EN



# B50 C50

Smart Camera weQube with EtherNet/IP





## EtherNet/IP<sup>\*</sup>

Interface Protocol

Subject to change without notice Available as PDF version only Version: 1.0.3 Status: 03.01.2022 www.wenglor.com

## **Table of Contents**

1.	Use	for Intended Purpose	4
2.	Bas	ics about the EtherNet/IP interface of the Smart Camera	4
	2.1	Identity Object	
	2.2	Assembly Object	
	2.3	Configuration Object	
3.	Elec	trical Connection and Network Overview	5
4.	Inpu	It and Output Data	8
	4.1	Status	9
	4.2	Commands	
		4.2.1 Trigger Command	11
		4.2.2 Load Project Command	17
	4.3	User-Defined Process Data	20
5.	Sma	art Camera Settings	21
	5.1	Set Up uniVision Projects	21
	5.2	Device Industrial Ethernet	24
		5.2.1 Slots	26
		5.2.2 Error Handling	29
6.	Ethe	erNet/IP Network Configuration of the Smart Camera	30
7.	PLC	Settings at Allen-Bradley PLCs	33
	7.1	EDS File	
	7.2	Add Smart Camera to PLC Network	
	7.3	Configure Input and Output Data	40
	7.4	Download Configuration to PLC	43
	7.5	Integrate Smart Camera without EDS file	45
	7.6	PLC Parameters and Local Tags	
		7.6.1 String data	
		7.6.2 BOOL data	51
		7.6.3 DINT and REAL data	



8.	PLC	Settings at Omron PLCs	.56
	8.1	Network Settings	. 56
	8.2	EDS file	. 60
	8.3	Add Smart Camera to PLC network	. 64
	8.4	Configure Input and Output Data	. 69
	8.5	Download Configuration to PLC	.74
	8.6	PLC Variables	.79
9.	Sam	ple PLC program	.80
•••		P. 0 0 P. 03	

## 1. Use for Intended Purpose

The Smart Camera weQube is able to communicate with a PLC via EtherNet/IP. Thus, an exchange of process data between the Smart Camera and the PLC is possible. Furthermore, the Smart Camera sends a status to the PLC, which in turn can send commands to the Smart Camera.



#### NOTE!

In the manual, the EtherNet/IP integration is shown at an Allen-Bradley PLC 1769-L18E-RM-BB1B with Studio 5000 Logix Designer V32.

## 2. Basics about the EtherNet/IP interface of the Smart Camera

#### 2.1 Identity Object

- Vendor ID: 1211
- Vendor Name: wenglor sensoric gmbh
- Product Type: 12 (Communications Adapter)
- Product Code: 4096
- Product Name: weqube
- Revision: 1.3

### 2.2 Assembly Object

- Instance 100: Configuration Assembly (Size: 12 bytes)
- Instance 101: Input Assembly (Data size depends on configuration)
- Instance 102: Output Assembly (Data size depends on configuration)

### 2.3 Configuration Object

CLASS 1 connection with:

- Config 1: Module ID of Project Number
- Config 2: Module ID of Device Status
- Config 3: Module ID of Slot #3
- Config 4: Module ID of Slot #4
- Config 5: Module ID of Slot #5
- Config 6: Module ID of Slot #6



#### NOTE!

Only CLASS 1 connections are supported (no CLASS 3 connections)!

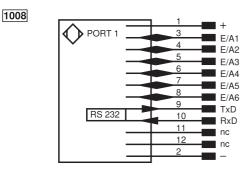
#### NOTE!

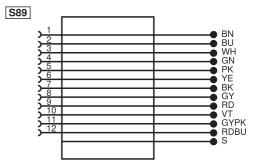
For not used slots, the Module ID must be set to 0.



## 3. Electrical Connection and Network Overview

Connect port 1 of the Smart Camera to 18...30 V DC. Connect pin 1 (wenglor standard cable: Brown) to the plus pole and pin 2 (wenglor standard cable: Blue) to the minus pole.



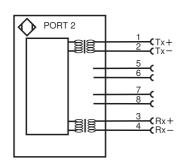


Connection Diagram, weQube Smart Camera, Port 1

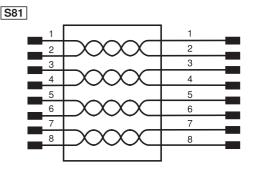
002



• Connect port 2 of the Smart Camera for EtherNet/IP communication with a PLC - directly or via a switch.



Connection Diagram, weQube Smart Camera, Port 2



Matching wenglor Connection Equipment

LEDs for EtherNet/IP at the Smart Camera:

LED	Color	State	Meaning
MS (Module Status)	(Green)	On	Operation Ready
	- (Green)	Flashing	Standby
	e (Red)	On	Fatal Error
		Flashing	Error
	(Off)	Off	Switched off
NS (Network Status)	• (Green)	On	Connected
	- (Green)	Flashing	No connection, but valid IP address
	e (Red)	On	Network conflict: Another device in the network has the same network configuration.
		Flashing	Connection Time-out
L/A	(Green)	On	Ethernet connection is available.
	- (Green)	Flashing	Smart Camera sends or receives Ethernet frames.
	(Off)	Off	No Ethernet connection available.



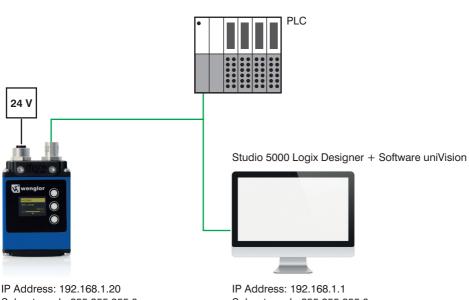
#### NOTE!

Port 2 of the Smart Camera supports EtherNet/IP communication and further network functionality (e.g. Software uniVision for Windows, website, process data via TCP, UDP and FTP).



Example: The Smart Camera weQube, the PLC and a PC with the software Studio 5000 Logix Designer and uniVision are in the same network.

> IP Address: 192.168.1.10 Subnet mask: 255.255.255.0



Subnet mask: 255.255.255.0

Subnet mask: 255.255.255.0

## 4. Input and Output Data

In the view of the PLC, the following input and output data are available for the Smart Camera:

- Slot 1 / weQube:O.Data[0] (fix): Project number (1 Byte Output of PLC)
- Slot 2 / weQube:I.Data[0-3] (fix): Status (4 Bytes Input of PLC)
- Slot 3 6 / weQube:I.Data or weQube:O.Data (flexible): User-defined process data (x Bytes Input or Output of PLC)



#### NOTE!

By default, slot 1 (weQube:O.Data[0]) and slot 2 (weQube:I.Data[0-3]) are always present. Slots 3 to 6 (weQube:I.Data or weQube:O.Data) are optional. The number of optional slots and the data types of such user-defined slots are adjustable.

The following example shows the default input and output configuration of the Smart Camera weQube with slot 1 (weQube:0.Data[0]) and slot 2 (weQube:1.Data[0-3]).

#### Example:

Logix Designer - PLC in Communication_weQube_1.ACD (1769-L18ERM-8818				2.4			- 6
ILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS W							
s 🖆 🖶 🗴 🖞 🌐 🤊 🕫 🔛 💊	- 多か - 10 12 12 12 12 12 12 12 12 12 12 12 12 12						
Program Mode Peth: A6 ETHOP-1(192, 168, 1, 10							
Dames Off	8 <b># 8 4 10 10 10</b> 10						• ·
t/o ox Rem Prog 📑 No Forces 🍋 No Edits	a. (→ Favorites Add-On S	afety Alarma Bit Timer/Counter Input/Out	ut Compare Compute/I	lath Move/Logical Fil	affisc. File/Shift Sequencer	Program Centrol For/Break Speci	al HMI Trigonometry Adv
	Q Controller Tags - PLC(controller) ×						
	Scope: 19PLC V Show: Al Tags				Enter Name Filter		
Controller PLC	Name	cel + Value		+ Style			
Controller Tags	Name > Local1:C	III + Value	<ul> <li>Force Mask</li> </ul>		Data Type	Properties	
Controller Fault Handler			{}	{}	AB:Embedded_Discre	Bit 및4   과 🎋   Extended Pro	iperties
I Power-Up Handler	Local:11		{}	{}	AB:Embedded_Discre	✓ General	
4 C MainTesk	Local1:0		{}	{}	AB.Embedded_Discre	Name Description	wequberC
MainProgram	2 meguberC		{}	{}	_04B8:weqube_E8F8C	Usage	<controller></controller>
Unscheduled	▶ weqube:C.Slot_1		10	Decimal	INT	Type	Base
C Motion Groups	> weqube:C.Slot_2		11	Decimal	INT	Alias For	
Ingrouped Axes	▶ wequbeC.Slot_3		0	Decimal	INT	Base Tag	
Assets Add-On Instructions	wegube:C.Slot.4		0	Decimal	INT	Data Type	_048B:weqube_E8F8C5CE:C:0
Add-on instructions	▶ weqube:C.Slot_5		0	Decimal	INT	Scope	PLC
E User-Defined	P wegube:CSlot 6			Decimal	INT	External Access	Read/Write
📻 Strings	<ul> <li>wequbel</li> </ul>		()	()	_0488:weqube_85D36	Style	No
readed Add-On-Defined						Constant	No
Impredefined	wequbel.ConnectionFaulted		0	Decimal	800L	Required Visible	
Image: Module-Defined Transfer Terrority	✓ wequbel.Data		()	{} Decimal	SINT[4]	A Data	
Logical Model	wequbel.Data[0]		0	Decimal	SINT	Value	
I/O Configuration	wequbed.Data[1]		0	Decimal	SINT	Force Mask	
4 EP PointIO	wequbei.Data[2]		0	Decimal	SINT	Produced Connection	
[0] 1769-L18ERM-8818 PLC	> wegubel.Data[3]		0	Decimal	SINT	Consumed Connection	
Embedded I/O	✓ weqube:0		<pre>{}</pre>	{}	_0488:wegube_FA74D	<ul> <li>Parameter Connections (0.9)</li> </ul>	
Expansion I/O, 0 Modules	▲ wegube:O.Data		{}	{} Decimal	SINT[1]		New Connection
2 Ethemet 1769-L18ERM-8818 PLC	weguberO.Data101		0	Decimal	SINT		
weqube weqube	* nequecorean(o)		*	o coma	2000		
dule Defined Taos						~	
Ø wegubel	✓ ► \ Monitor Tags \ Edit Tags /	<			>		
Ø weqube0	Errors						
Ø wegube:C							
ription	🙁 0 Erors 🛦 0 Warnings	1 Messages					Search
s Running	Going online with controller						
lule Fault	Complete - 0 error(s), 0 warning(s)						
	>						
antroller Organizer earch Results 🔊 Watch	٢						



#### 4.1 Status

The Smart Camera weQube sends a four-byte status information to the PLC. The status gives feedback as to whether the Smart Camera works correctly or is in an error state:

- Status 0: No error
- Status not 0: Error

In case of an error, the binary number indicates the reason of the respective error. The bit number starts with zero. Bits with value true give more information about the error.

Bit	Section	Signal	Description
0	General	Information	Busy
			Is high while processing LIMA commands (e.g. because of loading a project or changing any project
			parameter).
1		Warning	There is at least one bit set, level = Warning
2		Critical Error	There is at least one bit set, level = Critical Error
3		Fatal Error	There is at least one bit set, level = Fatal Error
6	Peripheral	TCP/IP	There is an error concerning the TCP/IP socket
7		UDP	There is an error concerning the UDP socket
8		Industrial Ethernet	There is an error concerning industrial ethernet
12		UART	There is an error concerning the UART device
13		FTP	There is an error concerning the FTP interface.
14	Memory	Flash	There is an error concerning the flash access
15		RAM	There is an error concerning the RAM access
16		SD-Card	There is an error concerning the SD card access
17		File access	There is an error concerning a general file access.
18		Compatibility	There is an error concerning the version of the
			loaded project
24	Image Processing	Sequencing	There is an error concerning IData vision engine
25		Processing	There is an error concerning a vision module.
26		Trigger	There is an error concerning HW trigger



#### NOTE!

More details about errors and possible solutions are available in the uniVision software manual.

#### Example:

The status with the binary number 10 0000 0000 0010 shows an error at bit 1 and bit 13. Consequently, there is a warning that indicates a problem with the FTP interface. An example may be that the Smart Camera is configured to save data on a FTP server, but the FTP server is not available in the network.

Bit	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Binary number	1	0	0	0	0	0	0	0	0	0	0	0	1	0

The following screen shows the status bits of the Smart Camera weQube in Studio 5000 Logix Designer in case of the described FTP error.

1 🖕 🖬 🖶 X 🗊 6 🤊 약 Program Mode Commission R						
Energy Storage OK	1. 2. 0 + 1-1 (a) (a) (b) (b) (b)	( ) (U) (L) Alarms Bit Timer/Counter Input/Output Compare	Commute Math. Manual assist.	Tables Plathin Commence	Presson Casteria - FaceBasela - Facebal	P Constant And
10 OK Rem Prog I No Forces 🍋 No I	Edits A. Controller Taxs - PLC(controller) ×	Marris bit miercoanter inporotopor compare	compositivati novercogical r	tentisti. Pleisinti sequenter	Program combra - Printineax - Special	ner ingennersy wav
en la				V T. Enter Name Filter		
Controller PLC	Scope: PLC v Show: Al Tags			< L Die name nie		
Controller Tags	Name	In Value * Force	Mask 🏾 🏶 Style	Data Type	Properties	
Controller Fault Handler	weqube:C.Slot_6	0	Decimal	INT	Bli 및4 세 t+ Extended Prope	sties
Power-Up Handler	✓ weqube!	()	()	_0488:weqube_85D36	✓ General	
🖅 Tasks 🔺 Դ Main Task	weqube I.ConnectionFaulted	0	Decimal	800L	Name	weqube:0
A C+ Main lask b 1 MainProgram	✓ weqube:LData	()	() Decimal	SINT[4]	Description	
iii Unscheduled	✓ wequbel.Data(0)	2	Decimal	SINT	Usage Type	< controller> Base
Motion Groups	weguberl.Data(0).0	0	Decimal	BOOL	Alias For	Lase
Ungrouped Axes	wegubei.Data(0).1	1	Decimal	800L	Base Tag	
Assets	weqube:I.Data[0].2	0	Decimal	BOOL	Data Type	0488:wegube FA74D033_1:0:0
Add-On Instructions	weqube.totaloj.2	0	Decimal	BOOL	Scope	PLC
E User-Defined		0	Decimal	BOOL	External Access	Read/Write
K Strings	weqube:I.Data[0].4				Style	
滬 Add-On-Defined	weqube1.Data[0].5	0	Decimal	BOOL	Constant	No
Predefined	weqube:I.Data(0).6	0	Decimal	BOOL	Required	
Module-Defined	weqube1.Data(0).7	0	Decimal	BOOL	Data	
Logical Model	✓ weqube(LData[1])	32	Decimal	SINT	Velue	
VO Configuration	wequbeI.Data[1].0	0	Decimal	BOOL	Force Mask	
🔺 🗰 PointIO	wequbel.Data[1].1	0	Decimal	800L	Produced Connection	
[0] 1769-L18ERM-BB1B PLC	wequbel.Data[1].2	0	Decimal	BOOL	Consumed Connection	
Embedded I/O	weguberl.Data[1].3	0	Decimal	800L	<ul> <li>Parameter Connections (0:0)</li> </ul>	
Expansion I/O, 0 Modules	wegubel.Data[1].4	0	Decimal	BOOL		New Connection
EB 1769-L18ERM-BB1B PLC	wegubei.Data[1].5	1	Decimal	8001		
weqube weqube	weguber.Data[1].6	0	Decimal	BOOL		
	wequbel.Data[1].7	0	Decimal	BOOL		
		0		SINT		
	weqube:LData[2]		Decimal			
	weqube1.Data[3]	0	Decimal	SINT		
	weqube:0	()	()	_0488:weqube_FA74D		
lule Defined Tags	K Nonitor Taps / Edit Taps /	<			*	
9 weqube:1					<u> </u>	
Ø wegube:0 Ø wegube:C	Errors					-
ription	🖸 0 Errors 🔥 0 Warnings 🚺	1 Messages			Se	sarch
is Running	Going online with controller					
lule Fault	Complete - 0 error(s), 0 warning(s)					
	>					
ontroller Organizer	<					

### 4.2 Commands

Commands (e.g. trigger commands) are sent from the PLC to the Smart Camera. The Smart Camera weQube supports the following commands:

- Trigger
- · Load project

It is not allowed to send several commands (e.g. trigger and project load commands) at the same time! Before sending the next command, it is necessary to wait until the processing of the last command has finished completely.

## 1

#### NOTE!

When the PLC sends a command to the Smart Camera, the Smart Camera captures an image or loads the project. Commands are executed immediately in contrast to process data, which is only sent or received by the Smart Camera in case of an evaluation that was started by a trigger signal.



#### 4.2.1 Trigger Command

When the PLC sends a trigger command to the Smart Camera, the Smart Camera captures and evaluates an image and sends the results.

The following steps are necessary to set up a trigger command via EtherNet/IP:

- 1. Connect to the Smart Camera via the software uniVision for Windows.
- 2. Add Device Industrial Ethernet to the project.
- Set Slot Count to define the number of flexible slots (At least one flexible slot is required for the trigger command).
- 4. Configure one of the flexible slots as 1 Byte Output (8 BOOL)

In the following example, the trigger command via EtherNet/IP is sent at slot 3.

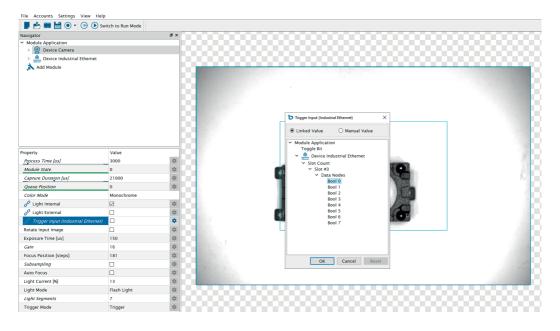
Navigator		Ð	×
<ul> <li>Module Application</li> </ul>			
> 🧕 Device Camera			
✓ ♣ Device Industrial Ethern	net		
Slot Count			
> Slot #3			
> Slot #4			
> Slot #5			
> Slot #6			
Error Handling			
🔉 Add Module			
Property	Value		
Process Time [us]	0	3	X
Module State	0	2	X
Slot Number	3	x,	X
Module ID	8	x,	X
Submodule ID	8	x,	X
Data Size	1	x,	X
Direction	PLC to Device		-
Data Nodes	8	x,	X
Data Type	1 Byte Output (8 BOOL)	- 1	1

5. Select Device Camera and link one of the bools of slot 3 to Trigger Input (Industrial Ethernet). In the example, the PLC sends the trigger command at Bool 0 of slot 3.



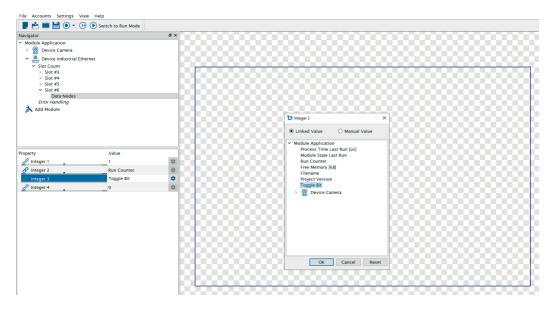
#### NOTE!

For triggering via EtherNet/IP, the Trigger Mode of Device Camera must be set to Trigger. Trigger Input (Industrial Ethernet) is only visible in the extended view of the uniVision software.





- 6. Use the last slot in order to verify that all new results of the image evaluation are available on the PLC. For example, configure slot 6 as "16 Byte Input (4 DINT)" and link the toggle bit and the run counter:
- Integer 1: Fix project number
- Integer 2: Run counter
- Integer 3: Toggle bit





#### NOTE!

Save the project, set it as startup project and reboot the Smart Camera to apply the settings. 7. Open the software Studio 5000 Logix Designer and adjust the number of input and output addresses of the Smart Camera according to the configuration in the uniVision project.



#### NOTE!

A detailed description of how to set up the input and output addresses is shown in chapter "7.3 Configure Input and Output Data" on page 40.

