cm-lon
FOR LOGO!

Communication with LOGO!
with LON systems

SIEMENS

S

CM LON

LOGO! Expansion Module

Manual

Chapters

Table of Contents

Safety Notices

Safety Notices

⚠️ DANGER	**Indicates that death, severe bodily injury or substantial material damage** will occur, if the corresponding safety measures are not taken.
⚠️ WARNING	Indicates that death or severe bodily injury **may occur**, if the corresponding safety measures are not taken.
⚠️ CAUTION	With the warning triangle, this indicates that minor bodily injury may occur, if the corresponding safety measures are not taken.
CAUTION	Without the warning triangle, this indicates that material damage may occur, if the corresponding safety measures are not taken.
WARNING	This indicates that an undesirable result or condition may occur, if the corresponding instructions are not observed.

1.   Getting to know CM LON

1.1   What is CM LON?

The Local Operating Network (CM LON) communications module is an interface for connecting LOGO! onto a LON Works network.
The LOGO! communications module has been implemented as a Slave module for the LOGO control module (12/24 or 110/240 Volt).
The module supports communication between the LOGO! Master and external LON devices via a LON.
The CM is a bus station on the LON and allows the LOGO! to communicate with other LON devices.

What are the capabilities of the CM LON?

The CM presents the current states of the LON stations to the LOGO!, which is thus able to use its logical functions und timers to join them together. In the process, the LON signals can also be combined with the signals of the local LOGO! inputs and outputs. The CM then transmits every change of the output signal via the LON.

The combination of LOGO! and LON-CM gives the user a decentralized controller functionality for the LON with the capability of setting or changing parameters or operations quickly, simply and without a programming device.

1.2   The construction of the CM LON
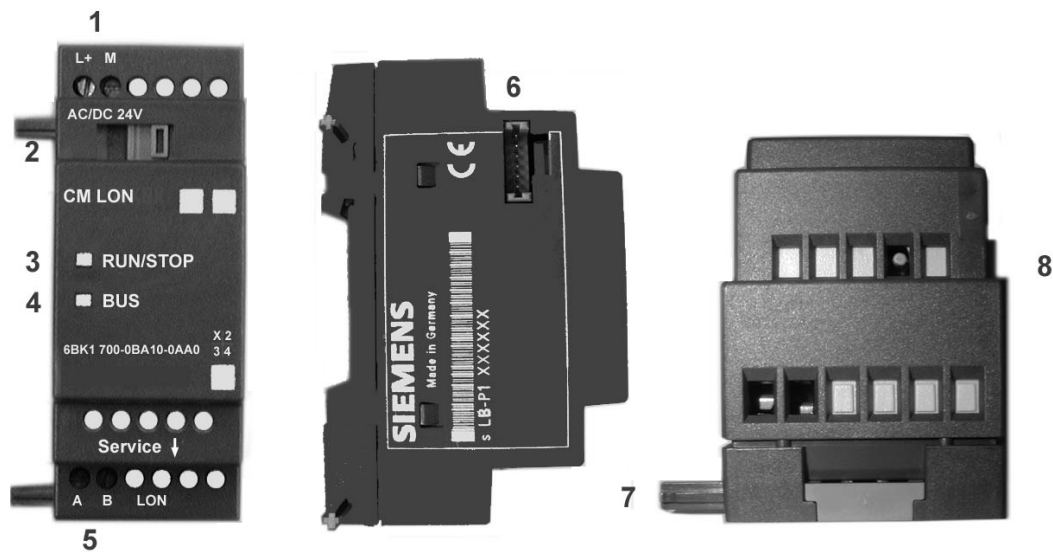
1. Power supply
2. Bus lock slider, interface to the LOGO!
3. The RUN/STOP LED for LOGO! communication
4. The BUS LED - LON communications
5. Input - LON connection
6. Expansion interface to the LOGO!
7. Mechanical coding - pin
8. Service button

2.   Mounting and wiring the CM LON

2.1   General guidelines

The following guidelines should be observed when mounting wiring your CM LON:

- When wiring the CM LON, make certain that you follow all of the applicable and legally binding standards. Observe all of the relevant national and regional regulations when installing and operating the device. Check with the local authorities regarding the standards and regulations that must be observed in your special case.
- Make certain that the device is de-energized.
- Use only approved bus cables.
- Make certain that the specified cable lengths are used and that the correct terminating resistors are installed properly.
- The CM LON must always be installed as the last module on the right of the LOGO!, since you may not install other expansion modules onto the CM LON.

