective products. This tag can be used locally or remotely if needed. The extent of the array is typically limited to the number of products

3.4 MONITORING group *Continued*

needed to be counted. The number of products processed minus the defective count is the number of products made by the machine. The array index of # = 0 can be reserved for the count of the number of units from the primary production stream.

PACK_ML/Global/Pml_Admin_ProdDefectiveCount -> UnitName.Admin.ProdDefectiveCount.count Data Type: INT (32bit)

This tag represents the product that is marked as defective in the production machine, to be used if applicable. An example of tag usage would the number of products rejected or products that are termed defective. This tag can be used locally or remotely if needed. The extent of the array is typically limited to the number of products needed to be counted as defective. When this tag is used with Admin.ProdProcessedCount[#] the number of good products / well formed cycles made by the machine can be calculated. The array index of # = 0 can be reserved for the total cumulative rejected units from the primary production stream.

PACK_ML/Global/Pml_Admin_StopReason--- UnitName.Admin.StopReason

Data Type: INT (32bit)

Descriptor: Machine Stop Reason is typically used for "First Out Fault" reporting and other stoppage events. The stop reason is the first event captured during an abort, held, suspended or stop event.

PACK_ML/Global/FieldbusSelection

The selected remote control mode is Modbus or Profinet. Modebus is 1 and Profinet is 2.

PACK_ML/Global/Pml_Robot_Sts[0-9]

Value	Robot status
0	NO_ROBOTID
2	PROJ_STOPPED
7	PROJ_CLOSED
17	IDLE
18	INIT RAPID
19	CLEARALL START
20	INIT QUEUES
21	RUNNING
22	PAUSED
23	RAPID STOPPED
24	CLEARALL STOP
25	RAPID STOPPED PAUSING
26	HELD
27	SUSPENDED

The status of the 10 robots.

PACK_ML/Global/Pml_Robot_Cmd[0-9]

The command for the 10 robots.

3.4 MONITORING group Continued

Value: 1 - Start; 2 - Pause; 3 - Reset; 4 - Stop

3.5 ANALYSIS group

3.5 ANALYSIS group

Alarm

This function is used to show the alarms which are not acknowledged for the user. The alarms in **Alarm** are not acknowledged. If you double-click an alarm information, the alarm information will disappear in the **Alarm** page;

ckMaster 🙃				🎭 EN 🛛 🛎 sup
Alarm				
vear month day hour	minute second year month day	v hour minute second		
2019 • 6 • 1 • 0 •	0 • 0 • € ^{to} 2019 • 12 • 1	• 0 • 0 • 0 • 🔄 C Reset Siler	+ Expert	
Alarm status User name	Time received	Text		
Å	8/22/2019 10:10:46 AM 8/22/2019 10:09:45 AM	Warning, status change is not allowed. Warning status change is not allowed.		
Â	8/22/2019 10:00:09 AM	Warning,status change is not allowed. Warning status change is not allowed.		
Â	8/21/2019 3:54:31 PM	Prompt,Remote mode is disabled		
		III		

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Alarm history

This function is used to show all alarms for the user.

The alarm history page contains all the alarm information. If it is acknowledged, it is in black; if it is not acknowledged, it is in red.

PickMaster 🛱	Stopped Recipe Kended	AD EN	🛛 🛓 superuser
← Alarm History			
year month day hour minute sec. 2019 • $6 \cdot 1$ 1 • $0 \cdot 1$ $0 \cdot 0$	and year month day hour minute second (2019 v 12 v 1 v 0 v 0 v 0 v 0 v 0 v 0 v 0 v 0 v 0		
Alarm status User name 1	Time received Text		

xx1900000698

3.5 ANALYSIS group Continued

Log

This function is used to show the logs for the user. Logs can be exported with **Export** button.

kMaster 🙃				🍓 EN 🛛 🚢 supor
Log				
Log Type PMOPInfo		to David		
All	1	te coport	L8g St	tatus: Active Log Number, Too
PMOPInfo				
Time received PMOPWarning	-	Log Type	Log Message	
PMOPERtor		PACPINO	Soled Recipe, name. Recipe 1, kt 874c7394-4917-4436-657c-32500e69af63	
9/24/2019 10.5 RTWarring	1	PMOPInfo	'C:IPMPD\SOLUTION\2controllers\2controllers.pmsin' Solution file opens successfully	
9/24/2019 10:58:35:696 AM	superuser	PMOPInfo	3.Load Station Data to PMOP Successful	
9/24/2019 10:58:34:072 AM	superuser	PMOPInfo	2 Preparing loading station data	
9/24/2019 10:58:33.732 AM	superuser	PMOPInfo	1. The loading station succeeded with the name C. PMPD/SOLUTION/2controllers/2controllers.pmsIn	
3/24/2019 10:58:33.723 AM	superuser	PMOPInfo	0.6 set Project ActiveProject value.theSt. (Station)	
3/24/2019 10:58:33.711 AM	superuser	PMOPInfo	0.5 exec RSS Station Load succeeded stationPath C:PMPD/SOLUTION/2controllers/Stations/2controllers rsstn	
24/2019 10:58:33.701 AM	superuser	PMOPinfo	0.4.params SolutionName, 2controllers,SoutionFolder, C:/PMPD/SOLUTION/2controllers,StationFilePath, C:/PM	MPD\SOLUTION\2controllers\Stations\2controllers.rsstn,
/24/2019 10:58:33.689 AM	superuser	PMOPInfo	0.3.exec GetStationPathByMainFilePath succeeded.stationPath. C:IPMPD/SOLUTION/2controllers/Stations/2cont	trollers rsstn
24/2019 10:58:33.675 AM	superuser	PMOPInfo	0.2 new RSS.Station succeeded.	
/24/2019 10:58:33.496 AM	superuser	PMOPInfo	0.1 exec OpenSolutionFile to open solution file.	
24/2019 10:58:33.485 AM	superuser	PMOPInfo	0. The loading station with the name C:IPMPD/SOLUTION/2controllers/2controllers.pmsIn	
/24/2019 10:58:25.744 AM	superuser	PMOPInfo	User superuser login successfully	
/24/2019 10:58:12:369 AM	0000	PMOPInfo	robot cmd variable's value change data is varname PACK_ML/Global/Pml_Robot_Cmd[7],varvalue 0	
24/2019 10:58:12:361 AM	0000	PMOPInfo	robot cmd variable's value change .data is varname PACK_ML/Global/Pml_Robot_Cmdl6],varvalue.0	
24/2019 10:58:12:352 AM	0000	PMOPInfo	robot_cmd variable's value change data is varname:PACK_ML/Global/Pml_Robot_Cmd[5],varvalue:0	
24/2019 10:58:12:344 AM	0000	PMOPInfo	robot_cmd variable's value change_data is varname PACK_ML/Global/Pml_Robot_Cmd[4] varvalue:0	
24/2019 10:58:12:335 AM	0000	PMOPInfo	robot, cmd variable's value change, data is varname PACK_ML/Global/Pml_Robot_Cmd[3],varvalue.0	
24/2019 10:58:12.328 AM	0000	PMOPInfo	robot cmd variable's value change, data is varname PACK_ML/Global/Pml_Robot_Cmdl21,varvalue:0	
/24/2019 10:58:12.319 AM	0000	PMOPInfo	robot, cmd variable's value change, data is varname PACK_ML/Global/Pml_Robot_Cmd11,varvalue:0	
24/2019 10:58:12 311 AM	0000	PMOPInfo	robot cmd variable's value change data is varname PACK_ML/Global/Pml_Robot_Cmd/0 varvalue:0	
24/2019 10:58:12:302 AM	0000	PMOPInfo	robot cmd variable's value change ,data is varname PACK_ML/Global/Pml_Robot_Cmd(9),varvalue.0	
/24/2019 10:58:12:293 AM	0000	PMOPInfo	robot cmd variable's value change data is varname PACK_ML/Global/Pml_Robot_Cmdl81,varvalue:0	
24/2019 10:58:12:238 AM	0000	PMOPInfo	robot cmd variable's value change ,data is varname PACK_ML/Global/Pml_Robot_Cmd[1],varvalue -1	
24/2019 10:58:12:229 AM	0000	PMOPInfo	robot cmd variable's value change data is varname PACK_ML/Global/Pml_Robot_Cmd[4] varvalue -1	
24/2019 10:58:12:220 AM	0000	PMOPInfo	robot cmd variable's value change .data is varname PACK_ML/Global/Pml_Robot_Cmd/2/varvalue -1	
24/2019 10:58:12:211 AM	0000	PMOPInfo	robot cmd variable's value change, data is varname PACK_ML/Global/Pml_Robot_Cmd/2/varvalue-1	
24/2019 10:58:12:202 AM	0000	PMOPInfo	robot_cmd variable's value change_data is varname PACK_ML/Global/Pml_Robot_Cmd(5) varvalue -1	
24/2019 10:58:12.193 AM	0000	PMOPInfo	robot cmd variable's value change .data is varname PACK_ML/Global/Pml_Robot_Cmd(8).varvalue -1	
24/2019 10:58:12:182 AM	0000	PMOPInfo	robot cmd variable's value change .data is varname PACK_ML/Global/Pml_Robot_Cmd(0).varvalue -1	
24/2019 10:58:12.168 AM	0000	PMOPInfo	robot cmd variable's value change data is varname PACK_ML/Global/Pml_Robot_Cmd/3/varvalue-1	
a/24/2019 10:58:12:140 AM	0000	PMOPInfo	robot cmd variable's value change data is varname PACK_ML/Global/Pml_Robot_Cmd(6) varvalue -1	
a/24/2019 10:58:12:122 AM	0000	PMOPInfo	robot cmd variable's value change .data is varname:PACK_ML/Global/Pml_Robot_Cmd(9).varvalue:-1	
24/2019 10:11:07 184 AM	superuser	PMOPInfo	Select Recipe, name: Recipe 1, kt. 6b64f9d8-6a61-4814-a23c-e6b17a779eb4	
24/2010 10 10 59 854 AM	cuponicor	DMODIdo	12 IDMDDISOLUTIONISolution98(Solution98 amela' Solution Blo opene successfully	