The example with 53 bytes input (4 + 1 + 32 + 16) and 2 bytes output (1 + 1) works for the following slot configuration:

- Slot 1 (fix): 1 Byte Output (Project number)
- Slot 2 (fix): 4 Byte Input (Status)
- Slot 3: 1 Byte Output (8 BOOL)
- Slot 4: 1 Byte Input (8 BOOL)
- Slot 5: 32 Byte Input (2 CHAR)
- Slot 6: 16 Byte Input (4 DINT)

Logix Designer - PLC in Communication_weQube_1.ACD [1769-L18ERM-8818 32.11]*		× ^	- 0 ×
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HE	ELP		
💁 🖴 🖶 🔺 0.0.0 🤊 C 📃 🔍 🐤 🖘 🖉	• b k > b ± 0 m c c		
RLN Y Path: 48_ETH0P-1\192.168.1.10	8 & 4 × × × × ×		
Evergy Storage		:: -14 <.)(U)(L) 	• •
UN Porces . No Edits			y sar
	Controller Tags - PLC(controller)	ale Properties: Local (weqube 1.803) ×	
d' 11	General Gene	al	
Gontroller PLC     Octroller Teos	- Connection		
Controller lags	- Nodule Info - Internet Protocol	weather mean and the second seco	
Power-Up Handler	Pot Configuration Very	or: wendor sensoric anbh	
🔺 编 Tesks	Pare	t Lord	
🖌 🖓 MainTask			
MainProgram	Narr		
Unscheduled	Dea	iption:	
Induon Groups     Induon Groups     Induon Groups		OIP Address:	
▲ Gingtopeu Axes			
Add-On Instructions		O Host Name:	
🖌 🖳 Data Types		v	
re User-Defined		Ave Definition	
R Add-On-Defined	Module Det		
Im Add-On-Defined Im Predefined	I Moode De		
Module-Defined	Bevision:	1 000 4	
iii Trends			
h Logical Model	Electronic Keying	Compatible Module ~	
▲ GUO Configuration	Connections:		
<ul> <li>PointIO</li> <li>[0] 1769-L18ERM-BB1B PLC</li> </ul>	Name	Size Change	
Embedded I/O		bast 53	
Expansion I/O, 0 Modules	Exclusive Or	ner Outout 2 SNT	
4 💑 Ethernet	Status: Offine	OK Cancel Apply Help	
1769-L18ERM-8818 PLC			
🐨 weqube weqube			
		OK Cancel Help	
Module Defined Tags			
Ø wequbel	-		
weqube:0	Errors		
Ø wegube:C Description	0 Errora 🔥 0	Warring 31 Messages Search	£
Description Status Offline	Finalizing download		
Module Fault	Download elapsed time 3.900 with	onnection size 4000.	· · · · · · · · · · · · · · · · · · ·
	Reading ChangeLog		
<pre></pre>	Complete - 0 error(s), 0 warning(		
The Controller Organizer By Logical Organizer	<		
Search Results 🔤 Watch			
Ready		Communication Software: FactoryTalk L	Une e



8. Set the Module IDs in weqube: C according to the configuration in the uniVision project.

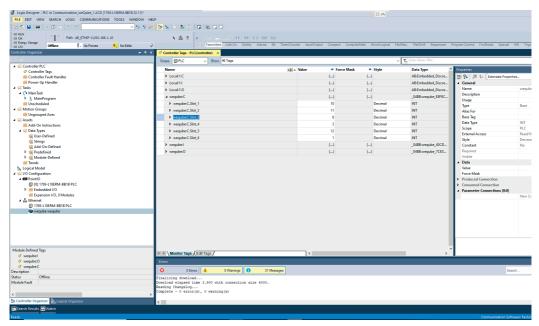


#### NOTE!

A detailed description of all Module IDs is shown in chapter "7.3 Configure Input and Output Data" on page 40.

In the example, the following Module IDs must be used:

- Slot 1 (fix): Module ID 10
- Slot 2 (fix): Module ID 11
- Slot 3: Module ID 8
- Slot 4: Module ID 3
- Slot 5: Module ID 12
- Slot 6: Module ID 1



9. Download the configuration of the software Studio 5000 Logix Designer to the PLC and go online.

10. Send the value TRUE to the correct address to send a trigger command to the Smart Camera. With every change from FALSE to TRUE for the trigger command bit, the Smart Camera captures and evaluates an image.

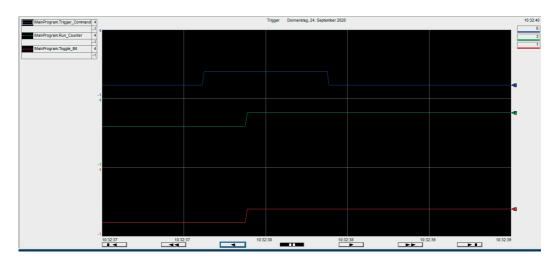
In the example, the trigger signal is sent on weqube:O.Data[1].0. The result of the run counter can be seen on weqube:I.Data[41-44] and the result of the toggle bit is shown on weqube:I.Data[45].0.

	🖆 🖶 🗴 🗗 🖉 🖉 🤆 🔛							
	Program Mode Partie 48, FTHIP+11192, 168, 1, 10	8 8 8 4 Juli Juli Juli 45 44 43						
All bookset   Control In C   State St	brergy Storage OK			Compare Compute/h	lath Move/Logical File	Misc. File/Shift Sequencer	Program Control For/Break Special	HMI Trigonometry Adv.
Image: Dec:								
Image: Distance of the data of the						The Date Name Dive		
Non-     Bit of the field of th	Controller PLC					-	-	
Process beacher              • sequed(Did(2)			III + Value					
Add Company		weqube:LData(40)		0	Decimal	SINT	📲 🛂 🔊 🏷 Extended Prope	erties
C Manda		weqube:LData[41]		13	Decimal	SINT		
<ul> <li></li></ul>		weqube:LData(42)		0	Decimal	SINT		weqube:O.Data[1].0
Windback                Product (04/1)               0 <td></td> <td>wequberI.Data[43]</td> <td></td> <td>0</td> <td>Decimal</td> <td>SINT</td> <td></td> <td></td>		wequberI.Data[43]		0	Decimal	SINT		
Middensky <ul> <li>Middensky</li> <li>Middens</li></ul>		> wecubesLData[44]		0	Decimal	SINT		
								Base
Amm         > sequest(124c2)         0								
								8001
Control de la control de								
							External Access	Read/Write
							Style	
		weqube1.Data(50)		0	Decimal	SINT		No
Note         O         Control         P           Understand         / expected/Disc()         Control         pint           Understand         / expected/Disc()         Control         Disc()           Understand         / expected/Disc()         Control         Disc()           Understand         / expected/Disc()         Control         Disc()		wequbecl.Data(51)		0	Decimal	SINT		
A sequed O Data       L L L L Constant       A sequed O Data       A sequed O Data <td< td=""><td></td><td>weqube1.Data[52]</td><td></td><td>0</td><td>Decimal</td><td>SINT</td><td></td><td></td></td<>		weqube1.Data[52]		0	Decimal	SINT		
1 0 Configuence              • engle 0.016		✓ wegube:0		{}	{}	_04BB:wegube_7CE0		
• Brited State Mit Bit C (             • Sequed Odde()               0               0               Brited State Mit Bit C (             • Sequed Odde()               0               Brited State Mit Bit C (             • Sequed Odde()               0               Brited State Mit Bit C (             • Sequed Odde()               Brited State Mit Bit C (             • Sequed Odde()               Brited State Mit Bit C (             • Sequed Odde()               Mit Control (             0               Brited State Mit Bit C (             • Sequed Odde()               Brited State Mit Bit C (             • Sequed Odde()               Brited State Mit Bit C (             • Sequed Odde()               Brited State Mit Bit C (             • Sequed Odde()             Sequed Odde()             • Sequed Odde()		<ul> <li>wegube O.Data</li> </ul>		()	() Decimal	SINTI21		
• P1 00-1 HBM BIR 0C         • expedx 0Du/U		k warmber() Data(0)			Decimal	SINT		
• many in Visions             • many	Embedded I/O						✓ Parameter Connections (0:0)	
• • • • • • • • • • • • •								New Connection
de Defect Typ:     •     0     Defending       de Defect Typ:     •     0     Defending       resplace Dodu(1)3     0     Defending     DODL       resplace Dodu     DodL     DodL     DodL       resplac								
Atc / Detail (Detail (D	A wednoe wednoe	weqube:O.Data[1].3		0	Decimal	BOOL		
Met Period Day:     0     Decimal     000.       9 request     0     Decimal     Decimal       9 request     0     Decimal     Decimal       9 request     0     Decimal     Decimal <tr< td=""><td></td><td>weqube(0.0ata[1])4</td><td></td><td>0</td><td>Decimal</td><td>BOOL</td><td></td><td></td></tr<>		weqube(0.0ata[1])4		0	Decimal	BOOL		
Marchard Name         Sequence (Add Name)         O         Decimal         DODL           Prequested         * (***********************************		weqube:O.Data[1].5		0	Decimal	BOOL		
Ale Defend hyp:     I Mundler tapy, / Call hyp, / Call       vegada / Call     Cons       perchance     O Monitory () 110000000000000000000000000000000000		weqube:0.Data[1].6		0	Decimal	BOOL		
y repair y repa		weqube:O.Data[1].7		0	Decimal	BOOL		
Verqueta'     C       Verqueta'     Con								
PrepaceO         Term         Seators		Monitor Tags (Edit Tags /	٤			>		
ParagleC     0 fbm/     0 fbm/     1 Meangen     Bend		Friend						
Textiang resolution     Textion     Textiang resolution     Textiang resolution     Textiang reso	weguberC							
Arfond     Concised space time 3.959 with concerting size 4000.     Concised space time 4.959 with concerting size 4000.     Concised space time 4.959 with concerting size 4000.     Concised space time 4.959 with concerting size 4.959 with concerting si		CO D Errors 🔥 O Warnings 🚺	31 Messages				Se	sarch
Bestatio Objector         Conjultar = 0 error(s), 0 variag(s)           Instatio Objector         Conjultar = 0 error(s), 0 variag(s)								
Stoppleter = 0 error(s), 0 warning(s)           etroin(b) (partice)	ule Pault		4000.					
Intrifer Organiar La Capaciar La Capaciar Capa								
		>						
		<						

#### NOTE!

- After capturing and evaluating the image, the Smart Camera sends results in the form of process data (also via EtherNet/IP if configured accordingly).
- The processing of the trigger signal and the evaluation of the image is completed when the toggle bit has changed and the run counter has increased by one.
- It is not allowed to send several commands at the same time (e.g. trigger and load project commands).
- After a trigger command has been sent from the PLC to the Smart Camera, wait until the results are available on the PLC before sending the next command.





#### 4.2.2 Load Project Command

The load project command allows loading another project onto the Smart Camera. Up to 255 different projects can be loaded via EtherNet/IP.

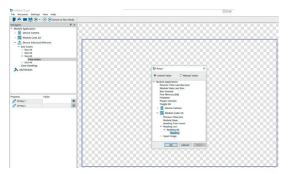
The following steps are necessary to set up a load project command via EtherNet/IP:

- 1. Open the software uniVision for Windows and connect to the Smart Camera weQube.
- 2. Create uniVision projects and save them with a number at the beginning of the filename.

#### NOTE!



In order to load projects via EtherNet/IP, all projects must be saved in the following format: "xxx\_testproject.u\_p" (x = any integer from 0 to 9). For example "001\_MyProject.u\_p". Project numbers can be set between 1 and 255 (0 is ignored – default value). Use unique numbers for every uniVision project file. The number of slots and the slot configuration must be identical in all uniVision projects in the Smart Camera in order for the project change to be possible from the PLC. 3. Use the last slot in order to send the project number as a fix result from the Smart Camera to the PLC. This value can be used to verify that the project has finished loading.





#### NOTE!

Save the projects, set one of the projects as startup project and reboot the Smart Camera to apply the settings.

4. Open the software Studio 5000 Logix Designer.



5. Slot 1 / weQube:O.Data[0] (fix) of the Smart Camera is pre-configured for loading uniVision projects.

LE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WIN	SSA BAAAA G BGC					
Run Mode						
iverov Storage OK		t Timer/Counter Input/Output Compare Compute/Math	Manufication Distantion	First Courses Descent	Control Fordiersh Passiel Mil	Tringenter Adversed Met
	ar a state of the			The and September Program	control Policiesk agecal mi	in ingulatiery Autorocolitat
ller Organizer	💌 🖲 🗙 🧟 Controller Tags - PLC(controller) 🗙 🖾 Trend - Trigger 🔋	MainProgram - MainRoutine 🛛 🦑 Program Parameters and L				
	Scope: @PLC v Show: Al Taps			<ul> <li>Enter Name Filter</li> </ul>		
Controller PLC	Name	III + Value + Force Ma	isk 🔹 Style	Data Type	Properties	
Controller Tags	▶ Local:1:C	()	()	ABEmbedded Discre	이 및 및 J to Extended I	
Controller Fault Handler						roperses
Tasks	Eccel:11	{}	{}	AB:Embedded_Discre	▲ General	
MainTask	Local:1:0	()	()	AB:Embedded_Discre	Name Description	weqube:O.Data[0]
▲ 5 MainProgram	▶ weqube:C	{}	{}	_04B8tweqube_E8F8C		
Parameters and Local Tags	✓ wegubel	()	()	_0488:wegube_40CD	Usage Type	Base
12 MainRoutine	wegubel.ConnectionFaulted	0	Decimal	BOOL	Alias For	our of the second secon
Unscheduled	Megubel.Data	()	() Decimal	SINTIS31	Base Tag	
Motion Groups					Data Type	SINT
Ungrouped Axes	✓ weqube:0	{}	{}	_04B8tweqube_7CE0	Scope	PLC
Assets	✓ weqube:0.Data	()	() Decimal	SINT[2]	External Access	Read/Write
Add-On Instructions	weguberO.Data[0]	0	Decimal	SINT	Style	Decimal
E User-Defined	weqube:O.Data[1]	0	Decimal	SINT	Constant	No
Strings					Required	
Add-On-Defined					Visible	
Predefined					∡ Data	
Module-Defined					Value	
4 🖼 Trends					Force Mask	
☑ Trigger					Produced Connection	
% Logical Model					Consumed Connection	
I/O Configuration					Parameter Connections I	0.0)
A EP PointIO						New Connection
[0] 1769-L18ERM-B818 PLC						
Embedded I/O						
Expansion I/O, 0 Modules						
🖌 🚠 Ethernet						
1769-L18ERM-8818 PLC						
🗊 weqube weqube						
cription	Monitor Tags / Edit Tags /				×	
nber of Pens 0	A Monitor lags V Edit lags V	C.		,		
	Errors					
	😮 0 Erors 🔥 0 Warnings 🚺	0 Messages				Search
	>					
Introller Grganizer	»					

6. Send the number defined in the filename of the uniVision project from the PLC to the Smart Camera in order to load the project. With every change of the project number sent by the PLC to the Smart Camera, the Smart Camera loads the project (only if the uniVision project is available and if the project number is different to the currently loaded project).

In the example, the project number 2 is sent at weqube:O.Data[0]. After the project loading has finished, the weQube sends the current project number back at weqube:I.Data[37-40].

Run Mode Controller CK T Path: AB_ETHIP-1\192.168.1.10	🗙 🍰 🖉 🔶 Terri Han Han (1996) 1997 - 1997				÷
Energy Storage OK Rem Run 📗 No Forces 🕨 No Edi		Bit Timer/Counter Input/Output Compare Compute/Math Nov			Control Fon@reak Special HMI Trigonometry Advanced Mat
roller Organizer	P × Controller Tags - PLC(controller) × Trend - Trigger	📙 MainProgram - MainRoutine 🛛 🕏 Program Parameters and Local Ta			
1	Scope: OPLC V Show: Al Tags		~	Enter Name Filter	
Controller PLC Controller Tags	Name	III + Value + Force Mask	* Style	Data Type	^ Properties
Controller Tags	wepuberl.Data[32]	0	Decimal	SINT	월 및 JI to Extended Properties
Power-Up Handler	wegubei.Data[33]	0	Decimal	SINT	A General
Tasks					Name weqube:0.Data[0]
A 🔿 MainTask	weqube:IData[34]	0	Decimal	SINT	Description
MainProgram	wequbei.Data[35]	0	Decimal	SINT	Usage
Parameters and Local Tags	wepuberI.Data(36)	0	Decimal	SINT	Type Base
10 MainRoutine	wequbei.Data[37]	2	Decimal	SINT	Alias For
Unscheduled	weqube:I.Data[38]	0	Decimal	SINT	Base Tag
Motion Groups	wegubei.Data[39]	0	Decimal	SINT	Data Type SINT
Ungrouped Axes					Scope PLC
Assets	weqube:LData(40)	0	Decimal	SINT	External Access Read/Write
Add-On Instructions     G Data Types	wequbei.Data[41]	0	Decimal	SINT	Style Decimal
User-Defined	weqube:I.Data(42)	0	Decimal	SINT	Constant No
1 Strings	wequbei.Data[43]	0	Decimal	SINT	Required
Add-On-Defined	weguberi.Data[44]	0	Decimal	SINT	Visible
Predefined	wequbei.Data[45]	0	Decimal	SINT	✓ Data
Module-Defined		8		SINT	Value
a 📹 Trends	weqube:LData[46]		Decimal		Force Mask
Project_Load	weqube1.Data[47]	0	Decimal	SINT	Produced Connection
™ Trigger	weqube:L0ats(48)	0	Decimal	SINT	<ul> <li>Consumed Connection</li> </ul>
5. Logical Model	weqube:I.Data[49]	0	Decimal	SINT	<ul> <li>Parameter Connections (0:0)</li> </ul>
Pointio	wegubeil.Data(50)	0	Decimal	SINT	New Connection
FB 101 1769-L18ERM-BB1B PLC	wequbei.Data[51]	0	Decimal	SINT	
Embedded I/O					
Expansion I/O, 0 Modules	wequbei.Data(52)	0	Decimal	SINT	
thernet	✓ weqube:0	()	()	_0488:weqube_7CE0	
1769-LISERM-BB1B PLC	✓ weqube:0.Data	()	{} Decimal	SINT[2]	
i weqube weqube	weqube:0.Data[0]	2	Decimal	SINT	
	weqube:0.Data[1]	0	Decimal	SINT	
iption					
per of Pens 2	K Nonitor Tags (Edit Tags /	<		>	
	Errors				
	😮 0 Errors ႔ 0 Warnings 🚺	0 Messages			Search

#### NOTE!

• After loading the project, the Smart Camera initializes all results (e.g. run counter is reset to 0).



- The project has finished loading when the result of the project number is available on the PLC.
- It is not allowed to send several commands at the same time (e.g. trigger and load project commands).
- After a load project command is sent from the PLC to the Smart Camera, wait until the result of the project number is available on the PLC before sending the next command.



#### NOTE!

After starting the Smart Camera weQube, the startup project defined in the global properties is loaded. It is possible to send a command to load another project from the PLC to the Smart Camera before the booting process is finished, but it is necessary to wait until the Smart Camera responds with the correct project number before sending the first trigger command.

#### 4.3 User-Defined Process Data

All other EtherNet/IP values in the uniVision project are process data. Process data is sent from the device to the PLC and vice versa. Details are available in the Smart Camera settings (see section "5.2 Device Industrial Ethernet", page 24).



#### NOTE!

Compared to commands and status data that are updated continuously, process data is only evaluated and sent when an image is executed because of a trigger signal.



## 5. Smart Camera Settings

For EtherNet/IP communication, the following steps are necessary at the Smart Camera.

#### NOTE!



- The Smart Camera weQube supports EtherNet/IP functionality starting with the Smart Camera firmware version 2.3.0 and the uniVision software version 2.3.0.
- Not all Smart Cameras support EtherNet/IP communication. Check the technical data on the wenglor website for details about every Smart Camera version.

#### 5.1 Set Up uniVision Projects

The following steps are necessary in order to create a communication between the Smart Camera and the PLC:

- 1. Install and open the software uniVision for Windows.
- 2. Set up the network configuration and the device name of the Smart Camera via the software uniVision.



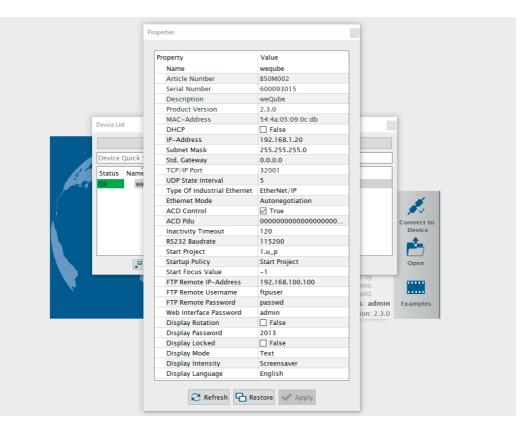
#### NOTE!

