# logotron® control and logic relays

## logic links instead of wiring

### 35.5 mm, 71.5 mm, and 107.5 mm wide DIN rail mounting

Simple solutions for control technology



**logotron®**

- ✓ **is a product family of convenient and easy to use control and logic relays for use in small and medium-sized control tasks.**
- ✓ **Applications range from building automation (e.g., controllers for doors, window shutters, etc.) to industrial control and switching applications.**

Control tasks are aided by logotron's® many characteristics[1], including:


- LCD-display to indicate the wiring diagram and actual operational status
- Keyboard with operating buttons to implement the circuit diagram
- 8 or 12 digital inputs, centrally or decentrally expandable up to 24 inputs
- 2 analog inputs (DC-versions) - digital inputs with analog function
- 4- or 8-relay outputs (up to 10 A switching capacity) or transistor outputs (0.5 A can be switched in parallel)
- 12 V DC, 24 V DC, and 115...230 V AC supply voltage versions
- Memory card, which is protected from voltage loss, for data, circuit diagrams, and parameters
- Time switch
- Display of text messages and time or parameter values on the display
- Plug-in external memory card possibility
- Password protection of circuit diagram and data
- Choice of 5 or 10 different languages
- Pushbuttons can be used as contacts within the wiring diagram
- Centrally or decentrally expandable
- Ambient temperature range -25°C ... +55°C

[1] Some of these characteristics are product specific. More detailed information appears on the pages that follow.


**logotron®**

## Application

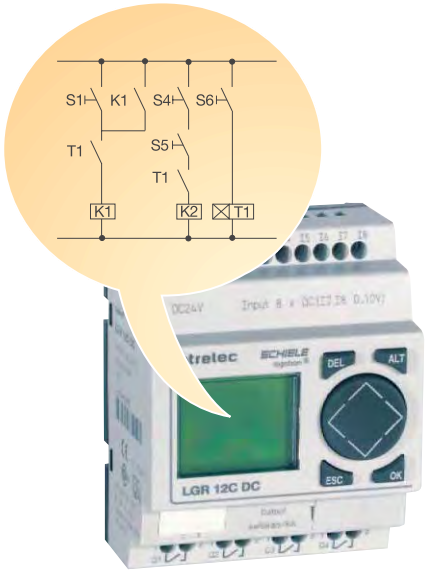
The logotron® product family covers a wide range of control tasks including machine and plant control, control technology, and building automation, and has specific application in:

- Controllers for lighting, door and sunblind control
- Controllers for ventilators, rotating doors, and shop windows
- Controllers for temperature, air, and brightness
- Machine, plant and conveyance control
- and more

logotron® accepts control instructions by simply transferring a circuit diagram into its memory.

## Starter kit

Contact Entrelec for details.
Request **P/N** XUS0 002 40.



# The logotron® family - Solutions for all control applications

LG_12...

**Compact control and logic relay, with display and keyboard, to set up parameters directly at the unit.**

LG_12 ...X...

**The cost-efficient alternative, without display and keyboard, to set up parameters via software LGX PROGSYS directly from the PC.**

LG_18/20...

**Convenient control and logic relay with 18/20 inputs and outputs and text display. The products LG ... E ... are centrally or decentrally expandable.**

LG_18/20...X...

**The cost-efficient logic and control relay, centrally and decentrally expandable, without display and keyboard. Parameters are set up via software LGX PROGSYS directly from the PC.**

LGX REC

**logotron® LGX REC module for a decentral expansion of expandable units LG ... E ...**

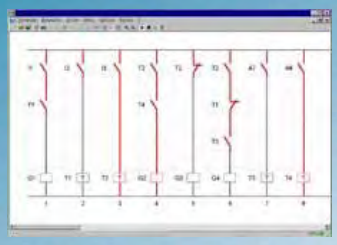
LG_18/20EX...

**logotron® LG ... E ..., the expansion module for a central or decentral expansion of all expandable units of the logotron® series.**

**logotron® LGX PROGSYS**

P/N:
2 440 690 00

**Setup, storage, simulation and documentation of the control program is done with the convenient software logotron® LGX PROGSYS. The logotron® device's control program can be displayed in three different versions: DIN EN, ANSI, or logotron® display. Six different LGX PROGSYS menu languages can be selected (English, French, German, Italian, Portuguese, Spanish). Installation under WIN 95, 98 and NT.**



**logotron® LGX CABLE**

**Interface cable for connection to a 9 pole serial PC interface, length 2m, with interface electronics.**

P/N:
2 440 692 00

**logotron® LGM 8k, LGM 16k**

**Memory module for storage of the complete wiring diagram, to be plugged into the logotron® control and logic relay.**


LGM 8k for LG_12...
P/N: 2 440 691 00


LGM 16k for LG_18/20...
P/N: 2 440 691 10

**LGX HOLDER**

**9 holders for screw mounting of the logotron® units on a panel. For logotron® LG_12... and LG_18/20... 3 holders, for LGX REC 2 holders are required.**

P/N:
2 440 694 00
(Supplied in packs of 9)

**LGP 1,3 A**

**The suitable primary switching power supply.**
**Input voltage:**
**115...230 V AC,**
**Output voltage:**
**24 V DC - 1,3 A**

P/N:
2 440 631 00

### *Basic units, stand alone, not expandable*

| logotron® type number | Supply voltage | Inputs: (Supply voltage potential) | Outputs: | Display & keyboard | Real-time clock | P/N: |
|---|---|---|---|---|---|---|
| LGR 12C DC 12V | 12 V DC | 8 digital, 2 for analog use | 4 relay 250 V / 8A | yes | yes | 2 440 612 03 |
| LGR 12 DC | 24 V DC | 8 digital, 2 for analog use | 4 relay 250 V / 8 A | yes | no | 2 440 610 01 |
| LGR 12C DC | 24 V DC | 8 digital, 2 for analog use | 4 relay 250 V / 8 A | yes | yes | 2 440 610 03 |
| LGT 12C DC | 24 V DC | 8 digital, 2 for analog use | 4 transistor 24 V DC / 0,5 A | yes | yes | 2 440 610 13 |
| LGT 12CX DC | 24 V DC | 8 digital, 2 for analog use | 4 transistor 24 V DC / 0,5 A | no | yes | 2 440 610 12 |
| LGR 12 AC | 115...240 V AC 50/60 Hz | 8 digital | 4 relay 250 V / 8 A | yes | no | 2 440 611 01 |
| LGR 12C AC | 115...240 V AC 50/60 Hz | 8 digital | 4 relay 250 V / 8 A | yes | yes | 2 440 611 03 |
| LGR 12CX AC | 115...240 V AC 50/60 Hz | 8 digital | 4 relay 250 V / 8 A | no | yes | 2 440 611 02 |
| LGT 20C DC | 24 V DC | 12 digital, 2 for analog use | 8 transistor 24 V DC / 0,5 A | yes | yes | 2 440 620 13 |
| LGR 18C AC | 100...240 V AC 50/60 Hz | 12 digital | 6 relay 250 V / 8 A | yes | yes | 2 440 621 03 |