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Тір

The 0000 in the user column means that no user is logged on.

Item	Description
PMOPInfo	The logs for the PickMaster Operator.
PMOPWarning	The warnings for the PickMaster Operator.
PMOPError	The errors for the PickMaster Operator.
RTInfo	The logs for the PickMaster Runtime.
RTWarning	The warnings for the PickMaster Runtime.
RTError	The errors for the PickMaster Runtime.
RTStatus	The status of the PickMaster Runtime.

3.6 SYSTEM group

3.6 SYSTEM group

Exit

Overview

This function is used to exit the PickMaster Operator.



xx1900000338

System Setup

Overview

This function is used to load solutions and enable the PackML for selected solution.



xx1900000339

3.6 SYSTEM group Continued

When the solution is loaded, more functions show up in this window.

PickM	laster û		🛓 Stopped 🔒	Recipe loaded	40 EN	🛛 📥 admin
←	System Setup					
	Browse Solution File	Fieldbus Selection	Remote Control Disable Enable	Control Method Basic Control PackML Control	Two Hand Operation	Change PMRT Password
	No. Name 1 Solution36			Creation date 2022-07-14 11:42:48		

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If the recipe cannot show up, check that whether the real controller configuration is added to the solution.

Function	Description
Browse solution file	Load a new solution.
Fieldbus Selection	Select the fieldbus mode: • EtherNet/IP • Modbus • Profinet
Remote Control	Enable/disable the remote control function with EtherNet/IP, Modbus or Profinet.
	The PLC with CatMod or Profinet need to be configured corres- pondingly to support the remote control. For more detail information, refer to the <i>Remote Control</i> .
Control Method	Enable/disable the PackML function. Only when the PackML control option is selected, the PackML flow in the Operation window is available. When the Basic control option is selected, the PackML function will be disabled.
Two hand operation	Enable/disable the Two hand operation function. When the Two hand operation function is enabled, you need to hold the Two hand operation button during the operation. Note Multi-touch screen is a prerequisite for the Two hand operation function.

3.6 SYSTEM group Continued

Function	Description	
Change PMRT Password	Change the password for login the PMRT(User name: admin).	
	Change PMRT Password	
	Note: The new user will be effective after changing password and restarting PickMaster Runtime.	
	Old Password	

	New Password	

	Confirm password	

	Cancel Save	
	 xx2200001991 Old Password: input the old password. New Password: input the new password. Confirm Password: input the new password again. 	
	Note	
	Restart the PMRT after changed the password to effect the new password.	

Use the following procedures to import a solution:

1 Click on the **Browse solution file** button.



The solution loaded in the PickMaster Operator must have been connected to a real controller with the same configuration on PickMaster PowerPac.

- 2 In the pop-up Open window, select the solution file .pmsln in the local folder.
- 3 Click Open.
- 4 Wait until the solution is totally imported.



During the importing, a note that says "Solution is loading" will show up on the upper right position.

3.6 SYSTEM group Continued

- 5 If need, click on the **Control Method** button to enable/disable the **PackML** function.
- 6 If need, click on the **Two hand operation** button to enable/disable the **Two** hand operation function.

Remote control

Overview

Remote control is that the remote control terminal, such as PLC, can send or read the corresponding PackTag through the industrial bus to control the PickMaster Operator.

PickMaster Operator supports the following buses:

- EtherNet/IP
- Modbus
- Profinet



xx2000000230



The firewall setting on the host computer may cause the failure that connects to PickMaster Operator through the fieldbus.

Prerequisites

To work with the remote control, the following requirements must be fulfilled:

- Format of the PackTags (Communication Directive) must meet the ANSI/ISA-TR88.00.02-2015 standard.
- The remote control terminal and the PickMaster Operator are in the same LAN.

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3.6 SYSTEM group Continued

Format of the PackTags

Machine Implementation Guide chapter 11.PACKTAGS, Table 19 Minimum PackTags.

PackTag type	PackTag	Example of end user Datatype TR term 88.00.02 Minimum tags		TR 88.00.02 Minimum tags	End user Minimum tags	Available
Status	StateCurrent	State	INT(32)	x	x	x
Status	UnitModeCurrent	Mode	INT(32)	x	x	x
Status	MachSpeed	Nominal Speed	REAL	x	x	
Status	CurMachSpeed	Current Speed	REAL	x	x	
Status	EquipmentInterlock.Blocked	Blockage	BIT	x	x	
Status	EquipmentInterlock.Starved	Starvation	BIT	x	x	
Status	Parameter [#]	Machine data/paramet- er	Array Structure		x	Robot state
Status	Parameter[#].ID	Parameter ID	INT(32)		x	
Status	Parameter[#].Name	Name of parameter	STRING		x	
Status	Parameter[#].Unit	Unit of measure	STRING[5]		x	
Status	Parameter[#].Value	Value of parameter	User Defined		x	
Status	RemoteInterface.Parameter[#]	Additional production data	Structure		x	
Status	RemoteInterface.Paramet- er[#].ID	Parameter ID	INT(32)		x	
Status	RemoteInterface.Paramet- er[#].Name	Name of parameter	STRING		x	
Status	RemoteInterface.Paramet- er[#].Unit	Unit of measure	STRING[5]		x	
Status	RemoteInterface.Paramet- er[#].Value	Value of parameter	REAL		x	
Admin	Warning[#]	Warning	Array Structure		x	
Admin	Warning[#].Trigger	Trigger			x	
Admin	Warning[#].ID	ID	Int (32bit)		x	
Admin	Warning[#].Value	Value	Int (32bit)		x	
Admin	ProdDefectiveCount	OEE.Bad count	INT(32)	x	x	
Admin	ProdProcessedCount	OEE.Total count	INT(32)	x	x	Total Pick number
Admin	StopReason.ID	Event and stop reason	INT(32)	x	x	
Admin	StopReason.Value	Detailed Error Informa- tion	INT(32)		x	
Command	CntrlCmd	Command	INT(32)	x	x	x
Command	Parameter [#]	Machine data/paramet- er	Array Structure		x	Robot com- mand
Command	Parameter[#].ID	Parameter ID	INT(32)		x	

Continues on next page

3.6 SYSTEM group Continued

PackTag type	PackTag	Example of end user term	Datatype	TR 88.00.02 Minimum tags	End user Minimum tags	Available
Command	Parameter[#].Name	Name of parameter	STRING		x	
Command	Parameter[#].Unit	Unit of measure	STRING[5]		x	
Command	Parameter[#].Value	Value of parameter	User Defined		x	
Command	RemoteInterface.Parameter [#]	Additional Production data	Array Structure		x	
Command	RemoteInterface.Paramet- er[#].ID	Parameter ID	INT(32)		x	
Command	RemoteInterface.Paramet- er[#].Name	Name of parameter	STRING		x	
Command	RemoteInterface.Paramet- er[#].Unit	Unit of measure	STRING[5]		x	
Command	RemoteInterface.Paramet- er[#].Value	Value of parameter	REAL		x	
Command	UnitMode	Mode	INT(32)	x	x	x
Command	UnitModeChangeRequest	Change mode	BOOL	x	x	x
Command	MachSpeed	Mach Speed	REAL	x	x	
Command	CmdChangeRequest	Change command	BOOL	x	x	x

3.7 ADMINISTRATOR group

3.7 ADMINISTRATOR group

Account

This function is used to modify the information for the active account.



