

Innovative switching and controlling LOGO! in detail, Part 3 – Knowing how

Unrestricted © Siemens AG 2018

siemens.com/logo



The LOGO! in detail slides are split into 3 parts as follows:

• LOGO! in detail, part 1

Installation and overview of the function blocks

• LOGO! in detail, part 2

Operation on the device and handling of the software

• LOGO! in detail, part 3

Knowing how

LOGO! in detail – agenda

8/30/2018

Page 3



1	Preface
2	Track signals more easily
3	LOGO! and KNX: Just try it
4	Efficiently use message texts
5	Program the web server with LOGO! Soft Comfort
6	Monitor wire breaks with LOGO!
7	Highlight connecting lines in color
8	LOGO! Access Tool
Unrestric	ted © Siemens AG 2018



LOGO! in detail, part 3, is intended to give the reader useful tips and tricks for using Siemens LOGO!, which often are unknown even to experienced users. This relates to the features within LOGO! Soft Comfort and the possibilities with LOGO! itself.

All screenshots were taken of the current version of LOGO! Soft Comfort.

The download can be found at the following https://w3.siemens.com/mcms/programmable-logiccontroller/en/logic-module-logo/demo-software/Pages /Default.aspx





When testing larger programs, one problem often arises: Where are the signals coming from? And where do they go?



LOGO! Soft Comfort gives users a better overview in a number of ways.

Thanks to the clear user interface, signals can be understandably depicted graphically, and supplemented with comments.

Unrestricted © Siemens AG 2018 Page 5 8/30/2018





Let's first take a look at the cut connection before block B096.

The signal comes from block B016 on the same page, otherwise the page would also be indicated in the identifier, e.g., 5/B016, if the block is found on page 5 of the diagram.

But what kind of signal is it?

·	•	• •	·	• •	•	·	·	·	·	·	·	•	·	·	
•	<u> 80</u>	16	·Β	096		•	·	•	·	·	·	·	·	•	affor 40 Sec
	Σ	<u> </u>	Ó	2	Ľ										aller 40 Sec.
Ċ			÷	x	H			, ר							the output
			_												ewitches off
			÷		.										SWILCHES ON
															(closing)
															B062
								L							
┝╌															╾╾ _╼ ╇┥ <mark>┙╺┶</mark> ┠╼╼╼╸
•										·					Pạr 🤟 L
•															
															<u> 🖃</u>

Unrestricted © Siemens AG 2018 Page 6 8/30/2018





With a right mouse click on the symbol B016, a window opens, and by selecting "Go to partner", ...

... the user automatically arrives at the source of the signal. There, you have to orient yourself and identify the function of the signal.

🌃 B017 S 1 U	P [AND]		×	
Parameter	Comment			
Parameter				
Bloc	k name: S 1	UP		
Others				
	ОК	Cancel	Help	
B017	<u>S 1 U</u>	P .	Q1	
	ă _		Q	_

4/B017 S 1 UP/4

A quick overview is obtained in a simple way: By giving the function blocks, located at the respective connections, a name in their block properties. These are accessed by means of a *double-click* on the desired function block, or by a *right-click* \rightarrow "*Block properties*".

SIEMENS

Ingenuity for life

Afterwards, the blocks and connecting lines are labeled with the just assigned names. To the extent that relevant and meaningful names have been assigned, one immediately gets an indication of what the signal means.





For the easy signal tracking over longer distances, the connecting lines can be depicted colored. To do so, select the *"Marking of lines"* icon.

The selected lines are then depicted colored, and can be traced easily even across pages.

If a function block is selected, all connections to it are depicted in another color.

1 8034 S 4 UP [AND]
Parameter Comment
Shutter 4 UP Shutter 4 DOWN Interlock Maintenance
OK Cancel Help



SIEMENS Ingenuity for life

But it is also possible to label the connections to a function block. Several options are available to do this.

A simple way is via the comment field in the block properties. (*Right-click* on function block \rightarrow "*Comment*".)

Here, for example, "Motor ON".

In doing so, the comment must then be moved before the block. The font size should be adjusted so that text exactly fits between the input lines.

(*Right-click* on comment \rightarrow "*Font*".)



 			:	:	:	•	•	:	:	•	:	:	:	•			•	•		:	:	•	:	:	:	•	:	:										•	:	:	:	•	•	•					
· ·		C	20	וכ	n	tr	7	b	-	p)2	al	rt	•	(D	r)(e	r	a	t	ic	וכ	ŋ		<mark>)</mark> .	f	e	12	a	0	h		s	h	u	tl	:e	r	•	lc)(28	a	İŀ	y	· ·	· •
• •		÷	÷	1	÷	÷			÷	2	÷	÷	÷	÷	÷		5	·	÷	÷	÷	÷	÷	÷	÷	÷	÷		÷	÷	•		•	•						÷	÷	÷		•	÷	•	÷.,	• •	· 📃
• •		·	·	1	•	·	•	1		·	·	1	•	•	•		•	•	•			·				·			•	•				•	•					·	·				•	•		• •	• •
• •		·	Ċ	1		•	•	1		·	•	1	•	·	•		•	•				·				·	Ċ		•	•				•	•		•			·	·	·		•	•			• •	
	÷	÷	÷	÷.	÷.	÷		÷.	÷	÷	÷	÷.	÷	÷	÷.		÷	÷	÷	÷.	÷	÷	÷	÷	÷	÷	÷.	÷	÷	Ċ	j.	<u>.</u>						÷		÷	÷								
		÷	÷	÷	÷	÷		Ì.	÷	÷	÷	÷.	÷	÷			÷			÷	÷	÷		÷	÷	÷	÷		÷	÷		Ì.								÷	÷								
· 1	q	ינ	is	h	bι	it	ťc	'n	i.	sł	ή	itt	e	ŕ	1	U	P)	:	:	:	•	:	:	:	:	:	÷	•	:	:	:					•	:	÷	:	:	:	:	:	•	:			
																	. '																																
1		:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	1	:	:	:		:	:	:	:	:	:	•	:	:				:		:	:	:		:	:					
										·																·															·				·		•		

For general explanations, the use of a text block lends itself. The font, size and color are user-definable almost endlessly. (*Right-click* on comment \rightarrow "*Font*".)

