

## 1. Introduction

- The compact, easy-to-use and low-cost solution for simple control tasks involving digital inputs and outputs, analog inputs without any complex logic and networking.
- "All in one": Integrated display and operator panel for displaying values and messages.
- Functions simple to change at the press of a key; no more time-consuming rewiring compared to conventional systems.
- Modular: expandable with up to 24 DIs, 16 DOs and 8 AIs
- Modules for communications like AS-Interface & instabus EIB/LON

## 2. Product Positioning

- LOGO! can be used for simple applications having maximum **24 DI, 16 DO & 8 AI**.
- For applications requiring two high-speed counter inputs (**upto 2KHz**) LOGO! 12/24 RC can be used.

## 3. Modules for LOGO!

### ➤ Main Modules

LOGO! is available in two types,

#### ❖ LOGO! Basic

- Integrated Liquid Crystal Display.
- Integrated soft keys for programming
- Integrated 8 DI & 4 DO.



#### ❖ LOGO! Pure

- For the applications not requiring integrated Liquid Crystal Display.
- Without Integrated soft keys for programming.
- Integrated 8 DI & 4 DO.



These Modules can be classified again in four different types according to the power supply.

#### ❖ DC power supply,

- LOGO! 12/24 RC/RCo and LOGO! 24/o,

- ❖ **AC power supply,**
  - LOGO! **24 RC/RCo** and LOGO! **230 RC/RCo**

## ➤ **Expansion Modules**

Modules for expanding I/O handling capacity of LOGO! to the maximum **24 DI, 16 DO and 8 AI**. They are available as follows

### ❖ **Digital Expansion Modules**

They are available in four types for different LOGO! modules based on power supply. Further these modules are available in two types according number of I/O's.

- DM8** having 4 DI and 4 DO.
- DM16** having 8 DI and 8 DO.

### ❖ **Analog Expansion Modules**

They are available in two types,

- AM2, which can take 0-10 V DC or 0-20 mA as analog input.
- AM2 PT100 which provides direct connection for PT 100 RTD's

### **Compatibility of Expansion modules to LOGO Basic**

Digital Modules can only be connected to same voltage class devices. Analog and Communication modules can be connected to devices of different voltage class. Following table gives the compatibility matrix for the different expansion modules.

| <b>Main Modules</b> | <b>Expansion modules</b> |           |            |             |                  |    |
|---------------------|--------------------------|-----------|------------|-------------|------------------|----|
|                     | DM8<br>12/24R            | DM8<br>24 | DM8<br>24R | DM8<br>230R | AM2/AM2<br>PT100 | CM |
| LOGO!<br>12/24 RC   | Y                        | Y         | Y          | –           | Y                | Y  |
| LOGO!<br>24         | Y                        | Y         | Y          | –           | Y                | Y  |
| LOGO!<br>24 RC      | Y                        | Y         | Y          | –           | Y                | Y  |
| LOGO!<br>230 RC     | –                        | –         | –          | Y           | Y                | Y  |
| LOGO!<br>12/24 RCo  | Y                        | Y         | Y          | –           | Y                | Y  |
| LOGO!<br>24 o       | Y                        | Y         | Y          | –           | Y                | Y  |
| LOGO!<br>24 RCo     | Y                        | Y         | Y          | –           | Y                | Y  |
| LOGO!<br>230 RCo    | –                        | –         | –          | Y           | Y                | Y  |

❖ **Communication Modules**

LOGO! can communicate with instabus EIB; also it acts as AS-i Slave with 4 DI/4 DO.

**Compatibility between different expansion modules**

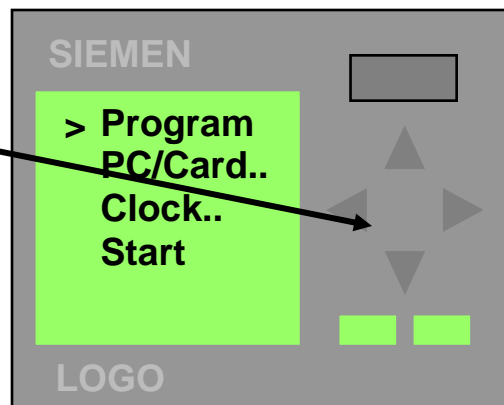
Below table explains about the compatibility of different expansion modules to each other. For example after CM (communication Module) we cannot put DM8 230R module. In this case we have to put CM module after DM8 230R module.