It is recommended to directly allocate the network configuration and device name to the Smart Camera that is to be used in the EtherNet/IP network later.

#### NOTE!



It is possible to use a static network configuration or to activate DHCP at the Smart Camera. In case of activated DHCP, a DHCP server (e.g. BOOTP) is needed in the network so that the Smart Camera gets a valid network configuration (see section "6. EtherNet/IP Network Configuration of the Smart Camera" on page 30). If no DHCP server is available, the Smart Camera will not boot completely. The DHCP setting can be disabled temporarily by pressing the key in the middle of the OLED display on the Smart Camera during startup.

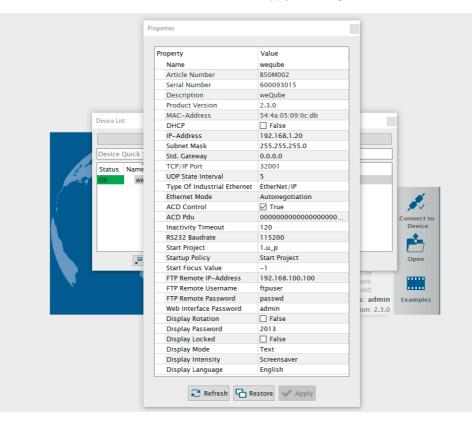


- 3. Connect to the Smart Camera.
- 4. Edit and save uniVision projects on the Smart Camera. All projects must contain Device Industrial Ethernet (see section "5.2 Device Industrial Ethernet", page 24).



5. Open the Properties of the Smart Camera in the Device List to set up the startup behavior. It is necessary to select a valid startup project with a suitable EtherNet/IP configuration.

It is also necessary to set "Type of Industrial Ethernet" to "EtherNet/IP" for EtherNet/IP communication (Default: Profinet). Furthermore, you can select if the Address Conflict Detection for EtherNet/IP should be activated or deactivated. Reboot the Smart Camera to apply the settings.



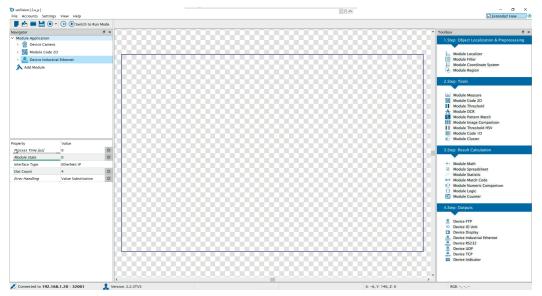


#### NOTE!

Details about all listed steps are explained in the uniVision software manual.

## 5.2 Device Industrial Ethernet

Add Device Industrial Ethernet to the uniVision projects from the toolbox to configure the flexible input and output data. The Smart Camera supports up to four slots to send or receive process data. With one of the flexible slots, it is also possible to send the trigger command to the Smart Camera (see section "4.2.1 Trigger Command", page 11).



#### NOTE!

- Compared to commands and status data that are updated continuously, process data is only evaluated and sent when an image is evaluated because of a trigger signal.
- Only within one slot is the process data sent and received consistently in one EtherNet/IP cycle. The process data from different slots of the Smart Camera to the PLC may be updated in different EtherNet/IP cycles. Use the last slot to make sure that all results are refreshed, e.g. by linking the run counter or the toggle bit to a value from the last slot.
- Furthermore, it is recommended to also send the project number as fixed value in the last slot in order to verify on the PLC side that the project loading process is finished.
- After changing the number of slots or the slot configuration, the Smart Camera must be restarted with a suitable start-up behavior (e.g. fixed start-up project) in order for the settings to be applied correctly.
- The number of slots and the slot configuration must be identical in all uniVision projects in the Smart Camera in order for the project change to be possible from the PLC.





Navigator		8	×
✓ Module Application			
> 🧕 Device Camera			
> Module Code 2D			
✓	Ethernet		
Slot Count			
> Slot #3			
> Slot #4			
> Slot #5			
✓ Slot #6			
Data Nodes			
Error Handling			
À Add Module			
📩 Add Module			
📩 Add Module			
🚴 Add Module			
À Add Module			
•• •			
Add Module	Value		
~ ~ ~	Value 2		\$
Property		- 1	*
Property	2		

Property	Description
Process Time [us]	Time in $\mu$ s for processing the module.
Module State	<ul> <li>Indicates the status of the module:</li> <li>0: No error</li> <li>Value different to 0: Error (Details about the error code are available in the uniVision software manual)</li> </ul>
Interface Type	Indicates the interface type.
Slot Count	Number of flexible slots (Slots 3 – 6).         NOTE!         • By default, the number of flexible slots is set to 0.         • Fours flexible slots can be configured at a maximum.
Error handling	If any process data is in error state, it is substituted by a user-defined replacement value (see section "5.2.2 Error Handling", page 29).

#### 5.2.1 Slots

Set up the configuration for every EtherNet/IP slot.

NOTE!



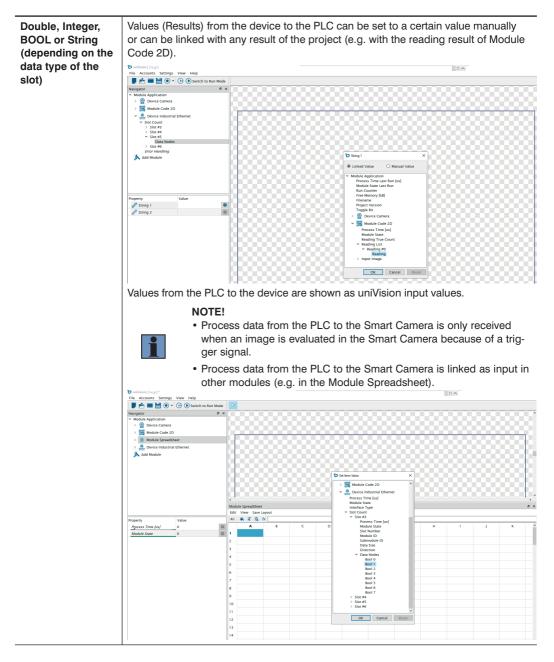
Activate the extended view in the uniVision software in order to be able to see all values (especially the module ID and direction).

Property	Description
Process Time [us]	Time in $\mu$ s for processing the module.
Module State	<ul> <li>Indicates the status of the module:</li> <li>0: No error</li> <li>Value different to 0: Error (Details about the error code are available in the uniVision software manual)</li> </ul>
Slot Number	Indicates the slot number.
Module ID	Indicates the Module ID.
Submodule ID	Indicates the Submodule ID.
Data Size	Indicates the data size in bytes.
Direction	<ul><li>Indicates the direction in which data is sent:</li><li>Device to PLC: Values are sent from the Smart Camera to the PLC.</li><li>PLC to Device: Values are sent from the PLC to the Smart Camera.</li></ul>
Data Nodes	Indicates the number of data nodes.
Data Type	Select the data type of the slot. The Smart Camera supports the following data types: • 16 Byte Input (4 DINT) • 16 Byte Input (4 REAL) • 1 Byte Input (8 BOOL) • 128 Byte Input (2 CHAR) • 16 Byte Output (4 REAL) • 1 Byte Output (4 REAL) • 1 Byte Output (4 REAL) • 1 Byte Output (8 BOOL) • 128 Byte Output (2 CHAR) • 32 Byte Input (2 CHAR) • 64 Byte Input (2 CHAR) • 256 Byte Input (2 CHAR) • 256 Byte Output (2 CHAR) • 256 Byte Output (2 CHAR) • Use BOOL to send or receive true/false results (e.g. toggle bit). • Use REAL to send or receive numbers with positions after decimal point (e.g. x value of a found point). • Use DINT to send or receive numbers without positions after decimal point (e.g. pixel count value of Module Threshold). • Use CHAR to send or receive text information (e.g. code result).



Property	Description
	Linking results to the different data types works as follows: • BOOL (output)
	<ul> <li>Link BOOL result: Returns true or false depending on value of bool</li> </ul>
	<ul> <li>Link DINT or REAL result: Returns true if the current value is within thresholds (between the minimum and maximum thresholds) and returns false if the current value is out of tolerance (lower than the minimum or higher than the maximum thresholds)</li> </ul>
	<ul> <li>Link CHAR: Returns true if the text is not empty and returns false if the text is empty.</li> </ul>
	• DINT (output)
	- Link BOOL result: Returns 0 for bool value false and 1 for bool value true.
Data Type	<ul> <li>Link DINT: Returns current DINT value</li> </ul>
	<ul> <li>Link REAL: Returns a number without decimal places (no rounding!)</li> </ul>
	<ul> <li>Link CHAR: Returns the number of digits of the text</li> </ul>
	• REAL (output)
	- Link BOOL result: Returns 0 for bool value false and 1 for bool value true.
	<ul> <li>Link DINT or REAL: Returns a number with decimal places</li> </ul>
	<ul> <li>Link CHAR: Returns the number of digits of the text</li> </ul>
	CHAR (output)
	- Link BOOL result: Returns false for bool value false and true for bool value true
	<ul> <li>Link DINT or REAL: Returns the number</li> </ul>
	<ul> <li>Link CHAR: Returns the text</li> </ul>

In the project tree, data nodes appear below the slot.





#### 5.2.2 Error Handling

If any process data is in error state, the substitution value can be selected for every data type.

Property	Description
Substitute Bool Types by	If a bool type used in Device Industrial Ethernet is in error state, it is replaced by low or high (Default: low).
Substitute INT Types by	If an INT type used in Device Industrial Ethernet is in error state, it is replaced by any user-defined INT value (Default: 0).
Substitute DOUBLE Types by	If a DOUBLE type used in Device Industrial Ethernet is in error state, it is replaced by any user defined DOUBLE value (Default: 0.0000)
Substitute STRING Types by	If a STRING type used in Device Industrial Ethernet is in error state, it is replaced by any user-defined STRING value (Default: Error).

## 6. EtherNet/IP Network Configuration of the Smart Camera

The network settings of the Smart Camera can be set manually or can be allocated via a DHCP server.

In case of DHCP, use e.g. the software BOOTP to allocate the network settings to the Smart Camera:

- 1. Open software BOOTP.
- 2. Select the correct LAN adapter and click on OK.

Select Network Interface	×
Please select a network interface:	
Description	IP Address
Intel(R) Gigabit CT Desktop Adapter	Unknown
Intel(R) 82579LM Gigabit Network Connection	172.16.7.102
Broadcom NetXtreme Gigabit Ethernet	192.168.1.1
·	
ОК	

Click on "Tools"  $\rightarrow$  "Network Settings" to enter the network settings of the PC.

	herNet/IP Tools H	Network Settings		×		_
	Add Rela	Defaults Adapter: Broad	com NetXtreme Gigabit Ethernet			
Et	hernet A	Server IP address:	192.168.1.1		ress	Hostname
		Subnet	255 . 255 . 255 . 0			
		Gateway:	0.0.0.0			
		Primary	0.0.0.0			
		Secondary	0.0.0.0			
Et	hernet A	Domain	wenglor.com		ame De	scription
		Reset Defaults	OK Cancel			
	l					
rrors	s and warnir	ngs				Relati
Inab	le to service	e DHCP request from 34	:C0:F9:FF:D6:02.			2 of 25

All devices with activated DHCP settings connected to the LAN adapter are listed.



3. Select the Smart Camera weQube and click on "Add Relation".



#### NOTE!

The MAC address is available on the housing of the Smart Camera.

File	BootP DHCP EtherNet/IP Con Tools Help								×
	Add Relation		Discovery H	listory				Clear Histo	ry –
[	Ethernet Address (MAC)	Туре	(hr:min:sec)	#	IP Address		Hostna	me	
	54:4A:05:09:12:A0	DHCP	12:02:17	5					
	34:C0:F9:FF:D6:02	DHCP	11:59:43	1					
			Entered Re	lations					
[	Ethernet Address (MAC)	Туре	IP Address		Hostname	Desc	ription		
	rrors and warnings							Relati	
U	nable to service DHCP request fro	m 54:4A:05	5:09:12:A0.					0 of 2	56

4. Enter IP address and hostname of the Smart Camera and click on OK.

Add Relation			Discovery H	listory			Clear History
Ethernet Addres:	s (MAC)	Туре	(hr:min:sec)	#	IP Address		Hostname
54:4A:05:09:12:A 34:C0:F9:FF:D6:(	New Entr	у				×	
	S	erver IP Ad	ddress: 192.168.1	.1			
	Clien	t Address	(MAC): 54:4A:05:1	09:12:4	<b>J</b> 0		
	C	lient IP Ad	ddress: 192 . 1	68 .	1 . 20		
Ethernet Addres		Hos	tname: weqube				ription
		Desc	ription:				
		OK		Ca	incel		

5. In order to keep the network settings for the next start-up of the Smart Camera, select weQube and click on "Disable BOOTP/DHCP".

Add Relation		Discovery H	listory			Clear Histor
Ethernet Address (MA	C) Type	(hr:min:sec)	#	IP Address		Hostname
54:4A:05:09:12:A0 34:C0:F9:FF:D6:02	DHCP DHCP	12:03:47 11:59:43	8 1	192.168.1.2	:0	weqube
Delete Relation	C) Type	Entered Re	ations	Enable BOOT		
Delete Relation Ethernet Address (MA) 54:44:05:09:12:A0	C) Type DHCP					

6. Reboot the Smart Camera to apply the changed network settings (via Software uniVision  $\rightarrow$  Device List).

			🔍 Search N	etworl	k	
Device (	Quick Searc	ch				
Status	Name	IP Address	Article Number	Seria	l Number	
Ok	wequue	e 192.168.1.20	Delete Properties Update Firmware Reboot Device	Del	26850	nne Devi Ope

## **v**i wenglor

## 7. PLC Settings at Allen-Bradley PLCs

The following settings are necessary on the Rockwell PLC.



#### NOTE!

If possible, use the EDS file to integrate the Smart Camera. In case of some old Rockwell PLCs, EDS files are not supported. Consequently the Smart Camera must be integrated as generic device (see section "7.5 Integrate Smart Camera without EDS file" on page 45).

#### 7.1 EDS File

The EDS file is available on the wenglor website in the Download section of the Smart Camera. Download the EDS file, unzip the file and install it on the PLC.



#### NOTE!

After downloading the zip file, please unzip the file before installing it on the PLC.

In the software Studio 5000 Logix Designer V32, the EDS file is added via "TOOLS"  $\rightarrow$  "EDS Hardware Installation Tool".

pix Designer - PLC in Communication_weQube_1.ACE EDIT VIEW SEARCH LOGIC COMMUNICAT						8.4					- 8
	Optio Securi	ns ty nentation Languages	B 4 C La La 40 40 40	- (U) - (L.) Jarms Bit Timer/Counter Input/Out	out Compare Compute/M	ath Move/Logical Fil	sMisc. File/Shift Sequence	Program Control	For/Break Special	-MI Trigonometry Ar	» 77
offline II. No Forces	Expor		s - PLC(controller) ×								-
	-						Fiter Name Filter				
Controller PLC	🗕 👙 EDS H	ardware Installation Tool	Show: Al Tags				J. tours			_	
Controller Tags	Motio	n	•	[28] ▲ Value	<ul> <li>Force Mask</li> </ul>	<ul> <li>Style</li> </ul>	Data Type	Description	Constant	Properties	
Controller Fault Handler	Plug-I	n Manager	ubeil.Data[29]		0	Decimal	SINT			32 및4 /*	t+ Exter
Power-Up Handler Tesks	Custon I	m Tools	ube:LData[30]		0	Decimal	SINT			▲ General	
C MainTask			ubeil.Data[31]		0	Decimal	SINT			Name Description	weqube
MainProgram	Contr		ube:LData[32]		0	Decimal	SINT			Usage	
Unscheduled	ontr	olFLASH Plus	ube:LData[33]		0	Decimal	SINT			Type	Base
Motion Groups III Ungrouped Axes			eqube:LData[34]		0	Decimal	SINT			Alias For	
Assets			veqube:LData[35]		0	Decimal	SINT			Base Tag	
Logical Model		P 1	requberl.Data[36]		0	Decimal	SINT			Data Type Scope	SINT
O Configuration		> •	reqube:LData[37]		2	Decimal	SINT			External A	
PointIO [0] 1769-L18ERM-BB1B PLC			equbel.Data[38]		0	Decimal	SINT			Style	Decim
G Embedded VO		P 1	eqube:LData[39]		0	Decimal	SINT			Constant	No
[1] Embedded Discrete_IO		Þ 1	eqube:LData[40]		0	Decimal	SINT			Required	
Expansion I/O, 0 Modules		P 1	eqube:I.Data[41]		3	Decimal	SINT			Visible	
Ethernet		> v	eqube:LData[42]		0	Decimal	SINT			<ul> <li>Data Value</li> </ul>	
			equberl.Data[43]		0	Decimal	SINT			Force Mas	
		Þ 1	reguberLData[44]		0	Decimal	SINT			Produced	
		P 1	eaubeil.Data[45]		1	Decimal	SINT			Consumed	Connect
			eqube:LData[46]		0	Decimal	SINT			✓ Paramete	
			eqube:LData[47]		0	Decimal	SINT				New C
			regube:LData[48]		0	Decimal	SINT				
			reqube:LData[49]		0	Decimal	SINT				
			reguberl.Data[50]		0	Decimal	SINT				
			requber.Data[51]		0	Decimal	SINT				
			requberLData[52]		0	Decimal	SINT				
		Þ wegu			(m)	()	.0488:wegube 7CE0.				
		< > Moni	or Tags (Edit Tags /		<					>	
		Errors									
		0	0 Errors 🛕 0 Warnings 🚺	31 Messages					Searc	h	
		Download el Reading Cha	<pre>download apsed time 4.127 with connection size ngeLog 0 error(s), 0 warning(s)</pre>	4000.							
troller Organizer		<									
rch Results 🛲 Watch											_

#### The EDS wizard starts.

Rockwell Automation's EDS W	lizard	×
	Welcome to Rockwell Automation's EDS Wizard	
	The EDS Wizard allows you to:	
	- register EDS-based devices.	
	- unregister a device.	
	<ul> <li>change the graphic images associated with a device.</li> </ul>	
	<ul> <li>create an EDS file from an unknown device.</li> </ul>	
	<ul> <li>upload EDS file(s) stored in a device.</li> </ul>	
	To continue click Next	
	Weiter > Abbreck	hen

#### Select "Register an EDS file(s)".

#### Rockwell Automation's EDS Wizard

Option Wh		ask do you want to complete?			J.
<b>B</b>	•	Register an EDS file(s), This option will add a device(s) to our database.			
	C	Unregister a device. This option will remove a device that has been registered by an EDS file from our database.			
X	C	Create an EDS file. This option creates a new EDS file that allows our software to recognize your device.			
	C	Upload EDS file(s) from the device. This option uploads and registers the EDS file(s) stored in the device.			
			< Zurück	Weiter >	Abbrechen

×



#### Select the path of the EDS file.

kwell Automation's EDS Wizard		
Registration Bectronic Data Sheet file(s) will be added to your system for use in Rockwell Automation applications.		
<ul> <li>Register a single file</li> </ul>		
C Register a directory of EDS files 🛛 🗌 Look in	n subfolders	
Named:		
<pre>value. C:\Users\MartinKn\Desktop\EtherNetIP\weQube\Product_</pre>	description f Browse	
• If there is an icon file (ico) with the same name as	the file(s) you are recistering	
then this image will be associated with the device.	the mets/ you are registering	
	To perform an installation test on the file(s), click Next	

Add the EDS file to the project. It is also possible to view the file.