### *Basic units, centrally and decentrally expandable*

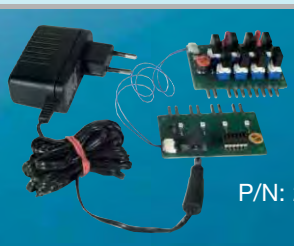
| logotron® type number | Supply voltage | Inputs: (Supply voltage potential) | Outputs: | Display & keyboard | Real-time clock | P/N: |
|---|---|---|---|---|---|---|
| LGT 20CE DC | 24 V DC | 12 digital, 2 for analog use | 8 transistor 24 V DC / 0,5 A | yes | yes | 2 440 620 63 |
| LGT 20CXE DC | 24 V DC | 12 digital, 2 for analog use | 8 transistor 24 V DC / 0,5 A | no | yes | 2 440 620 62 |
| LGR 18CE AC | 100...240 V AC 50/60 Hz | 12 digital | 6 relay 250 V / 8 A | yes | yes | 2 440 621 53 |
| LGR 18CXE AC | 100...240 V AC 50/60 Hz | 12 digital | 6 relay 250 V / 8 A | no | yes | 2 440 621 52 |

### *Expansion modules and remote extension couplers for expandable basic units*

| logotron® type number | Supply voltage | Inputs: (Supply voltage potential) | Outputs: | Display & keyboard | Real-time clock | P/N: |
|---|---|---|---|---|---|---|
| LGT 20EX DC | 24 V DC | 12 digital, 2 for analog use | 8 transistor 24 V DC / 0,5 A | no | no | 2 440 620 10 |
| LGR 18EX AC | 100...240 V AC 50/60 Hz | 12 digital | 6 relay 250 V / 8 A | no | no | 2 440 621 00 |
| LGX REC | - | - | - | no | no | 2 440 600 00 |

**LGX SIM**

**Simulator for LG_12... DC, with power supply 115/230 V AC - 24 V DC. For simulation of the circuit diagram at the unit.**



P/N: 2 440 693 00

**Training Guides and Manuals in 3 languages**

| **Training Guide:** | |
|---|---|
| **German** | **2 440 695 00** |
| **English** | **2 440 695 01** |
| **French** | **2 440 695 02** |

| **Manual:** | |
|---|---|
| **German** | **2 440 695 10** |
| **English** | **2 440 695 11** |
| **French** | **2 440 695 12** |

# logotron®
# Control and logic relays
# LGR 12 DC, LGR 12C DC
## with relay outputs

- 8 digital inputs, 2 of which are for analog use
- 4 relay outputs
- Display and keyboard
- 24 V DC supply voltage
- Real-time clock (LGR 12C DC)
- Available in a 12 VDC model. Contact Entrelec.(1)

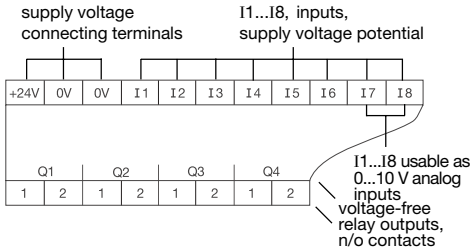
## Operation

The control and logic relays logotron® LGR 12 DC and LGR 12C DC are easy and convenient to use in simple control tasks. These two modules provide 8 digital inputs, 2 of which can be used as analog inputs.

A voltage-free control of actuators (e.g., contactors and lamps) is always possible via 4 relay outputs each. Using either the display and keyboard at the unit itself or the convenient programming software, LGX PROGSYS, implements the control program. Also available are timing relay functions, comparators, counters and time switch functions (LGR 12C DC), in addition to all logical linkages of the input signals.

logotron® displays the wiring diagram with contacts switched in line or parallel in accordance with conventional paper-drawn wiring diagrams. Operating buttons can be used as inputs at the control program, for example, to confirm user commands.

logotron® is available in 5 different menu languages (English, French, German, Italian, and Spanish).




- Approvals:

| Type | Description | P/N: |
|---|---|---|
| LGR 12 DC | Control and logic relay with display, keyboard, 8 I, 4 O | 2 440 610 01 |
| LGR 12C DC | Control and logic relay with display, keyboard, 8 I, 4 O, real-time clock | 2 440 610 03 |
| LGX PROGSYS | Programming system for PC under Windows™ | 2 440 690 00 |
| LGX CABLE | Interface cable, PC - logotron® | 2 440 692 00 |
| LGM 8k | Memory module 8k | 2 440 691 00 |
| LGX HOLDER | 9 holders for screw mounting | 2 440 694 00 |
| | Training Guide, German | 2 440 695 00 |
| | Manual, German | 2 440 695 10 |
| | Training Guide, English | 2 440 695 01 |
| | Manual, English | 2 440 695 11 |
| | Training Guide, French | 2 440 695 02 |
| | Manual, French | 2 440 695 12 |

