

LOGO!
Simply different – simply ingenious



Micro Automation

Answers for industry.

SIEMENS

Switching and controlling – the profitable way



Transport facilities

- Conveyor systems
- Hoisting platforms
- Elevators
- Silo works
- Automatic food dispensers (machines)



House and building services management

- Lighting control (outside and inside lighting)
- Door/gate control
- Shutter, sun blind and awning control
- Watering and sprinkler system control



Special solutions

- Solar-electric systems
- Use on ships
- Use under extreme environmental conditions
- Display panels and traffic control signs

Whoever wants to be continuously successful in the automations industry, must consistently use every potential money-saving measure possible – from planning and commissioning through to operation. In particular demand are systems with which the consistently increasing requirements can be solved rapidly and economically: intelligent solutions offering maximum flexibility, reliability and user friendliness. The best example of innovative technology which completely satisfies these high requirements is LOGO! – the world's number one logic module for switching and controlling.



Heating/ventilation/ air conditioning

- Energy management
- Heating
- Cooling systems
- Ventilation systems
- Air conditioning systems

Machine controls

- Motor, pump and valve controls
- Air compressors
- Exhaust and filtering systems
- Water-treatment plants
- Sawing machines and planing machines
- Etching and purification plants

Operational monitoring systems

- Access control
- Vehicle control monitoring
- Alarm systems
- Limit level monitoring
- Traffic light control systems
- Baggage control

Far-sighted intelligent technology

The LOGO! system from Siemens is the ideal controller for simple automation tasks in industry and building services. The intelligent logic module features maximum user friendliness and satisfies practically every desire regarding functionality – not least thanks to the high memory capacity and its efficient utilization. Even the control of complex installations is no problem for LOGO! – thanks to expansion modules.

Maximum flexibility through consistent modularity

The consistently modular design of LOGO! makes it extremely flexible: a wide range of modules allows individual expansion of LOGO! – to 24 digital inputs, 16 digital outputs, 8 analog inputs and 2 analog outputs! Furthermore, communications modules are also available for AS-Interface and KNX. Using the analog output module, for example, you can solve simple closed-loop control tasks. You can be supported in this by special functions for PI controller, ramp response and analog multiplexer.

Proven millions of times – in numerous applications

Together with the LOGO! Soft Comfort software, handling of our logic module is child's play: program generation, project simulation and documentation are carried out simply using drag & drop, allowing maximum ease of operation. LOGO! always cuts a good figure in practice: backlit display, optimum line usage, and facilities for directly modifying message texts guarantee professional handling and satisfied users. All these facts are reasons why LOGO! has been proven millions of times in a multitude of applications.

Even more ingenious – LOGO! also with external text display



The latest generation of our pioneering logic module offers you even more convenience of operation and configuration. Advances in the performance have also been achieved: compared to their predecessors, the performances of the new devices have been optimized even further.

If existing systems have to be upgraded, it is only necessary to renew the basic devices. The expansion and communications modules are compatible, and programs from earlier LOGO! generations can be used further or adapted.

Performance optimized further

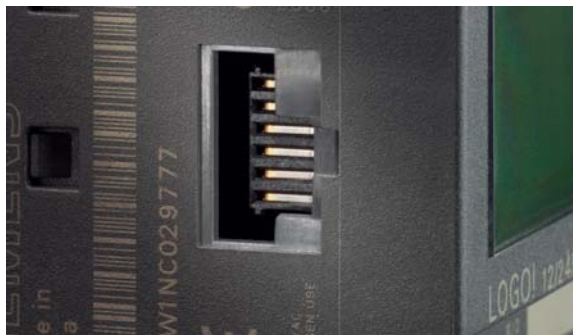
The new LOGO! offers a program memory expanded by more than 50% – now with 200 function blocks. The effective performance is even higher since many of the function blocks have also been optimized further, the number of digital inputs which can be used for analog functions has been doubled to four, and four inputs can be used as fast counters up to a frequency of 5 kHz.

Better overview, new possibilities

The new LOGO! offers maximum transparency in practice: up to 50 four-line message texts with up to 32 characters per line clearly display all relevant machine parameters. Well thought-out options such as ticker text, bar graph or toggle parameters go a step further. Additional applications are made possible by new function blocks for arithmetic functions and pulse width modulation. And not to be forgotten: the Teleservice option which means that an expensive on-site servicing visit is often unnecessary – which particularly pays off if your systems are widely scattered.