Unrestricted © Siemens AG 2018Page 118/30/2018

Text blocks ("Insert comment field" ${f A}$) can also be linked to function blocks or connection symbols.

To do so, drag the centered yellow square onto the desired block. Once connected, it also moves with the symbol in the diagram.



fline eettinge	
Online settings Uniir	ie setungs
General	Comment
Hardware type	
I/O settings	Functioning:
I/O names	
Program passwore	Two commercial nusbhuttons are intended for each shutter (1x LIP, 1x DOWN)
Power on	With operation of a pushbutton, the corresponding shutter moves in the desired direction
Message text	for a defined time (here 40 sec.) until end position.
Additional info	Because the motors have integrated limit switches, this time can be longer than the
Statistics	maximum operation time UP <-> DOWN without having trouble.
Comment	At operation of the opposite direction the motor activity stops immediately.
	Additionally there are several possibilities available to move all 8 shutters
	simultaneously:
	- by wired pushbuttons in/ / in8
	(LOCOL Cursor keys would also be possible)
	AUTOMATIC MODE:
	The shutters are addressed additionally by a time switch (B057).
	Thus, in the morning starting from 6:30 am, all shutters are opened and closed in the
	evening starting from 9:30 pm (B057, Cam 1).
	On weekend all shutters are opened from 7:30 am and closed from 10:00 pm (B057,
	Cam 2).
	By random generator (B095) the time of opening/closing is extended by max. 30
	This implies the residents would be at home.
	This implies the residents would be at nome.
	LOCKING THE SHUTTERS:
	To lock the shutters for maintenance jobs (e.g. cleaning windows), function key F3 of the
	LOGO! TD is allocated. Additionally also a key switch (optional) can be used.
	If the function key F3 is pressed or if the contact of the key switch is closed, hence the
	outputs are locked.
	The meanage texts B12E and B126 indicate if the evolution is in merual mode as in
	automatic mode. Additionally it is displayed, which function keys has to be pressed
	to open (F1) or to close (F2) the shutters. In line 4 it is alternately represented that with
	F4 between manual/automatic mode can be toggled
	and that with F3 the movement of the shutters can be locked.
	If the shutters have been locked by F3, this is indicated by the message text B144.
	OK Cancel Help

Furthermore, for the general functional description of the program, the menu item "File" \rightarrow "Properties" \rightarrow "Comment" allows a detailed description of the program to be made, e.g., to provide guidance to service technicians.

This option is also very helpful, if a more complex program needs to be adapted again after a long time.

Unrestricted © Siemens AG 2018 Page 12 8/30/2018





When printing the project ("File" \rightarrow "Print"), this comment appears on a separate page, sort of like a cover sheet. (To do so, the checkbox at "Comment" of the content to be printed needs to be checked.)

With relatively little effort, a program can thus be better documented and understood, or retraced.

Unrestricted © Siemens AG 2018 Page 13 8/30/2018



SIEMENS

With the new CMK 200 module for the connection to the building system bus KNX together with selected KNX devices, LOGO! 8 offers a very flexible automation solution that affords customers many benefits and a lot of convenience at a reasonable cost, and also can be easily adapted to changing space usage later on.

In the following, one method of exchanging data between LOGO! 8 and other KNX devices is briefly described. The number of providers of KNX devices is very large, which is why only the basic configuration of LOGO! 8 on KNX is illustrated here.



The following is required for a successful start:



LOGO! Soft Comfort demo version: <u>www.siemens.de/logo-demosoftware</u>

ETS5 demo version: www.my.knx.org (free-of-charge, registration required)

Both software products are available for free on the Internet.

For the configuration of CMK2000, the KNX device software can be found at the following address: www.siemens.de/gamma-td?te2=CMK2000

Alternatively, the complete product catalog is available: <u>https://www.hqs.sbt.siemens.com/cps_product_data/data/produktdb_de.htm</u>







Unrestricted © Siemens AG 2018 Page 15 8/30/2018



The communication between the LOGO! 8 basic unit and the KNX module CMK2000 takes place over Ethernet. Compared to previous versions, this brings significant advantages:

- 50 freely configurable communication objects
- Maximum degree of expansion of LOGO! can be utilized
- Logical links and time and analog functions can also be used within the LOGO! program

In the following application example, knowledge of LOGO! programming is assumed. Accordingly, the focus is on the connection to KNX.



- 1. Transfer binary signal from LOGO! 8 to a KNX device
- 2. Transfer binary signal from a KNX device to LOGO! 8, and integrate it into the LOGO! program

As an example, a fan is to be controlled via an on/off delay.

S	w	ito	h	d	ig J	ita 1	ali i	in	pι	It	11	•	•	Ċ	DN /	OFF		De	ela	Iy		. c [(•	lig e.ç	ita g	l c ba	out ith	pu roc	nt C Sm)1 fa	in))
															B001 .											Q	1				
						I	F						. 1	Frg	ЪГL											Γ,	2				
	•		·	•				•	•	•	•	•	·F	∘a <u>r</u>					•						•	1 '	3	— .	•	•	
			÷				÷						÷																		
															. 🛨 .																
			·							·				·	Rem :	= off			·		•	•			·		•				
	•		·	•		•	•		•	•	·		•	•	03:00	s+ `		·	•	•		•			•	•	•				
			•		÷		÷	÷	Ċ	÷		÷	Ċ	÷	05.00	e	Ċ	÷			÷			÷	÷	÷	:		Ċ		

In LOGO! Soft Comfort, one cannot initially see whether a KNX module is connected or not. Depending on the application, a telegram to KNX can be directly triggered by either the input (for this, the input does not even have to be used in the LOGO! program) or the output (should several links be contained, also via a flag in the program).



If you open the ETS software and create a new project, the "Devices" view is recommended for beginners. The LOGO! device with CMK2000 must be inserted into the initially blank project.





In order to use CMK2000 in ETS, the appropriate product database must first be imported into ETS. This single knxprod file can be downloaded from: www.siemens.de/gamma-td?te2=CMK2000.

As already mentioned, the entire KNX product catalog can also be downloaded (see page 16).

But beware, there are different predecessors. The file shown here must be imported.

After the import, the CMK2000 module is displayed in the product catalog and available for further use in the project.