EDS File Installation Test Results				CT /
This test evaluates each EDS file for em	ors in the EDS file. This test d	oes not guarantee EDS file validity		ų,
Installation Test Results				
c:\users\martinkn\desktop\ethem	netip/weqube/product_descri	ption_file_eds_b50m100\wenglor_	weqube_2015_12_09.e	:ds
View file				
view me				

#### The image associated with the device is shown.

Rockwell Automation	n's EDS Wizard		×
Change Graphic You can chang	Image e the graphic image that is associated with a device.		
Change icon	Product Types Communications Adapter		
		< Zurück Weiter > Abbreche	en

#### Add the selected device.

ockwell Automation's EDS Wizard	
Final Task Summary This is a review of the task you want to complete.	
You would like to register the following device.	
	< Zurück Weiter > Abbrecher

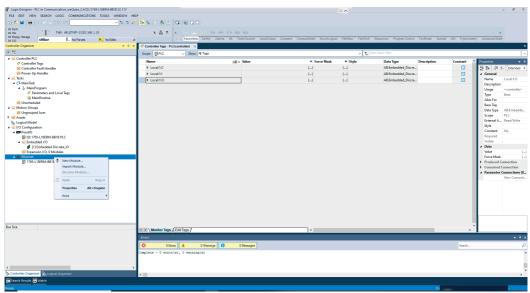


#### The installation of the EDS file is finished.

Rockwell Automation's EDS W	izard	×
	You have successfully completed the EDS Wizard.	
	Fertig stellen	]

# 7.2 Add Smart Camera to PLC Network

Open the context menu at "Ethernet" with a right click and select "New Module..." to add the Smart Camera to the PLC network.



Then search for weqube in the catalog. Select weqube and click on "Create".

	Logix Designer - PLC in Communication_weQube_2ACD (1769-L18ERM-8818 32.11)*				8.4				- @ ×
		9.0							
	% ⊈∎¦⊜ix a a i 2 0	b % (	5 K & C & C C C						
	EX Path: A8_ETHIP-1\192.168.1.10	9	* • • • • • •	· () · () · (.)				•	
Contract Contraction 1       Image: Contraction 1       Image: Contraction 1       Image: Contraction 1         Image: Contract Contraction 1       Image: Contraction 1       Image		λ.	<ul> <li>Favorites Safety Alarm</li> </ul>	a Bit Timer/Counter Input/Output Compare Compute/Ma	ath MoveLogical FileMisc. File/Shift	Sequencer Program Control	FonBreak Special HMI	Trigonometry Advanced Math	
Image: Section State State Section State Sectin State Section State Section State Section State Section State S		Control	ler Tags - PLC(controller) ×						~
Control PAC     Control PAC Name     Control P	a 92		A 1 1 1 1 1 1 1 1			Warra Otor			
<		Scope: 1				THEORY THEORY			v
All contacts "an studie   I bit is		Name	Catalog Module Discovery Favorites			Data Type	Description Cons	tant ^ Properties	
term by hundre     term by		Ecc				AB:Embedded_Discre		30 St 10 St	Detended •
<ul> <li>In the first the state of the s</li></ul>		Eloc	weathe	Clear Filters	Hide Filters &	AB:Embedded_Discre	les .	General	
Image: Section and and Bags         Image: Section and and Bags         Image: Section and and Bags         Image: Section and Bags         Image: Sectin and Bags		Ecc				AB:Embedded Discre		Name	Local:1:0
Provide in the state is a state in the state is a st			Module Type Category Filters	▲ Module Type Vendor Filters	^	-			
With Markadowa         With M									
Windowski			Communication	Dialight					Base
Control Control     Contr			Communications	Endress+Hauser					
Biged Air	🖌 🛁 Motion Groups								
Note: Set of Cardinal Set o			Controller	<ul> <li>PANUC Hobbics America</li> </ul>	*				
Contraction     Contracti			Catalan Number Desertation	Vender					
Control Control Control      Control Control      Control Control      Control					factor				Near white
Berser      Computer - 0 error (r), 9 weaks(r)      Computer - 0 error (r), 9 wea			wedness wednes	wergersenore gron control cators Ac	20p.cer				No
Constant Open     Constan								Required	
								Visible	
Control Course      Cours	[1] Embedded Discrete_IO							⊿ Data	
I TO A LIERA 4818 PAC								Value	()
An Sec I and Conception - 0 and		4							
ha Ser	1769-L18ERM-BB1B PLC								
Res Ser									
Re Sor I del Mada Typer Fand I del Typer Fand									
Control C									New Connecti
Control Council of Antonia									
Control Council of Antonia									
Control C									
Control C									
Control C									
Control Council of Antonia									
Control C									
Control C	6 C							×	
Complete - 0 error (s), 8 venilog (s)	ous size	I P Mo	1 of 601 Module Types Found		Add to Favorites			>	
Complete - 0 error (s), 8 venilog (s)		Surre							
Complete - 0 error(s), 0 ventsag(s)			Close on Create		Create Close Help		· · · · · · · · · · · · · · · · · · ·		
< States of the		0				4		search	P
<		Complete	- 0 error(s), 0 warning(s)						^
夏 Sano Reads 厦 mato									
夏 Sano Reads 厦 mato									
夏 Sano Reads 厦 mato	¢ >								~
		<							>
Comunication Education Education	📰 Search Results 🐺 Watch								
	Panda						Communication	offware ExtraCally Line	



Enter the device name and the network configuration of the device. In the example, the IP address 192.168.1.20 and the name weqube is used.



#### NOTE!

It is necessary to use the same network configuration and the same device name on the PLC side and on the software for uniVision side.

Logix Designer - PLC in Communication_weQube_2.ACD [1769-L18ERM-8818 32.11]*			= X ^			<i>_ 8</i> Х
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW H	ELP					
5 🖕 🖬 🖶   x i) A   2 C 📃 🛶 5 J	• b % 5 6 6 6 6 6	6 P				
RUN Path: AB_ETHIP-1\192.168.1.10						
		arites Safety Alarms Bit Timer/Counter Input/Output Compa	re Compute/Math Move/Logical File/Misc. File/Shift Seq	wencer Program Control For/Break Spe	scial HMI Trigonometry	Advanced Math
Controller Organizer + 9 >	<		×	-		
0 °				e Filter		~
a 🛁 Controller PLC	-General* -Connection	General		Data Type Description	Constant ^	Properties 👻 🖗
Controller Tags     Controller Fault Handler	- Module Info	Type: weqube weqube		A8:Embedded_Discre		: 말 및 J to Extended ·
Power-Up Handler	- Internet Protocol Port Configuration	Vendor: wenglor sensoric gmbh		AB:Embedded_Discre		General
a 🖾 Tesks	- Port Configuration					Name Local:1:0
4 🔿 MainTask		Parent: Local		A8:Embedded_Discre		Description
A L MainProgram		Name: weqube	Ethernet Address			Usage <controller></controller>
Parameters and Local Tags		Description:	O Pitvate Network: 192.168.1.			Type Base
MainRoutine		Conceptor.	^			Alias For
= Unscheduled			IP Address: 192 . 168 . 1 . 20			Base Tag
Ungrouped Axes			O Host Name:			Data Type AB:Embedde
P Assets						Scope PLC
h. Logical Model						External A., Read/Write
✓ G VO Configuration		Module Definition				Style
4 📾 PointIO		Revision: 1.003				Constant No Required
(b) 1769-L18ERM-BB1B PLC Set		Bectronic Keying: Compatible Module				Visible
Impedded (/O II) Embedded Discrete_IO		Connections: Exclusive Owner				✓ Data
Expansion I/0. 0 Modules		Conversit.				Value ()
4 go Ethernet						Force Mask ()
[] 1769-L18ERM-BB1B PLC						Produced Connection
		Change				Consumed Connection
						<ul> <li>Parameter Connections (0</li> </ul>
				_		New Connecti
	Status: Creating		OK Cencel Help			
Bus Size	TREASURE 1 of 601 Module 1	was Found	Add to Favorites		×	
	K N Mo	1000.0000			>	i
	Errors Close on Crea		Creste Close Help			
	Close on Crea		Create Crose rep		Search	ρ
	Complete - 0 error(s), 0 we	rning (s)				
< >						
ta Controller Organizer	<					>
🚾 Search Results 🐻 Watch						
Ready					mmunication Software: Fac	and the second
ncouy				Côn	information Software: Fac	contrain cinc.

# 7.3 Configure Input and Output Data

Click on "Change" in order to setup the input and output data.

Logix Designer - PLC in Communication_weQube_2.ACD [1769-L18ERM-881B 32.11]*			8.4			- 8 X
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HELE						
N 🛳 🖬 🖶 X O A D C 📃 🛶 🕫 🏓	b 5 5 5 2 6 16	6 P				
RUN     Yeah: AB_ETHEP-1\192.168.1.10	8 & E < H					
III Energy Storage		arites Safety Alarms Bit Timer/Counter Input/Output Comp	are Compute/Vath NoveLopical File/Visc File/Shift Sec	austor Program Control Forffreak Speci	al HMI Tripprometry Advanced I	ath .
Controller Organizer + 7 ×						
a en	New Module		>	e filter		
A Controller PLC	General	General		1 PR0C		~
Controller Tags	Connection			Data Type Description	Constant 🔷 Properties	
Controller Fault Handler	- Module Info - Internet Protocol	Type: weqube weqube		A8:Embedded_Discre	2 29 A	to Extended •
Power-Up Handler	Port Configuration	Vendor: wenglor sensoric gribh		AB:Embedded_Discre	General	
🔺 🔤 Tasks		Parent: Local		A8:Embedded_Discre	Name	Local:1:0
Or MainTask     A L MainProgram	1	Name: weqube	Ethernet Address		Descripti	
Parameters and Local Taos			OPtivate Network: 192.168.1.		Usage	< controller>
MainRoutine		Description	A Private Network: 132.168.1.		Type Alias For	Base
Unscheduled			IP Address: 192 . 168 . 1 . 20		Base Tag	
🔺 🚘 Motion Groups					Data Typ	AB:Embedde
Ungrouped Axes			O Host Name:		Scope	PLC
In Assets Second Action Control Co					External	Read/Write
▲ SVO Configuration		Module Definition			Style	
A PointiO		Revision: 1.003			Constant	No
[] [0] 1769-L18ERM-BB1B PLC		Bectronic Keying: Compatible Module			Required	
A 💭 Embedded I/O					Visible	
[1] Embedded Discrete_IO     Expansion I/O. 0 Modules		Connections: Exclusive Owner			✓ Data Value	
Expansion I/O, 0 Modules					Force Ma	() sk ()
B 1769-L18ERM-BB1B PLC						d Connection
gr nor chean boor ce		Change				d Connection
						er Connections (0
	1					New Connecti
	Status: Creating		OK Cancel Help			
Bus Size						
Bus size	K > Mo 1 of 601 Module T	ypes Found	Add to Favorites		>	
	Errors					- ? ×
	Close on Crea	le	Create Close Help			
	0				Search	P
	Complete - 0 error(s), 0 wa	rning(s)				^
< >>						~
ta Controller Organizer	<					>
🐹 Search Results 🐻 Watch						
Ready				Comm	unication Software: FactoryTalk Linx	

Adjust the input and output size according to the current uniVision project configuration.



#### NOTE!

Slot 1 (1 Byte Output for project number) and Slot 2 (4 Bytes Input for status) are always present and must be added to the user-defined slots 3-6.

The example (Input: 53 Bytes and Output: 2 Bytes) works for the following slot configuration:

- Slot 1 (fix): 1 Byte Output (Project number)
- Slot 2 (fix): 4 Bytes Input (Status)
- Slot 3: 1 Byte Output (8 BOOL)
- Slot 4: 1 Byte Input (8 BOOL)
- Slot 5: 32 Byte Input (2 CHAR)
- Slot 6: 16 Byte Input (4 DINT)



Logix Designer - PLC in Communication_weQube_2.ACD [1769-L18ERM-881B 32.11]*	-	# X A	
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HELP			
5 🖕 🖬 🖶   x 0 0   2 0			
ERUN Land			
EII OK Path: AB_ETHIP-1\192.168.1.10	• • • • • • • • • • • • • • • • • • •	14 ( ) (U) (L)	
III Energy Storage Offline . No Forces . No Edits .	( ) Favorites Safety Ala	rms Bit TimeriCounter Input/Output Compare Compute/Math Move/Logical File/Misc. File/Shift Sequencer Program Control For/Break Special HMI Triponometry Advan	ced Math
	Controller Tags - PLC(controller)	tion is and for each of 400.	
2 m	Controller lags - Pec(controller) D Module Proper	es total (metube 1.003) A	·
A Controller PLC	General General		
Controller PLC Controller Tags	- Connection - Module Info		
Controller Fault Handler	- Nodule Info - Internet Protocol Type: w	eqube weqube	
Power-Up Handler		englor sensoria gmbh	
🔺 🖳 Tesks	Parent: L	50 <sup>4</sup>	
4 🔿 MeinTesk	Name	require Ethernet Address	
A In MainProgram     Parameters and Local Tags	L	● Private Netwook: 192.168.1. 20 0	
<ul> <li>Parameters and Local lags</li> <li>MainRoutine</li> </ul>	Description:	Physics Network: 132,163.1. 20	
Winkoudie		Module Definition" × ress:	
A Contraction Groups			
iii Ungrouped Axes		Revision: 1 V 003 + ame:	
Assets		Bectronic Keying: Compatible Module V	
h⊾ Logical Model	Module Definitio		
A  Pointl	Revision:	Connections:	
[0] 1769-L18ERM-BB1B PLC	Electronic Keyin	Name Size	
a 🔤 Embedded I/O			
[1] Embedded Discrete_IO	Connections:	Exclusive Owner 0store 35 Output: 40	
Expansion I/O, 0 Modules			
thernet     Tr69-L18ERM-BB1B PLC			
in wearbe wearbe			
	Status: Offline	Cancel Apply Help	
		OK Cancel Hep	
Module Defined Tags			
✓ weqube:0 Ø weqube:0	Errors		+ 9 ×
Description	O Errors A. O Warnings	0 ØMessages Search	Q
	complete - 0 error(s), 0 warning(s)		^
Module Fault			
<			~
	c		
👿 Search Results 👼 Watch			ľ
		Computer Vision Software Factorship	

Click on Apply and on OK.

Open the "Controller Tags", select weqube: C and set the Module IDs according to the uniVision project configuration.

The Module IDs of slot 1 and slot 2 are set automatically. The Module IDs of all other slots must be set individually depending on the uniVision project settings.



#### NOTE!

Connect to the Smart Camera via uniVision software in order to check the current Module IDs of the uniVision project (see section "5.2.1 Slots" on page 26)

Module ID Hex (Dec)	Description	Direction	Data Length	Representation
0x0000 (0)	Undefined	Undefined	Undefined	Undefined
0x0001 (1)	Process data	weQube → PLC	16 bytes	4 x 4 bytes integer
0x0002 (2)	Process data	weQube → PLC	16 bytes	4 x 4 bytes real
0x0003 (3)	Process data	weQube → PLC	1 byte	8 x 1 bit bool
0x0004 (4)	Process data	weQube → PLC	128 bytes	2 x 64 bytes string
0x0006 (6)	Process data	PLC → weQube	16 bytes	4 x 4 bytes integer
0x0007 (7)	Process data	PLC → weQube	16 bytes	4 x 4 bytes real
0x0008 (8)	Process data	PLC → weQube	1 byte	8 x 1 bit bool
0x0009 (9)	Process data	PLC → weQube	128 bytes	2 x 64 bytes string
0x000A (10)	Project number	PLC → weQube	1 byte	1 x 1 Byte
0x000B (11)	Device State	weQube → PLC	4 bytes	1 x 4 bytes integer
0x000C (12)	Process data	weQube → PLC	32 bytes	2 x 16 bytes string
0x000D (13)	Process data	weQube → PLC	64 bytes	2 x 32 bytes string
0x000E (14)	Process data	weQube → PLC	256 bytes	2 x 128 bytes string
0x0010 (16)	Process data	PLC → weQube	32 bytes	2 x 16 bytes string
0x0011 (17)	Process data	PLC → weQube	64 bytes	2 x 32 bytes string
0x0012 (18)	Process data	PLC → weQube	256 bytes	2 x 128 bytes string

List of all available Module IDs:

In the example, the following Module IDs must be set:

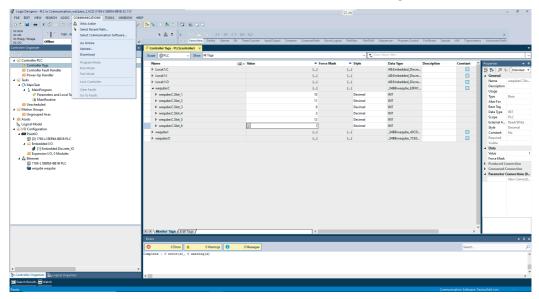
- Slot 1: 10 (fix)
- Slot 2: 11 (fix)
- Slot 3: 8
- Slot 4: 3
- Slot 5: 12
- Slot 6: 1

2 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		등 + + ++ -( )- 신)- 신.) Safety Alarma Bit Timer/Counter Input/Output	Compare Compute/Math Move/Logical	File/Visc. File/Shift	Sequencer Program Control FeriBrea	á Special HMI Trigono	metry Advanced Mat	• 55
ntroller Organizer	Ocontroller Tags - PLC(controller) ×      Scope:  PLC      Show:	Tree			ster Name Filter			
Controller PLC	Name	cal + Value	* Force Mask	+ Style	Data Type Descrip	tion Constant	A Properties	
Controller Tags	Name Eccel1/C	all A value	()	()	ABEmbedded Discre	uon constant	· · · · · · · · · · · · · · · · · · ·	
Controller Fault Handler Power-Up Handler	Local 1						A General	T+   Exterio
Tasks			()	{}	ABEmbedded_Discre		A General Name	weqube(
4 C MainTask	Local:1:0		{}	()	AB:Embedded_Discre		Description	
A h MainProgram	✓ weqube:C		()	{}	_04B8:weqube_E8F8C		Usage	
Parameters and Local Tags	▶ weqube:C.Slot_1		10	Decimal	INT		Type	Base
10 MainRoutine	weqube:C.Slot_2		11	Decimal	INT		Alias For	unde
iii Unscheduled	> wegube:C.Slot 3		8	Decimal	INT		Base Tag	
Motion Groups	wegube/CSlot 4		3	Decimal	INT		Data Type	INT
Ungrouped Axes Assets	WequbeC.slot 5		12	Decimal	INT		Scope	PLC
Assets S. Logical Model							External A	Read/Wri
VO Configuration	▶ weqube:C.Slot_6		1	Decimal	INT		Style	Decimal
A Point/O	weqube:		()	{}	_04B8:weqube_40CD		Constant	No
[0] 1769-L18ERM-BB1B PLC	▶ weqube:0		()	{}	_0488rweqube_7CE0		Required	
<ul> <li>✔ [1] Inheided Biorece, 0</li> <li>▲ Brancino (S. Mandas</li> </ul>							Volue Force Mask Produced O Consumed A Parameter	Connection Connection
	Konitor Tags / Edit Tags / Errors		<	_		-	> <sup>*</sup>	•
	O Errors	0 Warrings 0 Nessages				Search		



# 7.4 Download Configuration to PLC

Click on "Communications"  $\rightarrow$  "Download" in order to download the current configuration to the PLC.



Select "Run Mode" to update the input and output data.

