

Quick start guide for mxAutomation V3.0.2

The new serial version mxAutomation 3.0.2 can be installed only with WorkVisual. It is not anymore necessary to install the Software via USB-stick on the KRC setup.

1 Requirements:

- Minimum KSS8.5.0 with Minimum WorkVisual V5.0.0
- Minimum KUKA.PLC mxAutomation V3.0.2
- Minimum ProConOS 4-1 Ltd V5.0

Optional:

- KUKA.ConveyorTech min. V7.1.1
- KUKA.VectorMove V2.0

2 Installation and configuration:

-> free Download

- -> free of charge, if you order mxAutomation
- -> necessary to use Conveyor FBs
- -> necessary to use VectorMove FBs
- 1. Commission the robot as usual, try to move it in T1 mode.
- 2. Install and open on you WorkVisual
- 3. Get the KOP-Files of mxAutomation and ProConOS.
 - There are different ways to get them:
 - You will find the KOP-File on the USB-stick of the Media-Kit.
 - You can copy them from D:/KUKA_OPT/ of your KRC4
 - You can download them by WorkVisual from your KRC4:
 - Switch into the "Programming and diagnosis" mode in WorkVisual

Select your robot	NGOFJ OConOS and mxAutomat	io
Options	Commands	
erCAT BoardPackage (V1.4.0.6)	Edit	
.5.0 KUKA Update/Package/Firmware (V1.0.2.78) KUKA Update/Service (V1.1.3.80) KUKA Update/Service (V1.1.3.80) KUKA Update/Service (V1.0.3.164) Y Y ProConOS 4-1 (V5.0.054) Y ProConOS 4-1 (V5.0.150)	Create Archive Download selected Options	



4. Install the KOP-Files in WorkVisual for ProConOS and mxAutomation



5. After that, pull the WorkVisual project and set the controller as active





6. "Drag and Drop" the option "mxAutomation (V3.0.x)" from the catalogue "Options" into the project.



7. Deactivate the controller of the project.





9. Insert your fieldbus system for your mxAutomation Interface.

Important: If the fieldbus system was previously already in your project you have to delete it first! e.g.: You want to use the EtherCAT for mxA, so there should be no X44 in your project before.

C Project Structure	Cell configuration XIO Mapping	• ×	😂 Catalogs 🚽 🔫
Hardware Geometry Files Cell WINDOWS-5RJ25JL: Hardware view WINDOWS 1/SEU PP.//CEC49.2.233	KR C I/Os KR C Variables PLC Fieldbusses KR	C I/Os PLC Fieldbusses	Search
KR 210 R2700 extra 1			KUKACNC Sinumerk (V1.0.1) with a state of the st
ঊ Bus structure ঊ Safety control ⊡	WorkVisual		mxAutomation over PROFINET mxAutomation over EtherNet/IP mxAutomation over UDP
Unassigned Active Devices	The device "mxAutomation over EtherCAT" cor information about fieldbus configuration, signa longexts. Do you want to import it, too?	ntains additional al connections and	B SafeOperation (V3.2.2)
	Ja	Nein	

10. The notify message **should display no conflicts**. **Do not** shift your In/Outputs here!

WorkVisual			
Adjust sign	nal connections ew start addresses of the sign	al groups.	
Digital Inputs	2049	Analog Inputs	Not available.
Digital Outputs	2049	Analog Outputs	Not available.
Current conflicts:			
	~	[®] No conflicts.	
			OK Cancel

- 11. Set the controller as active in WorkVisual, and compile the project now. (takes up to 5 minutes)
- 12. Now you can adjust your settings of your used fieldbus system e.g. activate the safety over FSoE, CIP Safety or PROFIsafe