| Technical data | | LGR 12 DC, LGR 12C DC |
|---|---|---|
| **Supply circuits** | | |
| Supply voltage - Power consumption | **+24 V -0 V** | 24 V DC - approx. 2 W |
| Tolerance of supply voltage | | -15 % ... +20 % |
| Supply voltage frequency | | - |
| Power failure bridging | | ≤ 10 ms |
| **Input circuits** | | supply voltage potential |
| Number of inputs | | 8, 2 of which are for analog use |
| Inputs for analog use | **I7, I8** | I7, I8 |
| Input voltage (value in steps of 0.1 V) | | 0...10 V DC |
| Input current | | < 1 mA |
| Input impedance | | 11.2 kΩ |
| Inputs for digital use | **I1, I2, ... I8** | I1 ... I8 |
| I1 ... I6 high - level, signal "1" - input current | | > 15 V DC - 3,3 mA |
| I7, I8 high - level, signal "1" - input current | | > 15 V DC - 2,2 mA |
| I1... I8 low - level, signal "0" | | < 5 V DC |
| Delay time I1 ... I6, - typ. debouncing ON/OFF | | 20 ms - 0.4 ms (0.2 ms I7, I8) |
| **Display of operational status** | | |
| Programming mode | | LCD display |
| Status display during operation | | LCD display |
| **Output circuits** | **Q1, Q2, Q3, Q4** | 4 relays, n/o contact |
| Rated voltage | | 250 V |
| Maximum permissible current $I_{th}$ | | 8 A per output |
| Rated switching current | AC 12 (resistive) | 8 A (at 250 V) |
| Rated switching current | AC 15 (inductive) | 3 A (at 250 V) |
| Rated switching current | DC 12 (resistive) | 8 A (at 24 V) |
| Rated switching current L/R=150 ms | DC 13 (inductive) | 1 A (at 24 V) |
| Maximum mechanical life / operations | | approx. 10 x $10^6$ operations |
| Maximum electrical life (to AC 15/250V/3A) | | approx. 2 x $10^5$ operations |
| Short-circuit proof, maximum fuse rating | | Circuit breaker B16, or fuse 8 A T |
| **General data** | | |
| EMC, radio interference voltage, radiated interference | | EN 50011 class B, EN 50022 class B |
| Static discharge (level 3, EN 6100-4-3), air/contact | | 8 kV / 6 kV |
| Radiation (EN 61000-4-3) | | 10 V/m |
| Burst (level 3, EN 61000-4-4), mains cable/signal cable | | 2 kV / 2 kV |
| Surge (level 2, EN 61000-4-5), mains, balanced | | 0.5 kV |
| Dimensions W x H x D | | 71.5 mm x 90 mm x 53 mm |
| Operating temperature | | -25° C ... +60° C |
| Storage temperature | | -40° C ... +70° C |
| Mounting position | | vertical or horizontal |
| Mounting to DIN-rail (EN 50022) | | snap-on mounting, screw mounting by a holder |
| Cable size stranded with wire end ferrule min./max. | | 22 AWG/12 AWG (0.2 mm² / 2.5 mm²) |
| Cable size solid min./max. | | 22 AWG/12 AWG (0.2 mm² / 4 mm²) |
| Weight | | approx. 0.4 lb (200 g) |

(1) Note: Specifications are indentical to those shown above.
**P/N:** 2 440 612 03

## Accessories

*LGX PROGSYS*

*LGX CABLE*

*LGM 8k*

*LGX HOLDER*

*Training Guide and Manual available in German, English, and French*

*LGP 1,3 A*

# logotron®

# Control and logic relays LGT 12C DC, LGT 12CX DC

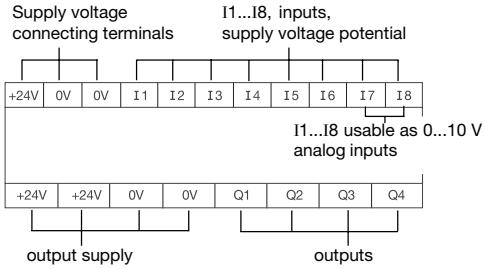
## with transistor outputs

- 8 digital inputs, 2 of which are for analog use
- 4 transistor outputs
- Display and keyboard (LGT 12C DC)
- Compact unit without display (LGT 12CX DC)
- 24 V DC supply voltage
- Real-time clock

## Operation

The control and logic relays logotron® LGT 12C DC and LGT 12CX DC are easy and convenient to use in simple control tasks.These two modules provide 8 digital inputs, 2 of which can be used as analog inputs.
A control of actuators (e.g., contactors and lamps) is always possible via 4 transistor outputs each. Using either the display and keyboard (LGT 12C DC) or the convenient programming software, LGX PROGSYS, implements the control program. Also available are timing relay functions, comparators, counters, time switch functions, etc. in addition to all logical linkages of the input signals. logotron®displays the wiring diagram with contacts switched in line or parallel, in accordance with conventional paper-drawn wiring diagrams.

Operating buttons can be used as inputs at the control program, for example, to confirm user commands.
logotron®is available in 5 different menu languages (English, French, German, Italian, and Spanish).




Approvals: UL, CSA

| Type | Description | P/N: |
|---|---|---|
| LGT 12C DC | Control and logic relay with display, keyboard, 8 I, 4 O, real-time clock | 2 440 610 13 |
| LGT 12CX DC | Control and logic relay without display and keyboard, 8 I, 4 O real-time clock | 2 440 610 12 |
| LGX PROGSYS | Programming system for PC under Windows™ | 2 440 690 00 |
| LGX CABLE | Interface cable, PC - logotron® | 2 440 692 00 |
| LGM 8k | Memory module 8k | 2 440 691 00 |
| LGX HOLDER | 9 holders for screw mounting | 2 440 694 00 |
| | Training Guide, German | 2 440 695 00 |
| | Manual, German | 2 440 695 10 |
| | Training Guide, English | 2 440 695 01 |
| | Manual, English | 2 440 695 11 |
| | Training Guide, French | 2 440 695 02 |
| | Manual, French | 2 440 695 12 |