	_weQube_2.ACD (1769-L18ERM-8818 32.11)				20 ~					- 8
	COMMUNICATIONS TOOLS WINDOW									
b <b>≌ ≌ ⊜</b> ≭ ₫ 0   2 🤆	· · · ·	* # <b>b</b> k b k b <b>b b b b b b b b b </b>								
	8_ETHIP-1\192.168.1.10	8 & 8 × H H H H	1 ++ ++ +() +(0) -(L)						+	
Do OK Rem Prog	No Forces	A Favorites S	afety Alarms Bit Timer/Counter Input/Output C	ompare Compute/Math Move/Logica	FileMisc. File/Shift	Sequencer Program Control	For/Break Special	HMI Trigonom	netry Advanced Math	
ntroller Organizer	Go Offline	• ×   Controller Tags - PLC(controller) ×								_
1 41	Upload	Scope: BPLC V Show: Al T				ster Name Filter				
Controller PLC	Download									
Controller Tags	Program Mode	Name	iiii ▲ Value	<ul> <li>Force Mask</li> </ul>	<ul> <li>Style</li> </ul>		Description	Constant	<ul> <li>Properties</li> </ul>	-
Controller Fault Handler	Run Mode	Local:1:C		{}	{}	AB:Embedded_Discre			說 말 계 1	Extended
Power-Up Handler	Test Mode	Local:1:1		()	(·)	AB:Embedded_Discre			▲ General	
🚅 Tasks	Test Mode	Docali 1:0		{}	()	AB:Embedded_Discre			Name	wequberC.S
MainTask     J. MainProgram	Clear Faults	✓ wegube:C		()	{}	_0488:wegube_E8F8C			Description	
Parameters and Local Te	Go To Paults	weguberC.Slot 1		10	Decimal	INT			Usage	Base
MainRoutine	Controller Properties	WeguberC.Slot_2		11	Decimal	NT			Type Alias For	base
Unscheduled		P weqube:Cslot 3		8	Decimal	INT			Base Teg	
Motion Groups				3	Decimal	INT			Data Type	INT
Ungrouped Axes		▶ weqube:C.Slot_4							Scope	PLC
Assets		▶ weqube:C.Slot_5		12	Decimal	INT			External A	Read/Write
Logical Model		> weqube:C.Slot_6	v	1	Decimal	INT			Style	Decimal
A B PointiO		wequbel		()	()	_04BB:weqube_40CD			Constant	No
(0) 1769-L18ERM-8818 PLC		weqube:0		{}	()	_0488:wegube_7CE0			Required	
4 🖼 Embedded I/O									Visible	
Ethernet     Ethernet     IO 1709-L18ERM-BB1B PLC     IO     weqube weqube									Force Mask Produced C Consumed 0 Parameter 0	onnection
									<u> </u>	
		(≰) ≽ ∖ Monitor Tags ∕ Edit Tags /		<			_	>		
		( ) Monitor Tags / Edit Tags / Errors		K				<i>,</i>	•	- (
		Errors	Warngo 0 31 Mesages	K	_	_	_	> Search	×	• 4
		Errors  © 0 Errors  Finalizing download			_		_		*	• •
		Errors           0 Errors           Image: State of the s		¢			_		×	• 4
		Errors  © 0 Errors  Finalizing download	onnection mize 4000.	<			_		~	• 0
Controller Organizer 🗞 (1994) Organiz	and and a second se	Errors	onnection mize 4000.	¢			_			÷ 0
	nar	Errors	onnection mize 4000.	¢	_	_	_		v	÷ 0

All insult and autout data of the Consult Company is available at warm the	
All input and output data of the Smart Camera is available at weqube	:I and weqube:O.

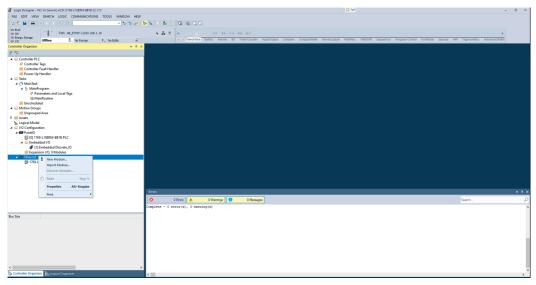
Ariz ter tref is 2400 to 000 (Constanticutions tools weekow term Constantions and the second	Composition Norvellagea		Core lane /Ac. All messed Disco. All messed Disco. All messed Disco. All messed Disco. All messed Disco. Julia wenge (EFIC. Julia wenge (CD. BOOK BOOK SWIT SWIT SWIT	Constant	Advanced Matt     Advanced Matt     String 4 Advanced Matt     String 4 Advanced     Nome     Description     Usage     Type     Advanced Matt	t+  [Extended weqube1.Da
Marked     Image: All and Al	Force Mask     {}     {}     {		Core lane /Ac. All messed Disco. All messed Disco. All messed Disco. All messed Disco. All messed Disco. Julia wenge (EFIC. Julia wenge (CD. BOOK BOOK SWIT SWIT SWIT	Constant	<ul> <li>Properties</li> <li>BIL Q+   J   1</li> <li>✓ General Name Description Usage Type</li> </ul>	t+ [Extende
Deck Bill         Deck Bill <t< th=""><th>Force Mask     {}     {}     {</th><th></th><th>Core lane /Ac. All messed Disco. All messed Disco. All messed Disco. All messed Disco. All messed Disco. Julia wenge (EFIC. Julia wenge (CD. BOOK BOOK SWIT SWIT SWIT</th><th>Constant</th><th><ul> <li>Properties</li> <li>BIL Q+   J   1</li> <li>✓ General Name Description Usage Type</li> </ul></th><th>t+  [Extende</th></t<>	Force Mask     {}     {}     {		Core lane /Ac. All messed Disco. All messed Disco. All messed Disco. All messed Disco. All messed Disco. Julia wenge (EFIC. Julia wenge (CD. BOOK BOOK SWIT SWIT SWIT	Constant	<ul> <li>Properties</li> <li>BIL Q+   J   1</li> <li>✓ General Name Description Usage Type</li> </ul>	t+  [Extende
By Dec.	Force Mask     {}     {}     {		Core lane /Ac. All messed Disco. All messed Disco. All messed Disco. All messed Disco. All messed Disco. Julia wenge (EFIC. Julia wenge (CD. BOOK BOOK SWIT SWIT SWIT	Constant	<ul> <li>Properties</li> <li>BIL Q+   J   1</li> <li>✓ General Name Description Usage Type</li> </ul>	t+  [Extende
State         State         State         Top           Controls For All holds         Issail         Is	() () () () () () 0 0 0 0	Style     {}     {}     {     {     Decimal     Decimal     Decimal     Decimal     Decimal     Decimal	Data Type Description All Embedded, Discre All Embedded, Discre All Embedded, Discre JobBit weighted, Efforc JobBit weighted, Efforc ROQL Ser(153) SeV1 SeV1 SeV1		Bl: 2+ All + ▲ General Name Description Usage Type	wequbel
Control (C)         Data         Dirac         Dirac           Control (C)         Control (C)         Control (C)         Control (C)           Control (C)	() () () () () () 0 0 0 0	Style     {}     {}     {     {     Decimal     Decimal     Decimal     Decimal     Decimal     Decimal	Data Type         Description           AB Embedded_Discre         AB Embedded_Discre           AB Embedded_Discre		Bl: 2+ All + ▲ General Name Description Usage Type	wequbel
October Ray         Name         22         Valee           Control For A Made         > Local I         > <th>() () () () () () 0 0 0 0</th> <th><ul> <li>{}</li> <li>{}</li> <li>{}</li> <li>{}</li> <li>{}</li> <li>Decimal</li> <li>Decimal</li> <li>Decimal</li> <li>Decimal</li> </ul></th> <th>ABEmbedded, Discre ABErhedded, Discre ABErhedded, Discre JoHBhweqube, EFFXC BOOL BOOL SIVT333 SIVT SIVT</th> <th></th> <th>Bl: 2+ All + ▲ General Name Description Usage Type</th> <th>wequbel</th>	() () () () () () 0 0 0 0	<ul> <li>{}</li> <li>{}</li> <li>{}</li> <li>{}</li> <li>{}</li> <li>Decimal</li> <li>Decimal</li> <li>Decimal</li> <li>Decimal</li> </ul>	ABEmbedded, Discre ABErhedded, Discre ABErhedded, Discre JoHBhweqube, EFFXC BOOL BOOL SIVT333 SIVT SIVT		Bl: 2+ All + ▲ General Name Description Usage Type	wequbel
Control of the second of	() () () () () () 0 0 0 0	<ul> <li>{}</li> <li>{}</li> <li>{}</li> <li>{}</li> <li>{}</li> <li>Decimal</li> <li>Decimal</li> <li>Decimal</li> <li>Decimal</li> </ul>	ABEmbedded, Discre ABErhedded, Discre ABErhedded, Discre JoHBhweqube, EFFXC BOOL BOOL SIVT333 SIVT SIVT		Bl: 2+ All + ▲ General Name Description Usage Type	wequbel
Proceed Optimization         P Local I           Particle         P Local I           International Control Optimization         P respect Control Optimization	{} {} {} 0 {} 0 0 0 0 0 0	{} {} {} Decimal Decimal Decimal Decimal	ABEmbeddet_Discre ABErnbeddet_Discre _04BB:weqube_EFF8C _44BB:weqube_dCD BCOL SIVIT[53] SIVIT SIVIT		<ul> <li>General Name Description Usage Type</li> </ul>	wequbel
bit         b (abl)           b (b)         Ablability           b (b)         Ablability <t< td=""><td>{} {} 0 () 0 0 0 0 0</td><td>{} {} Decimal () Decimal Decimal Decimal Decimal</td><td>ABEmbedded, Discre _VABR:weqube_EFPC _AMBR:weqube_40CD BOOL SIN(153) SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1))))))))))))))))))))))))))))))))))))</td><td></td><td>Name Description Usage Type</td><td></td></t<>	{} {} 0 () 0 0 0 0 0	{} {} Decimal () Decimal Decimal Decimal Decimal	ABEmbedded, Discre _VABR:weqube_EFPC _AMBR:weqube_40CD BOOL SIN(153) SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1 SIN(1))))))))))))))))))))))))))))))))))))		Name Description Usage Type	
	() () () 0 0 0 0	{} Decimal () Decimal Decimal Decimal Decimal	0488:wrqube_E8F8C 0488:wrqube_40CD 60OL \$8VT[53] \$NVT \$8VT		Description Usage Type	
• I windpace         • windpace           • Brandwords         • windpace           • Brandwords         • windpace           • Windpace         • windpace	() 0 () 0 0 0	{} Decimal {} Decimal Decimal Decimal Decimal	_04BR:weqube_40CD BOOL SIVT[53] SIVT SIVT		Usage Type	
# Amounts out (cut ling)         # weighed:         weighed:           Backmark         weighed: Connection Fulted         weighed: Connection Fulted           User, Sandal         weighed: Connection Fulted         weighed: Connection Fulted           User, Sandal         weighed: Connection Fulted         weighed: Connection Fulted           User, Sandal         weighed: Connection Fulted         weighed: Connection Fulted           Standard         Weighe:	() 0 0 0	Decimal {} Decimal Decimal Decimal Decimal	BOOL SINT[33] SINT SINT		Type	
Unitadad <ul></ul>	() 0 0 0	() Decimal Decimal Decimal Decimal	SINT[33] SINT SINT			Base
Bunkald              excepted Dis            Bonn Grags              excep	() 0 0 0	() Decimal Decimal Decimal Decimal	SINT[33] SINT SINT			one.
Abs: Upper grade to access the sequence (Developed Term of the sequence	0 0 0	Decimal Decimal Decimal	SINT		Base Tag	
Anst.         > vegabelDod(1)           Logard Mod         > vegabelDod(2)           UPC Collagaration         > vegabelDod(2)           UPC Collagaration         > vegabelDod(2)           UPC Collagaration         > vegabelDod(2)           UPC Dod State Streps         > vegabelDod(2)           UPC Dod State Streps         > vegabelDod(2)           UPC Dod State Streps         > vegabelDod(2)           UPC Dod Streps         > vegabelDod(2)	0	Decimal Decimal	SINT		Data Type	SINTI531
Logist Model	0	Decimal			Scope	PLC
10 Configuration         > weighter/Inde[]           P North         > North (North (Nort	0				External A	
Finado         > wequelcilled[1]           © [0] 1794:1808 H0 FC         > wequelcilled[1]           > wequelcilled[1]         > wequelcilled[1]           > wequelcilled[1]         > wequelcilled[1]			SINT		Style	Decimal
● [1] 794.11834.8187.PC         ● wepdet:Dind4[]           ● [I] Fold-Midd [Dind4, D         ● wepdet:Dind4[]           ● [I] [I] Fold-Midd [Dind4, D         ● wepdet:Dind4[]           ● [I] [I] Fold-Midd [Dind4, D         ● wepdet:Dind4[]           ● Instantiat         ● wepdet:Dind4[]           ● wepdet:Dind4[]         ● wepdet:Dind4[]]		Decimal	SINT		Constant	No
• C included (100         > wequicit.004(2)           • If (16+4664 Stores, D)         > wequicit.004(2)           • If (16+4664 Stores, D)         > wequicit.004(2)           • The inflame         > wequicit.004(2)           • The inflame         > wequicit.004(2)           • The inflame start of the inflame         > wequicit.004(2)           • The inflame start of the inflame         > wequicit.004(2)           • The inflame start of the inflame         > wequicit.004(2)           • wequicit.004(2)         > wequicit.004(1)           • wequicit.004(1)         > wequicit.004(1)			SINT		Required	NO
		Decimal			Visible	
	98	Decimal	SINT		A Data	
↓ time         > wepholog(7)           ● 195+11164/8189.PC         > wepholog(81)           ● 195+11164/8189.PC         > wepholog(81)           ● wepholog(81)         > wepholog(81)           ● wepholog(81)         > wepholog(81)           > wepholog(81)         > wepholog(81)	97	Decimal	SINT		Value	
Image:	114	Decimal	SINT		Force Mask	
Impact weight         Impact Neight           Impact Neight         Impact Neight	99	Decimal	SINT		Produced C	
> vecpbcc.Dmt[10] > vecpbcc.Dmt[11] > vecpbcc.Dmt[11] > vecpbcc.Dmt[12]					<ul> <li>Froduced C</li> <li>Consumed I</li> </ul>	
▶ wrqubeLD#s1[1] ▶ wrqubeLD#s1[12]	111	Decimal	SINT		<ul> <li>Parameter</li> </ul>	
wequbeilData[12]	100	Decimal	SINT		<ul> <li>Parameter</li> </ul>	New Con
	101	Decimal	SINT			wew con
	32	Decimal	SINT			
wegube:L0sta[13]	114	Decimal	SINT			
▶ weqube:LData[14]	101	Decimal	SINT			
weqube:Data[15]	97	Decimal	SINT			
weqube:Data[16]	100	Decimal	SINT			
wegube:Date[17]	101	Decimal	SINT			
wequectooid     wequectooid	114	Decimal	SINT			
		Decimal	3141		~	
< > Monitor Tags / Edit Tags /	<			>		_
Errors						
😧 0 Errors 🛕 0 Warrings 🚺 31 Messages				Search		
Finalizing download						
Download elapsed time 4.045 with connection size 4000.						
Reading ChangeLog						
Complete = 0 error(s), 0 warning(s)						
Introller Organizer By Logical Organizer						
arch Results						



### 7.5 Integrate Smart Camera without EDS file

In case of some old Rockwell PLCs, EDS files are not supported. Consequently the Smart Camera must be added as generic device.

Open with a right click the context menu at "Ethernet" and select "New Module..." to add the Smart Camera to the PLC network.



Search for generic and select the "Generic Ethernet Module".

Logix Designer - PLC in Generic ACD [1769-L18ERM-8818 32.11]*		. 8 ×
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HELP		
15 Sa 🖬 🖶 🗴 S S 19 C 📃 🗸 5 S 🖉 📴 🖌 15	5 A Q & Q C	
■ RUN     ■ RUN     ■ CK     ■ Energy Strange     10     Offline     ■. No Forces     ▶_ No Edits     €	■ B 4 → Parent + + ++ +> +> +> +> +> +> +> +> +> +> +>	FileMac FileShift Sequencer Program Control FortDreak Special HMI Triposometry Advanced Math
Controller Organizer + 0 ×		
d 🐘	lect Module Type	
Consider NC     Consider Ray     Consider Ray	Catalog Module Decovery Ferotes	Sou film: Y
Errors		- + ×
0		Search
		2000. P
Complet Bus Size		
	3 of 601 Module Types Found	Add to Favorites
<u> </u>	Coste or Ceale	Cose Hee
Te Controller Organizer 🔒 Logical Organizer <		3

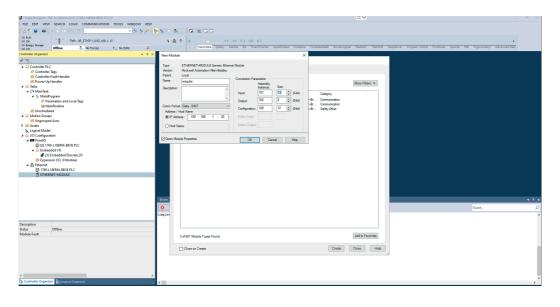
Enter the name and the IP address of the Smart Camera. Set the Communication Format to "Data - SINT". Furthermore the instances must be configured accordingly:

- Input: Instance 101 with x bytes
- Output: Instance 102 with x bytes
- · Configuration: Instance 100 with 12 bytes



#### NOTE!

The input and output size must fit to the uniVision project configuration! Slot 1 and 2 are always present and must be added to the user-defined slots 3-6.





Set the requested packet interval (	RPI) to minimum 20 ms and click on ok.
-------------------------------------	--

	# × <b>v</b>		
Logix Designer - PLC in Generic ACD [1769-L18ERM-8818 32.11]*		-	8 ×
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HELP			
🏂 🖕 🖶 🐱 L D D 🤊 🤆 🔜 🚽 💆 🖉	b k 10 b 5 5 位 第 日本		
E RUN			
III OK		•	
III 1/0 Offine . No Forces P., No Edits et.	Favorities Safety Alarms Bit Timen'Sourier Input/Suput Compare Compute/Math NoveLogical FileMac. File/Shift Sequencer Program Control ForBreak Special Hill Trigonometry Advan	inced Math	
Controller Organizer 🔷 🤻 🛪	Module Properties Report: Local (ETHERNET-MODULE 1.001) ×		
0 1	General Connection' Module Info		
A Controller PLC	UNITE POLICE POLICE		
Controller Tags	Requested Packet Interval (RPI): 20(0)5/ims (1.0-3200.0 ms)		
Controller Fault Handler			
Power-Up Handler			
G Tasks     G MainTask	Agior Fault On Controller If Connection Fails While in Run Mode		
A b MainProgram	Use Unicast Connection over EtherNet/IP		
Parameters and Local Tags			
MainRoutine			
Unscheduled	Module Fault		
A 🚭 Motion Groups			
Ingrouped Axes			
Assets Logical Model			
▲ ClyConfiguration			
A PointIO			
[0] 1769-L18ERM-BB1B PLC	Status: Offine OK Cancel Apply Help		
✓ G Embedded I/O			
[1] Embedded Discrete_IO			
Expansion I/O, 0 Modules			
B 1769-LISERM-BBIB PLC			
ETHERNET-MODULE wegube			
		_	_
	Errors		• 9 ×
	🖸 0 Entres 🛕 0 Warnings 🚺 0 Messages Search		ρ
	Complete - 0 error(s), 0 warning(s)		
Module Defined Tags			
🥏 wequbel			
✓ weqube:0 ✓ weqube:C			
Description			
Status Offline			
Module Fault			
< > >			
Ta Controller Organizer			
Search Results 🐻 Watch			
Contraction Participation			

Open the "Controller Tags", select weqube: C and set the Module IDs according to the uniVision project configuration.



#### NOTE!

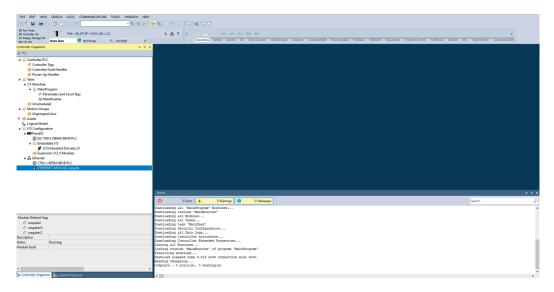
Connect to the Smart Camera via uniVision software in order to check the current Module IDs of the uniVision project (see section "5.2.1 Slots" on page 26).

In the example, the following Module IDs are used:

- weqube:C.Data[0]: 10 (Project number)
- weqube:C.Data[2]: 11 (Status)
- weqube:C.Data[4]: 8 (Module ID of slot 3)
- weqube:C.Data[6]: 3 (Module ID of slot 4)
- weqube:C.Data[8]: 12 (Module ID of slot 5)
- weqube:C.Data[10]: 1 (Module ID of slot 6)

Path: A8_ETH0P-1\192.168.1.10								
rgy Storage Offline . No Forces . No Edits		AIN AINS BIT Timer/Counter II	nput/Output Compare Compute	Math Nove-Logical F	ieMisc. File/Shift Seq	iencer Program Control	ForiBreak Special HMI Trigonometry	Advanced Math
er Organizer								
	Scope: @PLC - Show:	Al Taga			V T. Etter	Vane Filter		
Controller PLC	Name	tal - Value	* Force Mask	* Style	Data Type	Description	A Properties	
Controller Tags     Controller Fault Handler	✓ wegube:C.Data		{}	{} Hex	SINT[400]		R 94 JH to Extended	Properties
Power-Up Handler	weqube:C.Data[0]		10	Decimal	SINT		A General	Troperteal
Tasks	wegube:C.Data[1]		0	Decimal	SINT		Name	wegube:C.Data[10]
C Main Task	wegube:C.Data[2]		11	Decimal	SINT		Description	
MainProgram     Parameters and Local Tags	weqube:C.Data[3]		0	Decimal	SINT		Usage	
Parameters and Local lags MainRoutine			8	Decimal	SINT		Туре	Base
Unscheduled	▶ weqube:C.Data[4]		8		SINT		Alias For Base Tep	
Motion Groups	weqube:C.Data[5]		•	Decimal			Data Type	SINT
Ungrouped Axes	weqube:C.Data[6]		3	Decimal	SINT		Scope	PLC
Assets Logical Model	weqube:C.Data[7]		0	Decimal	SINT		External Access	Read/Write
/O Configuration	weqube:C.Data[8]		12	Decimal	SINT		Style	Hex
PointIO	weqube:C.Data[9]		0	Decimal	SINT		Constant	No
[0] (0) 1769-L18ERM-8818 PLC	weqube:C.Data[10]		1	Decimal	SINT		Required	
▲ 🚅 Embedded I/O	weqube:C.Data[11]		0	Decimal	SINT		Visible Data	
[1] Embedded Discrete_IO Expansion I/O. 0 Modules	weqube:C.Data[12]		16#00	Hex	SINT		Value	16
Ethernet	wegube:C.Data[13]		16#00	Hex	SINT		Force Mask	
E0 1769-L18ERM-BB18 PLC	wegube C.Data[14]		16#00	Hex	SINT		Produced Connection	
ETHERNET-MODULE weqube	weqube:C.Data[15]		16#00	Hex	SINT		Consumed Connection	
	wegube C.Data[16]		16#00	Hex	SINT			
			16#00	Hex	SINT		~	
	Wegube:C.Data[17]  Monitor Tags / Edit Tags /		<	r lega			>	
	Errors							
	O Errors	0 Warnings 0 Messages	1				Search	
	Complete - 0 error(s), 0 warnin						search	

Download the configuration to the PLC and go online.