Additional text display

You can now connect an additional text display to the new LOGO!. This is perfectly tailored to the requirements of a logic module. A communications module is not required for the connection. A true highlight: configuration is carried out using the same function block as that for the internal display. You decide whether message texts are output on the internal or external display – or on both. For example, you can output messages relevant to operation on the text display, and service information only in the switching cabinet. The background illumination of both displays can of course be switched on from the program and also used for continuous operation.



Simple connection of the LOGO! TD text display

The LOGO! hardware



LOGO! offers the widest range of applications and successful implementation of extensive applications with the option of selecting 38 integrated functions and linking them with up to 200 blocks. Operator control and monitoring are made extremely user-friendly by means of a backlit display with 4 lines and a maximum of 32 characters per line. The message text allows the display of text, action items and current values, bar graphs and toggle parameters. Parameters can of course be adapted in the message text.

Flexibility is guaranteed at all times by the versatile expansion options of LOGO!

LOGO! – simply more

LOGO! reduces costs by up to 50%

- Replaces many conventional switching devices
- Requires less space in the control cabinet
- Fewer accessories
- Less warehouse space
- Saves on service because it is wear-free

LOGO! reduces time requirements by up to 70%

- Snaps right onto the DIN rail
- Requires almost no wiring
- Can be programmed using LOGO! Soft Comfort
- Pretested sample programs can be used at no charge or generated on the PC, tested, and transferred quickly and without error
- Automatic summer/winter time change
- Documentation

The LOGO! software



LOGO! Soft Comfort means sensationally simple and fast operation. Create ladder and function block diagrams simply by selecting, dragging and dropping the relevant functions and your connections. Make use of fully offline simulation of the entire switching program on the PC as well as online testing during operation now in both program representations. Professional documentation is included with all necessary configuration information such as comments and switching program settings.

LOGO! Soft Comfort – simply professional

LOGO! reduces space requirements by up to 70%

- Four width modules suffice to replace a wide variety of relays, time switches and contactor relays
- 8 basic and 30 special functions replace many conventional switching devices

Universal application


- Vibration-resistant
- High level of electromagnetic compatibility (EMC)
- Industrial standard
- For all climatic conditions
- Radio interference suppression class B
- All necessary certifications for use anywhere in the world
- Marine approval

The LOGO! functions

With the eight basic functions, you can create simple switching programs quickly either at the device or on the PC.


With the 30 special functions, you can also create complex switching programs quickly and easily. An extensive selection of sample applications can be found at www.siemens.com/logo

The eight basic functions


AND
 Series connection
 NO contact

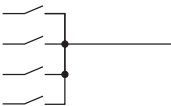
```

In1 ──┬── B1
      │ &
In2 ──┴──
In3 ──┬── +Q1
      │
In4 ──┴──
  
```


NOR (or not)
 Series connection
 NC contact

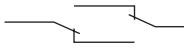
```

In1 ──┬── B1
      │ ≥1
In2 ──┴──
In3 ──┬── +Q1
      │
In4 ──┴──
  
```


OR
 Parallel connection
 NO contact

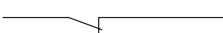
```

In1 ──┬── B1
      │ ≥1
In2 ──┴──
In3 ──┬── +Q1
      │
In4 ──┴──
  
```


XOR (Exclusive OR)
 Dual changeover
 contact

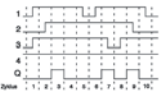
```

In1 =1 ┬── B1
In2 ──┴── +Q1
  
```


NOT
 Inverter

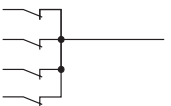
```

In ┬── B1
   │ 1
   ┴── +Q1
  
```


AND
 with edge evaluation
 (pos. edge)

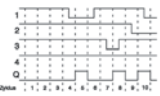
```

In1 ──┬── B1
      │ &↑
In2 ──┴──
In3 ──┬── +Q1
      │
In4 ──┴──
  
```


NAND (and not)
 Parallel connection
 NC contact

```

In1 ──┬── B1
      │ &
In2 ──┴──
In3 ──┬── +Q1
      │
In4 ──┴──
  