| Technical data | | LGT 12C DC, LGT 12CX DC |
|---|---|---|
| **Supply circuits** | | |
| Supply voltage - power consumption | **+24 V -0 V** | 24 V DC - approx. 2 W |
| Tolerance of supply voltage | | -15 % ... +20 % |
| Supply voltage frequency | | - |
| Voltage failure bridging | | ≤ 10 ms |
| **Input circuits** | | supply voltage potential |
| Number of inputs | | 8, 2 of which are for analog use |
| Inputs for analog use | **I7, I8** | I7, I8 |
| Input voltage (value in steps of 0.1 V) | | 0...10 V DC |
| Input current | | < 1 mA |
| Input impedance | | 11.2 kΩ |
| Inputs for digital use | **I1, I2, ... I8** | I1 ... I8 |
| I1 ... I6 high - level, signal "1" - input current | | > 15 V DC - 3,3 mA |
| I7, I8 high - level, signal "1" - input current | | > 15 V DC - 2,2 mA |
| I1 ... I8 low - level, signal "0" | | < 5 V DC |
| Delay time I1 ... I6, - typ. debouncing ON/OFF | | 20 ms - 0.4 ms (0.2 ms I7, I8) |
| **Display of operational status** | | |
| Programming mode | | LCD display, if available |
| Status display during operation | | LCD display, if available |
| **Output circuits** | **Q1, Q2, Q3, Q4** | 4 semiconductors, pole-,overload- and short-circuit protected |
| Rated voltage | | 24 V DC (-15 % ... +20 %) |
| Maximum permissible current $I_{th}$ | | max. 0.5 A DC per output |
| Maximum residual ripple | | ≤ 5 % |
| Supply current at logical "0" / logical "1" | | typ. 9, max. 16 mA / typ. 12, max. 22 mA |
| Maximum residual current per output | | < 0.1 mA |
| Maximum output voltage at logical "0" / logical "1" | | 2.5 V ($R_L$ < 10 mΩ) / $V_R$ - 1 V (at $I_A$ = 0.5 A) |
| Parallel switching of outputs - total max. current | | yes max. 4 - max. 2 A |
| Overload and short-circuit protection | | yes,thermal, evaluation via diagnostic input (I15, I16) |
| Short-circuit tripping current $R_L \leq$ 10 MΩ | | 0,7 A ≥ $I_A$ ≤ 2 A |
| Max. total short-circuit current/peak short-circuit current | | 8 A / 16 A |
| **General data** | | |
| EMC, radio interference voltage, radiated interference | | EN 50011 class B, EN 50022 class B |
| Static discharge (level 3, EN 6100-4-3), air/contact | | 8 kV / 6 kV |
| Radiation (EN 61000-4-3) | | 10 V/m |
| Burst (level 3, EN 61000-4-4), mains cables/signal cables | | 2 kV / 2 kV |
| Surge (level 2, EN 61000-4-5), mains, balanced | | 0.5 kV |
| Dimensions W x H x D | | 71.5 mm x 90 mm x 53 mm |
| Operating temperature | | -25° C ... +55° C |
| Storage temperature | | -40° C ... +70° C |
| Mounting position | | vertical or horizontal |
| Mounting to DIN-rail (EN 50022) | | snap-on mounting, screw mounting by a holder |
| Cable size stranded with wire end ferrule min./max. | | 22 AWG/12 AWG (0.2 mm² / 2.5 mm²) |
| Cable size solid min./max. | | 22 AWG/12 AWG (0.2 mm² / 4 mm²) |
| Weight | | approx. 0.4 lb (200 g) |

## Accessories

*LGX PROGSYS*

*LGX CABLE*

*LGM 8k*

*LGX HOLDER*

*Training Guide and Manual available in German, English, and French*

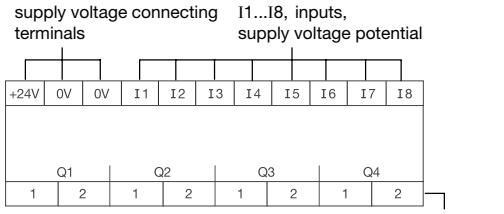
*LGP 1,3 A*

# logotron®
# Control and logic relays LGR 12 AC, LGR 12C AC, LGR 12CX AC
## with relay outputs

- 8 digital inputs
- 4 relay outputs
- Display and keyboard (LGR 12 AC, LGR 12C AC)
- Compact unit without display (LGR 12CX AC)
- Real-time clock (LGR 12C AC, LGR 12CX AC)
- 115/230 V AC supply voltage

## Operation

The control and logic relays logotron® LGR 12 AC, LGR 12C AC, and LGR 12 CX AC are easy and convenient to use in simple control tasks. These three modules provide 8 digital inputs.
A voltage-free control of actuators (e.g., contactors and lamps) is always possible via 4 relay outputs each. Using the display and keyboard (LGR 12 AC, LGR 12C AC) or the convenient programming software, LGX PROGSYS, implements the control program. Also available are timing relay functions, comparators, counters and time switch functions (not LGR 12 AC), in addition to all logical linkages of the input signals.
The logotron® logic and control relays LGR 12 AC and LGR 12C AC display the wiring diagram with contacts switched in line or in parallel, in accordance with conventional paper-drawn wiring diagrams.
Operating buttons can be used as inputs at the control program, for example, to confirm user commands.
logotron® is available in 5 different menu languages (English, French, German, Italian, and Spanish).




- Approvals: UL, CSA

| Type | Description | P/N: |
|---|---|---|
| LGR 12 AC | Control and logic relay with display, keyboard, 8 I, 4 O | 2 440 611 01 |
| LGR 12C AC | Control and logic relay with display, keyboard, 8 I, 4 O, real-time clock | 2 440 611 03 |
| LGR 12CX AC | Control and logic relay without display and keyboard, 8 I, 4 O, real-time clock | 2 440 611 02 |
| LGX PROGSYS | Programming system for PC under Windows™ | 2 440 690 00 |
| LGX CABLE | Interface cable, PC - logotron® | 2 440 692 00 |
| LGM 8k | Memory module 8k | 2 440 691 00 |
| LGX HOLDER | 9 holders for screw mounting | 2 440 694 00 |
| | Training Guide, German | 2 440 695 00 |
| | Manual, German | 2 440 695 10 |
| | Training Guide, English | 2 440 695 01 |
| | Manual, English | 2 440 695 11 |
| | Training Guide, French | 2 440 695 02 |
| | Manual, French | 2 440 695 12 |