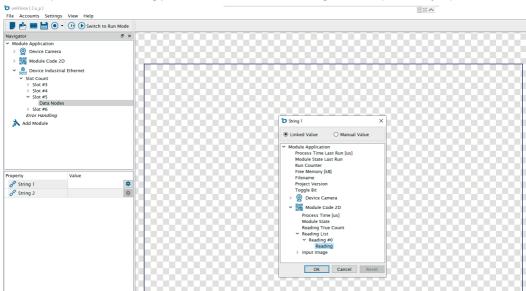




### 7.6 PLC Parameters and Local Tags

### 7.6.1 String data

The example shows the sending process of the code result as string 1 in slot 5 (Size: 16 bytes).



In the software Studio 5000 Logix Designer, the code result is available starting with byte 5 and ending with byte 20.

FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS								
15 🖆 🖶 🔺 31 입 19 연 🔄								
Run Mode Peth: A8_ETH(P-1\192.168.1.10		OP FLL AVE SRT STD SIZE OPS						
Energy Storage OK EDD OK Rem Run III No Forces Pu No	Edita 2. ( ) Favo Add Alar. Bit	Time Inp Com Com Nov Fil Fil Seq Pro	For Spe HMI	Tri. Adv. Mat. N	lat Mot Mot M	et Mot Met.	. ASC ASC	-
ntroller Organizer		lainRoutine 🛛 🥏 Program Parameters and Local Tags - MainProgram						_
s of		sankoutine - Program Parameters and Local rags - MainProgram						
Controller PLC	Scope: @PLC v Show: Al Tegs		<ul> <li>▼, <sup>b</sup></li> </ul>	ister Name Filter				
Controller PLC Controller Teas	Name	III + Value * Force Mask	+ Style	Data Type	Description	Constant	Properties	
Controller Fault Handler	wequbel.ConnectionFaulted	0	Decimal	BOOL			渡망 개	t+ Extended
Power-Up Handler	▲ wegubel.Data	()	{} Decimal	SINT[53]			A General	
Tasks	wequbeilData[0]	0	Decimal	SINT			Name	wegubel.Da
🔺 🛟 MainTask	wequbel.Data[1]		Decimal	SINT			Description	
MainProgram		0					Usage	
Parameters and Local Tags	weqube:I.Data[2]	0	Decimal	SINT			Type	Base
MainRoutine     Unscheduled	weqube:LData[3]	0	Decimal	SINT			Alias For	
Motion Groups	wequbeil.Data[4]	33	Decimal	SINT			Base Tag	
Ungrouped Axes	weqube:LData[5]	6	ASCII	SINT			Data Type	SINT
Assets	weqube:LData[6]	1	ASCII	SINT			Scope	PLC
Add-On Instructions	wegubeil.Data[7]	Y	ASCI	SNT			External A.	
🖌 🖳 Data Types	weqube:[Data[8]		ASCI	SINT			Style	Decimal
📻 User-Defined		e '9'	ASCI	SINT			Required	No
Grings     III.STRING16	wequbeilData[9]						Visible	
a STRIVETO ä string16bytes	weqube:LData[10]	· · · · · · · · · · · · · · · · · · ·	ASCII	SINT			A Data	
Add-On-Defined	wequberl.Data[11]	'e'	ASCII	SINT			Value	
Predefined	weqube:LData[12]		ASCII	SINT			Force Mask	
Module-Defined	wequberl.Data[13]	Y	ASCII	SINT			> Produced	Connection
Image: Participation of the second	♦ wegubelData[14]	×	ASCII	SINT			Consumed	Connection
1/2 Logical Model	wegubei.Data1151		ASCII	SINT			A Parameter	Connections
I/O Configuration	wequbel.Data[16]	8	ASCI	SINT				New Conner
<ul> <li>PointIO</li> <li>I01 1769-L18ERM-B81B PLC</li> </ul>								
Embedded I/O	weqube:LData[17]	'e'	ASCII	SINT				
[1] Embedded Discrete IO	weqube:LData[18]	Y	ASCII	SINT				
Expansion I/O, 0 Modules	weqube:LData[19]		ASCII	SINT				
4 💑 Ethernet	wequbeil.Data[20]		ASCII	SINT				
1769-L18ERM-B818 PLC	weqube:LData[21]	0	Decimal	SINT				
ig weqube weqube	wegubeil.Data[22]	0	Decimal	SNT				
	weqube:[Data[23]	0	Decimal	SINT				
	Vergube: Data[25]		overman	-		,	×.	
		X						
	Errors							- 0
	😮 0 Errors 🛦 0 Warrings 🕕	31 Messages				Search		
	Finalizing download							
	Download elapsed time 3.961 with connection siz	e 4000.						
	Reading ChangeLog							

To copy the bytes in a string, use the FILE COPY (COP) function in the Main Routine. In the example the source is linked to weqube:I.Data[5] and a new string tag with 16 bytes length is created. The destination is set to STRING.Data[0] and the size of the string is set fix to 16 bytes.

Logix Designer - PLC in Example_weQube.ACD (1769-L18ERM-8818 32.11)*		X 🕞 Startseite	🗲 Aktionen 👻 🚽 Ansicht	🥼 Kommunikation * 🕞 Dateier	n & Extras 👻 😃			<i>0</i> ×
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HELP					8.4			
	💽 📐 🕞 🕹							
E RUN E OK Path: A8_ETH0P-1\192.168.1.10								
III Energy Storage				Whited Company Company and the	ad coloral Eladian ElaChit Cana	encer Program Control For/Break Special Hill	Torrowskie Advanced Hat	
			Parameters and Local Tags - MainP		The second second second	ender Fregran Goneral Fernordak Oppolar Ini	Tingenonicity Adminicos nat	
				ogram MainProgram - MainRoutine*	×			
0 12	<b>R 4 10 1</b>	- R D D 🔤 🕮 🖦 -	* (4)					
✓ Controller PLC Ø Controller Tags								^
Controller Fault Handler							COP	
Power-Up Handler	17						Source weqube:LData(5) Dest STRNG.DATA(0)	
🔺 🖳 Tasks							Length 16	
4 🖓 MainTask								
A L MainProgram								
Parameters and Local Tags 10 MainRoutine	(End)							_
Unscheduled								
▲ G Motion Groups	•							
Ungrouped Axes								
👂 💼 Assets								
Logical Model								
I/O Configuration								
A PointIO								
[0] (0) 1769-L18ERM-8818 PLC     [] Embedded I/O								
III Embedded Discrete IO								
Expansion V/O. 0 Modules								
4 🖧 Ethernet								
1769-L18ERM-BB1B PLC								
🕼 weqube weqube								
								~
	< ===							>
	Errors							- 7 ×
Type Ladder Diagram (Main)	0 01							0
Program MainProgram			nings 🕕 1 Messages				Search	م
Number of Rungs 18	Converting rung	text to graphical repu	resentation for routine: M und. Adding additional or	ainRoutine				^
		c enough arguments for cor(s), 1 warning(s)	und. Adding additional of					
< > >								
Te Controller Organizer	4							, ,
Search Results 🔤 Watch								

The STRING result is available in the Parameteres and Local Tags.

Logix Designer - PLC in Example_weQube.ACD (1769-L18ERM-8818 32.11)* ILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WIN	INALLY DELT			<b>≣</b> ≈∨				- 8
	5 5 <b>5 1</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
	2 2 2 10 K 2 2 2 2 0 16 6 6							
Run Mode Controller OK Path: A8_ETTHIP-1\192.168.1.10	8 & 4 × 10 × 10 × 10 × 10 × 10 × 10 × 10 ×	ન નામ નામ નામ નામ નામ						
Energy Storage OK			input/Output Compare Compute/Math M	aved opical Electricic Elec	Shift Securator Pro-	ram Control For Break	Special Hitl Tripprometry	Advanced Mat
/D DK Rem Run R No Forces P., No Edits	as a second							
ener organizer		Program Parameters and Local Tags - M.	inProgram 🗙 🗮 MainProgram - MainRout					
	Scoge: b MainProgram - Show	Al Tegs		~	T. Enter Name Filter			
Controller PLC Controller Tags	Name	tel + Usage V	Aue * Force Masi	style	Data Type	Description ^	Properties	
Controller lags	A STRING	Local	'barcode reader '	()	STRING		31 94 J to Extended	Properties
Power-Up Handler	▶ STRINGLEN		16	Decimal	DINT		A General	reperces
Tasks			()	() ASCI	SINTI821		Name	STRING,DATA
MainTask	▲ STRING.DATA						Description	S HALLOUDADA
▲ b MainProgram	STRING.DATA[0]		ъ	ASCII	SINT		Usage	
Parameters and Local Tags	STRING.DATA[1]		×	ASCII	SINT		Type	Base
10 MainRoutine	STRING.DATA[2]		Y	ASCII	SINT		Alias For	
Inscheduled	STRING.DATA[3]		'e'	ASCII	SINT		Base Tag	
Motion Groups	STRING.DATA[4]		·e/	ASCI	SINT		Data Type	SINT[82]
Assets	▶ STRING,DATAJ51		14	ASCI	SINT		Scope	MainProgram
Logical Model	STRING.DATA[6]		w and the second s	ASCI	SINT		External Access	Read Only
1/O Configuration			e	ASCI	SINT		Style	ASCII
PointIO	STRING.DATA[7]						Constant	No
[0] 1769-L18ERM-BB1B PLC	STRING.DATA[8]		Y	ASCII	SINT		Required	
▲ 🚘 Embedded I/O	STRING.DATA[9]		×	ASCII	SINT		A Data	
[1] Embedded Discrete_IO Expansion I/O, 0 Modules	STRING.DATA[10]		1a1	ASCII	SINT		Value	
Expansion (-0, 0 modules	STRING.DATA[11]		'd'	ASCII	SINT		Force Mask	
60 1769-L18ERM-881B PLC	STRING.DATA[12]			ASCI	SINT		Produced Connection	
m wegube wegube	STRING.DATA[13]		÷	ASCI	SINT		Consumed Connection	
	STRING, DATA/141			ASCI	SINT			
	STRING.DATA[15]     Monitor Tags / Edit Tags /			ASCII	SINT	Ň		
	Errors							
	CO DEmons 🔺	0 Warnings 1 Message					Search	
	Downloading Security Configurat	ion	-					
	Downloading all Data Logs							
iption	Downloading Controller attribut Downloading Controller Extended	es						
s Scheduled	Downloading Controller Extended Linking all Routines	Properties						
ber of Routines 1	Linking routine 'MainRoutine'	f program 'MainProgram'						
Routine MainRoutine	Finalizing download							
Routine	Download elapsed time 3.891 wir Reading ChangeLog	n connection size 4000.						
ican 124 us can 32 us	Complete - 0 error(s), 0 warnin	g (a)						
t 32 us								
uled In MainTask								
	/							



### 7.6.2 BOOL data

24 ъ Extended View Accounts 📕 📩 🎆 💾 💿 🗸 🕕 🕥 Switch to Run Mode σ× v 🔛 Module Code 2D Module Localizer Module Filter Module Coordinate System Module Region Reading List > Reading #0 Search Box Enhanced Parameter Modur. Modur. Store Indus.. Store Store Store Store Store Store Store Store Handling Module > 📄 Module Spreadsheet 2.Step: Tools v 🧟 Device Industrial Ethernet 
 Module Measure

 Module Code 2D

 Module Threshold

 Arrow Module OCR

 Module Pattern Math

 Module Pattern Math

 Module Code 1D

 Module Code 1D

 Module Code 1D
 Module Mea Bool 0 × Linked Value O Manual Value dule Application Process Time Last Run [us] Module State Last Run Run Counter Free Memory [k8] Filename Project Version Toggle Bit 3.Step: Result Calcula Value Toggle Bit \$ > 🧕 Device Camera Module Math Sool 1 > Module Code 2D 12 2 Module Spreadsheet Module Spreadsheet Module Statistic Module Match Code Module Numeric Cor Module Logic Module Counter Bool 2 > Module Spread 2-1 So Bool 3 \$ 21 Bool 4 Sool 5 P Bool 6 Bool 7 OK Cancel Reset Device FTP
 Device IO Unit
 Device Display Device Display
 Device Industrial Ethe
 Device R5232
 Device UDP
 Device TCP
 Device Indicator K Connected to 192.168.1.20 : 32001 X: 3, Y: 528, Z: 0 RGB:

The following example shows linking a boolean result in slot 4 (Bool 0).

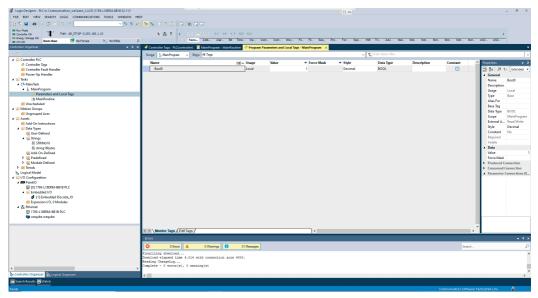
On the PLC, the boolean result is shown at weqube:I.Data[4].0.

Logix Designer - PLC in Communication_weQube_2.ACD [1769-L18ERM FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS				8.4					- 8
Controller OK Path: AB_ETHIP-1\192.168.1.10	% & 0 + 1-1-0 bit 1	+ +/+ -( ) -(0) -(1.) Alst Bit Time Inp Com Com			Tri. Adv. Mat. Mot. I			ASC., ASC.,	_
LIO OK Rem Run B. No Forces P., No				rot spe nut	In., Adv., Mat., Hot., I	wee wee we	C. MOC. HOL.	ASC. ASC.	
troller Organizer	🗸 🤋 🗶 🖉 Controller Tags - PLC(controller) 🛛 💥 MainP	rogram - MainRoutine* 🛛 🔗 Program Parameter	and Local Tags - MainProgram						
	Scope: @PLC V Show: Al Tags			v T. 6	ister Name Filter				
Controller PLC	Name	III A Value	<ul> <li>Force Mask</li> </ul>	+ Style	Data Type	Description	Constant	Properties	
Controller Tags	Locat1:C		{}	()	AB:Embedded_Discre	Description		11 Pt //	
Controller Fault Handler Power-Up Handler									C+ btend
Tasks	Locali1i		{}	{)	AB:Embedded_Discre			✓ General	
A C Main Task	Local:1:0		()	{}	AB:Embedded_Discre			Name	wequbel
A 1 MainProgram	wequberC		{}	{·)	_04BB:wegube_E8F8C			Description	
Parameters and Local Tags	✓ weqube:		()	()	_04BB:wegube_40CD			Usage	
D MainRoutine	weqube1.ConnectionFaulted		0	Decimal	BOOL		-	Type	Base
iii Unscheduled								Akes For	
G Motion Groups	✓ weqube:LData		()	{} Decimal	SINT[53]			Base Tag	
Ungrouped Axes	wequbeil.Data(0)		0	Decimal	SINT			Data Type	BOOL
Assets	weqube:I.Data[1]		0	Decimal	SINT			Scope	PLC
Add-On Instructions	wequbeI.Data[2]		9	Decimal	SINT				Read/Writ
🔺 🚍 Data Types			0	Decimal	SINT			Style	Decimal
🗮 User-Defined	weqube:LData[3]							Constant	No
🖌 🚘 Strings	<ul><li>weqube:I.Data[4]</li></ul>		1	Decimal	SINT			Required	
2L STRING16	wequites1.Data[4].0		1	Decimal	BOOL			Visible	
器 string16bytes	wegubei.Data[4].1		9	Decimal	BOOL			🔺 Data	
幅 Add-On-Defined	wegubeil.Data[4].2		0	Decimal	BOOL			Value	
Predefined			*					Force Masi	
Module-Defined	wequbel.Data[4].3		0	Decimal	BOOL			Produced	
Trends	wequbei.Data[4].4		0	Decimal	BOOL			Consumed	
b: Logical Model	weqube:I.Data[4].5		0	Decimal	BOOL			✓ Parameter	
VO Configuration  PointIO	weqube:I.Data[4].6		9	Decimal	BOOL				New Con
Pointio [] [0] 1769-L18ERM-BB1B PLC			0						
4 G Embedded I/O	weqube:I.Data[4].7			Decimal	BOOL				
Interfective 100	wequbei.Data[5]		.р.	ASCII	SINT				
Expansion I/O, 0 Modules	weqube:I.Data[6]		1a1	ASCII	SINT				
4 🚠 Ethernet	wequbei.Data[7]		Y	ASCI	SINT				
FB 1769-L18ERM-BB1B PLC	wequbel.Data[8]		· ·	ASCI	SINT				
weqube weqube									
	wequbesi.Data(9)		'o'	ASCI	SINT				
	weqube:I.Data[10]		'd'	ASCII	SINT			~	
	A Monitor Tags (Edit Tags / Edit Tags /		<				>		
	Errors								
	🖸 😳 🛛 0 Errors 🥼 O Warnin	gs 🚺 6 Messages					Search		
	Accepting the Pending Edits of routine	'MainBootine' in program 'MainBroot							
	Testing edits for program 'HainProgram'								
	Assembling edits for program 'MainProgr	am*							
	Complete - 0 error(s), 0 warning(s)								
Controller Drospiner Di Lanical Consenant									
Controller Organizer	٢								_
Search Results 🛺 Watch									

To copy the boolean result in a local tag, add the "Examine On" and the "Output Energize" in the Main Routine. Link the "Examine On" to byte 4 bool 0 and link the "Output Energize" to a new boolean tag.

Logix Designer - PLC in Communication_weQube_2.ACD (1769-L18ERM-8818 32.11)	F	- 8 ×
FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW		
	SPIDE DEC CROSS	
Controller OK Path: A8_ETH0P-1\192.168.1.10		
Energy Storage OK	R Add Add Add Add Add Add Add Add Add Ad	ot. Not. ASC. ASC.
	🔍 X 🗳 Controller Tags - PiCicontrollen 📄 MainProgram - MainRoutine 🗴 🖉 Program Rosameters and Local Tags - MainProgram	
a m		· · · · · · · · · · · · · · · · · · ·
Gontroller PLC     Controller Tags	weqube: 10ata(4) 0	BosD ^
Controller Fault Handler		
Power-Up Handler		
🖌 📹 Tesks	(End)	
🔺 🗘 MainTask	(true)	
🖌 🔓 MainProgram		
Parameters and Local Tags		
D MainRoutine		
Unscheduled		
✓ ≤ Motion Groups ■ Ungrouped Axes		
A Sesets		
Add-On Instructions		
🖌 🛁 Data Types		
r User-Defined		
🖌 🥁 Strings		
間 STRING16		
間 string16bytes		
r Add-On-Defined		
reg Predefined     reg Module-Defined		
P in Module-Denned		
b Logical Model		
4 🛁 VO Configuration		
🔺 🛲 PointiO		
[0] 1769-L18ERM-B81B PLC		
✓ G Embedded I/O		
[1] Embedded Discrete_IO		
Expansion I/O, 0 Modules		
▲ 👗 Ethernet 🗊 1769-L18ERM-BB1B PLC		
weqube weqube		
The medane		
Description		×
Status Scheduled		
Number of Routines 1	Errors	+ 9 ×
Main Routine MainRoutine		
Fault Routine	🖸 0 Enom 🛕 0 Warrings 🚺 31 Messages	Search P
Max Scan 34 us	Finalizing download	~
Last Scan 7 us	Download elapsed time 4.045 with connection size 4000. Reading Changelog	
Parent	Complete - 0 error(s), 0 warping(s)	
	3 ····································	
1 Controller Organizer	4	>
戻 Search Results 🐺 Watch		
Verify the routine	Communication Software FactoryFail Linx	Rung 0 of 1 APP VER 🔒

The boolean result is available in the Parameters and Local Tags.