- - X

The CMK2000 module must now be added to the project with "Add Device". It will then be displayed in the device list.

						EIS Edit Workplace Com	imissioning Diagnostics Extr	as window		€
						🔊 Close Project 🧳 Undo	💊 Redo 🚔 Reports	Workplace 🔻 📜 Catalogs 📰 Diagnost	ács	
ETS Edit Workplace Commiss	projekt sioning Diagnostics Extras \	Vindow			2 23	Devices 🔻			▲ □	× <
Class Brainst						🕂 Add Devices 💌 🗙 Delete	🛨 Download 🔹 🕜 Help 🍃	Highlight Changes Default Parameters		E
Close Project Dhab	Rebb Reports		-			E Devices 🔹	11110GO-KNX-Modul	e - CMK2000 > General		
Devices *			Prop	perties	>	Dynamic Folders				0
🕂 Add Devices 🔹 💥 Delete 🛨 D	Download 🔹 🕕 Info 🔹 🕵 Re	eset • Search P			1	🖻 ا 1.1.1 LOGO-KNX-Module	General	IP address of LOGO! base module	192.168.0.1	— Ŏ
Devices T	Address Room Description	Application Program Adr Prg Par Grp Cfg	Settings	Comments Info	ormation	I.1.2 BTM Wall Switch UP2	Channel 1	Update rate	150 ms	r -
🗈 🛅 Dynamic Folders]1.1.1	25 CO LOGO-KNX-Mod 🥝 🥥 🤗 S				I.1.3 Room Control Unit U	channel 1			
1.1.1 LOGO-KNX-Module]1.1.2]1.1.3	25 CO BTM Wall Switch $\heartsuit \heartsuit \heartsuit S$ 0780 CO Room Control $\heartsuit \heartsuit \heartsuit S$					Channel 2	Own IP address	192.168.0.10	_
1.1.2 BTM Wall Switch UP2	1						Channel 3	Subnet mask	255.255.255.0	
1.1.3 Room Control Unit U								Password for web interface	Admin	
							Channel 4	(a-z, A-Z, 09, !5\$%&)	Admin	
							Channel 5			
								Date and time synchronisation	None	

ETS5[™] - LOGO-KNX-Workshop_Startprojekt

Selecting the module in the list and then the "Parameters" tab at the bottom accesses the basic settings of the CMK2000 module.



It is important to enter the IP addresses of the LOGO! basic unit and CMK2000. In the example, the default addresses are kept. For the time being, the other settings are meaningless.

Now, a communication object for the data exchange must be defined, e.g., for channel 1. Selecting it and specifying the transfer direction from LOGO! to KNX will open up the selection for the data type. In our example, the digital input I1 is to be used.





As in the LOGO! program, the input I1 is selected; the default data type matches the signal.

ETS5™ - LOGO-KNX-Workshop_Sta	artprojekt				ETS5 [™] - LOGO-KNX-Workshop_Start	tprojekt		- • •			
ETS Edit Workplace Comm	nissioning <u>D</u> iagnostics E <u>x</u> tras Wi <u>n</u> do	DW		∧ (2)	ETS Edit Workplace Commis	isioning <u>D</u> iagnos	tice Extras. Window	^ ()			
🔯 Close Project 🦨 Undo 🥬	💊 Redo 🚔 Reports 📰 Work	place 🔹 📃 Catalo	ogs Diagnostics		Devices -	Kedo	eports Workplace Latalogs . Diagnos			Download	
Devices 🔻			▲ □	×	🕂 Add Devices 🔹 🗙 Delete 🌒		Help 🍠 Hignight Changes - Default Parameters	(2)		Link with	
🕂 Add Devices 🔹 🗙 Delete 🚽	🖢 Download 🔻 🕜 Help 🌙 Highligh	it Changes Default F	Parameters		Devices *	1.1.1 LOGO-KN	X-Module - CMK2000 > Channel 1	C	1	Unlink	
Devices •	1.1.1 LOGO-KNX-Module - CMK2	2000 > Channel 1			Uynamic Polders III 1.11 LOGO-KNX-Module -	1 ral	×	Frem LOGOL to FAM		Delete	Dal
Dynamic Folders			5 10001 WW	0	0: Channel 1, 1 bit - LOG	nel 1	Link With Group Address	Digitationant		Delete	Dei
I.1.1 LOGO-KNX-Module	General		From LOGO! to KNX	· O	12 2: Channel 2: 1 bit - KNX -		1.1.1 LOGO-KNX-Module - CMK2000 Object 0: Channel 1 1 bit - LOGOL -> KNX		8<	Cut	Ctrl + X
 I.1.2 BTM Wall Switch UP2 I.1.3 Room Control Unit U 	Channel 1		Digital input	- *	D: Channel 4, 2 bytes float	Channel 2 Channel 3	Existing New			Сору	Ctrl + C
	Channel 2		1	÷	1.1.3 Room Control Unit U	Channel 4	Group Address			Paste	
	Channel 3		1 bit - DPT 1.xxx	-		Channel 5	111 Name	IX No action Q Send Eurren		Paste Special	Ctrl + V
	Channel 4					Channel 6	Digital input DI1			Paste Extended	
	Channel 5	MK2000 or KNX	No action O Send current value of LOGO!			Channel 7 Channel 8	<u>Q</u> K <u>C</u> ancel			Properties	Alt + Enter
	Channel 6					Channel 9					

Next, the communication object for channel 1 depicted is assigned to a group address. To do so, click on the "Group address" field on the line of the communication object, (1) select "Link with" (2) and assign a new group address with a suitable name (3). The signal within the group address is then connected to the communication object of an actuator on KNX.

Unrestricted © Siemens AG 2018 8/30/2018 Page 22



If a switching signal from a KNX device is to be processed in LOGO!, the communication direction selected must be the opposite.



Here, flag 10 in LOGO! is controlled via channel 2 (1). The program is then in LOGO!.

This corresponds to the previously configured program, only the input was replaced by the flag configured in ETS (2).

Unrestricted © Siemens AG 2018 Page 23 8/30/2018



Analog signals are handled in a similar manner. It would, however, be beyond this scope to list all possibilities. Here, we will show the simplest setting, where the analog input does not have to be used in the LOGO! program. Only the transfer of the value at the terminal of the analog input to KNX is activated. And vice versa, the transfer from KNX to LOGO! 8.