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User Management

Overview

This function is used to manage the users and roles.

PickMaster Operator provides two types of users:

Administrator

The users whose User Type is **Administrator** can add, delete or edit other users, and can add, delete or edit roles.

The default user of User Type administrator contains:

- admin
- Power User

The users whose User Type is **Power User** can add, delete or edit other users, and can add, delete or edit roles, except the **Administrator** role or user.

• Users

The users whose User Type is **User** are not authorized to add or delete other users, and they are not authorized to add or delete roles.

3.7 ADMINISTRATOR group Continued

PickMaster	۵		🛓 Stopped	B Recipe loaded		🍇 EN 🥹 📥	admin
← Us	er Management						
User Mar	nagement						
A	dd User					Edit	Delete
Active	User name	Complete Name	Telephone	Mail	Application Authorization	User Administration Type	Locked
 Image: A set of the set of the	admin	admin			administrator	Administrator	

xx1900000341

Function	Description
Add user	Add a new user.
Edit	Edit an existed user.
Delete	Delete an existed user.
Group	Description
Active	Active the selected user.
User name	Shows the name of the user.
Complete name	Shows the complete name of the user.
Telephone	Shows the telephone of the user.
Mail	Shows the mail of the user.
Application Authorization	Shows the roles of the user.
	Note
	Available role:
	administrator
User Administration type	Shows the type of the user.
Locked	Active/unactive the selected user.

New user



When a new user is added, change the password and restart the PickMaster runtime to active the new user account.

3.7 ADMINISTRATOR group Continued

PickMaster û			
← User Management			
User Management	_		
Add User	Add User User Administration Type		Edit Delete
Active User name Complete Name Telephon dmin admin	Users v User name	cation Authorization histrator, aa	User Administration Type Locked Administrator
	Complete Name		
	Mail		
	Telephone		
	Activate E-mail and Telephone		
	Application Authorization		
	administrator		
	Pessword		
	Confirm password		

	Cancel Save		

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Group	Description
User Administration type	Select the type of the user.
User name	Enter the name of the new user.
Complete name	Enter the complete name of the new user.
Mail	Enter the mail of the new user.
Telephone	Enter the telephone of the new user.
Active E-mail and Tele- phone	Active the E-mail and telephone of the new user.
Authorization	Choose the authority from the available list to the selected list.
Password	Enter a password for the new user.
Confirm Password	Confirm the password for the new user.
Enable user	Enable the new user.
User Locked	Disable the new user.

Role Management

Overview

This function is used to manage the roles for PickMaster Operator. Add new roles or delete existing roles are available.

PickMaster Twin provides one default role:

· administrator

3.7 ADMINISTRATOR group Continued

PickMaster G	🛓 Slopped 🕒 Recip	e loaded	🍇 EN 🛛 📥 admin
Role Management			
Role Management			
New Role	Delete Role	Role Name	
administrator		Available (* 1997)	Selected

xx1900000342

Function	Description
New role	Create a new role.
Delete role	Delete a role.

New role

PickMaster a	▲ Stopped	Recipe loaded		 約 EN 🛛	📥 admin
← Role Management					
Role Management					
New Rote	Delete Role	Role P1/	e Name OPRole		
administrator	-	Anna 1. 2. 3. 4. 4. 6. 6. 6. 6. 9. 9. 0. 11 11 12 13 14 14 15 16 10 17	halak forme Pagie Syntem Solo Spream Solo Spream Solo Spream Solo Spream Solo Competition Competition	Selected 0 - Default Level Cancel	Sore

xx1900000345

Group	Description
Role name	Enter the name for a new role.
Available	Choose the authority for the new role.
Selected	Shows the chosen authority for the new role.
Save	Save the changes.
Cancel	Discard the changes.

3.7 ADMINISTRATOR group *Continued*

Available permission	Description
1.Home Page	Postker I total I total
2.System Setup	tit System Setup xx1900000330
3.Dashboard	Dashboard xx1900000325
4.Operation	Operation xx1900000326
5.Tuning	이 아이
	xx1900000327

3.7 ADMINISTRATOR group Continued

Available permission	Description
6.Recipe Management	Recipe Manger xx1900000328
7.Role Management	Role Management
8.User	User Management xx1900000332
9.Account	Account xx1900000331
10.Documentation	Documentation xx1900000334
11.Alarm History	Alarm History xx1900000792

3.7 ADMINISTRATOR group *Continued*

Available permission	Description
12.Log	Log
13.ChangePassword	Admin Change Password Change Password Ext PMOP xx1900000323
14.SoftPLC Live Data	SoftPLC Live Data
15.Alarm	Alarm xx1900000791
16.Recipe Settings	Recipe Manager Manage

3.8 DOCUMENTATION group

3.8 DOCUMENTATION group

PickMaster

Overview

This function is used to open the related documentation.

Pick	Aaster	۵	≜ Stopped	Recipe loaded		40	EN	0	÷	admin	
~	Docum	entation									
	Documents										
	1	Name PickMaster Operator	Documentation								>
	No. 2	Name PickMaster PowerPac	Description Documentation								>
										versio	2.1.0.123

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4.1 About the workflow

4 PickMaster Operator workflow

4.1 About the workflow

Overview

This chapter describes examples step-by-step to guide you how to work with the PickMaster Operator.



For most scenarios, you are recommended to follow the workflow from start to finish, even though other sequences maybe possible.

4.2 Production

4.2 Production

Opening PickMaster Operator

Use this procedure to start PickMaster Operator:

1 Double click the PickMaster Operator file to open the Welcome to ABB PickMaster window.



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2 Enter the IP address of the PickMaster Runtime which need to be connected.



Check the IPv4 address of the computer which the PickMaster Runtime is installed on.



Loopback address is NOT allowed to use as the PickMaster Runtime IP address, for example 127.0.0.1.

Loopback address will cause errors in vision function.

Welcome to At	3B PickMaster®	
PickMaster Runti	me	
🗸 Runtime status	5	
IP:	192.168.10.52	Connected
Advanced		
	License manager	
	Close	Start
	Welcome to AB	Welcome to ABB PickMaster ♥ PickMaster Runtime Runtime status IP: 192.168.10.52 Advanced License manager Close

Continues on next page

4.2 Production Continued

3 If needed, click Advance to open the setting view for Runtime user and language.



The default Runtime user name and password is the credential for connecting the PickMaster Runtime by https protocol.

Default Username: admin with Password: password



The user should change the password of the default user account for higher Cyber Security.

	Welcome to ABB	PickMaster®	
	PickMaster Runtime × Runtime status		
Pickiviaster®	IP:	192.168.10.52	Connect
	Advanced		
	User name:	admin	
	Password:	••••	
	Language:	English ~	
		License manager	
All rights reserved 2023		Close	Start

xx2200002005

4 Click Connect button.



Note

When the SSL dialog box pops up during the first operation of the PickMaster Operator, click Yes.

Otherwise the PickMaster Operator cannot work normally.

4.2 Production *Continued*

	Welcome to ABB P	PickMaster®	
ABB PickMaster®	 PickMaster Runtime Runtime status 		
i lekinaster -	IP:	192.168.10.52	Connected
	Advanced		
	User name:	admin	
	Password:	•••••	
	Language:	English ×	
All rights reserved 2023		Close	Start

xx2200002006

- 5 Click the License Manager button to open the License Management window. For more detail on activating the license, see *ABB ZENON license on page 27*.
- 6 Click Start button to open the login interface.

	Welcome to ABB PickMaster®	
ABB PickMaster®	PickMaster Runtime Runtime status IP: 192.168.10.52 Co Advanced 	nnected
	License manager	
All rights reserved 2023	Close	Start

xx1900001508

Continues on next page

4.2 Production Continued



Note

If the user meets any problem when building connection between PickMaster Operator and real Runtime, please check from below possible reasons:

- a Using a host account that is not administrator;
- b Firewall blocking;
- c VPN interference;
- d Host IP address incorrect;
- e The network name not renamed to "profinetIOAdapter".
- 7 Login with an effective user account.

PickMaster	۵	A Stopped B No Re	осра	4 9 E	N \varTheta	÷	No active user
		ARR	Language English (EN)				
		PickMaster	Username				
			Password				
			Login				
		All rights reserved 2022 version 2.1.0.123	Serial Number: COMM-RTHTV-2A5L-80008-81509				

xx1900000783



The Username and Password are case sensitive.