Please notice:
- The CM LON must have its own power supply (12/24 V AC/DC).

NOTE

This module may only be mounted and wired by qualified personnel, who know and observe the generally applicable guidelines and applicable regulations and standards.

Observe the assembly and disassembly instructions in the LOGO! manual.

WARNING

The expansion module may only inserted or removed when the power is off.

2.2 Wiring the CM LON

To wire the CM LON, use a screwdriver with 3 mm wide blade.
- You do not need to use wire end ferrules when clamping the wires.

NOTE

After the installation, the terminals must be covered. To protect personnel against unintentional contact with the portions of the CM LON that are conducting electricity, the appropriate national and local standards must be observed.

The CM LON is a double-insulated switching device.
A protective grounding conductor is not necessary.

2.2.1 Connecting the power supply

The CM LON has been designed to serve as a Slave module for the LOGO! controller. It must be connected to a 24 V AC/DC supply voltage.

Please observe the relevant instructions that are found in the product information that was included with your equipment as well as the technical data regarding the permissible voltage tolerances, main frequency and current consumption.

Connecting

How to connect the CM LON to the power:

CM LON ..... with DC supply   **CM LON ..... with AC supply**
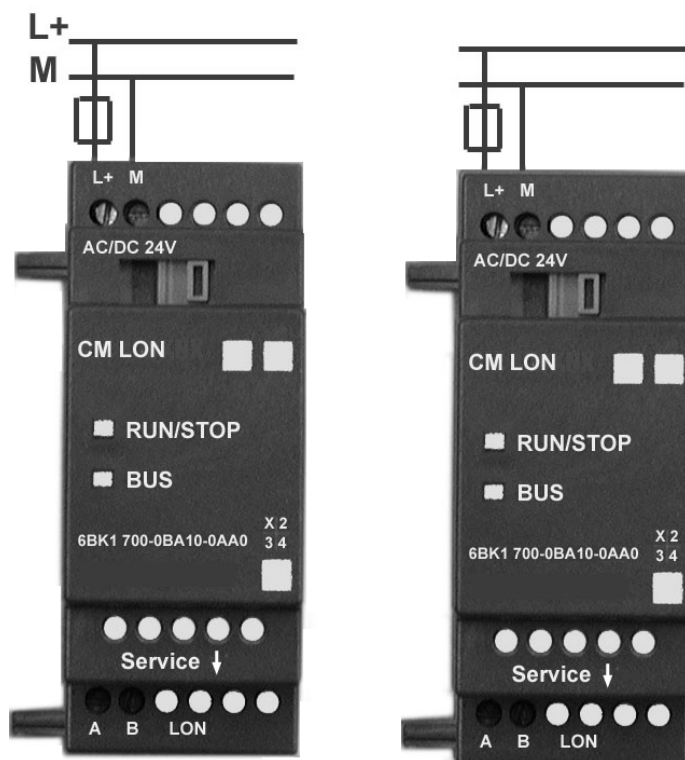
Protect the CM LON with a
80 mA/slow action fuse, if desired (recommended).