					Project Structure	• # ×	😽 Cell configuration 🔰	KIO Mapping PROFINET - Settings	
					Hardware Geom Geom G	netry Siles G5DOP8B: Hardware view SKKLJVV (KRC4 - 8.3.4) : Active controlle	Vendor: Product Revision:	KUKA Roboter GmbH PROFINET 2.3.5	
					- X KR 210-2 1	omponents	Communication settings PRC	OFlenergy Device settings Device Diagnostic	
					🖻 🧠 Bus structur 🕀 📫 KUKA C	re Controller Bus (KCB)	Network adap	oter: <pre>sundefined></pre>	•
					🕀 🖨 KUKA S	System Bus (SYS-X48)	PROFINET		
						OFINET IO	Device na	ime: kuka-noname	
Project Structure	👸 Cell config	uration 🎇 IO M	lapping 🛛 🚺	CRC4 primary EL6695-	1001 - Settings	ngi	PROFINET device		
Hardware Geometry Files Geometry Gometry Files Geometry Gometry Gometry Gometry Files	T Vende Produ	or: ict:	KUKA Robo KRC4 prima	iter GmbH ary EL6695-1001		ve Devices		Activate PROFINET device stack	_
WINDOWS-1VS9LRB (KRC4 compact - 8.3.21)	Revis Devic	ion: e description file:	V0.3 Kuka EL66	95prim.xml			Number of safe I/	/Os: 64	•
KR 6 R900 sko	General Proces	is data obiects					Number of I/	/Os: 256	•
El al Bus structure			la des	News	Disastina		Profinet vers	ion: v8.2, PNet 2.3	•
B ⇐ KUKA Controller Bus (KCB) B ⇐ KUKA System Bus (SYS-X48)		Use	#v1A01	FL6695 SYNC Inputs	Inputs		Update ti	ime: 8	ms
È ⊑ EtherCAT			#x1A09	Safety Inputs (8 Byte)	Inputs			20000	
E ← KUKA Extension Bus (SYS-X44)			#x1A11	Std. In (4 Bytes)	Inputs		Bus time	eout 20000	ms
EK1100 EtherCAT Coupler (2A E-Bus)			#x1A12	Std. In (8 Bytes)	Inputs			Display diagnostic alarm as message	
EBus			#x1A13	Std. In (16 Bytes)	Inputs		PROFINET controlle	8	
Safety control			#x1A14	Std. In (32 Bytes)	Inputs		Update ti	ime: 2	ms
E Coptions			#x1A15	Std. In (64 Bytes)	Inputs				
III Unassigned Active Devices			#x1A16	Std. In (128 Bytes)	Inputs		Bus time	eout 20000	ms
		1	#x1A17	Std. In (256 Bytes)	Inputs				
			#x1A18	Std. In (512 Bytes)	Inputs				
			#x1609	Safety Outputs (8 Byte)	Outputs				
			#x1611	Std. Out (4 Bytes)	Outputs				
			#x1612	Std. Out (8 Bytes)	Outputs				
			#x1613	Std. Out (16 Bytes)	Outputs				
			#x1614	Std. Out (32 Bytes)	Outputs				
			#x1615	Std. Out (64 Bytes)	Outputs				
			#x1616	Std. Out (128 Bytes)	Outputs				
		7	#x1617	Std. Out (256 Bytes)	Outputs				
			#x1618	Std. Out (512 Bytes)	Outputs				

KUKA Deutschland GmbH Product Support

Product Platform Support - CoreSoftware & Fieldbus



12.2. Only necessary if UDP is used as fieldbus

Activate the UDP-Communication by setting the Variable "MXA_COMM_MODE" to "1" KRC > R1 > TP > mxAuto > mxA_Util > mxA_Config.dat → You can change here also the Timeout