| Technical data | | LGR 12 AC, LGR 12C AC, LGR 12CX AC |
|---|---|---|
| **Supply circuits** | | |
| Supply voltage - power consumption | L - N | 115...240 V AC - approx. 5 VA |
| Tolerance of supply voltage | | -15 % ... +10 % |
| Supply voltage frequency | | 50/60 Hz ± 5 % |
| Voltage failure bridging | | ≤ 20 ms |
| **Input circuits** | | supply voltage potential |
| Number of inputs | | 8 |
| Inputs for digital use | I7, I8 | I1...I8 |
| I1 ... I6 high - level, signal "1" - input current | | sinusoidal 79...264 V AC - 0,25... 0,5 mA |
| I7, I8 high - legel, signal "1" - input current | | sinusoidal 79...264 V AC - 4...6 mA |
| I1 ... I8 low - level, signal "0" | | 0...40 V AC |
| Delay time I1 ... I6, - typ. debouncing ON/OFF | | 50/60 Hz, 4 periods / 1 period |
| Delay time I7, I8 - typ. debouncing ON/OFF (0-1) | | 50/60 Hz, 4 periods / 1 period |
| Delay time I7, I8 - typ. debouncing ON/OFF (1-0) | | 50/60 Hz, 160 ms / 150 ms / 100 ms / 100 ms |
| **Display of operational status** | | |
| Programming mode | | LCD display, if available |
| Status display during operation | | LCD display, if available |
| **Output circuits** | Q1, Q2, Q3, Q4 | 4 relays, n/o contact |
| Rated voltage | | 250 V |
| Maximum permissible current $I_{th}$ | | 8 A per output |
| Rated switching current | AC 12 (resistive) | 8 A (at 250 V) |
| Rated switching current | AC 15 (inductive) | 3 A (at 250 V) |
| Rated switching current | DC 12 (resistive) | 8 A (at 24 V) |
| Rated switching current L/R=150 ms | DC 13 (inductive) | 1 A (at 24 V) |
| Maximum mechanical life / operations | | approx. 10 x $10^6$ operations |
| Maximum electrical life (to AC 15/250V/3A) | | approx. 2 x $10^5$ operations |
| Short-circuit proof, maximum fuse rating | | circuit breaker B16 or fuse 8 A T |
| **General data** | | |
| EMC, radio interference voltage, radiated interference | | EN 50011 class B, EN 50022 class B |
| Static discharge (level 3, EN 6100-4-3), air/contact | | 8 kV / 6 kV |
| Radiation (EN 61000-4-3) | | 10 V/m |
| Burst (level 3, EN 61000-4-4), mains cable/signal cable | | 2 kV / 2 kV |
| Surge (level 2, EN 61000-4-5), mains, balanced | | 2 kV |
| Dimensions W x H x D | | 71.5 mm x 90 mm x 53 mm |
| Operating temperature | | -25° C ... +55° C |
| Storage temperature | | -40° C ... +70° C |
| Mounting position | | vertical or horizontal |
| Mounting to DIN-rail (EN 50022) | | snap-on mounting, screw mounting by a holder |
| Cable size stranded with wire end ferrule min./max. | | 22 AWG/12 AWG (0.2 $mm^2$ / 2.5 $mm^2$) |
| Cable size solid min./max. | | 22 AWG/12 AWG (0.2 $mm^2$ / 4 $mm^2$) |
| Weight | | approx. 0.4 lb (200 g) |

## Accessories

*LGX PROGSYS*

*LGX CABLE*

*LGM 8k*

*LGX HOLDER*

*Training Guide and Manual available in German, English, and French*

*LGP 1,3 A*

# logotron®
# Control and logic relays LGT 20C DC, LGT 20CE DC, LGT 20CXE DC
## with transistor outputs

- 12 digital inputs, 2 of which are for analog use
- 8 transistor outputs
- Display and keyboard (LGT 20C DC, LGT 20CE DC)
- Compact unit without display (LGT 20CXE DC)
- Real-time clock
- 24 V DC supply voltage
- Centrally/decentr. expandable (LGT20CE DC,LGT20CXE DC)

## Operation

The control and logic relays logotron® LGT 20C DC, LGT 20CE DC, and LGT 20CXE DC are easy and convenient to use in simple control tasks.These three modules provide 12 digital inputs, 2 of which can be used as analog inputs. A control of actuators (e.g., contactors and lamps) is always possible via 8 transistor outputs each. The units LGT 20CE DC and LGT 20CXE DC are centrally or decentrally expandable (with LGX REC - please refer to page 1529). Using the display and keyboard (LGT 20C DC and LGT 20CE DC) or the convenient software, LGX PROGSYS, implements the control program.
Also available are timing relay functions, counters, time switch functions, etc., in addition to all logical linkages of the input signals.

The logotron® LGT 20C DC and LGT 20CE DC display the wiring diagram with contacts switched in line or in parallel, in accordance with the conventional paper-drawn wiring diagrams. It is also possible to enter text messages that will be displayed. In addition operating buttons can be used as inputs at the control program, for example, to confirm user commands.
logotron® is available in 10 different menu languages (English, French, German, Dutch, Italian, Polish, Portuguese, Spanish, Swedish, and Turkish).

- Approvals:

| Type | Description | P/N: |
|---|---|---|
| LGT 20C DC | Control and logic relay with display, keyboard, 12 I, 8 O, real-time clock | 2 440 620 13 |
| LGT 20CE DC | Control and logic relay with display, keyboard, 12 I, 8 O, real-time clock, centrally /decentrally expand. | 2 440 620 63 |
| LGT 20CXE DC | Control and logic relay without display,keyboard, 12 I, 8 O, real-time clock,centrally /decentrally expand. | 2 440 620 62 |
| LGT 20EX DC [1] | Expansion module, 12 I, 8 O for central or decentral expansion | 2 440 620 10 |
| LGX REC [2] | Coupling module for decentral connection of the LGT 20EX DC to expandable basic units | 2 440 600 00 |
| LGX LINK CONNECTOR | Interconnection, expandable basic unit-expansion module | 2 440 692 10 |
| LGX PROGSYS | Programming system for PC under Windows™ | 2 440 690 00 |
| LGX CABLE | Interface cable, PC - logotron® | 2 440 692 00 |
| LGM 16k | Memory module 16k | 2 440 691 10 |
| LGX HOLDER | 9 holders for screw mounting | 2 440 694 00 |
| | Training Guide, German | 2 440 695 00 |
| | Manual, German | 2 440 695 10 |
| | Training Guide, English | 2 440 695 01 |
| | Manual, English | 2 440 695 11 |
| [1] [2] for technical data refer to page 1529 | Training Guide, French | 2 440 695 02 |
| | Manual, French | 2 440 695 12 |