99

4 PickMaster Operator workflow

4.2 Production *Continued*

Loading solution

Use this procedure to load the solution:

1 In PickMaster Operator main page, click System Setup.



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2 Click on the Browse solution file button.



The solution loaded in the PickMaster Operator must have been connected to a real controller with the same configuration on PickMaster PowerPac.



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4.2 Production Continued

3 In the pop-up Open window, select the solution file $\tt.pms$ in the local folder.



Copy the whole solution folder to the local computer.

The whole solution folder from PickMaster PowerPac is needed when loading a solution to PickMaster Operator, not only the solution file .pms.

	-				_				
Syst	em Setup								
B	owne Solution File								Change PMRT Passwo
		P our							
		- Open					^		
		← → × ↑ 🖡 « Pa	kMaster.PowerPac > Sol	utions > Solution19	νõ	Search Solution19	<i>P</i>		
		Organize • New folde	r			10 ·	• •		
		SCARA	^	Name		Date modified	Type		
		📜 System manual strue	ture example	PickMaster		10/31/2022 12:36 PM	File folde		
		📜 Teresa		Stations		11/6/2022 11:08 PM	File folde		
		TTH Photo		Solution19.pms		11/6/2022 11:08 PM	PMS File		
		VS							
		■ 売売知知							
		SharePoint							
		🧶 This PC							
		3D Objects							
		Desktop							
		Documents							
		File nar	e: Solution19.pms			Solution File (*.pms;)	~		
						Open	Cancel		
		L							

xx1900001519

- 4 Click Open.
- 5 Wait until the solution is totally imported.



During the importing, a note that says "Solution is loading" will show up on the upper right position.

6 If needed, click on the **PackML Disabled** button to select the **Enable PackML** function.

Only when the **Enable PackML** function is selected, the **PackML** flow in the operation can be available.



Only when the **Enable PackML** function is selected, the PackML flow in the operation can be available.

4 PickMaster Operator workflow

4.2 Production *Continued*

PickM	laster 🗅		A Stoppod	acipe loaded	Ag EN	🛛 📥 admin
~	System Setup					
	Browse Solution File	Fieldbus Selection	Disable Enable	Control Method Basic Centrol PackML Control	Two Hand Operation Disable Enable	Change PMRT Password
	No. Name 1 Solution36			Creation date 2022-07-14 11:42:48		

xx1900001510

7 If needed, open the **Two Hand Operation bar** function by selecting **Enable** option in the **Two Hand Operation**.

PickM	Aaster Ĝ		<u>≜</u> Stopped	B Recipe loaded	An En	🎯 📥 admin
÷	System Setup					
	Browse Solution File	Fieldbus Selection	Remote Control Disable Ene	Control Method able Basic Centrol PackML Control	Two Hand Operation Disable Enable	Change PMRT Paseword
	No. Name 1 Solution36			Creation date 2022-07-14 11:42:48		
xx19	00001512					

Selecting recipe

Use this procedure to select the recipe:

- 1 In PickMaster Operator main page, click Recipe Manager.
- 2 Click on the Select button to activate the recipe you need.

When the recipe is selected, the selected recipe will be highlighted as pink.

Pickl	Master	۵		≜ Stopped	B Recipe loaded	40	EN	0	🚢 admin	
←	Red	cipe Manager								
	All	Recipes							Recipe	Settings
	N0. 1	Name Recipe_1	Version 1.0	Creation date 2022-10-28 16:22:08			Selecte	d		
	N0. 2	Name Recipe_2	Version 1.0	Creation date 2022-10-28 16:22:08			Sele	1		
xx19	0000	00794								



There is at least one robot set as mandatory for each recipe.

4.2 Production Continued

Starting production

Use this procedure to start the production:

1 In PickMaster Operator main page, click Operation.



xx1900001513

2 Choose the Production.

PickMaster 🗘		A. Stopped	🖹 Recipe lo	aded				🎝 EN	🛛 👗 admin
← Operations									
Robot 1									
Remote Control	Product	en Batch Production					¥	Two hand operation by	31
Recipe Execution:				LinHold	Held		Holding		
Recipe_1				sc	1	Hold	t		
Batch Production Targ	gets	Idle Start		SC	Execute				
Target definition (second)		sc		sc		Suppord	7		
Tanget definition (picks)		Reseting	UnSuspending	-Unsuspend	Suspended	sc	• Suspending		
Apply			-						1
		Slopped 50	Stopping	SC	Clearing	Clear	Aborted	90	Aborting
	Re	set Start	Stop	Abort	Clear	Hold	Unhold	Suspend	Unsuspend

xx1900001515

xx1900001514

- 4.2 Production *Continued*
- PickMaster 40 Operations ← 3 Production Batch Production . Remote Control Foa Recipe Executio Recipe_1 Batch Production Targets Tanget ck Apply Abort Unsuspend
- 3 Hold the **Two Hand Operation bar** button to enable the operation.

4 Click on the Reset button and then Start button to start the production.

4.3 Batch production

4.3 Batch production

Starting batch production

Use this procedure to start the production:

1 In PickMaster Operator main page, click **Operation**.



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- 2 Choose the Batch Production.

xx1900001516

4.3 Batch production *Continued*

3 If needed, choose the Two Hand Operation bar to enable the operation.

PickMaster 🗘	A Stopped	🏘 EN 🛛 🛔 admin
← Operations		
Robot 1		
Remote Control	Production Balala Production	Two hand operation bar
Recipe Execution:	Unitedating toold	Holding
Noces_1 Batch Production Targets Targetelens/power 0 Targetelens/power 0 Targetelens/power 0 Apple		Completing SC Complete
	50 50 Sagent	-
	Reseting Unsupporting Unsupporting Supported	Suspending
	Rear 200 Skopend 50 Skopeng 50 Clearing 50	Aborted 80 Aborting
	Read Start Stop Abort Char Hod	Unhold Surgend Unsurgend

xx1900001514

4 Enter the target time or counts for the Batch Production in the **Batch Production targets** text box.



Pick time and Pick number are alternative. When one is fulfilled, the other input box will be grayed out.



xx1900001517

- 5 Click the Apply button.
- 6 Click the Reset button and then Start button to start the production.



When the conditions are met, the state machine will jump to the **Completing** state, and it will stop the operation. And finally jump to the **Stopped** state.

4.4 Remote control

4.4 Remote control



The reader for this chapter should have the basic knowledge of automatic control.

4.4.1 Enabling Remote control

4.4.1 Enabling Remote control

How to enable Remote control

This section describes how to enable the **Remote control** in PickMaster Operator. Users can choose the appropriate fieldbus connection according to their requirements.

1 In PickMaster Operator main page, click System Setup.

PickMaster 🛱		▲ Stopped D No Recipe		約 EN 🛛 🛓 admin	
PRODUCTION Cashfoord Coperation Çişiş Turanş	RECIPE MANCER	NCKITORIKO	AMALYSIS Airm E Airm Mittory Log	SYSTEM	
ADMINISTRATION Account Rite Management	DOCUMENTATION				

xx2000000143

2 Select EtherNet IP/ Modbus/ Profinet in Fieldbus Selection drop-down list.


4.4.1 Enabling Remote control Continued

3 Enable Remote Control function.

PickMa	aster						A 8		📥 admin	
~	System \$	Setup								
	Browse St	station File	Fieldbus Selection	Remote Control Disable	Control Method Basic Control	PackML Control	Two Hand Operat	ion	Change PMRT Password	
	No. No. 1	ame robot_2linear_predefined_Co	ру			Creation date 2022-11-17 12:18:20				

xx2000000145

Back to PickMaster Operator main page, click Operation.
 The user cannot control the production from the Operation page.
 All commands are from the remote controller.