```


NAND
 with edge evaluation
 (neg. edge)

```

In1 ──┬── B1
      │ &↓
In2 ──┴──
In3 ──┬── +Q1
      │
In4 ──┴──
  
```

The 30 special functions

ON delay



```

Trs ┬── B1
    │
Par ┬── +Q1
    │
    ┴──
  
```

OFF delay



```

Trs ┬── B1
    │
R ┬── +Q1
  │
  ┴── Par
  
```

ON/OFF delay



```

Trs ┬── B1
    │
Par ┬── +Q1
    │
    ┴──
  
```

Retentive ON delay



```

Trs ┬── B1
    │
R ┬── +Q1
  │
  ┴── Par
  
```

Impulse relay/pulse output



```

Trs ┬── B1
    │
Par ┬── +Q1
    │
    ┴──
  
```

Impulse relay/edge-triggered



```

Trs ┬── B1
    │
R ┬── +Q1
  │
  ┴── Par
  
```

Clock-pulse generator



```

En ┬── B1
   │
Inv ┬── +Q1
    │
    ┴── Par
  
```


LOGO! and its modules



LOGO! Basic and LOGO! Pure

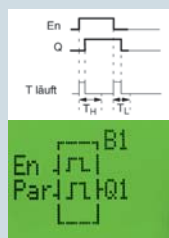
- Different voltages, i. e. 12 V DC, 24 V AC/DC, 115/240 V AC/DC
 - Can be used for a wide range of applications
- Automatic changeover from daylight saving time to winter time
 - Reduces maintenance overhead
- Password protection
 - Protects your know-how
- 38 integrated, pre-tested functions
 - No additional devices, such as elapsed time counter, are required
- Linking of 200 functions is possible
 - Extensive applications can be implemented without restrictions
- Eight digital inputs (incl. four AIs at 12/24 V DC) and four digital outputs on board
- Display of message texts, action items and current values as well as direct modification of the values on the display (except for Pure versions)
- Integrated data latch
 - Protects current values against loss in the event of a power failure
- Flexibly expandable up to 24 DIs, 16 DOs, 8 AIs and 2 AOs
 - Protects original investment
 - Suitable for a wide variety of applications
- Software LOGO! Soft Comfort V6 for user-friendly generation of control programs on PC; suitable for a variety of operating systems, such as Windows 95/98, NT 4.0, Me, 2000, XP, Vista, MAC OS X 10.4 with J2SE 1.5.0 and SUSE LINUX 10.0.
- Connection facility for remote text display on all ØBA6 basic devices

Digital expansion modules

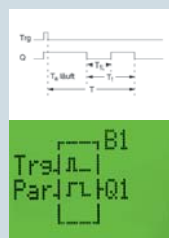
There are four versions for expanding the digital inputs and outputs:

- **DM8 230R/DM16 230R**
 - Supply voltage 115/240 V AC/DC
 - Four/eight 120/230 V AC/DC digital inputs
 - Four/eight digital output relays, 5 A per relay
- **DM8 24/DM16 24**
 - Supply voltage 24 V DC
 - Four/eight 24 V DC digital inputs
 - Four/eight digital output transistors, 0.3 A
- **DM8 12/24R**
 - Supply voltage 12/24 V DC
 - Four 12/24 V digital inputs
 - Four digital output relays, 5 A per relay
- **DM8 24R**
 - Supply voltage 24 V AC/DC
 - Four 24 V AC/DC digital inputs, PNP or NPN
 - Four digital output relays, 5 A per relay
- **DM16 24R**
 - Supply voltage 24 V DC
 - Eight 24 V DC digital inputs
 - Eight digital output relays, 5 A per relay

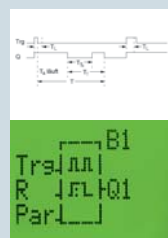
Pulse generator



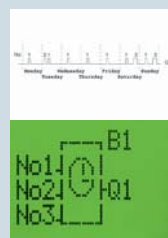
Stairlight switch



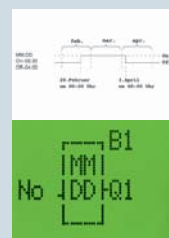
Convenience switch



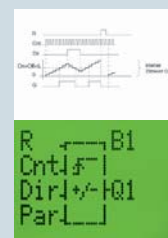
One-week time switch



12-month time switch



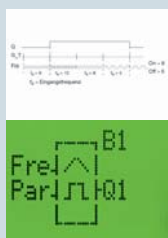
Up and down counter



Operating hours counter



Threshold value switch



The software

Simple – quick – professional

The LOGO! Soft Comfort software does it all – generating and testing control programs, simulating all functions and of course documentation is sensation-

ally easy with LOGO! Soft Comfort

using drag & drop on your PC. This is how it is done:

Creating control programs

- Select function and position on the drawing surface
- Link selected functions by means of connecting lines
- Set function parameters using clear dialog window



Analog expansion modules

There are two versions for expanding the analog inputs:

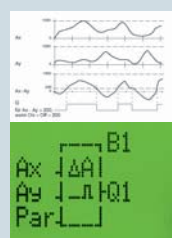
- **AM2**
 - Supply voltage 12/24 V DC
 - Two channels
 - 0 to 10 V or 0 to 20 mA typ.
- **AM2 PT100**
 - Supply voltage 12/24 V DC
 - Two channels
 - Type PT100
 - Measuring range $-50\text{ }^{\circ}\text{C}$ to $+200\text{ }^{\circ}\text{C}$
- **AM2 AQ**
 - Supply voltage 24 V DC
 - 2 analog outputs
 - Output range 0 to 10 V

Communications modules

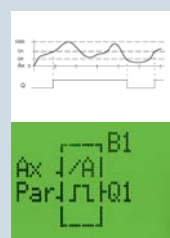
Customized modules are also available for communication:

- **CM AS-Interface slave**
 - Supply voltage 12/24 V DC
 - 4 DIs/4 DOs as interface to AS-Interface master
- **CM EIB/KNX**
 - Supply voltage 24 V AC/DC
 - max. 16 DIs, 12 DOs, 8 AIs as interface to the KNX
 - Date and time can be synchronized via KNX
 - All digital and analog inputs/outputs are available on the KNX as communication objects
 - Dimmer and shutter actuators connected to the KNX can be activated in conformance with the system