Project Structure	K Cell	configuration	1 2010	Mapping	1 👔	Controller 1] - KRC	:\R1\TP\mxAuto\mxA Util\mxA Config.dat*
📲 Hardware 🏓 Geometry 🖾 Files		- ERSION M					
E 😽 Cell WINDOWS-B2GR4K5: Documents view	4.52	DFCL 6	LOBAL	TNT M	AXN	TDXPLC IR Sta	1192=108
🔚 Global files	453	DECL G	T.OBAT.	TNT M	AXN	TDXPLC TR Sta	+1193=109
🖻 📙 Controller 1	454	DECL C	TORAL	TNU M		IDVDLC ID 9to	+110
🕀 🥪 C	155	DECH	TOPAT	TNU M	MAN_	IDAFIC IN Sta	+++====================================
🕀 🌆 Config	400	DECLG	T OD A L	TNT M	MAA_	IDAPLC_IR_Sta	tus5-111
🗄 🚛 KRC	456	DECL G	LOBAL	INT M	AXN_	IDXPLC_IR_Sta	1tus6=112
🛱 🔚 R1 👘 👘	457	DECL G	JOBAL	INT M	AXN_	IDXPLC_IR_Sta	itus/=113
🕀 🛅 Mada	458	DECL G	FLOBAL	INT M	AXN_	IDXPLC_IR_Sta	tus8=114
🕀 🔚 Program	459	DECL G	FLOBAL	INT M	axa_	IDXPLC_OrderI	dRet=115
🕀 🔚 System	460	DECL G	JOBAL	INT M	_AXN	IDXPLC_CmdIdF	let=116
🔁 🦾 TP	461	DECL G	LOBAL	INT M	MXA_	IDXPLC_CmdDat	aRetCS=117
🕀 🚞 ArcSense	462						
🕀 🚞 ArcTechAdvanced	463	DECL G	LOBAL	INT M	AXN_	IDXPLC_CmdDat	a_Ret1=101
🕀 🔚 ArcTechBasic	464	DECL G	JOBAL	INT M	AXN	IDXPLC_CmdDat	a_Ret2=102
🕀 🔚 Brake Test	465	DECL G	LOBAL	INT M	axn	IDXPLC CmdDat	a Ret3=103
🕀 🔚 Conveyor	466	DECL G	LOBAL	INT M	AXN	IDXPLC CmdDat	a Ret4=104
🛱 🚈 mxAuto	467	DECL G	LOBAL	INT M	axn	IDXPLC CmdDat	a Ret5=105
🕀 🚞 mxA_Functions	468	DECL G	LOBAL	INT M	AXN	IDXPLC CmdDat	a Ret6=106
🖻 🦾 mxA_Util	469	DECL G	LOBAL	INT M	axn	IDXPLC CmdDat	a_Ret7=107
	470	DECL G	LOBAL	INT M	AXN	IDXPLC CmdDat	a Ret8=108
🛃 mxA_Config.dat	471	DECL	T.OBAT.	TNT M	ΔXN	IDXPLC CmdDat	a Ret9=109
🚰 mxA_Diagnostics.dat	472	DECLO	TOBAL	TNT M	axn_	IDXPLC CmdDat	a_Ret10=110
··· 🧐 mxA_Diagnostics.src	473	DECL G	LOBAL	TNT M	axa_	IDXPLC CmdDat	a_Ret11=111
🦉 mxA_SysVar.src	474	DECL G	LOBAL	TNT M	MY 7	IDXPLC_CmdDat	- De+12=112
mxA_TechFunction.src	175	ресн с	HOBAL	INI M	INA_	IDAFIC_CIIIGDAU	.a_Ret12=112
mxA_UtilLib.src	476	ENDEC	D.D.				
	177	, ENDEC	TIOPD C	TOPAT			
- 00	170	, FOLD	USER G	ПОВАЦ	10 		
	470	; Konunu	TO Tet	.onsmo	Jaus		
Signais.dat	4/9	, 0 -	10 Int	eriac	ce		
	480	;	UDP			2010/ V022 1	
E SIEU	481	DECL G	FLOBAL	INT M	AXN	COMM_MODE = 1	
	482	; cnec	CK UDP	conne	BCUI	on	
	483	; UDP	connec	tion	tim	eout, if time	r elapsed the robot will stop
	484	; Afte	er quit	t the	e me	ssage the rob	ot will be ready to move
	485	DECL G	FLOBAL	INT g	JMXA	MAX UDP Time	out=50 ;[ms]
	486						
	487	; maxi	lmum in	dex f	Eor	touch up posi	tions, max. value 100
	488	DECL G	JOBAL	INT M	AXN_	TOUCHIDX_MAX=	=100
	489	-; ENDFO	DTD				
	490	-ENDDAT	2				
	491						

- 13. Send the project to the robot. (Now the I-KOP will be transmitted, and installed)
- 14. After the activation of the robot, the project requires a reboot of the controller.
- 15. Reboot the controller a second time. (This step is necessary to start the ProConOS)

16.

Finish -> For questions and PLC-examples: <u>SupportSoftware (Robotics DE)</u>