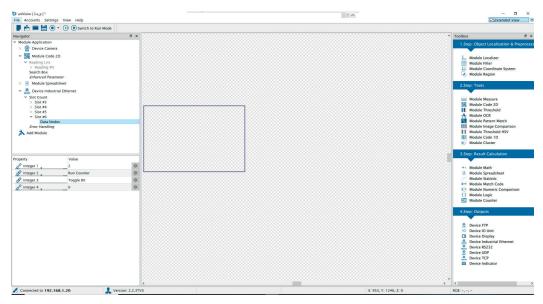




### 7.6.3 DINT and REAL data

The following example shows linking DINT results in slot 6.

- DINT 1: Project number
- DINT 2: Run Counter
- DINT 3: Toggle Bit



Logix Designer - PLC in Communication_weQube_2.ACD (1769-L18ERM-8818.32) FILE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS WIND			8.4		- 6 1
	* * # <mark>1</mark> % % % % % % % % % % % % % % % % % % %				
Controler OK     Controler OK     Path: Adj_ETHSP-1\192.168.1.10     Energy, Storage OK	St 25 8 ( → → → ++ ++ () 2 ++ ++ favo Add Alat Bt	(0) (i,) Time. Inc., Com., Com., Mox., Fit., Fit., Sea., Pro.,	Car Con UNI Tri Adv Mar II	int life life life life life	>
I/O OK Rem Run 📜 No Forces 🕨 No Edita	10 10 10 10 10 10 10 10 10 10 10 10 10 1		Per., Spe., Hwi III., Adv., Mat., N	Int. Mot. Not. Not. Not. Not.	ADU ADU
	👻 🖲 🗙 🧭 Controller Tags - PLC(controller) 🛛 🕺 📕 MainProgram - Main	Routine* 🛛 👎 Program Parameters and Local Tags - MainProgram			1
	Scoge: BPLC V Show: Al Tags		V T. Enter Name Filter		
4 🖼 Controller PLC	Name	121 - Value * Force Mask	* Style Data Type	Description Constant	A Properties
Ø Controller Tags	wegubei.Data[28]		Decimal SINT	Constant Constant	31 및 Ja to Extended
Controller Fault Handler		0	Decimal SINT		General
Fower-op Handler     Sess	▶ wequbel.Data[29]				Name wegubei.Da
MainTesk	wequbei.Data[30]	0	Decimal SINT		Description
4 5 MainProgram	wequbel.Data[31]	0	Decimal SINT		Usage
Parameters and Local Tags	wequbeil.Data[32]	0	Decimal SINT		Type Base
MainRoutine	wequbel.Data[33]	0	Decimal SINT		Alias For
I Unscheduled	wegubei.Data1341	0	Decimal SINT		Base Tag
A G Motion Groups	wegubei.Data[35]	0	Decimal SINT		Data Type SINT
Ungrouped Axes	wegubei.Data1361		Decimal SINT		Scope PLC
Add-On Instructions					External A., Read/Write
🖌 🖳 Data Types	wequbel.Data[37]	2	Decimal SINT		Style Decimal
r User-Defined	wequbel.Data[38]	0	Decimal SINT		Constant No
🔺 👾 Strings	wequbel.Data[39]	0	Decimal SINT		Required
III STRING16	wequbel.Data[40]	0	Decimal SINT		Visible
#i string16bytes	wequbeilData[41]	21	Decimal SINT		✓ Data Value
Add-On-Defined	wegubel.Data[42]	0	Decimal SINT		Force Mask
Module-Defined	wegubei.Data[43]		Decimal SINT		Produced Connection
P Trends	wequbel.Data[44]		Decimal SINT		Consumed Connection
1 Logical Model		1			<ul> <li>Parameter Connections II</li> </ul>
a 🛁 I/O Configuration	wequbei.Data[45]		Decimal SINT		New Connec
4 📼 PointIO	wequbed.Data[46]	0	Decimal SINT		
@ [0] 1769-L18ERM-B818 PLC	wequbel.Data[47]	0	Decimal SINT		
<ul> <li>Embedded I/O</li> </ul>	wequbel.Data[48]	0	Decimal SINT		
[1] Embedded Discrete_IO Expansion I/O. 0 Modules	wegubeil.Data1491	0	Decimal SINT		
A 22 Ethernet	wegubel.Data[50]	0	Decimal SINT		
60 1769-L18ERM-8818 PLC	wequbei.Data[51]	0	Decimal SINT		
g weqube weqube	wequbel.Data[52]	0	Decimal SINT		
lescription	> weqube:0	[]	() _048B.weqube_7	CE0	×
tatus Scheduled	Monitor Tags / Edit Tags /	٤			
lumber of Routines 1	Errors				<b>~</b> 0
fain Routine MainRoutine	O Errors 🔥 O Warnings 🚺	6 Messages		Search	
laut Koutine lax Scan 62 us					
ast Scan 13 us	Accepting the Pending Edits of routine 'MainRouti Testing edits for program 'MainProgram'	ne. 10 brodram .Najukiodram			
steet	Assembling edits for program 'MainFrogram'				
	Complete - 0 error(s), 0 warning(s)				
Controller Organizer					
					>

On the PLC, the DINT results are shown in single bytes.

To create DINT results out of the single bytes, use the FILE COPY (COP) function in the Main Routine. In the example, the source is linked to byte 37 for the project number and to byte 41 for the run counter. Create new tags for the destination (with data type DINT and a length of 4 bytes).

🗿 Logix Designer - PL	C in Communication_weQube_2.ACD [1769-L18ERM-BB1B 32.11]*		- 8 ×
FILE EDIT VEW	SEARCH LOGIC COMMUNICATIONS TOOLS WINDOW HE		
S 😂 🖬 😽 🛛	(D) () () () () () () () () () () () () ()	b <b>h</b> b b ± 0 € € 0 0 0	
Run Mode     Controller DK     Energy Storage OK     IO OK	Path: A8_ETHEP-1\192.168.1.10  Rem Run Run No Forces N., No Edits @	S = 0 → 1 → 1 → 1 → 1 → 1 → 1 → 1 → 1 → 1 →	► Mot Mot ASC ASC
Controller Organizer	- 9 ×	🛷 Controller Tags - PLC(controller) 😑 MainProgram - MainRoutinet 🗙 🧳 Program Parameters and Local Tags - MainProgram	-
a 91		化电子化学 医环状学 化 医二苯基苯基苯基 医黄色子 医	
IB Mail Uschedul Warten Groupy Wareuped Sasts: Sasts: Substyle: Sasts: Substyle: Sasts: Substyle: Sasts:	apa mathematic and and an appendix of a second and a second appendix of a second appendix a second appendix of a second appendix a second appendix of a second appendix of a second appendix of a seco	2	ned * 3 1000 × 10000 × 10000 × 1000 × 1000 × 1000 × 1000 × 1000 × 1000 × 1000
Description Status	Scheduled		v F
Number of Routines	1	Errors	+ ª ×
	MainRoutine	O OEron A OWenings D 6 Message	
Fault Routine			Search P
	39 us	Accepting the Fending Edits of routine 'MainRoutine' in program 'MainProgram'	^
	12 us	Testing edits for program 'MainProgram'	
Parent	······································	Averabiling edits for program "MainFrogram" Complete - 0 error(s), 0 warning(s)	
<	>	conference in entering (a)	
a Controller Organize	Logical Organizer	< compared to the second se	· · · · · · · · · · · · · · · · · · ·
🚾 Search Results 🐼	Netch		
Ready		ComputerAlico Software Endorship Line	Runo 2 of 4 AD2 VID



Logix Designer - PLC in Communication_weQube_2.ACD [1769-L18ERM-B				8.4					- 0
LE EDIT VIEW SEARCH LOGIC COMMUNICATIONS TOOLS									
s 🖆 🖶 🔺 🕮 🏦 🦻 🤆 📃									
Run Mode Controller OK Path: A8_ETHIP-1\192.168.1.10		FAL FSC COP FLL AVE SRT STO SIZE OF							
Energy Storage OK		Alar Bit Time Inp Com Com		Ore Eas Peo	NO 10 14 14	a Mat Mat Mat	Mar Hat H		-
	00 L7			Press Total appear	nan me. Auto na	L. 191. 101. 194		al. Ada. Ada.	
ntroller Organizer	👻 🤻 🎺 Controller Tags - PLC(controller) 📜 Main	Program - MainRoutine* 🤗 Program Parameters an	d Local Tags - MainProgram 🛛 🛛						
	Scope: 5 MainProgram V Shger: Al T	198		v	T. Enter Name Filter				
Controller PLC	Name	Util + Usage Value	<ul> <li>Force Mask</li> </ul>	+ Style	Data Type	Description	Constant	Properties	
Controller Tags Controller Fault Handler	BoolD	Local	1	Decimal	BOOL	Description		11 74 J	
Power-Up Handler	Project Number	Local	2	Decimal	DINT			al: z → p <sup>a</sup>	1+ Extended
Tasks								Name	Run_Counte
A 🖓 MainTask	Run_Counter	Local	21	Decimal	DINT			Description	
A MainProgram	Toggle_Bit	Local	1	Decimal	BOOL			Usage	Local
Parameters and Local Tags								Type	Base
2 MainRoutine								Akes For	
III Unscheduled								Base Tag	
Motion Groups  Ingrouped Axes								Data Type	DINT
Grand Axes								Scope	MainProgra
Add-On Instructions									Read/Write
🖌 🛁 Data Types								Style	Decimal
1 User-Defined								Constant	No
🔺 🥁 Strings								Required	
# STRING16								Visible	
III string16bytes								✓ Data Value	
Image: Figure 1 and a state of the state								Force Mask	
<ul> <li>Image Predenined</li> <li>Image Module-Defined</li> </ul>								Produced	
P in Trends								Consumed	
h Logical Model								▲ Parameter	
UO Configuration									connectorio
🔺 💷 PointlO									
[0] 1769-L18ERM-BB1B PLC									
Genbedded I/O      Internet Discrete ID									
Expansion I/O, 0 Modules									
∠ Spansion VO, 0 Modules									
1769-L18ERM-8818 PLC									
🝘 weqube weqube									
scription	Monitor Taps (Edit Taps /		<					2	
atus Scheduled			· ·						
imber of Routines 1	Errors								* 8
ain Routine MainRoutine	0 0 Erors 🔥 0 V	/amings 6 Messages					Search		
ut Koutine xx Scan 62 us									
st Scan 11 us	Accepting the Pending Edits of rous Testing edits for program 'MainPros	ine 'MainRoutine' in program 'MainProgr	am'						
rent	Assembling edits for program 'Maini	rogram'							
	Complete - 0 error(s), 0 warning(s)								
Controller Organizer									
	<								
Search Results 🐺 Watch									
							Communication Softw	ace: FartoryTalk Linx	a

The DINT results are available in the Parameters and Local Tags.



#### NOTE!

REAL data can be copied the same way to Parameters and Local Tags. The only difference is that the data type of the destination must be set to REAL.



#### NOTE!

Make sure to check the change of the toggle bit and/or the run counter in the last slot in order to check if all measurement results are already updated.

# 8. PLC Settings at Omron PLCs

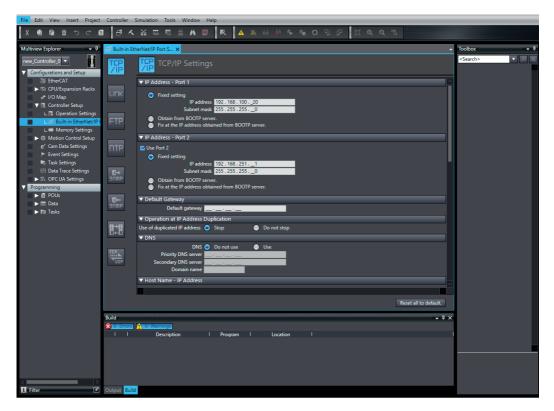
The Smart Camera can also be integrated via EtherNet/IP at Omron PLCs. The following description shows the relevant steps for a NX102-1200 PLC from Omron with Sysmac Studio Version 1.41.0.10.

## 8.1 Network Settings

In the example, the following network settings are used:

- PC with Sysmac Studio and uniVision software: IP address 192.168.100.1
- Smart Camera weQube: IP address 192.168.100.15
- PLC: IP address 192.168.100.20

Open Sysmac Studio and define the network settings of the PLC.





Click on "Tools"  $\rightarrow$  "EtherNet/IP Connection Settings".

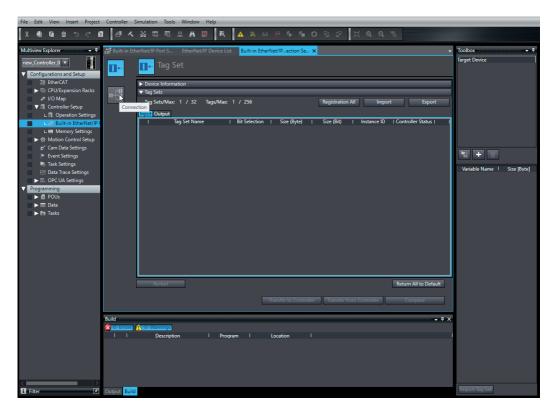
Nutleine Deplorer     Nutleine Deplorer <th>File Edit View Insert Project</th> <th>Controller Simulati</th> <th>on Tools Window Help</th> <th></th> <th></th>	File Edit View Insert Project	Controller Simulati	on Tools Window Help		
With/web Explorer   With/Web Explorer With/Web Explorer With/Web Explorer Backup Explored Board Data Types (For switching) Import ST Program. If Controlled Statup If Controlled Statup If Controlled Statup Up Adde Configurations and Setup Transfer Data Up Adde Configurations and Setup Transfer Data If Controlled Statup If Controlled Statup Up Adde Configurations and Setup Transfer Data If Controlled Statup If Controlled Statup If Controlled Statup Up Adde Configurations and Setup Transfer Data If Controlled Statup If Adde Consection Settings If Data Statup If Data Statup If Data Statup If Data Statup If Tools Statup If Tools Statup If Tools Statup If Tools Statup If Data Statup If Tools Statup <	X A A A T S C A	1 <b>3</b> 4 8	Troubleshooting	4 O 2 2 H Q Q %	
Image: Second Sector       Image: Second Seco			Event Log Viewer		
Configurations and Starp To PLAGE Beport Global Vanables VIC Map Configuration Rack VIC Vaparation Saturg VIC Vaparation Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparations and Saturg VIC Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparations and Vaparations and Saturg VIC Vaparations and Vaparations and Saturg VIC Vaparations and Vaparations an		EP Built-in EtherNet/	p.p. EtherCAT Diagnosis/Statistics Information Viewer	•	Toolbox 👻 🖡
Configurations and Starp To PLAGE Beport Global Vanables VIC Map Configuration Rack VIC Vaparation Saturg VIC Vaparation Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparations and Saturg VIC Vaparations and Saturg VIC Vaparation Vaparations and Saturg VIC Vaparations and Vaparations and Saturg VIC Vaparations and Vaparations and Saturg VIC Vaparations and Vaparations an	new_Controller_0		Backup +		<search> マ ア ×</search>
Comments for Variables and Data Types (for switching)   Inport II Program. L © Operation Rets; * U Operation Strings C Controller Statup L © Operation Strings * Default Stature Three Programs * Default Stature Strings * Operation at the P Address Obtained from BOOTP serve: * Operation at the P Address Obtained * Default Stature Strings * Default Stature Strin			Export Global Variables		
<ul> <li>St CPU/Expansion Racks</li> <li>I Common Starks</li> <li>I Com</li></ul>			Comments for Variables and Data Types (For switching)		
<ul> <li>VO Map</li> <li>Controller Setap</li> <li>Controller Setap</li> <li>Controller Setap</li> <li>Controller Setap</li> <li>Controller Setap</li> <li>Controller Setap</li> <li>Control Setap</li> <li>Co</li></ul>			Import ST Program		
L B. Operation Stehnets L M. Memory Setting: A. Motion Control Setting: A. Motion C			F IEC 61131-10 XML +		
Conf. Sub-Int Detectory         Lim Memory Setting:         Conf. Control Setting:         Conf. Control Setting:         Conf. Control Setting:         Conf. Control Setting:         Detecting:	▼ I Controller Setup		Import Motor sizing tool Results		
Lime Bulank Methedra   Lime Menory Setting:   A Motion Control Setting:   B Data Setting:   B Data Trace Setting:   A POUS   B POUS   A POUS   B Data Setting:   B POUS   B Data Setting:   B POUS   B POUS   B POUS   B POUS   B POUS   B Data Setting:   B POUS		CTD .	Update Configurations and Setup Transfer Data		
* 8) Motion Cantrel Scrup   * Can Dab Settings   * Even Settings   * Task Settings   * B. OPC UA Settings   * Default Gateway   Default Gateway   • Dis   DNS   DNS   DNS   DNS   Do not use   • DNS   Down on mane   • Host Name - IP Address      Reset all to default					
e' Cam Data Settings   Task Settings   Bata Trace Settings   Simp   Programming   POUS   POUS   Tasks   Simp   Default Gateway   Do not use   Use of duplicated IP address Duplication   Reset all to default   Reset all to default		▼ IP /	dd Launch External Application		
Event Settings     Data Trace Settings     Fix OPCUA Settings     Fix OPCUA Settings     Fix OPCUA Settings     Fix OPCUA Settings     Optimize Tasks     Operation all Paddress Oblanded from BOOTP server.     Note Paddress Oblanded from BOOTP server.	€∕ Cam Data Settings				
Image: Statistic Setting:   Image: Setting: Setting:   Image: Setti	Event Settings		customize onorical registr		
K OPCULU Setting:     Concerning     Concenterning     Concerning     Concerning     Concerning     Concer			194001005 1941100.4911_1		
		E→			
POUs     Default Gateway     Default Gate					
Default Sateway     D			Fix at the IP address obtained from BOOTP server.		
Coperation at IP Address Duplication     Verant year at IP Address     Verant year at IP Address     Verant year at IP Address     Reset at Io default     Reset at Io default		K- V De			
Use of duplicated IP address       Stop       Do not stop         V DNS       Do not stop         Phonty DNS enver       Use         Phonty DNS enver       Domain name         V Host Name - IP Address       Reset all to default         Build       0 × 0 ×			Default gateway		
Tree       DNS       Do not use       Use         Priority DNS server       Domain name         V Host Name - IP Address         Build       Reset all to default         Build       0 × 0 ×					
Tree       DNS       Do not use       Use         Priority DNS server       Domain name         V Host Name - IP Address         Build       Reset all to default         Build       0 × 0 ×		li⇒ii Use o	duplicated IP address 🥥 Stop 🛛 🕘 Do not stop		
Priority DNS server     Becondary DNS server       Secondary DNS server     Becondary DNS server       • Host Name - IP Address     Reset all to default       Build     • 8 ×		V DN	s		
Domain name T Host Name - IP Address Reset all to default Build Suid Suid Suitess Mutanomes		770			
Domain name T Host Name - IP Address Reset all to default Build Suid Suid Suitess Mutanomes					
Thost Name - IP Address  Reset all to default  Build  Cultures  Cu		004			
Reset al to default. Build - J X Subscreen - J X					
Build The Second S		Ho	st name - IP Address		
Build The Second S				E	
				Reset all to default.	
		Build		- 1 X	
I Description I Program I Location I		😒 0 Errors 🚹 0 1	/arnings		
		1 1	Description I Program I Location		
	<				
I Filter Output, Build	🖬 Filter 🗹	Output Build			

Double click on the relevant IP address.