| Technical data | LGT 20C DC, LGT 20CE DC, LGT 20CXE DC |
|---|---|
| **Supply circuits** | |
| Supply voltage - power consumption **+24 V -0 V** | 24 V DC - approx. 5 W |
| Tolerance of supply voltage | -15 % ... +20 % |
| Supply voltage frequency | - |
| Voltage failure bridging | ≤ 10 ms |
| **Input circuits** | supply voltage potential |
| Number of inputs | 12, 2 of which are for analog use |
| Inputs for analog use **I7, I8** | I7, I8 |
| Input voltage (value in steps of 0.1 V) | 0...10 V DC |
| Input current | < 1 mA |
| Input impedance | 11.2 kΩ |
| Inputs for digital use **I1, I2, ... I12** | I1 ... I12 |
| I1...I6, I9...I12 high - level, signal "1"- input current | > 15 V DC - 3.3 mA |
| I7, I8 high - level, signal "1"- input current | > 15 V DC - 2.2 mA |
| I1 ... I12 low - level, signal "0" | < 5 V DC |
| Delay time I1... I6, I9...I12- typ. debouncing ON/OFF | 20 ms - 0.4 ms (0.2 ms I7, I8) |
| **Display of operational status** | |
| Programming mode | LCD display, if available |
| Status display during operation | LCD display, if available |
| **Output circuits** | 8 semiconductors, pole-, overload-, and short-circuit protected |
| **Q1, Q2, ... Q8** Rated voltage | 24 V DC (-15 % ... +20 %) |
| Maximum permissible current $I_{th}$ | max. 0.5 A DC per output |
| Maximum residual ripple | ≤ 5 % |
| Supply current at logical "0" / logical "1" | typ. 18, max. 32 mA / typ. 24, max. 44 mA |
| Maximum residual current per output | < 0.1 mA |
| Maximum output voltage at logical "0" / logical "1" | 2.5 V ($R_L$ < 10 mΩ) / $V_R$ - 1 V (at $I_A$ = 0.5 A) |
| Parallel switching of outputs - total max. current | yes max. 4 (Q1...Q4 or Q5...Q9) - max. 2 A |
| Overload and short-circuit protection | yes, thermal, evaluation via diagnostic input (I15, I16) |
| Short-circuit tripping current for $R_L$ ≤ 10 MΩ | 0.7 A ≥ $I_A$ ≤ 2 A |
| Max. total short-circuit current/peak short-circuit current | 16 A / 32 A |
| **General data** | |
| EMC, radio interference voltage, radiated interference | EN 50011 class B, EN 50022 class B |
| Static discharge (level 3, EN 6100-4-3), air/contact | 8 kV / 6 kV |
| Radiation (EN 61000-4-3) | 10 V/m |
| Burst (level 3, EN 61000-4-4), mains cable/signal cable | 2 kV / 2 kV |
| Surge (level 2, EN 61000-4-5), mains, balanced | 0,5 kV |
| Dimensions W x H x D | 107.5 mm x 90 mm x 53 mm |
| Operating temperature | -25° C ... +55° C |
| Storage temperature | -40° C ... +70° C |
| Mounting position | vertical or horizontal |
| Mounting to DIN- rail (EN 50022) | snap-on mounting, screw mounting by a holder |
| Cable size stranded with wire end ferrule min./max. | 22 AWG/12 AWG (0.2 mm² / 2.5 mm²) |
| Cable size solid min./max. | 22 AWG/12 AWG (0.2 mm² / 4 mm²) |
| Weight | approx. 0.6 lb (300 g) |

## Accessories

*LGX PROGSYS*

*LGX CABLE*

*LGM 16k*

*LGX HOLDER*

*Training Guide and Manual available in German, English, and French*

*LGP 1,3 A*

# logotron®
# Control and logic relays LGR 18C AC, LGR 18CE AC, LGR 18CXE AC
## with relay outputs

- 12 inputs
- 6 relay outputs
- Display and keyboard (LGR 18C AC, LGR 18CE AC)
- Compact unit without display (LGR 18CXE AC)
- Real-time clock
- 115/230 V AC supply voltage
- Centrally/decentr.expandable (LGR18CE AC,LGR18CXE AC)

## Operation

The control and logic relays logotron® LGR 18C AC, LGR 18CE AC and LGR 18CXE AC, are easy and covenient to use in simple control tasks. These three modules provide 12 digital inputs. A control of actuators (e.g., contactors and lamps) is always possible via 6 relay outputs each.
LGR 18CE AC and LGR 18CXE AC are centrally or decentrally expandable (with LGX REC - see page 1529). Using the display and keyboard (LGR 18C AC and LGR 18CE AC) or the convenient programming software, LGX PROGSYS, implements the control program. Also available are timing relay functions, counters, time switch functions, etc., in addition to all logical linkages of the input signals.

The logotron® LGR 18C AC and LGR 18CE AC display the wiring diagram with contacts switched in line or parallel, in accordance with the conventional paper-drawn wiring diagrams. It is also possible to enter text messages that will be displayed. In addition, operating buttons can be used as inputs at the control program, for example, to confirm user commands. logotron® is available in 10 different menu languages (English, French, German, Dutch, Italian, Polish, Portuguese, Spanish, Swedish, and Turkish).

- Approvals:

| Type | Description | P/N: |
|---|---|---|
| LGR 18C AC | Control and logic relay with display, keyboard, 12 I, 6 O, real-time clock | 2 440 621 03 |
| LGR 18CE AC | Control & logic relay with display, keyboard, 12 I, 6 O, real-time clock, centrally & decentr. expand. | 2 440 621 53 |
| LGR 18CXE AC | Control & logic relay without display,keyboard, 12 I, 6 O, real-time clock,centrally & decentr.expand. | 2 440 621 52 |
| LGR 18EX AC [1] | Expansion module, 12 I, 6 O for central or decentral expansion | 2 440 621 00 |
| LGX REC [2] | Coupling module for decentral connection of LGR 18EX AC to expandable basic units | 2 440 600 00 |
| LGX LINK CONNECTOR | Interconnection, expandable basic unit - expansion module | 2 440 692 10 |
| LGX PROGSYS | Programming system for PC under Windows™ | 2 440 690 00 |
| LGX CABLE | Interface cable, PC - logotron® | 2 440 692 00 |
| LGM 16k | Memory module 16k | 2 440 691 10 |
| LGX HOLDER | 9 holders for screw mounting | 2 440 694 00 |
| | Training Guide, German | 2 440 695 00 |
| | Manual, German | 2 440 695 10 |
| | Training Guide, English | 2 440 695 01 |
| | Manual, English | 2 440 695 11 |
| [1] [2] for technical data refer to page 1529 | Training Guide, French | 2 440 695 02 |
| | Manual, French | 2 440 695 12 |