1.1.1 LOGO-KNX	(-Module - CMK2000 > Channel 3		1.1.1 LOGO-KN	K-Module - CMK2000 > Channel 4		
General	Communication direction	From LOGO! to KNX -	General	Communication direction	From KNX to LOGO!	•
Channel 1	LOGO! data type	Analog input 👻	Channel 1	KNX data type	2 bytes float value - DPT 9.xxx	•
Channel 1	Analog input AI	1	Channel 2	LOGO! data type	Variable memory 2 bytes	
Channel 2			Channel 3	LOGO! VM 2 bytes address	0	*
Channel 3	KNX data type	2 bytes unsigned - DPT 7.xxx	Channel 4			
Channel 4	Kin did type	2 bytes signed - DPT 8.xxx	Channel 5	Value A on KNX bus	0	•
Changel E			Channel 6	corresponds on LOGO! side	100	•
Channel 5	Send	Cyclic and if value has changed 🔹	Channel 7		100	*
Channel 6	cyclical, with cycle time in min	5	Channel 7	corresponds on LOGO: side	1000	•
Channel 7	when change is at least	5 ‡	Channel 8	On KNY hus loss	Send last value of KNX to LOGO!	
channer /			Channel 9	On KINA bus loss	Send value 0 to LOGO!	
Channel 8	After startup of LOGO!, CMK2000 or KNX	No action O Send current value of LOGO!	Channel 10	After startup of CMK2000 or KNX	No action Request current value of KNX	

Page 24 8/30/2018



When transferring from KNX to LOGO! 8, the value must be integrated into the program for further processing via an analog flag.



In the example, the heater is switched on at low temperatures. The heater is switched off above 200 (unscaled value here, LOGO! works with analog values from 0 to 1000).

A detailed description can be found in the application examples on the LOGO! pages at https://w3.siemens.com/mcms/programmable-logic-controller/en/logic-module-logo/applicationexamples/Pages/Default.aspx

Unrestricted © Siemens AG 2018 Page 25 8/30/2018



For the modernization of conventional controllers, logic modules are often used. In addition to a simple configuration and flexibility, they also offer options for visualization and operator guidance by means of a text display. Besides the output of text messages, including texts with actual values, other, often unknown, solutions are possible.



The display integrated into LOGO! 8 accommodates 6 lines with 16 characters each, the external TDE even 20 characters per line (1). If the ticker function is used, the content of a message can be expanded to 32 or 40 characters per line (2).

🞬 B135 Disp.Man [Message texts]	
Parameter Comment	
Parameter	
Block name: Disp.Man	
Message Text Setting	
Priority: 0	Current character set selection
Aknowledge Message	Character set 1: 1508659_1 C Enabled
Contents	
Block	Parameter
Search: Block name	
B003 [Off-Delay]	
B005 [Off-Delay]	
B008 [Edge triggered wiping relay]	=
B010 [Edge triggered wiping relay]	
B016 [Off-Delay]	
Ho 18 [Off-Delay]	Current time
	Current date
	Message enable date
Ticker setting	🔱 Insert Parameter
O Character by character:	Message Text
Line by line:	Q ℃ ■ AI ON/OFF Symbol 00:00 Edit manually
Une1 Une2 Une3 Une4 Une5 Une6	MANUAL MODE!
Message Destination	E 1 · Shutters
LOGO! Display LOGO! TD Both Web server	
	F2:Shutters
Protection Active	F 4 : ► A U T O
٢	
	OK Cancel Help

Ticker setting												ł	ļ	Inser	t P	aram	neter							٦
O Character by character:			_	-		_	_	_	_	_	_	_	_		_							_		_
O Line by line:	M	ess	age	e I	ext																			
		<u>°</u>] A	IC)N/	OF	۶F	Syn	nba	0	0:0	0 Ec	lit n	nanu	ally							
		1	м	A I	v u	A	L		м	0	D	Е	!											
Message Destination	H																	+						
			F	1	: S	h	u	t	t	е	r	S												
						h	İ.,											T						
				2	·] 3	"	Ľ	Ľ	Ľ	e	<u>'</u>	5	*											
Protection Active			F	4			A	U	т	0														
																		+						
				,			1	1.		+								T			7	2		
Show message information in details				3	•	M	d			Ľ	1											Ζ	.]	F
	Ov	erwr	ite																			\sim		

For (2): For messages configured via the TDE, 6 lines with 20 characters each are available. The ticker function doubles the characters per line.

For (1): Configuration of a message for the basic unit without ticker text (6 lines with 16 characters each).



The backlight can be switched in three colors. This allows messages to be structured according to:

- Standard with white background
- Warning with orange background
- Alarm with red background

M28 [LOGO! displays the amber backlight]
Parameter Comment
Parameter: Flag Number: M28 •
Special flag background
M8 = Initialization Flag
M25 = LOGO! displays white backlight
M26 = LOGO! TD white backlight
M27 = Message Character Set Flag
M28 = LOGO! displays the amber backlight
M29 = LOGO! displays red backlight
M30 = LOGO! TD amber backlight
M31 = LOGO! TD red backlight
OK Cancel Help

In programs migrated from previous versions of LOGO!, the operator guidance can be revised to an even more convenient solution with just a few minutes of programming effort.



Keeping an eye on alarm messages

The features of the message text function block offer cost-effective operating and monitoring options that require little effort. Sporadic alarms, which only occur briefly, are often not detected, since nobody is looking at the display during these short periods of time. If these remain unnoticed, major disruptions can develop. Here, the acknowledgment function provides a remedy. It causes the message to remain displayed on the basic unit or external display (TDE) until it is acknowledged by pressing the OK button. This is true even if the alarm trigger, e.g., an excessive temperature value, has returned to the normal range and the alarm thus no longer is active.

By means of the date and time, it can be depicted when the alarm was triggered. A counter can also evaluate how often the alarm has occurred in the meantime.





Summarizing messages

The character set function can be used to summarize two messages in the diagram. It would thus be possible to display the message in two languages depending on the operator. By activating flag 27, the two messages can be toggled.

