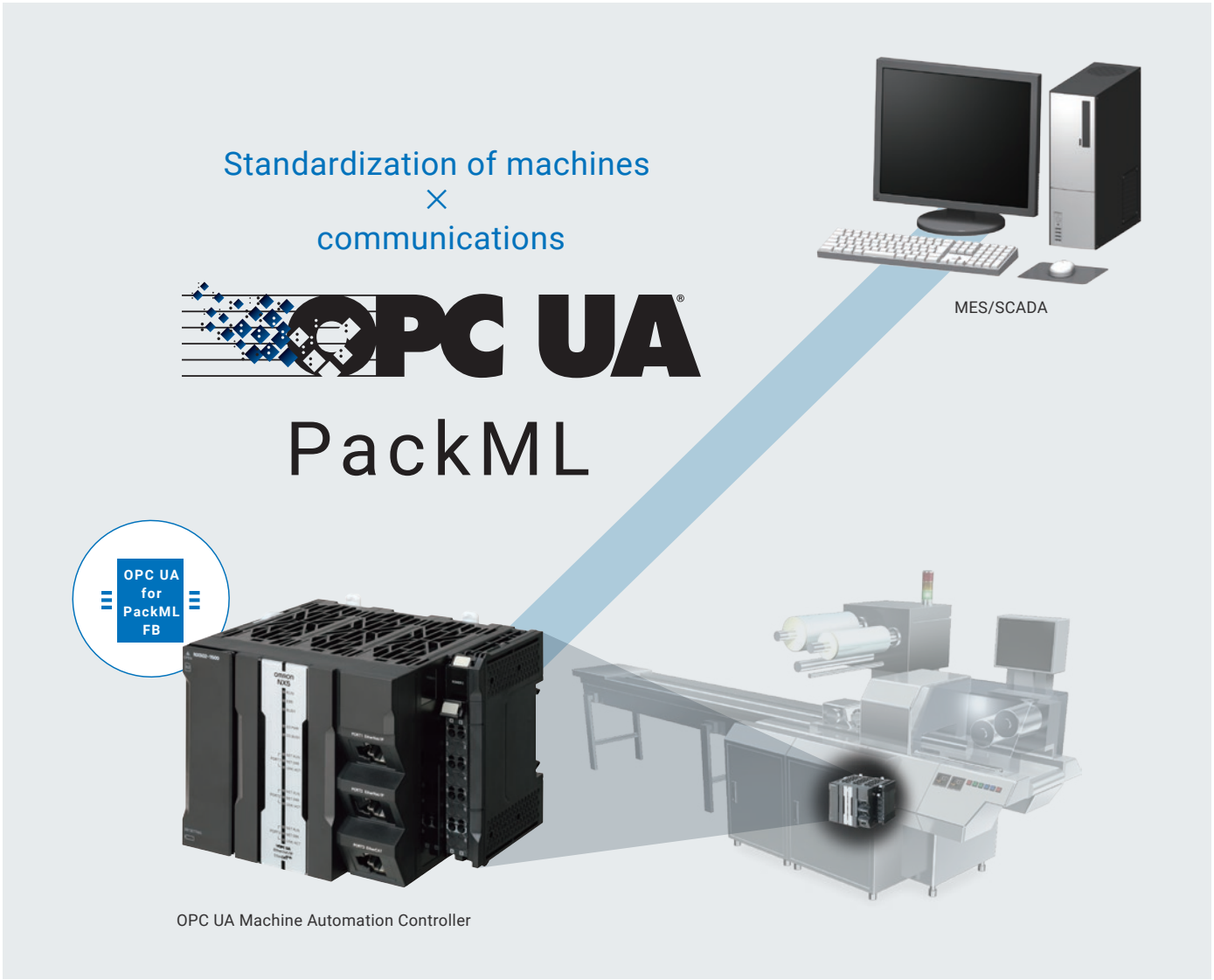
Facilitates and secures standardization of machines × communications in accordance

Integrate production systems by standardizing machines and communications according to international standards