| Technical data | | LGR 18C AC, LGR 18CE AC, LGR 18CXE AC |
|---|---|---|
| **Supply circuits** | | |
| Supply voltage - power consumption | **L - N** | 100...240 V AC - approx. 10 VA |
| Tolerance of supply voltage | | -15 % ... +10 % |
| Supply voltage frequency | | 50/60 Hz ± 5 % |
| Voltage failure bridging | | ≤ 20 ms |
| **Input circuits** | | supply voltage potential |
| Number of inputs | | 12 |
| Inputs for analog use | **I7, I8** | I1 ... I12 |
| I1...I6, I9...I12 | high-level, signal "1" - input current | sinusoidal 79...264 V AC - 0.25...0.5 mA |
| I7, I8 | high-level, signal "1" - input current | sinusoidal 79...264 V AC - 4...6 mA |
| I1 ... I12 | low-level, signal "0" | 0...40 V AC |
| Delay time I1... I12- typ. debouncing ON/OFF | | 50/60 Hz, 4 periods / 1 period |
| **Display of operational status** | | |
| Programming mode | | LCD display, if available |
| Status display during operation | | LCD display, if available |
| **Output circuits** | **Q1, Q2, ... Q8** | 6 relays, n/o contact |
| Rated voltage | | 250 V |
| Maximum permissible current $I_{th}$ | | 8 A per output |
| Rated switching current | AC 12 (resistive) | 8 A (at 250 V) |
| Rated switching current | AC 15 (inductive) | 3 A (at 250 V) |
| Rated switching current | DC 12 (resistive) | 8 A (at 24 V) |
| Rated switching current L/R=150 ms | DC 13 (inductive) | 1 A (at 24 V) |
| Maximum mechanical life / operations | | approx. 10 x $10^6$ operations |
| Maximum electrical life (to AC 15/250V/3A) | | approx. 2 x $10^5$ operations |
| Short-circuit proof, maximum fuse rating | | Circuit breaker B16, or fuse 8 A T |
| **General data** | | |
| EMC, radio interference voltage, radiated interference | | EN 50011 class B, EN 50022 class B |
| Static discharge (level 3, EN 6100-4-3), air/contact | | 8 kV / 6 kV |
| Radiation (EN 61000-4-3) | | 10 V/m |
| Burst (level 3, EN 61000-4-4), mains cable/signal cable | | 2 kV / 2 kV |
| Surge (level 2, EN 61000-4-5), mains, balanced | | 2 kV |
| Dimensions W x H x D | | 107.5 mm x 90 mm x 53 mm |
| Operating temperature | | -25° C ... +55° C |
| Storage temperature | | -40° C ... +70° C |
| Mounting position | | vertical or horizontal |
| Mounting to DIN-rail (EN 50022) | | snap-on mounting, screw mounting by a holder |
| Cable size stranded with wire end ferrule min./max. | | 22 AWG/12 AWG (0.2 mm² / 2.5 mm²) |
| Cable size solid min./max. | | 22 AWG/12 AWG (0.2 mm² / 4 mm²) |
| Weight | | approx. 0.6 lb (300 g) |

## Accessories

*LGX PROGSYS*

*LGX CABLE*

*LGM 16k*

*LGX HOLDER*

*Training Guide and Manual available in German, English, and French*

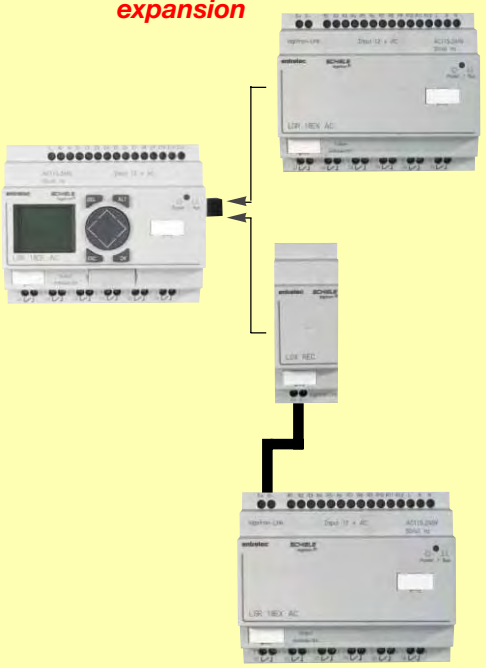
*LGP 1,3 A*

# logotron®
# Control and logic relays
# Expansion modules
# LGT 20EX DC, LGR 18EX AC, LGX REC

- For central expansion of the basic units
  LGT 20CE DC, LGT 20CXE DC
  LGR 18CE AC, LGR 18CXE AC
- 12 digital inputs
- 6/8 relay or transistor outputs
- 24 V DC, 115/230 V AC supply voltage
- LGX REC for decentral expansion (30m) of the basic units

| Type | Description | P/N: |
|---|---|---|
| LGT 20EX DC | Expansion module 12 I, 8 O for central or decentral expansion | 2 440 620 10* |
| LGR 18EX AC | Expansion module 12 I, 6 O for central or decentral expansion | 2 440 621 00* |
| LGX REC | Coupling module for decentral connection of LGR 18/20 E... to expandable basic units | 2 440 600 00* |
| | * Delivery includes 1 LGX LINK CONNECTOR | |

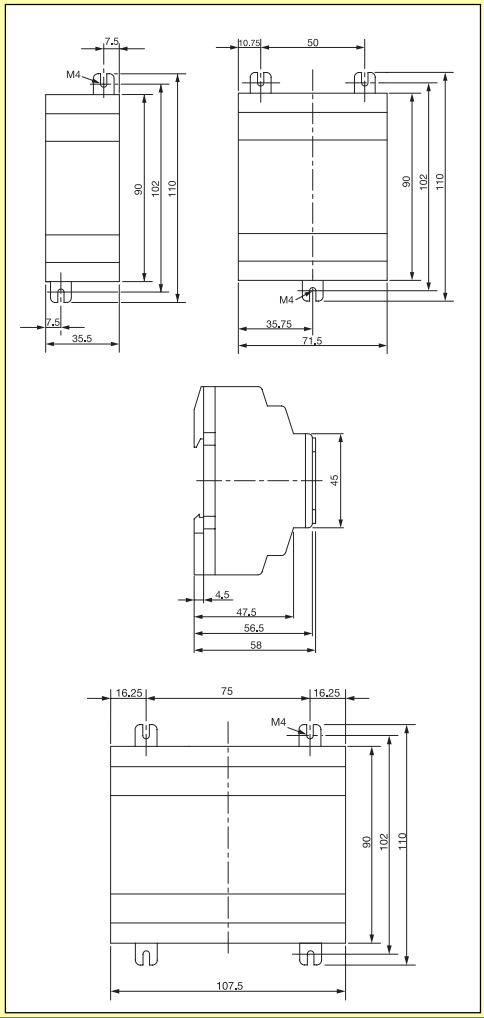
## Central and decentral expansion



## LGX REC

Remote Extension Coupler, coupling module for connection to an expandable basic unit.
Module for a decentral expansion at distances of up to 30 m. Delivery includes a plug to connect to the basic unit.