About the figure: A second character set has been activated. The switching takes place via flag 27.



The message in the second character set may also contain additional information for servicing that is not relevant to the operator. Actual values (analog or counter values) cannot only be displayed as a numerical value, but also as a vertical or horizontal bar graph. That usually makes the message clearer.

In the past, two separate message texts were necessary to display the message "Motor ON" or "Motor OFF", which were triggered depending on the output signal. Now, up to four status messages can be summarized in one message text.

🌃 I/O status name		X
I/O Status Name Setting		
Select an input or output:	Digital Inputs	•
Select an I/O:	[11	
Input status name		
Input name for status FAI	LSE O F F	
Input name for status TRI		
		OK Cancel



Depending on the input or output states, it is possible to "switch over", which saves a lot of resources and makes the program clearer.



Even the outputs of individual function blocks can be used to trigger these status displays. In LOGO! 8, it is possible to design larger area symbols.

Unrestricted © Siemens AG 2018

Page 32 8/30/2018



Web server enables plant monitoring by smartphone

A highlight of LOGO 8! is the integrated web server. After connecting LOGO! 8 to a cost-effective WLAN access from a specialist shop, a plant can be monitored and controlled by smartphone or tablet, without the need for HTML programming. The basis for this again is the message text. For this purpose, the web server is also selected in the depiction.



The message will then also be displayed on a smartphone.

Unrestricted © Siemens AG 2018 Page 33 8/30/2018



If provided for in the program, it can also be directly controlled on the smartphone via function keys. Following the program download, the web server access must be enabled directly in LOGO 8 and be password protected. From the end device, such as a smartphone or tablet, the function keys can then be used, regardless of whether a TDE is connected to the hardware or not.



For example, shutters can be opened or closed as part of a building services application. (Here, the depiction on a smartphone, tablet or PC.)

LOGO! in detail – Program the web server with LOGO! Soft Comfort

The configuration of the web server is very easy via LOGO! Soft Comfort V8 – completely without HTML programming knowledge.

There are several preconfigured views in the web server:

- LOGO! system
- LOGO! tags
- LOGO! BM (basic module)
- LOGO! TDE (external text display)

tereinstellung 2eichenweise: 2eilenweise: 2eile1 Zeile2 Zeile3 Zeile4 Zeile5 Zeile6 deziel	🤣 Parameter einfügen						
Zeichenweise: Zeiflenweise:	Meldetext						
	WARTUNGS						
Meldeziel	MODUS						
	Rollläden abgeschaltet !						
] Schutz aktiv							
	EIN mit F3						
Ausführliche Meldeinformationen anzeigen							
	Überschreiben						

The first two provide system information and selected parameters. With the basic module, message texts seen on the basic unit can be displayed (figure).



LOGO! in detail – Program the web server with LOGO! Soft Comfort





Control part: Central control LOGOI setting Connect to LOGO! Remote acces Show FW version Toggle betw Manual / Aub Assign IP address Allow remide access Set clock Enable password protection for remote access either by Operating mode - digital input Clear program and · LOGOI TE Enter new password TD power-on scree Hours Counter New password. Unibad data log Confirm New Password: 000000000 Diagnostics Summer/Winter tir Apply Dynamic server IP Allow LOGO! App access Clock Sync with Elv Allow LOGO App access NTP Settings Enance paresword pretriction for LOGOI App access Do weekdays from 6.30h am all shutters Random generator move up and from. Enter new password 9:30h pm they move down time-delay of max New password: "30 minutes for textended by the random timer B035). Contirm New Password: 000000000 On weekend from 7:30 am UP, opening / closing of the shutters from 10:00 pm DOWN Apply V Allow Web server access 10,901 Enable password protection for Web server access Enter new password New password: Confirm New Password: 117 (Pushbutton 'all shutters UP' Apply ral control UP OK Cancel Help With the text display, message texts seen on the external display can be displayed, and in addition, the four function keys can be used.

The function keys must be meaningfully integrated into the program beforehand via LOGO! Soft Comfort – so that the execution of the function is ensured.

Unrestricted © Siemens AG 2018

Page 36 8/30/2018

LOGO! in detail – Program the web server with LOGO! Soft Comfort

The views are adapted to the respective sizes of smartphone, tablet or PC, and can be depicted on all current browsers.

Braa	esserung	Fastr.	
Platz	1 305	LUNST	Particular State
Platz	2 805	100	1-81, TE-
Platzi	Platz2	AUS	1-1
F1	F2	-F4.	
-	-	-	1





SIEMENS

Ingenuity for life

- 1. Connect LOGO! 8 to the router.
- 2. Program a message text for LOGO! 8 or for a text display (TDE).
- 3. Text release for LOGO! 8 display, LOGO! 8 TDE or both. Activate the "Message text" function block (check-mark the web server with a mouse click finished!).
- 1. Load the program into LOGO!.
- 2. In LOGO! 8, enable the access via the web server and assign a password (see also bottom figure on previous slide).

Unrestricted © Siemens AG 2018

Page 37 8/30/2018



If an analog sensor transmits the value 0 to the controller, you do not know whether the value is actually 0 or the sensor is defective. In such cases, sensors can be used that normally output a current signal between 4 and 20 mA. If the controller recognizes a signal at the analog signal that is significantly below 4 mA, then it can be assumed that the sensor or the sensor cable to the controller is defective.

- Use of an AM2 expansion module for the evaluation of signals in the range from 0 to 10 V and/or 0/4 to 20 mA.
- In the analog function block, select 4-20 mA as sensor.
- Insert an analog threshold switch, which triggers an alarm message or controls the desired behavior of the plant in case of signals below 4 mA, e.g., deactivate the defective area and alert the operator or send an SMS to the service technician.



Example: Pressure of a water pipeline system is to be kept constant with a variable-speed pump.

Implementation:

- LOGO! 12/24 RC as basic unit with AM2 expansion module with the analog inputs AI3 and AI4.
- PI controller with LOGO! program.
- Pressure sensor for 0-4 bar, delivers values 4-20 mA. Target pressure: 2 bar.
- The system is to detect a wire break of the sensor, and in this case, display an alarm signal and an error message.