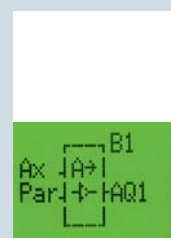
Analog comparator



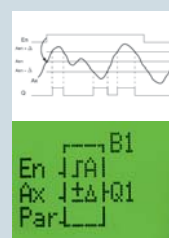
Analog threshold value switch



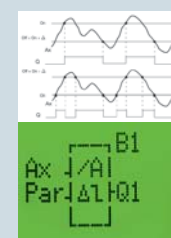
Analog amplifier



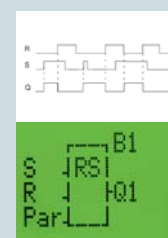
Analog monitoring



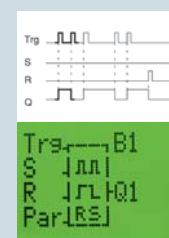
Analog differential threshold switch



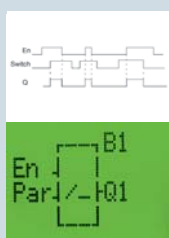
Latching relay



Current inrush relay



Software switch relay



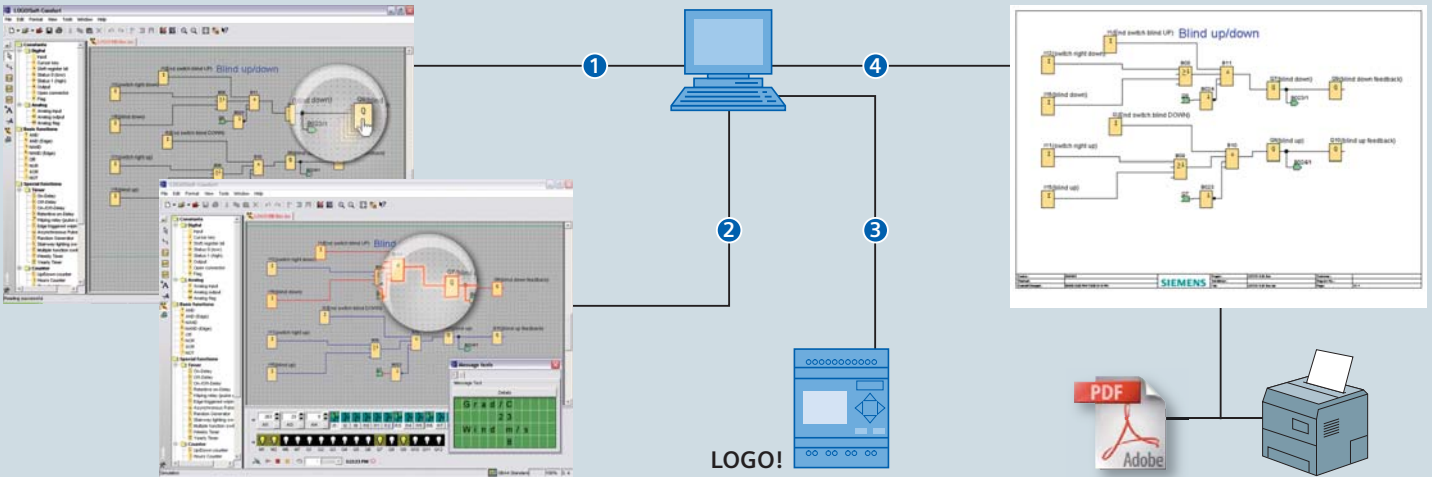
LOGO! Soft Comfort

1 Creating

2 Simulating

3 Online testing

4 Documenting



Commissioning with LOGO!

- Simulation of the entire switching process using all functions on the PC
- Analog signals can be simulated with real values (e. g. temperature – 20 °C to + 80 °C)
- Time-controlled/cyclic simulation
- Simulation of clock time
- Faithful representation of the LOGO! display in the simulation
- Status display of all functions, parameters and current values
- Online test with display of statuses and current values of LOGO! in RUN mode now in function block and ladder diagram representations

The documentation

- Each function can be provided with additional comments
- Additional assignment of names possible for inputs and outputs
- Any positioning and formatting of free text
- Clear representation of control program across several pages
- Professional printout with all necessary configuration information
- Separate printout of parameters and interface names possible
- Integration into standard Windows applications by storing as .pdf or .jpg file

NEW

NEW

NEW

Shift register

PI controller

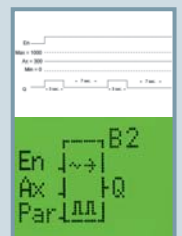
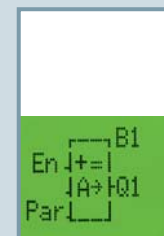
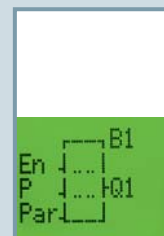
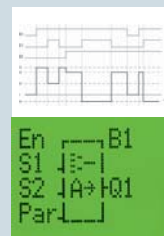
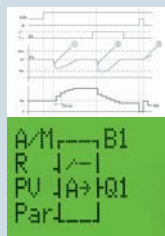
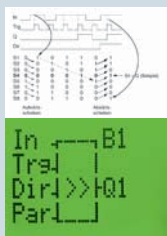
Ramp function

Analog multiplexer

Message text expanded

Arithmetic function

Pulse width modulation



LOGO! modular – the technical details

Basic units	LOGO! 12/24RC ¹⁾ , LOGO! 12/24RCo ²⁾	LOGO! 24 ¹⁾ , LOGO! 24o ²⁾
Inputs	8	8
of these usable as analog inputs	4 (0 to 10 V)	4 (0 to 10 V)
Input/supply voltage	DC 12/24 V	DC 24 V
Permissible range	10.8 V DC to 28.8 V DC	20.4 V DC to 28.8 V DC
On "0" signal	Max. 5 V DC	Max. 5 V DC
On "1" signal	Min. 8.5 V DC	Min. 12 V DC
Input current	1.5 mA (I3 to I6), 0.1 mA (I1, I2, I7, I8)	2 mA (I3 to I6), 0.1 mA (I1, I2, I7, I8)
Outputs	4 relays	4 transistors
Continuous current	10 A for resistive load; 3 A for inductive load	0.3 A
Short-circuit protection	External fuse required	Electronic (approx. 1 A)
Operating frequency	2 Hz for resistive load; 0.5 Hz for inductive load	10 Hz
Power loss	0.7 to 2.1 W (12 V) 1.0 to 2.4 W (24 V)	0.7 to 1.3 W 1.0 to 1.8 W
Cycle time	< 0.1 ms/function	< 0.1 ms/function
Integrated time switches/reserve power	Yes/typ. 80 h (2 years with battery module)	–
Connecting cables	2 x 1.5 mm ² or 1 x 2.5 mm ²	
Ambient temperature	0 to +55 °C	
Storage temperature	–40 °C to +70 °C	
Radio interference suppression	To EN 55011 (limit-value class B)	
Degree of protection	IP20	
Installation	To VDE 0631, IEC 1131, UL, FM, CSA, ship-building certifications	
Montage	On 35-mm DIN rail, 4 WM wide, or wall mounting	
Dimensions	72 (4 WM) x 90 x 55 mm (W x H x D)	