2.2.2 Connecting the LON

This connection is made using the two screw terminals A-B.
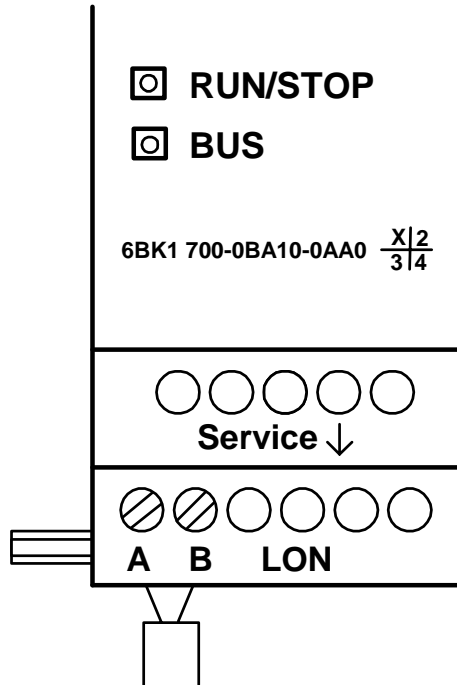
You can start the programming by pressing the "Service ↓" button.

NOTE

Don't apply force when pressing the "Service ↓" button. When contact has been made, the LED will light up in orange.

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3. Putting the CM LON into operation

A LONMARK certified application was loaded into the CM LON at the factory. Other applications can – where available – also be loaded.

3.1 Step-by-step

1. Interrupt the voltage to the LOGO!.
   (The LOGO! and its modules do not have power switches.)
2. Mount the CM LON
3. Connect the power supply to the CM LON.
4. Connect the LON bus lines to the CM LON.
5. Remove the label with the Neuron-ID from the CM LON and stick it on the network plan at the CM LON's installed location. (The Neuron-ID is also given as a bar code on the label.)
6. Apply power to the LOGO! and CM LON.

⊡ **RUN/STOP**

⊡ **BUS**

6BK1 700-0BA10-0AA0 $\frac{X|2}{3|4}$

Service ↓

A   B   LON
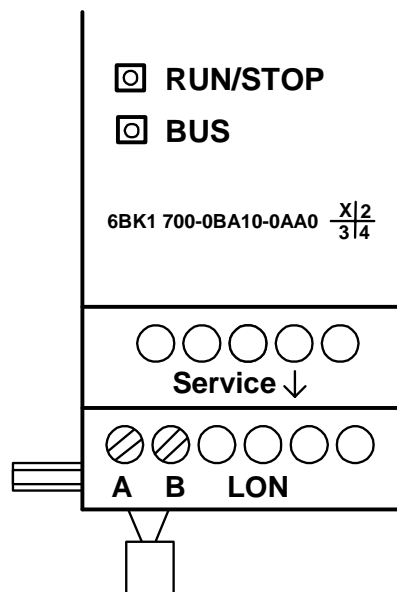
7. If multiple CM LONs have been installed, repeat Steps 1 to 6 for each CM LON.

8. To log a CM LON in on a LON Works network, you can either press the "Service" button or enter the Neuron-ID directly in the LON using the Installation Tool or by reading the label with a bar code scanner.
9. The CM LON is then registered in the LON database and ready for operation.
10. For further details regarding the LON installation, please read the corresponding documentation.

3.2   The CM LON - operational status

The CM LON is a LOGO! expansion module. This module has two LED displays:
"RUN/STOP" LED   Communication with the LOGO!
"BUS" LED   Service LED
The "**RUN/STOP**" LED will light in green, red or orange.

LED Lights In		
Green (RUN)	**Red (STOP)**	**Orange**
The expansion module is communicating with the device on the left.	The expansion module is **not** communicating with the device on the left.	The expansion module's initialization phase

LED BUS Lights In		
Green	**Red**	**Orange**
Bus connection OK, communication functioning	Bus connection fault	"Service" button pressed
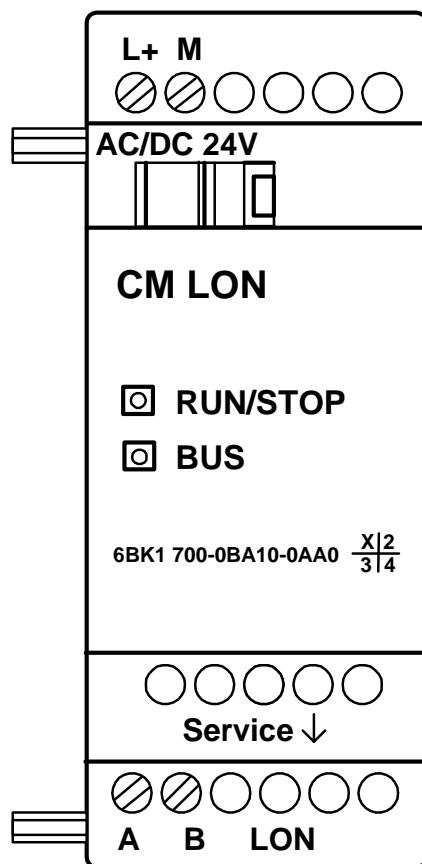
3.3 Behavior in case of a fault