Programming the controller

- Switching between manual and controller operation with input I1.
- Sensor: 4-20 mA, scaling 0-4.000 with three decimal places (this generates values from 0 to 4 bar displayed in the message text).
- Target value: 2.000, corresponds to 2 bar.
- Drive pump in manual mode with fixed value of 100 (this corresponds to 10% of the maximum value = 1 V).

Caution: In the simulation, no wire break can be generated.



1 (Controller ON / OFF)	B002 [Message texts]	
B001	Controller Parameter Comment	
	AD Priority: 0 + Admonietye Message	Current character set selection • Character set II (2089)_1 / Enabled Character set 2: (2083), Enabled
	Rem = on Contents	
(Pressure Sensor 4-20mA)	Gain =5.0+ Search: Block name Offset=1000	Parameter Gan 12* Offset 12*
	SP=2000	Snalest process value Jargers process value Set value (87) page (87) [27] Controller amplification (97) [27] Interaction the TTO [27]
	Part = 3	Normal Audult (Ma) (197) An (C) PV, amplified (C)
B002 ×1		Current time Current date Message enable time Message enable date
Prio = 0	Ticker setting	🕴 Insert Parameter
Guit ⇒ off Text1 enabled	Oversider by disracter: Line by line: Ine 1 Inen	Message Text
Text2' disabled	- (-)	pressure sensor
	Message Destination LOGOI Display LOGOI TD o Both Web server	5 P A 2005
	Protection Active	T 1 A+ A+ 003 Correst
	Show message information in details	
		OK Cancel Hel

Constant overlay of the basic values on the display

• A message text with the target and actual values of the pressure, and the actual value for driving the pump is to be constantly displayed. The actual values are to be depicted as value and bar graph.





Tip: By activating the ticker text for lines 3 and 4 as "line by line", the 3rd and 4th lines in the message text will alternately display a service telephone number as additional information to the date and time.

Wire break monitoring with alarm message Insert another analog threshold switch followed by

an alarm output and alarm message text.

Sensor: 0-20 mA, to also evaluate values below
4 mA (range 0-4 mA corresponds to input units 0-200, i.e., input signals in this range must not occur during proper sensor operation).
Switch-on value of 0 und switch-off value of 200.
Switching of output 4 in case of a wire break, activation of an alarm message with the date and time of the fault.





Caution: For the alarm message, the acknowledgment function was activated, i.e., after the fault has been eliminated, this must be confirmed with the "OK" button.

Constant activation of the display backlight

- For the better readability of messages, the backlight of the display, starting with LOGO!
 0BA6, can be switched via the M25 flag or be constantly activated via the basic settings on the device.
- With LOGO! 0BA7, the depiction on the integrated LOGO! display can be followed during the online test.



LOGO! Soft Comfort offers many possibilities to make the work easier. It is often necessary to analyze programs where signals need to be traced across several project pages. Having a good overview is very important with complex programs to be able to make adjustments. In LOGO! Soft Comfort, the connecting lines can be highlighted in color for this.

By emphasizing the color of the connecting lines, the desired connection can always be traced despite scrolling between pages, and the associated program sections be determined.





As an example, a larger program covering several pages is selected.

To highlight the lines, the following icon must be selected:

Unrestricted © Siemens AG 2018

Page 45 8/30/2018





A simple click with the left mouse button on the desired connecting line suffices to trace it from beginning to end.

Unrestricted © Siemens AG 2018

Page 46 8/30/2018





Alternatively, function blocks can also be selected, whereby their entire connection (inputs as well as outputs) is highlighted in color.

Tip: By holding down the CTRL key, several function blocks can be selected.



Unrestricted © Siemens AG 2018 Page 47 8/30/2018



Unrestricted © Siemens AG 2018

Page 48 8/30/2018

Under "Tools \rightarrow Options \rightarrow Colors", all highlighted lines (1-12) can be color-adjusted or personalized. For the factory setting, the "Default" button is provided.







The LOGO! Access Tool is an add-in for Microsoft Excel. It establishes a connection to the LOGO! basic module. Data from LOGO! 8 are read and displayed in an Excel table during operation. The user can save the process values in a log file. The security during the connection between LOGO! and the PC is ensured through the use of a web server password.

The free Access Tool allows the desired files to be displayed in the Excel file and then saved on your PC in the form of a CSV file, thus arching them. The tool can be used with any version starting with LOGO! 8, and does not require LOGO! Soft Comfort on the PC employed.

Summarized possibilities with the LOGO! Access Tool:

Reading of data during operation, data configuration and archiving of data.





The LOGO! Access Tool has many applications

Fields of application:

Test devices (safety check) Energy consumption Temperature characteristic curves Food industry (cold chain monitoring)

Advantages:

Archiving of data during runtime (RUN) For analyzing data on the PC Archiving production data Quality assurance





The download of the free tool is available at the following <u>link</u>.

After the download, the zip file must be unpacked and the add-in integrated into Excel. Proceed as follows:

Organisieren - 🗶 Öffnen - E-Mail Brer	nnen Neuer Ordner Große	
Favor Name	Größe	
De: 10GO! Access Tool Help_de.pdf	889 KB	
LOGO! Access Tool Help_en.pdf	947 KB	
2 Zul COGO!AccessTool.xlam	389X8 (2) Unzin	