PickMaster	Resoling Recipe loaded	🍖 EN 🛛 🛓 admin
← Operations		
S Robot 1		
Remote Control Disable Enable	Production Batch Production	Two hand operation bar
Recipe Execution:	Unitediang test	
Recipe_1	50 mai	
Batch Production Targets Target definition (record)	tite Starting Execution	
0 Target definition (social	Operation is in remote control state	
0 Annaha		
N967	Ray De Churry Com A	borted
	Read Dart Not Over Hod	Unhold Suspend

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This following page shows the parameters which reflect the real data of the selected fieldbus signal.

kMaster			🛓 Reseting					40		👗 superuser
SoftPLC I	ive Data									
Name 7		Actual value		Minimum	Ma	aximum	Stat	us		
	Filter text	Y	Filter text	Filter text	Y	Filter text	Y	Filter text	7	
PACK_ML/Global/	Pml_UnitModeCurrent	0		-2147483648	21	47483647	SPC	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_UnitModeChangeRequest	0		0	1		SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Sts_UnitModeCurrent	1		-2147483648	21	47483647	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Sts_StateCurrent	15		-2147483648	21	47483647	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Sts_MachSpeed	0		-2147483648	21	47483647	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Sts_EquipmentInterlockStarved	0		0	1		SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Sts_EquipmentInterlockBlocked	0		0	1		SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Sts_CurMachSpeed	0		-2147483648	21	47483647	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_State_CntrlCmd	1		-2147483648	21	47483647	SPC	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_State_CmdChangeRequest	1		0	1		SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[9]	0		-32768	32	767	SPO	DNI,I_SID_E,I_SID		(
PACK_ML/Global/	Pml_Robot_Sts[8]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[7]	0		-32768	32	767	SPC	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[6]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[5]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[4]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[3]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[2]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[1]	7		-32768	32	767	SPC	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Sts[0]	7		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK ML/Global/	Pml Robot Cmd[9]	0		-32768	32	767	SPO	ONT,T STD E,T STD		(
PACK_ML/Global/	Pml_Robot_Cmd[8]	0		-32768	32	767	SPC	DNT,T_STD_E,T_STD		(
PACK ML/Global/	Pml Robot Cmd[7]	0		-32768	32	767	SPO	ONT,T STD E,T STD		(
PACK_ML/Global/	Pml_Robot_Cmd[6]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Cmd[5]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Cmd[4]	0		-32768	32	767	SPO	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml_Robot_Cmd[3]	0		-32768	32	767	SPC	DNT,T_STD_E,T_STD		(
PACK_ML/Global/	Pml Robot Cmd[2]	0		-32768	32	767	SPO	ONT,T STD E,T STD		(
PACK ML/Global/	Pml Robot Cmd[1]	0		-32768	32	767	SPO	ONT,T STD E,T STD		(
PACK_ML/Global/	Pml_Robot_Cmd[0]	0		-32768	32	767	SPO	ONT,T_STD_E,T_STD		
PACK ML/Global/	Pml Ref MachSpeed	0		-2147483648	21	47483647	SPO	ONT,T STD E,T STD		(
PACK ML/Global/	Pml Admin StopReason	-1		-2147483648	21	47483647	SPO	ONT,T STD E.T STD		(
PACK ML/Global/	Pml Admin ProdProcessedCount	0		-2147483648	21	47483647	SPO	ONT.T STD E.T STD		
PACK ML/Global/	Pml Admin ProdDefectiveCount	-1		-2147483648	21	47483647	SPO	ONT,T STD E,T STD		
PACK_ML/Global/	FieldbusSelection	1		20760	20	707	CDC	NUT CTO FI CTO		

4 PickMaster Operator workflow

4.4.1 Enabling **Remote control** *Continued*

The data structure of the following Packtag is based on the data structure defined by the previous Packtag (see *Format of the PackTags on page 84*). Users can refer to the following Packtag data structure when using Modbus for remote control.

4.4.2 Examples

4.4.2 Examples

Remote control - Basic function - PackML

This section describes an example for some basic function of Remote control.

- 1 Open PickMaster Operator and load solution.
- 2 In PickMaster Operator main page, click System Setup.

PickMaster 🙃		L Stopped B No Recipe		🍇 EN 🛛 🛓 admin	
PRODUCTION	RECIPE MANGER	MONITORING	ANALYSIS Alarm Alarm History	SYSTEM	
ŶĹŶ Tunng			٩		
ADMINISTRATION	DOCUMENTATION				
Account Uter	Documentation				
Ritie Management					

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- 3 Select EtherNet IP/ Modbus/ Profinet in Fieldbus Selection drop-down list.
- 4 Enable Remote Control function.

PickN	laster					≜ 0 EN	🛛 📥 admin	
~	Syste	m Setup						
	Brow	se Solution File	Fieldbus Selection	Remote Control Disable	Control Method Basic Centrol PackML Control	Two Hand Operation Disable Enable	Change PMRT Pass	oword
	No. 1	Name 1robot_2linear_predefined_Co	ру		Creation date 2022-11-17 12:18:20			

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- 5 Send the command from the remote control equipment to PickMaster Operator.
- 6 Set the UnitMode to 1 (1=Production/4=Batch Production) and UnitModeChangeRequest from 0 to 1.



Tip

For more details about the signal information, see PACK_ML/Global/Pml_Sts_StateCurrent -> UnitName.Status.StateCurrent on page 74.

- 7 Check UnitModeCurrent:
 - If UnitModeCurrent=1, it means that PickMaster Operator now is in Production mode.
 - If UnitModeCurrent=4, it means that PickMaster Operator now is in Batch Production mode.

4.4.2 Examples *Continued*

8 Set the **CntrlCmd** to 1 (1=Reset) and **CmdChangeRequest** from 0 to 1 to trigger the PickMaster Operator preparing for production.



For more details about the signal information, see PACK_ML/Global/Pml_State_CntrlCmd -> UnitName.Command.CntrlCmd on page 73.

9 Check PickMaster Operator current state by StateCurrent=15 and change to StateCurrent=4.



For more details about the signal information, see *PACK_ML/Global/Pml_State_CntrlCmd -> UnitName.Command.CntrlCmd on page 73.*

10 Set the **CntrlCmd** to **2** (2=Start) and **CmdChangeRequest** from **0** to **1** to trigger the PickMaster Operator running production.



For more details about the signal information, see PACK_ML/Global/Pml_State_CntrlCmd -> UnitName.Command.CntrlCmd on page 73.

11 Check PickMaster Operator current state by StateCurrent=3 (Starting) then StateCurrent=6 (Execute) which means that production is running.



For more details about the signal information, see PACK_ML/Global/Pml_State_CntrlCmd -> UnitName.Command.CntrlCmd on page 73.

12 Set the **CntrlCmd** to **3** (3=Stop) and **CmdChangeRequest** from **0** to **1** to trigger the PickMaster Operator to stop the production.



For more details about the signal information, see *PACK_ML/Global/Pml_State_CntrlCmd -> UnitName.Command.CntrlCmd on page 73*.

4.4.2 Examples Continued

13 Check PickMaster Operator current state by StateCurrent=7 and change to StateCurrent=2 which means that production is stopped.



14 Back to PickMaster Operator main page, click Operation.

The user cannot control the production from the **Operation** page.

All commands are from the remote control equipment.