File Edit View Insert Project	t Controller Simulation Tools Window Help	
X 通 @ 前 つ ぐ i	8 1 4 4 6 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Multiview Explorer 👻 🗸	ED Built-in EtherNet/IP Port S EtherNet/IP Device List X	Toolbox 👻 🖡
		Toobox • U <search> V V V V V V V V V V V V V V V V</search>
s ∎ Filter ♂	Build 7 X Sutercos Avenus I Description I Program I Location I	

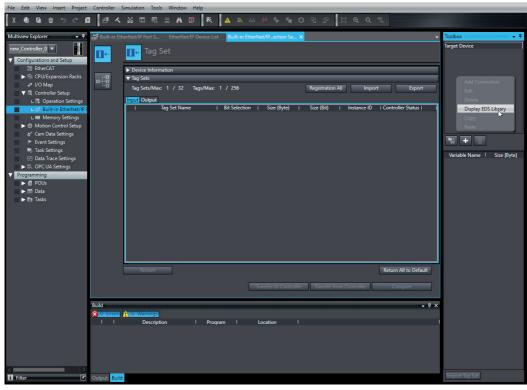


Select the connection button.



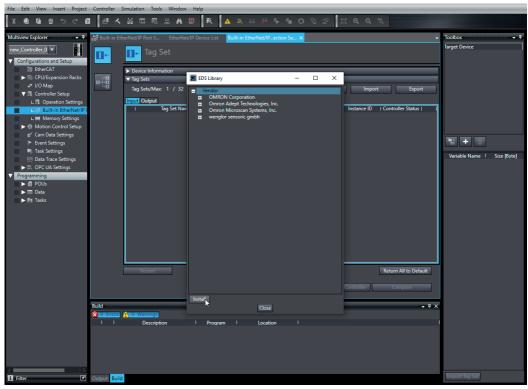
# 8.2 EDS file

Open the context menu at the toolbox with a right click and select "Display EDS Library".

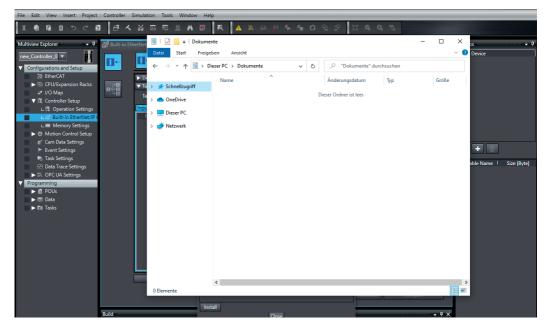




#### Click on "Install" to install an EDS file.

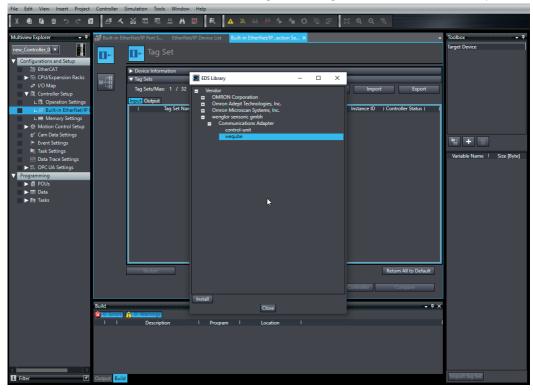


Select the EDS file of the Smart Camera weQube. Visit www.wenglor.com and search for the article number of the Smart Camera in order to download the EDS file.



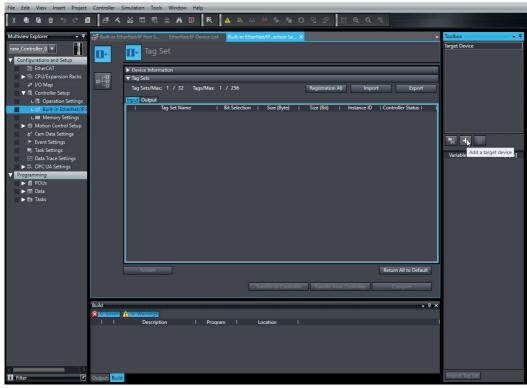


After the installation of the EDS file, it is shown at "wenglor sensoric gmbh" -> "Communications Adapters".



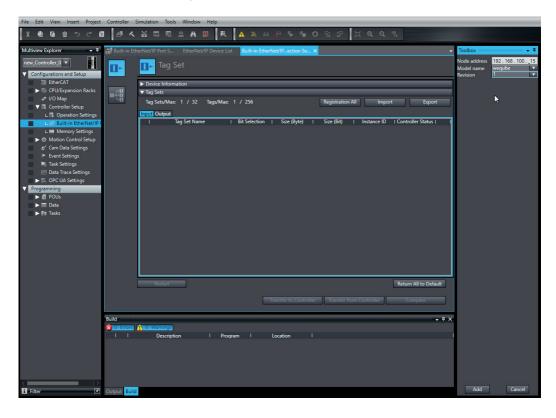
# 8.3 Add Smart Camera to PLC network

Close the window and click on the add symbol in the "Target Device" window.





Enter the IP address, the name "weqube" and the revision of the Smart Camera and click on "Add".



View Insert Project n i t 2 А 22 Α Multiv iew Explorer **•** 4 rget Device ntroller\_0 🔻 Π· D٠ ► De ce Informat 🔄 CPU/Expa on Rack ofg ▼ Tag Sets + I/O Map Tags/Max: 1 / 256 ation All Controller Se ut Output L 🖪 Operation Tag Set Name | Bit Selection | Size (Byte) | Size (Bit) Instance ID | Controller Status | Cam Data Set 밤 + 📋 Event Setting Tack Salt Variable Name | Size [Byte] Data Trace Sett III. OPC UA Setting E POU 💷 Data Tasks Return All to Default Location Program E an Build

Open the context menu of the device in order to edit the settings.

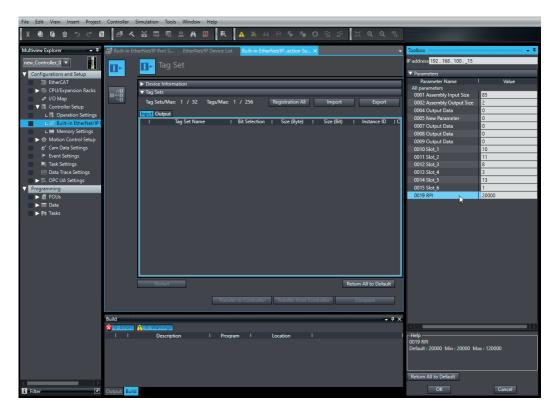
Depending on the settings of the uniVision project, the size and the Module IDs for all slots must be set. In the example, the following slots are used:

- Slot 1: Project number (fix)
- Slot 2: Module Status (fix)
- Slot 3: 1 Byte Output (8 BOOL)
- Slot 4: 1 Byte Input (8 BOOL)
- Slot 5: 64 Byte Input (2 CHAR)
- Slot 6: 16 Byte Input (4 DINT)



Consequently, the following settings must be done:

- Assembly Input Size: 85 bytes
- · Assembly Output Size: 2 bytes
- Slot\_1 (Module ID): 10
- Slot 2 (Module ID): 11
- Slot 3 (Module ID): 8
- Slot 4 (Module ID): 3
- Slot 5 (Module ID): 13
- Slot 6 (Module ID): 1
- RPI: 20000 μs



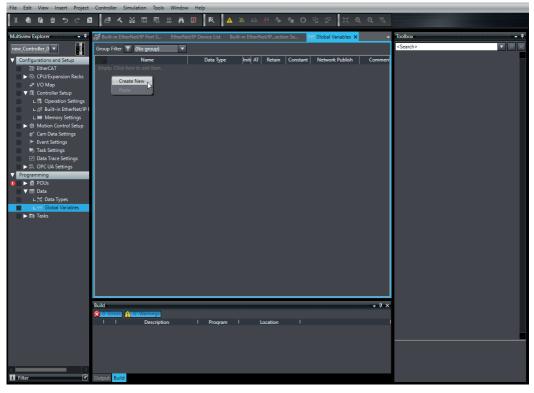
Add the weQube to the connections.

File Edit View Insert Project Controller Simulation Tools Window Help								
X @ @ 前 つ ご @	1 5 1	影 岡 鼎 第 14 📵 😰 🛛 🛪 🛛 🛪 🖗 🖗 👘 🛑 〇 일 🖏 〇 眞 🤤 〇 🥸						
Multiview Explorer 👻 📮	량 Built-in Eth	erNet/IP Port S EtherNet/IP Device List Built-in EtherNet/IPection Se ×	Toolbox 👻 🖡					
new_Controller_0 ▼	•		Target Device 192.168.100.15 weqube Rev1					
EtherCAT     EnerCAT     EnerCAT     CPU/Expansion Racks	-	Connection     Connections/Max: 2 / 32						
	of8	Target Device  Connection N/Connection I/O Input/Out  Target Variable   Size [Byte]  Originator Variable						
V 🗮 Controller Setup		192.168.100.15 weqube Re default_001 Exclusive Owner Input Output Output						
L      Operation Settings     L      Built-in EtherNet/IP								
L # Memory Settings		-4						
► 奋 Motion Control Setup								
<ul> <li>ℓ' Cam Data Settings</li> <li>► Event Settings</li> </ul>			12 + 6					
Task Settings								
Data Trace Settings			Variable Name   Size [Byte]					
Programming								
POUs								
🕨 🥅 Data								
Tasks								
		KI P						
		+ 🗉						
		Device Bandwidth						
		Restart Return All to Default						
		Transfer to Controller Transfer from Controller Compare						
	Build	- 1 ×						
		1 0 Warnings						
	1 1	Description I Program I Location I						
< <u>&gt;</u>			Import Tag Set					
🚺 Filter 📝	Output Build		import-tag set					

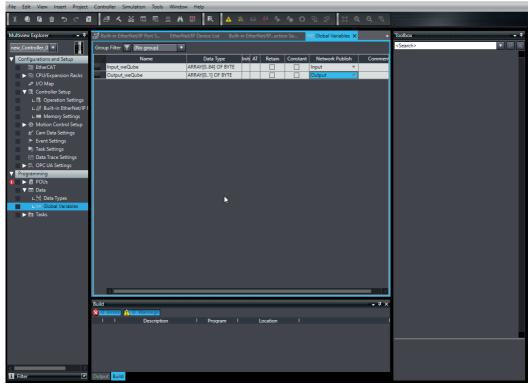


# 8.4 Configure Input and Output Data

Open the global variables and create new variables.



One array of bytes is necessary for the input data and one output array of bytes is needed for the output data.





Switch to the tag definition and click on "Registration All.

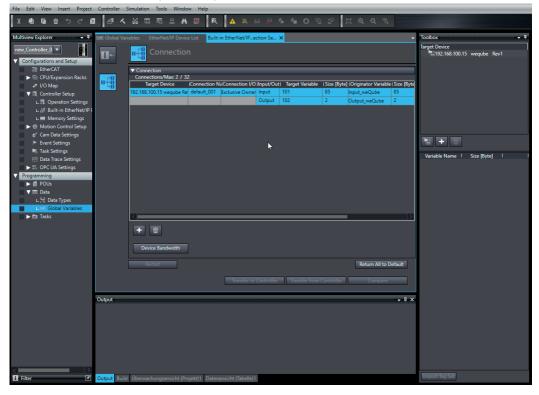
File Edit View Insert Project Controller Simulation Tools Window Help								
X 4 6 前 ち ご 6	1 <sup>4</sup> 4	X III III III III III III III III III I	<b>R 🔺 🔌</b> 68		1) <b>0, 0,</b> ~			
Multiview Explorer 🔷 🔻	FIB Built-in Eth	erNet/IP Port S EtherNet/IP D	evice List Built-in EtherN	et/IPection Se 🗙 🗺 Global Var	riables 👻 👻	Toolbox 👻 🖡		
new_Controller_0           Image: Configurations and Setup           Ima		erket/IP Port S EtherNet/IP D Tag Set Tag Sets Tag Sets/Max: 1 / 32 Tag Tag Sets/Max: 1 / 32 Tag 1 Tag Set Name		kejistration All Import kejistration All Import Size (Byte) 1 Size (Brt)	Export     Instance ID I C	Toolbox • 7 Isrget Device 1192.168.100.15 weqube Rev1 Variable Name 1 Size [Byte] 1		
		Restart		Transfer from Controller	Return All to Default Compare			
< ∎ Filter ₹	Output Build					Import Tag Set		

### Select all and click on "Register".

File Edit View Insert Project Controller Simulation Tools Window Help									
	2 <b>-                                   </b>	🖲 🔀 🔺 63		) [] <b>Q, Q,</b> "Q					
Multiview Explorer 👻 📮	Built-in EtherNet/IP Port S EtherN	t/IP Device List Built-in Ethe	rNet/IPection Se × 🗺 Global	Variables - Toolbox	- 1				
new_Controller_0 🔻				Target Device					
	👖 🖬 Tag Set			192.168.10	0.15 weqube Rev1				
Configurations and Setup     EtherCAT									
CPU/Expansion Racks	Device Information								
4* I/O Map	Tag Sets								
Controller Setup	18g 3Et3/1888. 1 / 32	Tags/Max: 1 / 256	Registration All Import						
L I Operation Settings	Tag Set Registration Setting			- 0	×				
上部 Built-in EtherNet/IP S									
L ## Memory Settings	Variable Name	Data Type	Size	Comment					
▶ 俳 Motion Control Setup		ARRAY[084] OF BYTE	85		_				
& Cam Data Settings		ARKAY[084] OF BYTE	85						
Event Settings	Output Tag	ARRAY[01] OF BYTE	2						
<ul> <li>Task Settings</li> <li>Data Trace Settings</li> </ul>	Output_weQube	ARKAY[01] OF BYTE	2		ize [Byte]				
Data frace settings     M. OPC UA Settings									
V Programming									
POUs									
🔻 🎹 Data									
L 5로 Data Types									
Global Variables									
Tasks									
	<								
	Check Selected Items Uncheck Selected	Items		Register Cancel					
	_			<b>→</b>					
	Build			- å ×					
	Description		Location I						
	I I Description	l Program I	Location						
				Import Tag Set					
🚹 Filter 📝	Output Build			Import lag set					

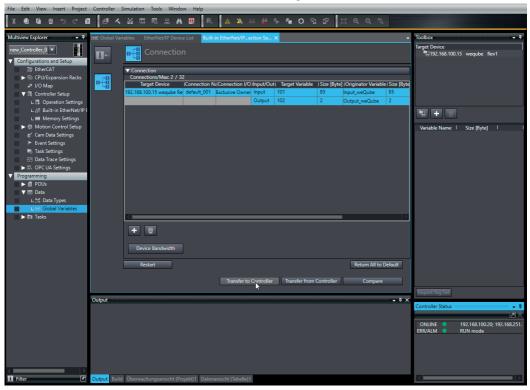


Select in the connections the input and output variables.



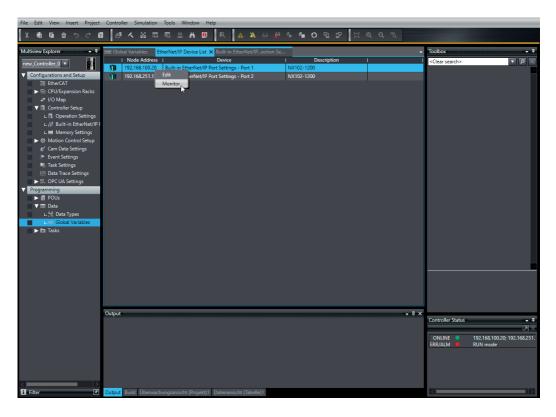
# 8.5 Download Configuration to PLC

Go online and select "Transfer to Controller" to send the configuration to the PLC.

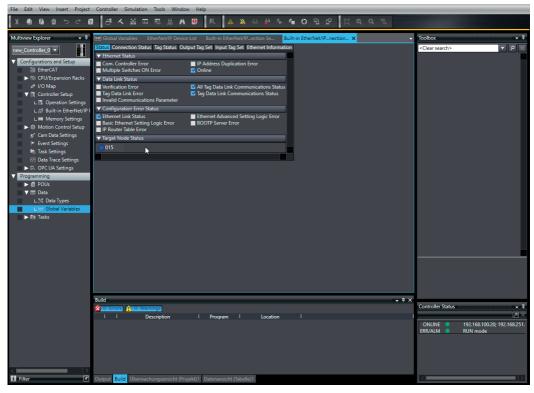




Click on "Monitor" at the relevant IP address to check the connection status.

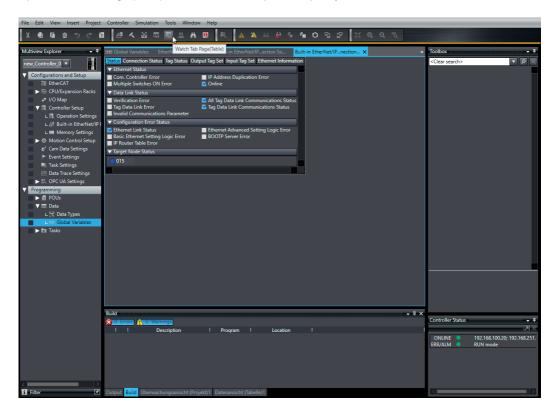


The blue LED shows that the connection from the PLC to the Smart Camera is ok.

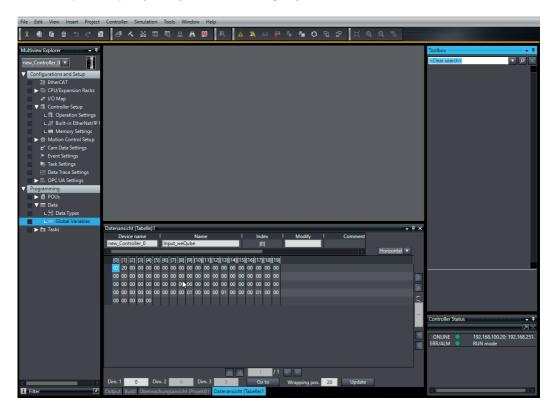




Open "Watch Tab Page (Table)" in order to see all input or output bytes.



Enter the input or output byte array and check the single byte values.

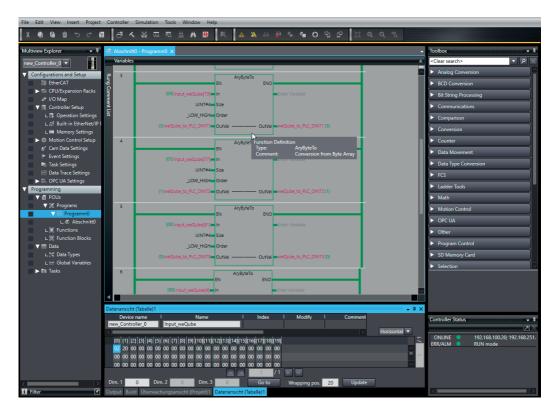




### 8.6 PLC Variables

In order to create variables out of the single bytes open "Programs" -> "Program0" -> "Section0". Add the function "AnyByteTo" in order to create DINT, REAL or string values out of the byte array.

The following example shows how to create a DINT result for the Run Counter. The input (In) is set to the start byte value, the size of DINT is UINT#4, the order is "\_LOW\_HIGH" and a new global variable must be created with data type DINT.



# 9. Sample PLC program

The download area for the Smart Camera at www.wenglor.com contains sample PLC projects for various controllers. The projects show examples of the required settings on the controller side for Ethernet/IP communication with the weQube Smart Camera.

Samples are available for the following controllers:

- Allen-Bradley 1769-L18ERM BB1B PLC with Studio 5000 Logix Designer V32
- Omron NX102-1200 PLC with Sysmac Studio Version 1.41.0.10
- Beckhoff TwinCAT 3

How to use the sample PLC programs:

- 1. Download the sample file from the wenglor website and unzip it.
- 2. Open the associated uniVision project file in the Smart Camera, save it as a start-up project, and restart the Smart Camera. The following slot configuration is used in uniVision projects:

For Studio 5000 (Rockwell):

- Slot 3: 1-byte output
- · Slot 4: 1-byte input
- · Slot 5: 32-byte input
- Slot 6: 16-byte input (4 DINT)

For Sysmac Studio (Omron):

- Slot 3: 1-byte output
- · Slot 4: 1-byte input
- Slot 5: 64-byte input
- Slot 6: 16-byte input (4 DINT)

For TwinCAT 3 (Beckhoff):

- Slot 3: 1-byte output
- · Slot 4: 1-byte input
- Slot 5: 16-byte input (4 REAL)
- Slot 6: 16-byte input (4 DINT)
- 3. Open the sample PLC program, adjust the network configuration, and transfer the program to the PLC, or activate it on the PLC.