Digital modules	LOGO! DM8 12/24R	LOGO! DM8 24 DM16 24
Inputs	4	4/8
Input/supply voltage	12/24 V DC	24 V DC
Permissible range	10.8 to 28.8 V DC	20.4 to 28.8 V DC
On "0" signal	Max. 5 V DC	Max. 5 V DC
On "1" signal	Min. 8.5 V DC	Min. 12 V DC
Input current	1.5 mA	2 mA
Outputs	4 relays	4/8 transistors
Continuous current I _{th} (per terminal)	5 A for resistive load 3 A for inductive load	0.3 A
Short-circuit protection required	External fuse required	Electronic (approx. 1 A)
Operating frequency	2 Hz for resistive load	10 Hz
	0.5 Hz for inductive load	
Power loss	0.3 to 1.7 W at 12 V DC 0.4 to 1.8 W at 24 V DC	0.8 to 1.1 W * 0.8 to 1.7 W **
Dimensions (W x H x D)	36 (2 WM) x 90 x 53 mm	36 (2 WM) x 90 x 53 mm 72 (4 WM) x 90 x 53 mm

LOGO! modular – the technical details

Analog modules	LOGO! AM2 ²⁾	LOGO! AM2 PT100
Supply voltage	12 / 24 V DC	12 / 24 V DC
Permissible range	10.8 to 28.8 V DC	10.8 to 28.8 V DC
Analog inputs	2	2 x PT100 2- or 3-wire
Measuring range		-50 °C to +200 °C
Input range	0 to 10 V or 0 to 20 mA	
Resolution	10 bits scaled to 0 to 1000	0.25 °C
Cable length (shielded and twisted)	10 m	10 m
Measuring current		
Sensor supply	None	1.1 mA
Power loss for 12 V DC for 24 V DC	0.3 to 0.6 W 0.6 to 1.2 W	0.3 to 0.6 W 0.6 to 1.2 W
Dimensions (W x H x D)	36 (2 WM) x 90 x 53 mm	36 (2 WM) x 90 x 53 mm

²⁾: As SIPLUS component also for extended temperature range
-40 °C to +70 °C and aggressive atmosphere/condensation (www.siemens.com/siplus)

Analog modules	LOGO! AM2 AQ ²⁾
Supply voltage	24 V DC
Permissible range	20.4 to 28.8 V DC
Analog outputs	2
Output range	0 to 10 V
Resolution	10 bits normalized to 0–1000
Cable length (shielded and twisted)	10 m
Power loss at 24 V DC	0.6 to 1.2 W
Dimensions (W x H x D)	36 (2 WM) x 90 x 53 mm

²⁾: As SIPLUS component also for extended temperature range
-40 °C to +70 °C and aggressive atmosphere/condensation (www.siemens.com/siplus)

Analog modules	EIB / KNX	CM AS-Interface (Slave)
Supply voltage	24 V AC / DC	24 V DC
Permissible range	20.4 to 28.8 V DC 20.4 to 26.4 V AC	19.2 to 28.8 V DC
Digital inputs*	6 (also configurable as monoflop)	4
Analog inputs*	8	–
Analog outputs*	2	–
Digital outputs*	12	4
Dimensions (W x H x D)	2 WM 36 x 90 x 53 mm	2 WM 36 x 90 x 53 mm