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Pick	Master û	۸.	Reseting Recipe loaded		* ∂ E№	a 🛛 🔒 superuser
←	SoftPLC Live Data					
		8 Antonio India	Minimum	la suring and	Chatra	
	Citize land	Actual value	Minimum 27 Citize Inst	22 Citra have	Ciber Ind	
	Pillel Bal	Pinter text	2147492049	2147492647	SDONTT STD E T STD	
-	PACK_ML/Global/Pmi_UnitWode/Current	0	-214/483648	214/40304/	SPONI, I_STD_E, I_STD	0.
	ACK_ML/Clobal/Pml_Onit/ModeChangeRequest	0	U 0547493849	1	SPONT STD ET STD	0.
	ACK_ML/Clabal/Ded_Str_StateCurrent	16	~214/403040	2147403047	SPONTT STD ET STD	0.
-	ACK_ML/Global/Dml_Str_MachSnaad	0	-2.147403040	2147403047	SPONTT STD ET STD	0.
	ACK_ML/Global/Pml_Sts_EnuinmentInteriorkStenard	0	0	1	SPONTT STD ET STD	0.
-	ACK_ML/Global/Dml_Str_EquipmentInterlockStarved	0	0	4	SPONTT STD ET STD	00
	ACK_ML/Global/DmLSts_CurMachSnaarl	0	-2147483648	2147483647	SPONTT STD ET STD	0.
6	PACK ML/Global/Pml State CotriCord	1	-2147483848	2147483847	SPONTE STD ET STD	01
	PACK MI /Global/Pmi State CmrtChangeRequest	1	0	1	SPONTT STD ET STD	05
- L	ACK ML/Global/PmL Robot Sts191	0		32/6/	SPONUL SIDE L SID	0
	PACK MI (Global/Pmi Robot Sts[8]	0	-32768	32767	SPONTT STD FT STD	01
1	PACK MI/Global/Pml Robot Sts[7]	0	-32768	32767	SPONTT STD FT STD	0
-	PACK MI (Global/Pml Robot Sts/6)		-32768	32767	SPONTT STD FT STD	01
i i	PACK MI /Global/Pml Robot Sts[5]	0	-32768	32767	SPONTT SID FT SID	0
i i	PACK ML/Global/Pml Robot Sts[4]	0	-32768	32767	SPONTT STD ET STD	0:
i i	PACK ML/Global/Pml Robot Sts[3]	0	-32768	32767	SPONT T STD E.T STD	0:
Ē	PACK ML/Global/Pml Robot Sts[2]	0	-32768	32767	SPONTT STD E T STD	0:
i i	PACK ML/Global/Pml Robot Sts[1]	7	-32768	32767	SPONT T STD E T STD	0:
Ē	PACK ML/Global/Pml Robot Sts[0]	7	-32768	32767	SPONT,T STD E,T STD	05
i i	PACK ML/Global/Pml Robot Cmd[9]	0	-32768	32767	SPONT,T STD E,T STD	20
i i	PACK ML/Global/Pml Robot Cmd[8]	0	-32768	32767	SPONT,T STD E.T STD	05
Ť	PACK ML/Global/Pml Robot Cmd[7]	0	-32768	32767	SPONT,T STD E,T STD	00
- i	PACK_ML/Global/Pml_Robot_Cmd[6]	0	-32768	32767	SPONT,T_STD_E,T_STD	0
F	PACK ML/Global/Pml Robot Cmd[5]	0	-32768	32767	SPONT,T STD E,T STD	0(
F	ACK_ML/Global/Pml_Robot_Cmd[4]	0	-32768	32767	SPONT,T_STD_E,T_STD	00
F	ACK ML/Global/Pml Robot Cmd[3]	0	-32768	32767	SPONT,T STD E,T STD	0(
F	ACK_ML/Global/Pml_Robot_Cmd[2]	0	-32768	32767	SPONT,T_STD_E,T_STD	00
F	ACK_ML/Global/Pml_Robot_Cmd[1]	0	-32768	32767	SPONT,T_STD_E,T_STD	00
F	ACK ML/Global/Pml Robot Cmd[0]	0	-32768	32767	SPONT,T STD E,T STD	00
F	PACK_ML/Global/Pml_Ref_MachSpeed	0	-2147483648	2147483647	SPONT,T_STD_E,T_STD	0
F	PACK_ML/Global/Pml_Admin_StopReason	-1	-2147483648	2147483647	SPONT,T_STD_E,T_STD	00
F	ACK_ML/Global/Pml_Admin_ProdProcessedCount	0	-2147483648	2147483647	SPONT,T_STD_E,T_STD	0
F	PACK_ML/Global/Pml_Admin_ProdDefectiveCount	-1	-2147483648	2147483647	SPONT,T_STD_E,T_STD	00
F	ACK_ML/Global/FieldbusSelection	1	-32768	32767	SPONT,T_STD_E,T_STD	0

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The data structure of the following Packtag is based on the data structure defined by the previous Packtag (see *Format of the PackTags on page 84*).

4.4.2 Examples *Continued*

Users can refer to the following Packtag data structure when using Modbus for remote control.



Besides the Fieldbus logic interface listed in the Appendix, any other Fieldbus protocol will be invalid in PickMaster Operator. For example, ModbusRTU, Modbus_Energy or the Modbus process gateway are all invalid.

Remote control - Recipe switch

This section describes an example for the recipe switch function of **Remote control**.

- 1 Open PickMaster Operator and load solution.
- 2 In PickMaster Operator main page, click System Setup.



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- 3 Select EtherNet IP/ Modbus/ Profinet in Fieldbus Selection drop-down list.
- 4 Enable Remote Control function.

PickM	laster 🏠		🛓 Stopped 🕒 Recip	ve loaded	≜ 0 EN €	admin 🕹
÷	System Setup					
	Browse Solution File	Fieldbus Selection	Remote Control Disable Enable	Control Method Basic Control PackML Control	Two Hand Operation Disable Enable Enable	Change PMRT Password
	No. Name 1 1robot_2linear_predefined_C	ору		Creation date 2022-11-17 12:18:20)	

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5 Check the Idle signal in ScadaToRemote window is 1.

4.4.2 Examples Continued

If the idle signal is 1, it means that the PickMaster Operator can receive remote command. The ScadaToRemote window will show current recipe ID and recipe ID list.



Note

The maximum number of the items in the recipe ID list for EtherNet IP/ Modbus is 150.

The maximum number of the items in the recipe ID list for Profinet is 50.

6 Set RequestRecipeID as request (For example 70001) and the RequestOrder to 101 in RemoteToScada window.



101 is the job number for remote recipe switch.

7 Set the command Request signal from 0 to 1 in RemoteToScada window. This can trigger the PickMaster Operator to switch the recipe by RecipeRequestID. The PickMaster Operator only monitors the rising edge of the command Request signal.



Note

After the PickMaster Operator received the command Request signal, the recipe in PickMaster Operator will switch accordingly and the Idle signal in ScadaToRemote window will change back to 0.

8 If need to switch the recipe again, set the command Request signal from 1 to 0 and repeat step 5 to 8.



If any error raised, PickMaster Operator will send an error signal and error code to the remote control equipment.

The error signal must be reset before sending any other command to PickMaster Operator. Reset the PickMaster Operator error by sending a pulse signal of ResetError from the remote control equipment.

4 PickMaster Operator workflow

4.5 Adding a new user with new role

4.5 Adding a new user with new role

Adding a new role

Use this procedure to add a new role:

1 In PickMaster Operator main page, click Role Management.



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2 Click New Role.

PickMa	ster û	<u></u> ▲ Stopped	B Recipe	loaded	約 EN 👘	•	admin
~	Role Management						
Role	Management						
C	New Role	Delete Role		Role Name			
ad	numstalor		k	Avalable	Selected	cel	Enve

3 Enter the role name as userrole.

PickMaster D	▲ Stopped	B Recipe loaded	•	🇤 EN 🎯 🛓	admin
← Role Management					
Role Management					
New Role administrator	Delete Role	Role Name userrole			
	-	Neutralia 1 - Home Physic 2 - Soydems Nature 3 - Developed 4 - Operation 5 - Training 6 - Recipe Manageri 9 - Account 10 - Documentation 11 - Atamn History 12 - Coange Parsened 13 - Solffer L. Jun Edita 14 - Solffer L. Jun Edita 15 - Alarm 19 - Recipe Settings 17 - Coange/MRTPassaned		Statutof 0 - Defaul Level Cancel	e e Save

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- 4 Add the following functions for the new role from the available list to selected list.
 - Default Level
 - Home Page
 - System Setup
 - Dashboard
 - Tuning
 - User
 - Documentation
 - Log
 - Alarm

PickMaster 🗅	A Stopped	e loaded	🎭 EN 🛛 📥 admin
Role Management			
Role Management			
New Role	Delete Role	Role Name userrole	
	-	Aveladit	Solend 1 - Shore Rage 2 - System Setap 3 - Davitationat 3 - Davitationat 3 - Davitationat 9 - Disconstrained 10 - Decommentation 11 - Airen History 12 - Log

4 PickMaster Operator workflow

4.5 Adding a new user with new role *Continued*

5 Click Save.

PickMaster 🛱	A Stopped B Recipe load	6d	🎭 EN 🛛 🌥 admin
Role Management			
Role Management			
New Role	Delete Role	Role Name userrole	
		Available 4 Operation 5 Recipe Manager 7. Role Manager 13 Charge Password 14 SaRPL CL Ve Data 15 Alarge Password 16 Recipe Selfrigs 17 ChargePAtt(TPassword 17 ChargePAtt(TPassword 19 Recipe Selfrigs 19 Recipe Sel	Selected
	v		Cancel Save

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Adding a new user

Use this procedure to add a new role:

1 In PickMaster Operator main page, click User.

PickMaster 🏠		A Stopped D No Recipe		🁆 EN	🛛 👗 admin
PIGOLOTON Database Database Put Pigonesen Timmy	RECIP: MANGER	NORMORINO E Ridanic Use Data	ANCL'SS Ann Ann Henry Leg	EXTEM E Ext Sphen Sing	
Additional Control Con	DOCUMENTATION				

2 Click Add User.

PickMaster	۵		≜, Stopped	B Recipe loaded		🎭 EN 🛛 📥 admin	
← User	Management						
User Manage	ment						
Add Us	ler					Fair Delete	
Active	User name	Complete Name	Telephone	Mail	Application Authorization	User Administration Type Locked	

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The new user page will pop up.