LOGO! - Power failure

If the power to the LOGO! fails or the communications with the LOGO! Master or the communications partner to the left is interrupted, the outputs will be set to 0. The "RUN/STOP" LED will light in RED after one second.

LOGO! - Power returns

The LOGO! will startup and the CM will send the parameterized status.

CM - Power failure

All of the inputs of the LON's LOGO! Master will be set by the LOGO! Master to 0.

CM - Power returns

All of the LOGO! Master outputs will be updated.

BUS - Short-circuit or interruption

The inputs and outputs will retain their last value until they receive a new one. After 5 seconds, the Bus LED will light in red.

BUS - Restored

When the BUS is restored, the CM remains neutral, i.e. it does not send any telegrams.

4.   Supported functions

The CM LON handles the communications between:
-     The LOGO! and LON
-     Supports virtual inputs and outputs for the
      communication via the LON.

4.1   Virtual inputs / outputs

The standard CM LON application fills the complete LOGO!
process image.

A1 A2

I1   I2 I3 I4 I5   I6 I7 I8

LOGO! 12/24 RC	CM LON

Q1   Q2   Q3   Q4

A3 ... A8
I9 ... I24   **Sensorik**
Q5 ... Q16 **Aktorik**   **LON**

I1   I2 I3 I4 I5   I6 I7 I8   I9 I10 I11 I12

12/24RC	DM8	AM2	CM LON

Q1   Q2   Q3   Q4   Q5 Q6 Q7 Q8   A 1   A2   A3 ... A8

I13 ... I24 **Sensorik** LON
Q9 ... Q16   **Aktorik**
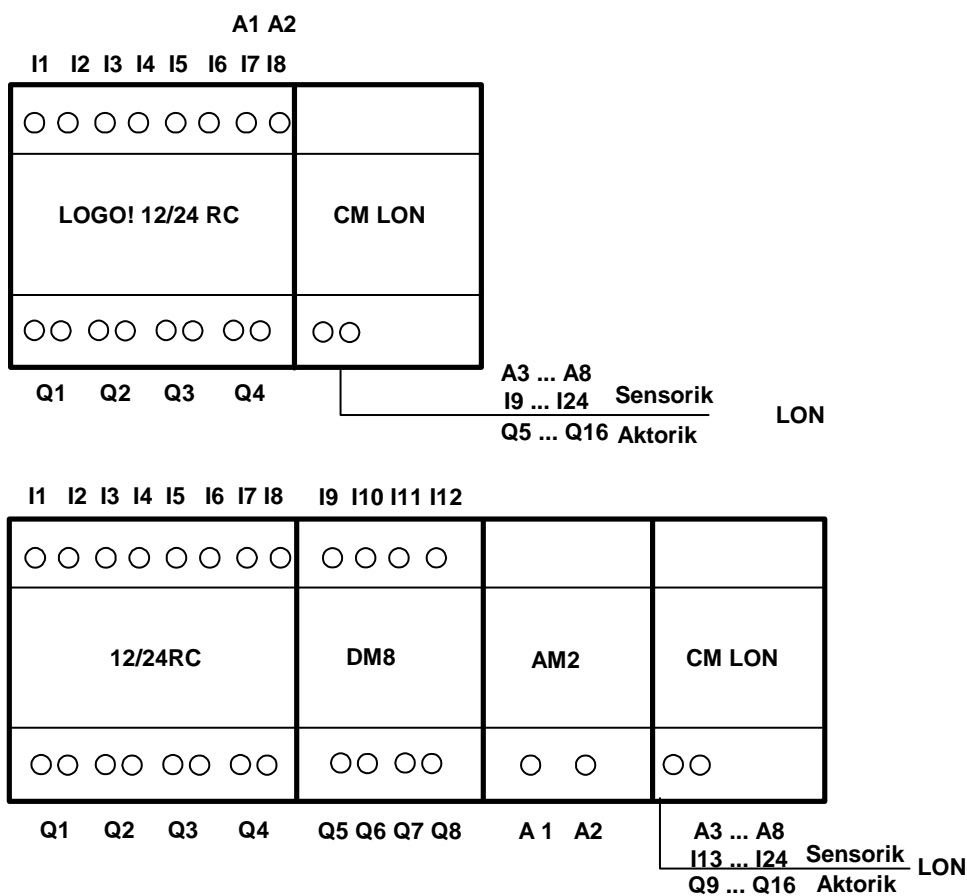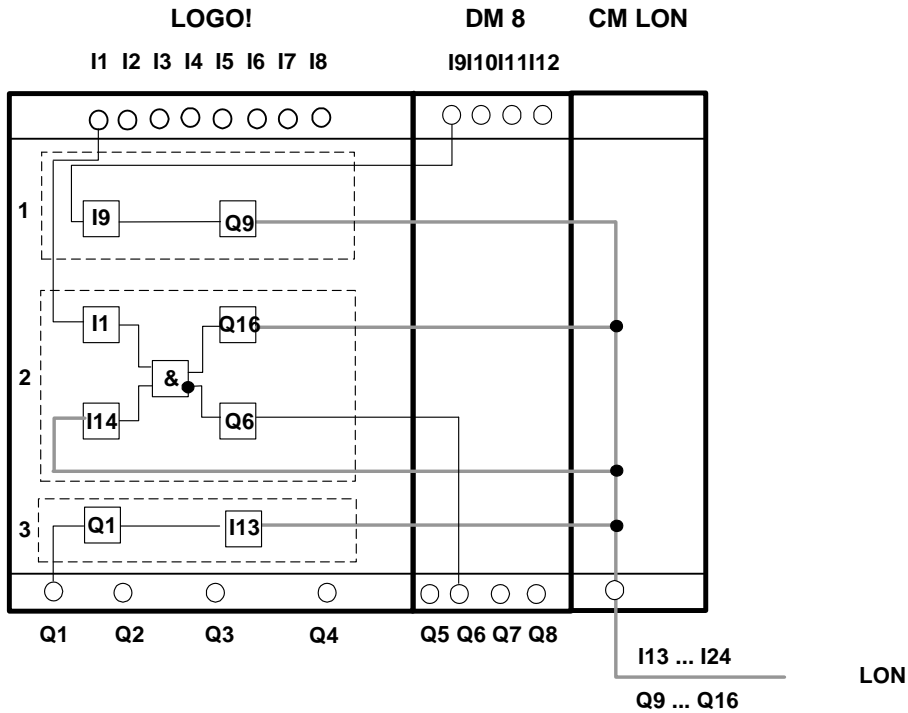
1. To map the LOGO! inputs (I1 to I8/I12) as outputs on the BUS, these must be joined with free virtual BUS outputs (Q5/Q9 to Q12) in the LOGO! application.
2. Operations (basic functions BF / special functions SF) useable within the LOGO! application (feedback value).
3. To access the LOGO! application (Q1 to Q4/Q8) directly via the bus communications, these must be joined with free virtual BUS inputs (I13 to I24) in the LOGO! application.

4.2   Available network variables

The CM LON's standard LON application contains the network variables described below.