X	Insert Page Layout Formulas Data Review View Add-In	ns PDF-XChange V6	Excel Options			? 🗙
File Home File Home Save Save As Close Info Recent New Print	Insert Page Layout Formulas Data Review View Add-In Recent Workbooks	ns PDF-XChange V6	General Formulas Proofing Save Language Advanced Customize Ribbon Quick Access Toolbar Add-Ins Trust Center	View and manage Microsoft Office Add-in Add-ins Name ^ Active Application Add-ins LogolAccesstool PDF-XChange Standard V6 Office COM Plugin Send to Bluetooth SODOCO SODOCO Inactive Application Add-ins Analysis ToolPak Analysis ToolPak Analysis ToolPak - VBA Complément Solver Custom XML Data	IS. Location \\ww004.siemens.net\cess Tool\LOGO!AccessTool.xlam C:\cker Software\PDF-XChange 6\PXCOfficeAddin6.dll C:\Program Files (x86)\Intel\Bluetooth\btmoffice.dll C:\Office DOcument Confidentiality tool\adxloader.dll C:\oft Office\Office14\Library\Analysis\ATPVBAEN.XLAM C:\osoft Office\Office14\Library\SOLVER.XIAM C:\osoft Office\Office14\Library\SOLVER.XIAM	Type Excel Add-in COM Add-in COM Add-in COM Add-in COM Add-in Excel Add-in Excel Add-in Excel Add-in Excel Add-in Excel Add-in
Save & Send Help Coptions Exit		前 前		Custom XML Data Euro Currency Tools Headers and Footers Hidden Rows and Columns Hidden Worksheets Invisible Content Microsoft Actions Pane 3 Document Related Add-ins No Document Related Add-ins	C:\m Files (x86)\Microsoft Office\Office14\OFFRHD.DLL C:\Microsoft Office\Office14\Librany\EUROTOOL.XLAM C:\m Files (x86)\Microsoft Office\Office14\OFFRHD.DLL C:\m Files (x86)\Microsoft Office\Office14\OFFRHD.DLL C:\m Files (x86)\Microsoft Office\Office14\OFFRHD.DLL C:\m Files (x86)\Microsoft Office\Office14\OFFRHD.DLL	Document Inspector Excel Add-in Document Inspector Document Inspector Document Inspector Document Inspector XML Expansion Pack
1 File - 2 Add-	→ Options ins → Manage → Excel Add-ins	s → Go		Add-in: LogolAccesstool Publisher: Compatibility: Compatibility: No compatibility information availa Location: \\www004.siemens.net\Bu01\$\\bgM Too\LOGO!AccessTool.xlam Description:	ible I\Abt\ASSM_MP\MP_PLC_1\99_Werkstudenten\Hanke\Liedtke\acc	cess_tool\LOGO! Access

Unrestricted © Siemens AG 2018 Page 52 8/30/2018



Add-Ins ? X ? × Add-Ins Add-Ins available: Add-Ins available: Analysis ToolPak Analysis ToolPak OK OK Analysis ToolPak - VBA Analysis ToolPak - VBA Complément Solver Complément Solver Cancel Cancel Euro Currency Tools Euro Currency Tools Logo!Accesstoo Browse... Browse... 2 Automation... Automation... Logo!Accesstool Logo!Accesstool

The add-in is added by clicking on "Browse" and then selecting "*LOGO!AccessTool.xlam*" (stored in the selected folder of the unzipped file).

If the "LOGO!Accesstool" checkbox is checked (usually done automatically), confirm with "OK".



e Home I	nsert Page Layout	Formulas D	ata Review Vie	Add-Ins	hange V6	Book1 ~ Micro	osoft Excel	
Log In Configure About	2							LogIn Panel
A B	C D	E	F G	H J	J K	L M	N	IP adresse 192.168.0.3 passwort ****
								Lo

To link the Access Tool to LOGO!, Excel must be open. Select the "Add-ins" tab 1. Click on the drop-down menu and select "Log in" 2. A window opens in which the IP address of LOGO! as well as the configured web server password must be entered 3. LOGO! should then be connected to the PC using the Access Tool.



lable	Variablen-	Valid Inde		Variablenname	Variable	Variablen-	Valid Inde	
	тур	Min	Max			typ	Min	Max
working status	STATUS	N/A	N/A		Analoger Eingang	AI	1	8
er.	Μ	1	64	=LOGOVAR("M1")	Analoger Netzwerkausgang	NAI	1	32
merker	AM	1	64	=LOGOVAR("AM1")	Notworkousaasa	NO	1	0
er Ausgang	Q	1	20	=LOGOVAR("Q1")	Netzwerkausgang	NQ	1	0
jer Ausgang	AQ	1	8	=LOGOVAR("AQ1")	Analoger Netzwerkeingang	NAQ	1	32
Eingang	I	1	24	=LOGOVAR("I1")	Variablenspeicher (in Bit)	VB	0	850
sten	CUR	1	4	=LOGOVAR("CUR1")			0	7
TD Funktionstasten	F	1	4	=LOGOVAR("F1")	Variablenspeicher (in Byte)	VB	0	850
peregisterbits	SR	1	4	=LOGOVAR("SR1.1")		1.04/		
		1	8	=LOGOVAR("SR4.8")	Analoger Netzwerkeingang	VW	1	32
rekeingänge	AI	1	64	=LOGOVAR("NI1")	Variablenspeicher (in Doppelwörtern)	VD	0	847

The data types supported can be found in LOGO! Soft Comfort or the documentation of the Access Tool. The values of the defined tag table (VM) can be displayed during the run of LOGO! in an Excel cell, if LOGO! is connected to the Access Tool.



To display a value in Excel, enter the command "= LOGVAR("ID")" in the desired cell. Afterwards, "ID" must be replaced by the identification of the LOGO! tag. It consists of the tag type and the index, e.g., analog input 1 "AI1". If, e.g., the value of a flag is to be determined in the Excel table, then "= LOGOVAR("M1")" must be entered for this, where 1 can assume the number of the flag from 1 to 64. LOGO! also supports tags with multiple indexes, as in the case of a shift register. If a specific bit of a tag is to be read, e.g., the 2nd bit of the 3rd shift register, the entry is "= LOGOVAR("SR3.2")".

In the case of a tag memory, the ID "VB450" is defined. The index can assume a value between 0 and 850.

Tag types are updated every second.



Variable	Befehl zum Einlesen	Befehl zum Einlesen und Speichern als CSV
Digitaler Eingang	=LOGOVAR("I1")	=LOGOVARL("I1")
Analoger Eingang	=LOGOVAR("AI1")	=LOGOVARL("AI1")
Variablenspeicher	=LOGOVAR("VW202")	=LOGOVARL("VW202")

To archive data in a log table, the command in Excel must be extended by an extra "L" (see figure on the left – orange "L"). The CSV file is then automatically saved in the higher-level folder of theopen Excel file. The name of the CSVB file consists of the name of the xls file, the IP address as well as the date and time.

If the open Excel file has not yet been saved, the log file is automatically stored in the "My Documents" folder of the active Windows user.