* Illustration LOGO! inputs/outputs

LOGO! ordering data

LOGO! versions	Order number
LOGO! 24	6ED1 052-1CC00-0BA6
LOGO! 24o	6ED1 052-2CC00-0BA6
LOGO! 12/24RC	6ED1 052-1MD00-0BA6
LOGO! 12/24RCo	6ED1 052-2MD00-0BA6
LOGO! 24RC (AC/DC)	6ED1 052-1HB00-0BA6
LOGO! 24RC (AC/DC)	6ED1 052-2HB00-0BA6
LOGO! 230RC	6ED1 052-1FB00-0BA6
LOGO! 230RCo	6ED1 052-2FB00-0BA6
LOGO!TD	6ED1 055-4MH00-0AB0

Expansion modules	Order number
LOGO! DM8 24	6ED1 055-1CB00-0BA0
LOGO! DM8 12/24R	6ED1 055-1MB00-0BA1
LOGO! DM8 24R (AC/DC)	6ED1 055-1HB00-0BA0
LOGO! DM8 230R	6ED1 055-1FB00-0BA1
LOGO! DM16 24	6ED1 055-1CB10-0BA0
LOGO! DM16 24R	6ED1 055-1NB10-0BA0
LOGO! DM16 230R	6ED1 055-1FB10-0BA0
LOGO! AM2	6ED1 055-1MA00-0BA0
LOGO! AM2 PT100	6ED1 055-1MD00-0BA0
LOGO! AM2 AQ	6ED1 055-1MM00-0BA0

Communications modules	Order number
LOGO! AS-i	3RK1 400-0CE10-0AA2
LOGO! EIB/KNX	6BK1 700-0BA00-0AA1

Optional accessories	Order number
LOGO! Manual German	6ED1 050-1AA00-0AE6
LOGO! Manual English	6ED1 050-1AA00-0BE6
LOGO! Memory card	6ED1 056-5DA00-0BA0
LOGO! Soft Comfort 6.0	6ED1 058-0BA02-0YAO
LOGO! Soft Comfort V 6.0 upgrade	6ED1 058-0CA02-0YE0
LOGO! PC cable	6ED1 057-1AA00-0BA0
LOGO! USB PC cable	6ED1 057-1AA01-0BA0
LOGO! Expansion cable	6ED1 057-1BA00-0BA0
LOGO! Modem cable	EED1 057-1CA00-0BA0

R: Relay outputs, C: Clock/time switch, o: No display

The products listed here may be subject to the current European/German and/or US export regulations.

LOGO! accessories



LOGO! PC cable/USB PC cable

For easy transmission of LOGO! switching programs to and from the PC



LOGO! Program module

For duplication of switching programs – and for protecting your existing



LOGO! Manual

for starting with LOGO!

- Detailed operating information
- Description of all integrated functions
- Numerous practical sample applications



LOGO! Power

Reliable power supply for LOGO! – for converting the 100/240 V AC line voltage into the relevant operating voltage

- Suitable for all LOGO! 12 V DC and 24 V DC units
- Two versions in each case for different output currents



LOGO! Contact

Hum-free switching module

- For switching resistive loads up to 20 A
- For direct switching of motors up to 4 kW
- For high-performance loads in noise-sensitive environments



LOGO! Prom

For duplicating program modules

- Copying modules
- Writing modules by means of LOGO! Soft Comfort

additional information: www.siemens.com/siplus



Front panel racks

For installation in control cabinet doors

- Front IP65 (IP30 without panel)
- 4 WM or 8 WM (optionally with keys)

additional information: www.siemens.com/siplus



LOGO! Upmitter

For use with critical power supplies.

Generates stable 24 V DC at the output with 8 to 59 V DC at the input

You can find more information about LOGO! on the Internet – www.siemens.com/logo

- Comprehensive product information
- Free demo software
- Software upgrades
- Preprogrammed applications
- News
- Customer magazine GO!
- and much more

Of course you can also purchase LOGO! software and hardware online. Furthermore, you can receive personal support if necessary under “Service and Support”. Further sample applications and configuration aids can be found at www.siemens.com/microset

SIPLUS LOGO! on the Internet

www.siemens.com/siplus

There you will find tempered LOGO! modules with

- Extended temperature range
- Protection against aggressive atmosphere / condensation

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