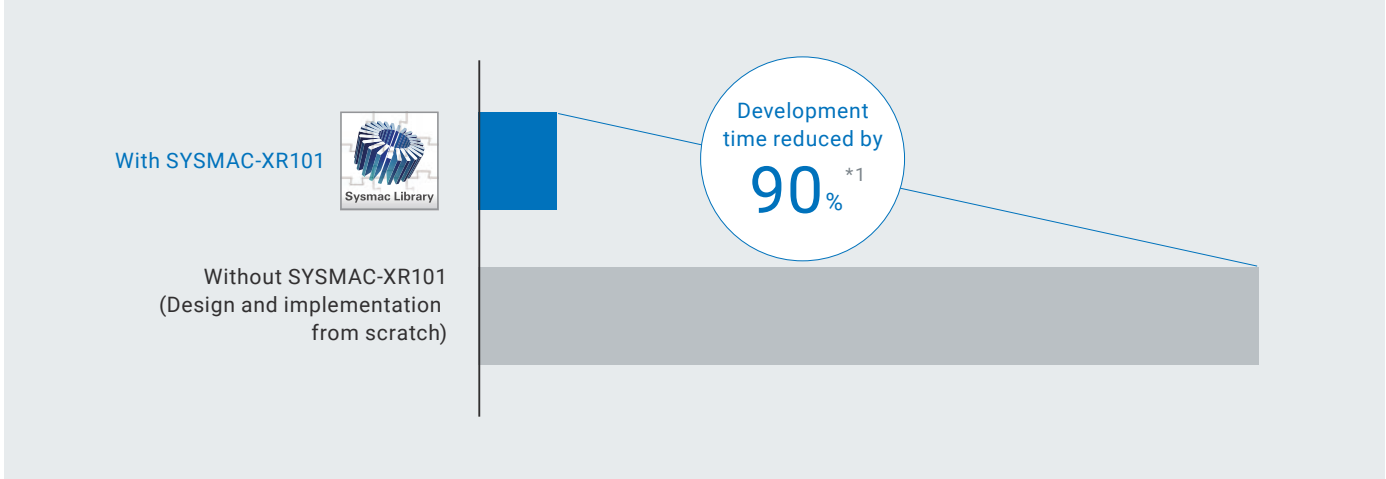
The use of the OPC UA PackML Library enables compliance with the OPC UA specification for PackML*1 without any knowledge of the details. This library includes Omron's OPC UA Information Model for PackML and internal Function Blocks to call Function Blocks in the Sysmac Library via an OPC UA Method, as well as Function Blocks to use OPC UA for PackML. The adoption of OPC UA as the communication protocol for PackML*2, which defines machine mode and state and interfaces with peripheral devices, makes it easier to standardize machines, cut preparation time for production, and integrate production systems.



*1. OPC 30050 - UA Companion Specification for PackML version 1.01
*2. TR88.00.02-2015