PickMaster	Stopped Recipe loaded	🎭 EN 🎯 📥 admin
← User Management		
User Management		
Add User	Add User	Fait Delete
Artise Herrison Complete Name Telephon	User Administration Type Users	Licer Administration Tuno
admin admin	User name istrator, PMOPRole, userrole, aa	Administrator
	Complete Name	
	Mail	
	Telephone	
	Artists E will and Tokshops	
	Application Authorization	
	Available Selected	
	administrator userrole	
	Password	
	Confirm password	
	Carable User User Locked	
	Cancel Sove	

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3 Select the User Administration Type as Users.

4 Enter the user name and the complete name as ABBUser.

PickM	aster	۵		A S	Recipe loaded		♣ <mark>9</mark> EN Ø 📥 ax	Imin
←	User Ma	nagement						
Use	r Manageme	int				_		
	Add User				Add User User Administration Type		Fide	Delete
F	ctive L	Jser name	Complete Name	Telephone	Users ~	cation Authorization	User Administration Type	Locked
 Image: A set of the set of the		admin	admin		User name	histrator, PMOPRole, userrole, aa	Administrator	
					AbBuser			
					Complete Name			
					Mail			
					Telephone			
					Activate E-mail and Telephone			
					Application Authorization			
					Available Selected			
					administrator			
					Password			
					Confirm password			
					Enable User User Locked			
					Cancel Save			

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5 Select the authorization for the new user from the available list to selected list.

	TU EN 🤍 🛋 samin
← User Management	
User Management User Management Add User Add User anne Complete Name admn Add User anne Add User anne admn Add User Anne Add Add Add Add User Anne Add Add Add Add Add Add Add	tor Dove
Cancel Save	

6 Enter the password for new user and confirm it.

PickMaster 🗅		
← User Management		
User Management User Management Athe softm softm softm	Add blar Un clearbathen Tge Uases	Tot Ducco • User Administration Type • Locked • Locked • R. as Administration Type Locked

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7 Select Enable user.

PickMaster	Stopped Recipe loaded	🎭 EN 🛛 🏯 admin
← User Management		
User Management Add User Addre User nene Complete Name Toleptor	Add Unor Use Antoination Type Ubers and Authorization User men ADBUSIG Complex Rem ADBUSIG	E-22. (Peretro User Administration Type Locked Administrator
	Kal Traylow Addree to and Flophen: Application Authonization Barbori Teamori Teamori	

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If User Locked is selected, the new created user will not be able to login.

121

8 Click Save.

PickMaster 🛱	Stopped Recipe loaded	🍂 EN 🛛 🏯 admin
← User Management		
User Management		
Add User	Add User User Administration Type	Edr. Delete
Activo Licor namo Complete Namo Telenh	Users v cation Authorization	User Administration Type Locked
admin admin	User name nistrator, PMOPRole, userrole	aa Administrator
	ABBUser	
	Complete Name	
	ABBUser	
	Mail	
	Telephone	
	Activate E-mail and Telephone	
	Application Authorization	
	Available Selected	
	administrator au useriole a	
	Password	
	Confirm constant	
	Enable User User Locked	
	Cancel Save	

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The new user will show up in the user list.

/ UserManas						
← User Manag	ement					
User Management						
Add User					Edit	Defete
Active User na	me Complete Name	Telephone	Mail	Application Authorization	User Administration Type	Locked
admi	1 admin			administrator, userrole	Administrator	
ABBU:	er ABBUser			userrole	Users	

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9 Logout current user.

Pick	Master	۵		Ł. Stopped	B Recipe loaded		🍋 EN 🛛 🏯	admin
~	User	Management						
u	lser Manag	ement						
	Add U	lser					Edit	Defete
5	Active	User name admin	Complete Name	Telephone	Mail	Application Authorization	User Administration Type	Locked
1	~	ABBUser	ABBUser	Logout		userrole	Users	
				Are you sure you want to logout Pickt	laster?			
				No	Yes			
_								

10 Login with the new user.

	▲ Stopped	B Recipe loaded	*9	EN	•	No active user
A	\BB	English (EN)				
P	ickMaster	Username ABBUser				
		Password				
		Login				
All rights	reserved 2022 version 2.00.00.0352	Serial Number: C0095-ANC45-DZGNI-00000-64178				

xx2000000194



The first time when you log in with the new created user, you will be prompted to the password expired page. You need to change the password to active the new user.

When you click Login, this page will show up.

PickMaster	👗 Stopped	Recipe loaded	🍓 EN 🔍 📥 No active user
	ABB	Language English (EN)	
	PickMaster	Username ABBUser	
	Prompt	ОК	
	Password is expired new password	Please enter a	
	All rights reserved 2022 version 2.00.00.0352	Serial Number: C0098-AXC45-DZGNI 00000-64178	
xx2000000195			

4 PickMaster Operator workflow

4.5 Adding a new user with new role *Continued*

11 Change the password and click Save.

	Change Password
	Old Password
PickMaster	New Password
	Confirm password
	Consol

🁆 EN 🛛 📥 No active user

xx2000000196

PickMaster 🛱

When the password is changed successfully, the following page will show up.

PickMaster	
	l) ~
PickMaster	
ADEUSER	
Prompt Channe pessword successfuld	ок
All orders susceed \$922 surprise 216-127. Send Marcher Fill	1006 XTH7V.2651.00003.01529
Consignation and a series of the series of t	

12 Login with the new user and the new password.

PickMaster	۵	🛓 Stopped	Recipe loaded	AB EN
		ABB	English (EN)	
		PickMaster	Username ABBUser	
			Password	
			Login	
		All rights reserved 2022 version 2.00.00.0352	Serial Namber: C0095-AKC45-DZGNI-60006-64175	

xx2000000429

When you login successfully, the selected functions will show up in the main page.



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5.1 EtherNet/IP signal definition

EtherNet/IP Instance

Data	Name	Mes- saging	Туре	In- stance	Class	Size	Description
ScadaToRe- mote	ScadaToRemote	implicit	Inputs	101		496	Current, Command, RecipeID
ScadaToRe- mote	ScadaToRemoteR- ecipeIDList1	explicit	Inputs	113	3	400	RecipeIDList[0]-[99]
ScadaToRe- mote	ScadaToRemoteR- ecipeIDList2	explicit	Inputs	114	3	200	RecipeIDList[100]-[149]
RemoteTo- Scada	RemoteToScada	implicit	Out- puts	201		496	Current, Command, RecipeID

Scada to Remote

Instance	Byte	Bit	Signal	Туре	Description
101	0		UnitModeCurrent	int32	
101	4		StateCurrent	int32	
101	8		CurMachSpeed	int32	
101	12		MachSpeed	int32	
101	16		ProdProcessedCount	int32	
101	20		ProdDefectiveCount	int32	
101	24		StopReason	int32	
101	28		Robot Status [10]	int16	
101	48	0	EquipmentInterlockBlocked	bool	
101	48	1	EquipmentInterlockStarved	bool	
101	48	2			
101	48	3			
101	48	4			
101	48	5			
101	48	6			
101	48	7			
101	64	0	Idle	bool	
101	64	1	Error	bool	
101	64	2			
101	64	3			
101	64	4			
101	64	5			
101	64	6			

127

5.1 EtherNet/IP signal definition *Continued*

Instance	Byte	Bit	Signal	Туре	Description
101	64	7			
101	66	0	Modbus	bool	
101	66	1	PROFINET	bool	
101	66	2	EtherNet/IP	bool	
101	66	3			
101	66	4			
101	66	5			
101	66	6			
101	66	7			
101	68		ActiveOrder	uint32	
101	72		ErrorCode	uint32	
101	128		Current Recipe ID	uint32	
113	0		Recipe ID List [0]	uint32	
113			Recipe ID List []	uint32	
113	396		Recipe ID List [99]	uint32	
114	0		Recipe ID List [100]	uint32	
114			Recipe ID List []	uint32	
114	196		Recipe ID List [149]	uint32	

Remote to Scada

Instance	Byte	Bit	Signal	Туре	Description
201	0		UnitMode	int32	
201	4		CntrlCmd	int32	
201	8		MachSpeed	int32	
201	12		Robot Cmd [10]	int16	
201	32	0	UnitModeChangeRequest	bool	
201	32	1	CmdChangeRequest	bool	
201	32	2			
201	32	3			
201	32	4			
201	32	5			
201	32	6			
201	32	7			
201	64	0	Request	bool	
201	64	1	ResetError	bool	
201	64	2			
201	64	3			
201	64	4			

5.1 EtherNet/IP signal definition *Continued*

Instance	Byte	Bit	Signal	Туре	Description
201	64	5			
201	64	6			
201	64	7			
201	68		RequestOrder	uint32	
201	128		Request Recipe ID	uint32	