## Dimensions




| Technical data | | LGT 20EX DC |
|---|---|---|
| **Supply circuits** | | |
| Supply voltage - power consumption | **+24 V -0 V** | 24 V DC - approx. 5 W |
| Tolerance of supply voltage | | -15 % ... +20 % |
| Supply voltage frequency | | - |
| Voltage failure bridging | | ≤ 10 ms |
| **Input circuits** | | supply voltage potential |
| Number of inputs | | 12, 2 of them for analog use |
| Inputs for analog use | **I7, I8** | I7, I8 |
| Input voltage (value in steps of 0.1 V) | | 0...10 V DC |
| Input current | | < 1 mA |
| Input impedance | | 11.2 kΩ |
| Inputs for digital use | **I1, I2, ... I12** | I1 ... I12 |
| I1...I6, I9..I12 | high-level, signal "1" - input current | > 15 V DC - 3.3 mA |
| I7, I8 | high-level, signal "1" - input current | > 15 V DC - 2.2 mA |
| I1 ... I12 | low - level, signal "0" | < 5 V DC |
| Delay time I1... I6, I9...I12- typ. debouncing ON/OFF | | 20 ms - 0.4 ms (0.2 ms I7, I8) |
| **Display of operational status** | | |
| Programming mode | | LCD display, if available |
| Status display during operation | | LCD display, if available |
| **Output circuits** | **Q1, Q2, ... Q8** | 8 semiconductors, pole-, overload- and short-circuit protected |
| Rated voltage | | 24 V DC (-15 % ... +20 %) |
| Maximum permissible current $I_{th}$ | | max. 0.5 A DC per output |
| Maximum residual ripple | | ≤ 5 % |
| Supply voltage at logical "0" / logical "1" | | typ. 18, max. 32 mA / typ. 24, max. 44 mA |
| Maximum residual current per output | | < 0.1 mA |
| Maximum output voltage at logical "0" / logical "1" | | 2.5 V ($R_L$ < 10 mΩ) / $V_R$ - 1 V (at $I_A$ = 0.5 A) |
| Parallel switching of outputs - total max. current | | yes max. 4 (Q1...Q4 or Q5...Q9) - max. 2 A |
| Overload and short-circuit protection | | thermal, evaluation via diagnostic input (I15, I16) |
| Short-circuit tripping current for $R_L$ ≤ 10 MΩ | | 0,7 A ≥ $I_A$ ≤ 2 A |
| Max. total short-circuit current/peak short-circuit current | | 16 A / 32 A |
| | | **LGR 18EX AC** |
| **Supply circuits** | | |
| Supply voltage - power consumption | **L - N** | 100...240 V AC - approx. 10 VA |
| Tolerance of supply voltage | | -15 % ... +10 % |
| Supply voltage frequency | | 50/60 Hz ± 5 % |
| Voltage failure bridging | | ≤ 20 ms |
| **Input circuits** | | supply voltage potential |
| Number of inputs | | 12 |
| Inputs for analog use | **I7, I8** | I1 ... I12 |
| I1...I6, I9...I12 | high-level, signal "1" - input current | sinusoidal 79...264 V AC - 0.25...0.5 mA |
| I7, I8 | high-level, signal "1" - input current | sinusoidal 79...264 V AC - 4...6 mA |
| I1 ... I12 | low - level, signal "0" | 0...40 V AC |
| Delay time I1... I12- typ. debouncing ON/OFF | | 50/60 Hz, 4 periods / 1 period |
| **Display of operational status** | | |
| Programming mode | | LCD display, if available |
| Status display during operation | | LCD Display, if available |
| **Output circuits** | **Q1, Q2, ... Q8** | 6 relays, n/o contact |
| Rated voltage | | 250 V |
| Maximum permissible current $I_{th}$ | | 8 A per output |
| Rated switching current | AC 12 (resistive) | 8 A (at 250 V) |
| Rated switching current | AC 15 (inductive) | 3 A (at 250 V) |
| Rated switching current | DC 12 (resistive) | 8 A (at 24 V) |
| Rated switching current L/R=150 ms | DC 13 (inductive) | 1 A (at 24 V) |
| Maximum mechanical life / operations | | approx. 10 x $10^6$ operations |
| Maximum electrical life (to AC 15/250V/3A) | | approx. 2 x $10^5$ operations |
| Short-circuit proof, maximum fuse rating | | circuit breaker B16, or fuse 8 A T |
| | | **LGT 20EX DC, LGR 18EX AC** |
| **General data** | | |
| EMC, radio interference voltage, radiated interference | | EN 50011 class B, EN 50022 class B |
| Static discharge (level 3, EN 6100-4-3), air/contact | | 8 kV / 6 kV |
| Radiation (EN 61000-4-3) | | 10 V/m |
| Burst (level 3, EN 61000-4-4), mains cable/signal cable | | 2 kV / 2 kV |
| Surge (level 2, EN 61000-4-5), mains, balanced | | 2 kV |
| Dimensions W x H x D | | 107.5 mm x 90 mm x 53 mm |
| Operating temperature | | -25° C ... +55° C |
| Storage temperature | | -40° C ... +70° C |
| Mounting position | | vertical or horizontal |
| Mounting to DIN-rail (EN 50022) | | snap-on mounting, screw mounting by a holder |
| Cable size stranded with wire end ferrule min./max. | | 22 AWG/12 AWG (0.2 $mm^2$ / 2.5 $mm^2$) |
| Cable size solid min./max. | | 22 AWG/12 AWG (0.2 $mm^2$ / 4 $mm^2$) |
| Weight | | approx. 0.6 lb (300 g) |