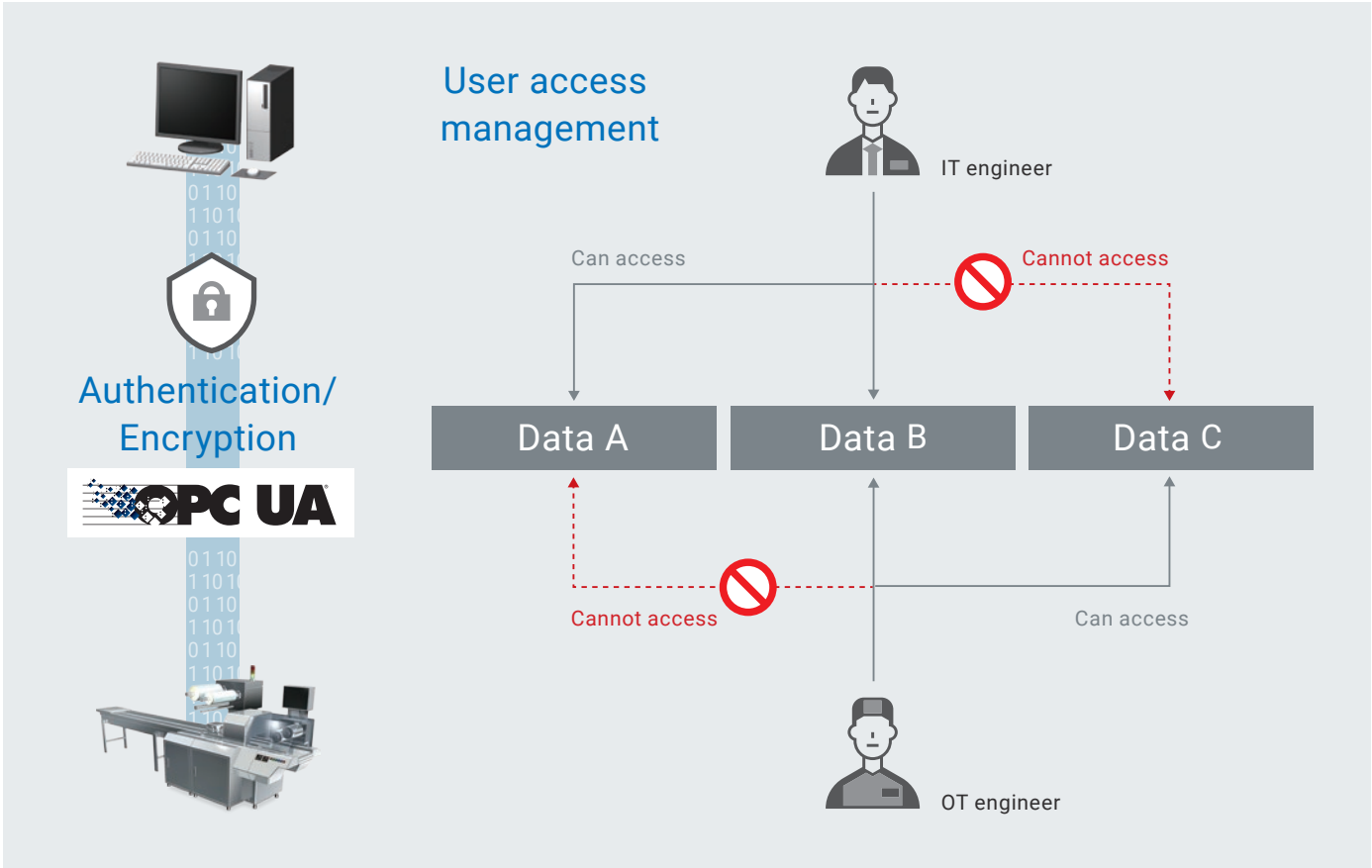
Significantly reduce programming time

The Function Blocks perform the required processing and act as data interfaces. Programming time can be greatly shortened by eliminating the need to design complex data and implement processing from scratch.
In addition to the Sysmac Library, user-defined Function Blocks can be used to add user-specified information.
This enables easy customization while leveraging industry standard PackML.



Safe and secure information exchange

OPC UA satisfies confidentiality, integrity, and availability by digitally signing and encrypting, ensuring secure connection between automation systems and IT systems. The Role function manages access permissions to information for every user to protect confidential information.



*1. Based on Omron investigation in August 2023.

Compatible Models

Name	Model	Version
OPC UA Machine Automation Controller	NJ501-1 □ 00	Version 1.62 or later
	NX502-1 □ 00	Version 1.64 or later
	NX701-1 □□□	Version 1.34 or later
	NX102- □□□□	Version 1.64 or later
Sysmac Studio	SYSMAC-SE2 □□□	Version 1.56 or higher

Function Block (FB) Specifications

Name	FB/FUN name	Description
PackML Base Object Type	PMLBaseObjType	A function-block representation of PackMLBaseObjectType defined in OPC 30050.
Transition Command Display	PMLCtrlCmd_**	Checks which transition command is the number of Command.CntrlCmd stipulated by PackTag.
State Output	PMLState_Is**	Checks which state number stipulated by PackML represents which state.
Transition Command All Reset	PMLTransitionCmd_ ResetAll	For the state transition command sPACKML_TRANSITION_COMMAND structure variable, resets every BOOL member that indicates the state transition to FALSE. This function is used for initializing the state transition request to the host module.
Transition Command Reset State Set	PMLTransitionCmd_ ResetAllCmdSetAllSC	For the state transition command sPACKML_TRANSITION_COMMAND structure variable, resets all the state transition commands (Cmd_<state name>) in the BOOL type members which indicates state transition to FALSE, and sets all the Wait state completion notifications (STs_<state name>_SC) to TRUE. This function is used for initializing the state transition request to the host module.
Transition Command Summarize	PMLTransitionCmd_ Summarize	Processes the state transition requests sPACKML_TRANSITION_ COMMAND structure variable which are output by each lower module, and outputs them as the state transition requests for the host module.
Pack Tag Transition Command	PMLTransitionCmd_ SummarizePackTagCtrl Cmd	Executes OR evaluation on the state transition request commands coming from outside of the machine through the Command.CtrlCmd tag of PackTag, and reflects it to the state transition requests of the summarizing destination.
Alarm 2	Alarm2	Defines "Alarm" to support events and reports the state of the defined Alarm to the sALARM_STATUS2 structure variable under the host module control. Sts_Alarms is a variable-length array.
EM Alarm Status Update 2	AlarmStatus_Update2	Checks Cfg_EMAlarmStatus, which indicates the status of Alarms collected to EM as in-out variables, to see whether the status of each Alarm has changed, and then updates each member of Cfg_EMAlarmStatus. Also, the function resets Cfg_EMAlarmStatus based on instructions given as input variables. Sts_Alarms is a variable-length array.
UN Alarm Status Add 2	AlarmSummation_Add2	Adds the specific EM Alarm status given by the EMAlarmStatus in-out variable to the UNAlarmSummation in-out variable retaining the Alarm statuses merged to UN (unit/machine). UNSts_Alarms and EMSts_Alarms are variable-length arrays.
Alarm Sort and Filter 2	AlarmSummation_ SortFilter2	Reflects the results of filtering and sorting that are conducted with the conditions specified by the InputAlarmSummation in-out variable that retains the Alarm statuses merged into UN (unit/machine), to the sALARM array variable Output. InputSts_Alarms is a variable-length array.
DATE_AND_TIME Pack Tag Array Conversion	DT_TO_PackTagDINTarray	Converts the DATE_AND_TIME input variable into the array variable specified by PackTags.

Note: Do not use this document to operate the Unit.

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