To read data from LOGO! and display them in Excel, a corresponding program must run in LOGO!. This example illustrates the transfer of values from LOGO! using the LOGO! Access Tool in Microsoft Excel. This diagram represents an example of a temperature or pressure value, a fill or meter reading, or similar. You can download the sample program and test it yourself by transferring the program to LOGO!.

The program can also be reenacted as part of a web-based training. The WBT can be found at the following <u>link</u> ("Frist steps with LOGO!").





After the program has been transferred to LOGO!, a password for the web server access must be assigned (*"Tools"* \rightarrow *"Transfer"* \rightarrow *"Access control"*). In the section "Web server access", the web server access must be enabled, and at remote access, a password of your choice can be assigned.

Unrestricted © Siemens AG 2018

Page 59 8/30/2018



	××mmm う		
Diagramm-Modus	Netzwerkprojekt		
Extras 📢	Diagramm-Editor	and the second second second second second second second second second second second second second second second	A DECEMBER OF THE OWNER OF
✓ Diagramme	A SDA #		00 / 11 11 12 11 11
Neues Diagramm hir			
2_Dancing_Bargrap	uter Tr		
	grº 2_Dancing_Bar	Konfiguration des variablen Speichers	(m2.5m)
		D Block Parameter Typ Ad	resse
	B	1 🙀 B010 Balken 1 [Analog AQ verstärkt 💽 Word 0	
	1.1.1.1.1.1.1	2 5 B002 Balken 2 [Analog AQ verstärkt 💽 Word 2	
			-8018
		and the second se	
			+/-
	C C C C C C C C C C C C C C C C C C C		Participant Company
	· · · · · · · · · · · · · · · · · · ·		On=250+
			Balken 2 Offic249 .
 Anleitungen 			SHALL SHALL IN
Anleitungen	A A A A A A A A A A A A A A A A A A A		
Konstante			1
			Gain=1.0+
- Digital			1- =814- Offre3=0
Digital Eng	a second s		
Digital Enge Curs			380
Digital I Enge Curs F LOCC			14n0 Pointe0
Digital I Enge Curs F LOGC Solaria			(4n0) (4n0) (0)int =0
Digital I Enge Curs F LOG(S Schie			3=0. 0#=250 4=0 oint =0. Point=0
Digital I Engz Curs F LOGC S Schie Digital			Gaid Offe280 Hang Fointeo Toint #D
Digital I Enge Curs Crus F LOGC Schie b Zustr N Zustr	(P)10 = 0		3#0
Digital I Enge Curs F LOGC Schie b Zusti N Zusti Q Ausg	.Pric = Q - Quit ≈ off Texit: enabled	OK Abbrechen	Gaid Opticado Hang Secondado Hang Se
Digital I Enge C Curs F LOG(S Schie b Zustu N Zustu Q Ausg X Offer	Prio = 0 Quit e off Texit1: enjablec Texi22: disabled	OK Abbrechen	3#0
Digital I Enge Curs F LOGC S Schie b Zustr N Zustr Q Ausg X Offer M Merk	Prio = 0 Quit e off Texit: enables Texit: diables	OK Abbrechen Peint=0	940 00000000000000000000000000000000000
Digital I Enge Curs F LOG(S Schie Digustal Xusta Q Ausg X Offer M Merk Analog	Pito = 0 Quat # off Twidt: enjabled Tend2: disabled	OK Abbrechen Point=0	dand Operation
Digital I Enge Curs Curs F LOGC S Schie b Zusti N Zusti Q Ausg X Offer M Merk M Anak	. Pjig ≂ Q Quit e off Teiti: inibile Teit2: disable	OK Abbrechen Reint=0	340 094230 440
Olgital I Enge Curss F LOGC S Schie b Zustu N Zustu Ausg X Offer M Merk Analog A Anak Aoak Aoak	Prio e Q Outre off Texist: énjábleg Texis2: disabled	OK Abbrechen Reint=0	Gall Offer 200 400 Point=0 0 int =0

In LOGO! Soft Comfort, you can automatically call up all possible tags under "Tools" \rightarrow "Parameter VM assignment" and then "Block", and thus see the address of the tag. You must later specify this in Excel as part of the tag name. In this program, we specify the two bars under "Block" and thus receive the Indexes 0 and 2 – so that we can enter "VW0" and "VW2" as the ID for the capture in Excel. For the analog input, "Al1" as per the table from the Access Tool documentation is specified.





After the Access Tool is available as an add-in in Excel, a connection between PC and LOGO! must be established. For this, select the tab "Add-ins" \rightarrow "LOGO!AccessTool" "Log in" in Excel. After entering the IP address of LOGO! and the previously set password, the connection is established.

HOWEVER!

An Ethernet connection between LOGO! and PC is required.



stall Chard	Endland	Calterlaund	Formala	Datas Obacard	an Angleht	Add for	Arrabat	PDE VChange 2012		
*	Linuyen	Senemayour	ronnen	vateri overprui	en Ansiene	Additis	Actobat	PDI ACIAINSE 2012		- e.
LOGOIAccess	Tool +									
Menübefehl	e		_							
SUMME	- • (* X	✓ fx =LOGO	VAR("VW2")							
	P		0	F	r	0		1		
Balken 1	Balken 2	Potentiometer	AI1	C	F	G	п		J	-
23	4 =LOGCLAR	R("VW2")	7.11							
-										
-										

For a better overview, the tags should be labeled accordingly. To read in the data, the respective command must be written into the cells. In this example, the tag name "VW0" must be entered for the first bar.

The values of the second bar are determined with the tag name "VW2". In this case, the potentiometer is an analog input and has the tag name "AI1".





For a better overview, the tags should be labeled accordingly. To read in the data, the respective command must be written into the cells. In this example, the tag name "VW0" must be entered for the first bar. The values of the second Bar are determined with the tag name "VW2". In this case, the potentiometer is an analog input and has the tag name "AI1". Diagrams, for example, can be created from the read in data.

Unrestricted © Siemens AG 2018

Page 63 8/30/2018

Thank you for your attention!





DF FA S MP PRO&SW 1

90475 Nuremberg, Germany

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

All product designations, product names, etc. may contain trademarks or other rights of Siemens AG, its affiliated companies or third parties. Their unauthorized use may infringe the rights of the respective owner.

siemens.com

Unrestricted © Siemens AG 2018 Page 64 8/30/2018