LonMark Node Object

Quantity	Name	Type	Description
1	nviRequest	SNVT_obj_request	Request object mode
2	nvoStatus	SNVT_obj_status	Output object status
8	nvoFileDirectory	SNVT_address	File directory for direct read/write

LonMark Controller Object

SNVT	Description
SNVT_switch	Switch light, alarm, window contact, free inputs / outputs value=0, state=0 $\Rightarrow$ inactive value>0, state=1 $\Rightarrow$ active

SNVT_occupancy	Occupancy:0=occupied$\Rightarrow$ 0
	                1=not occupied $\Rightarrow$ 1
	                2=bypass $\Rightarrow$ 0
	                3=standby $\Rightarrow$ 1

SNVT_tod_event	Scheduler program Just current state: 0=occupied 3=standby
SNVT_t*emp_p*	Room temperature
SNVT_lux	Brightness – lighting level
SNVT_lev_percent	Position

Config Network Variables

SCPT	No. (Index)	Description	Name	Assign-ment	Default Setting
maxSendTime	49	Send Heartbeat	maxSendTimeDOxx	Q5-Q16	0 min

Assignment of the SNVT to the inputs and outputs

Quantity	SNVT	Assignment	
8	_switch	Q5 – Q12	Digital outputs
2	_occupancy	Q13 – Q14	
2	_tod_event	Q15 – Q16	
14	_switch	I9 – I22	Digital inputs
2	_occupancy	I23 – I24	
1	_*temp*_p	AI8	Analog inputs
1	_lux	AI7	
6	_switch; _lev_percent	AI1 – AI6	

4.3   LON configuration parameters

All of the digital outputs are configured with a "Send Heartbeat".
The LON application is configured using the Config Network
Variables. The following CPTs are available.

CPT	Index	Description	Name	Default
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO05	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO06	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO07	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO08	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO09	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO10	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO11	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO12	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO13	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO14	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO15	0 min
SCPTmaxSendTime	49	Send Heartbeat	maxSendTimeDO16	0 min

4.4 Inputs / Outputs – special considerations

Allocating the LOGO! inputs/outputs

All of the inputs/outputs, which are physically allocated on the LOGO! or an expansion module, are not available for allocation as virtual inputs/outputs.
Only the outputs on additional I/O modules can be issued in parallel to the LON.

Using the LOGO! inputs / outputs on the CM LON

To access the LOGO! outputs (Q1 to Q4) directly via the bus communications, these must be joined in the LOGO! application with free virtual BUS inputs.
To map the LOGO! inputs (I1 - I8) as outputs on the BUS, these must be joined with free virtual BUS outputs in the LOGO! application.

Feedback value

Feedback variables are required for status displays for a variety of applications (primarily lighting applications).
These are not directly supported by the CM LON.
However, an internal operation using LOGO! inputs/outputs is enough to display the status information on the LOGO!.

4.5 Alias table entries

The CM LON supports 8 alias table entries.

5.   CM LON - Specifications

Electrical Data		
Supply voltage	24 V AC	24 V DC
Permissible range	-15% +10%	-15% +20%
Current consumption	max. 33 mA	
Data transmission rate - LON	78 kBaud	

Physical Construction	
Standard width	2 SU
Dimensions (W x H x D)	36 x 90 x 55 mm
Weight	approx. 50 g
Mounting options	35 mm rail
	wall mounting
Operational status display	*RUN/STOP* LED for LOGO! communications
	BUS LED for LON communications
Controls	"Service" button S1

Connections	
LOGO! connection	Standard expansion interface
	For LOGO! 12/24 V and 110/240 V
LON connection (TP/FT-10)	2 screw terminals (0.5 – 2.5 mm²)
Max. torque	0.5 Nm
Power supply	2 screw terminals (0.5 – 2.5 mm²)
Max. torque	0.5 Nm
Standard bus lines to use	YCYM or J-Y(ST)Y (2 x 2 x 0.8 mm²)

Environmental Conditions	
Permissible operating temperature	0°C to +55°C
	free convection
Storage and transport temperatures	-40°C to +70°C
Humidity	95% at +25°C

Safety	
Protection standard	IP 20
Radio interference suppression	EN 55011 (Limit Value Class B)
Certification	CE
LON MARK	UL 508
	VDE 0631
	IEC 61131-2
Overvoltage protection	
Fuse	80 mA slow action fuse

Order Data	
LOGO! Expansion Module CM LON	6BK1700-0BA10-0AA00

INDEX

LON   Local Operating Network
SNVT   Standard Network Variable Type