5.2 Modbus signal definition

5.2 Modbus signal definition

Scada to Remote (Input Registers)

Register	Bit	Signal	Туре	Description
0		UnitModeCurrent	int32	
2		StateCurrent	int32	
4		CurMachSpeed	int32	
6		MachSpeed	int32	
8		ProdProcessedCount	int32	
10		ProdDefectiveCount	int32	
12		StopReason	int32	
14		Robot Status [10]	int16	
24	0	EquipmentInterlockBlocked	bool	
24	1	EquipmentInterlockStarved	bool	
24	2			
24	3			
24	4			
24	5			
24	6			
24	7			
24	8			
24	9			
24	10			
24	11			
24	12			
24	13			
24	14			
24	15			
26	0	Idle	bool	
26	1	Error	bool	
26	2			
26	3			
26	4			
26	5			
26	6			
26	7			
26	8			
26	9			
26	10			

5.2 Modbus signal definition *Continued*

Register	Bit	Signal	Туре	Description
26	11			
26	12			
26	13			
26	14			
26	15			
27	0	Modbus	bool	
27	1	PROFINET	bool	
27	2	EtherNet/IP	bool	
27	3			
27	4			
27	5			
27	6			
27	7			
27	8			
27	9			
27	10			
27	11			
27	12			
27	13			
27	14			
27	15			
28		ActiveOrder	uint32	
30		ErrorCode	uint32	
32		Current Recipe ID	uint32	
34		Recipe ID List [0]	uint32	
		Recipe ID List []	uint32	
332		Recipe ID List [149]	uint32	

Remote to Scada (Holding Registers)

Register	Bit	Signal	Туре	Description
0		UnitMode	int32	
2		CntrlCmd	int32	
4		MachSpeed	int32	
6		Robot Cmd [10]	int16	
16	0	UnitModeChangeRequest	bool	
16	1	CmdChangeRequest	bool	
16	2			
16	3			

5.2 Modbus signal definition *Continued*

Register	Bit	Signal	Туре	Description
16	4			
16	5			
16	6			
16	7			
16	8			
16	9			
16	10			
16	11			
16	12			
16	13			
16	14			
16	15			
17	0	Request	bool	
17	1	ResetError	bool	
17	2			
17	3			
17	4			
17	5			
17	6			
17	7			
17	8			
17	9			
17	10			
17	11			
17	12			
17	13			
17	14			
17	15			
18		RequestOrder	uint32	
20		Request Recipe ID	uint32	

5.3 PROFINET signal definition

5.3 PROFINET signal definition

PROFINET Slot

Slot	Name	Туре	Description
1	Input 32 bit - DINT	ScadaToRemote	
2	Input 32 bit - DINT	ScadaToRemote	
3	Input 32 bit - DINT	ScadaToRemote	
4	Input 32 bit - DINT	ScadaToRemote	
5	Input 32 bit - DINT	ScadaToRemote	
6	Input 32 bit - DINT	ScadaToRemote	
7	Input 32 bit - DINT	ScadaToRemote	
8	Input 16 bit - INT	ScadaToRemote	
9	Input 16 bit - INT	ScadaToRemote	
10	Input 16 bit - INT	ScadaToRemote	
11	Input 16 bit - INT	ScadaToRemote	
12	Input 16 bit - INT	ScadaToRemote	
13	Input 16 bit - INT	ScadaToRemote	
14	Input 16 bit - INT	ScadaToRemote	
15	Input 16 bit - INT	ScadaToRemote	
16	Input 16 bit - INT	ScadaToRemote	
17	Input 16 bit - INT	ScadaToRemote	
18	Input 8 bit - USINT	ScadaToRemote	
19	Output 32 bit - DINT	RemoteToScada	
20	Output 32 bit - DINT	RemoteToScada	
21	Output 32 bit - DINT	RemoteToScada	
22	Output 16 bit - INT	RemoteToScada	
23	Output 16 bit - INT	RemoteToScada	
24	Output 16 bit - INT	RemoteToScada	
25	Output 16 bit - INT	RemoteToScada	
26	Output 16 bit - INT	RemoteToScada	
27	Output 16 bit - INT	RemoteToScada	
28	Output 16 bit - INT	RemoteToScada	
29	Output 16 bit - INT	RemoteToScada	
30	Output 16 bit - INT	RemoteToScada	
31	Output 16 bit - INT	RemoteToScada	
32	Output 8 bit - USINT	RemoteToScada	
33	Input 16 bit - UINT	ScadaToRemote	
34	Input 16 bit - UINT	ScadaToRemote	
35	Input 32 bit - UDINT	ScadaToRemote	

5.3 PROFINET signal definition *Continued*

Slot	Name	Туре	Description
36	Input 32 bit - UDINT	ScadaToRemote	
37	Input 32 bit - UDINT	ScadaToRemote	
38	Output 16 bit - UINT	RemoteToScada	
39	Output 32 bit - UDINT	RemoteToScada	
40	Output 32 bit - UDINT	RemoteToScada	
41	Input STRING - 255 byte	ScadaToRemote	

Scada to Remote

Slot	Subslot	Module	Bit	Signal	Туре	Description
1	1	DINT		UnitModeCurrent	int32	
2	1	DINT		StateCurrent	int32	
3	1	DINT		CurMachSpeed	int32	
4	1	DINT		MachSpeed	int32	
5	1	DINT		ProdProcessedCount	int32	
6	1	DINT		ProdDefectiveCount	int32	
7	1	DINT		StopReason	int32	
8~17	1	INT		Robot Status [10]	int16	
18	1	USINT	0	EquipmentInterlockBlocked	bool	
18	1	USINT	1	EquipmentInterlockStarved	bool	
18	1	USINT	2			
18	1	USINT	3			
18	1	USINT	4			
18	1	USINT	5			
18	1	USINT	6			
18	1	USINT	7			
33	1	UINT	0	Idle	bool	
33	1	UINT	1	Error	bool	
33	1	UINT	2			
33	1	UINT	3			
33	1	UINT	4			
33	1	UINT	5			
33	1	UINT	6			
33	1	UINT	7			
33	1	UINT	8			
33	1	UINT	9			
33	1	UINT	10			
33	1	UINT	11			
33	1	UINT	12			

5.3 PROFINET signal definition Continued

Slot	Subslot	Module	Bit	Signal	Туре	Description
33	1	UINT	13			
33	1	UINT	14			
33	1	UINT	15			
34	1	UINT	0	Modbus	bool	
34	1	UINT	1	PROFINET	bool	
34	1	UINT	2	EtherNet/IP	bool	
34	1	UINT	3			
34	1	UINT	4			
34	1	UINT	5			
34	1	UINT	6			
34	1	UINT	7			
34	1	UINT	8			
34	1	UINT	9			
34	1	UINT	10			
34	1	UINT	11			
34	1	UINT	12			
34	1	UINT	13			
34	1	UINT	14			
34	1	UINT	15			
35	1	UDINT		ActiveOrder	uint32	
36	1	UDINT		ErrorCode	uint32	
37	1	UDINT		Current Recipe ID	uint32	
41	1	STRING 255byte	0	Recipe ID List [0]	uint32	
	1	STRING 255byte		Recipe ID List []	uint32	
41	1	STRING 255byte	196	Recipe ID List [49]	uint32	

Remote to Scada

Slot	Subslot	Module	Bit	Signal	Туре	Description
19	1	DINT		UnitMode	int32	
20	1	DINT		CntrlCmd	int32	
21	1	DINT		MachSpeed	int32	
22~31	1	INT		Robot Cmd [10]	int16	
32	1	USINT	0	UnitModeChangeRequest	bool	
32	1	USINT	1	CmdChangeRequest	bool	
32	1	USINT	2			
32	1	USINT	3			

5.3 PROFINET signal definition *Continued*

Slot	Subslot	Module	Bit	Signal	Туре	Description
32	1	USINT	4			
32	1	USINT	5			
32	1	USINT	6			
32	1	USINT	7			
38	1	UINT	0	Request	bool	
38	1	UINT	1	ResetError	bool	
38	1	UINT	2			
38	1	UINT	3			
38	1	UINT	4			
38	1	UINT	5			
38	1	UINT	6			
38	1	UINT	7			
38	1	UINT	8			
38	1	UINT	9			
38	1	UINT	10			
38	1	UINT	11			
38	1	UINT	12			
38	1	UINT	13			
38	1	UINT	14			
38	1	UINT	15			
39	1	UDINT		RequestOrder	uint32	
40	1	UDINT		Request Recipe ID	uint32	



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