|                                 | Expansion modules | Further Expansion modules |        |         |          |                |    |
|---------------------------------|-------------------|---------------------------|--------|---------|----------|----------------|----|
|                                 |                   | DM8 12/24 R               | DM8 24 | DM8 24R | DM8 230R | AM2/A M2 PT100 | CM |
| <b>First \ Reference Module</b> | DM8 12/24R        | Y                         | Y      | Y       | -        | Y              | Y  |
|                                 | DM8 24            | Y                         | Y      | Y       | -        | Y              | Y  |
|                                 | DM8 24R           | Y                         | Y      | Y       | -        | Y              | Y  |
|                                 | DM8 230R          | -                         | -      | -       | Y        | Y              | Y  |
|                                 | AM2/AM2 PT100     | Y                         | Y      | Y       | -        | Y              | Y  |
|                                 | CM                | Y                         | Y      | Y       | -        | Y              | Y  |

➤ **LOGO! Logic Program**

LOGO! can be programmed using

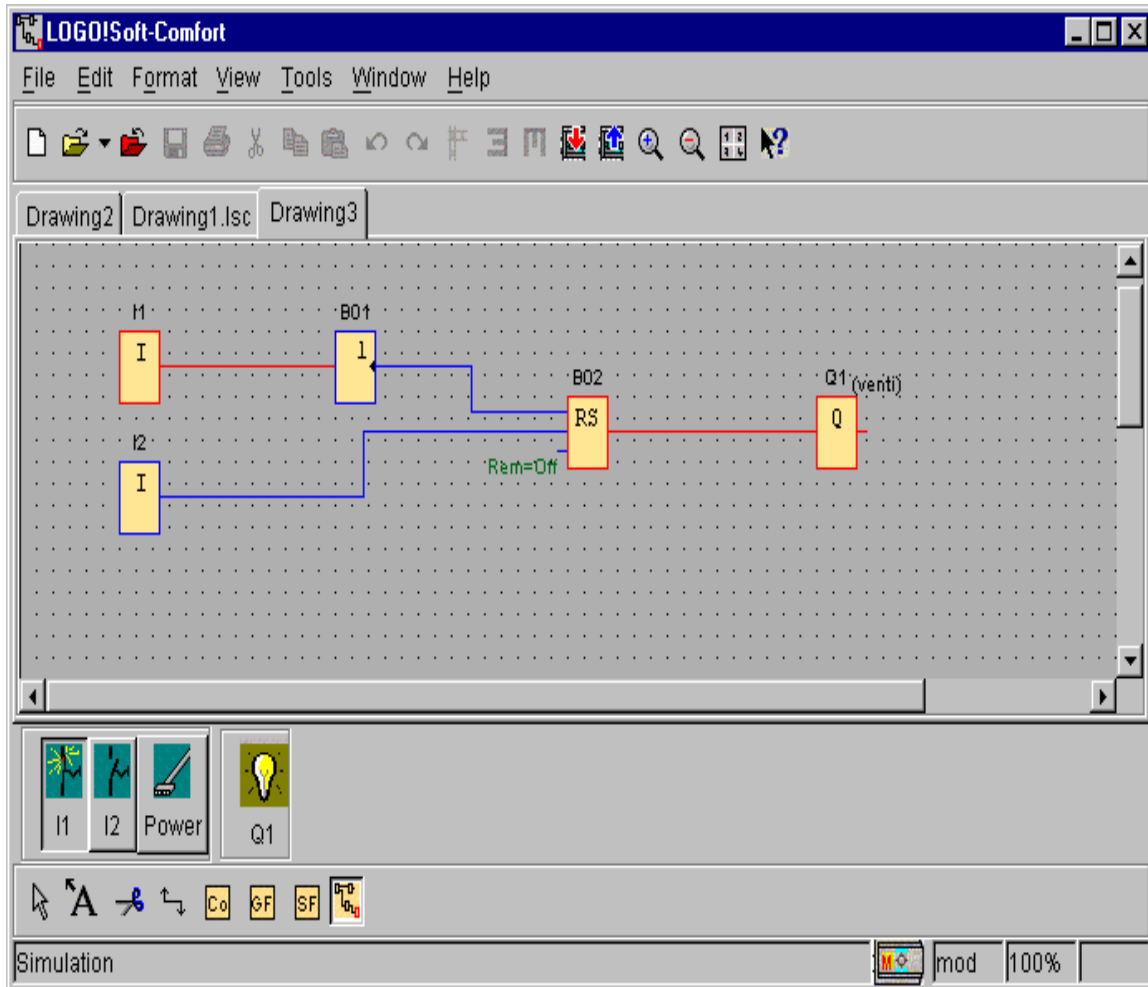
- ❖ Integrated Soft Keys (Only for LOGO! Basic)



- ❖ PC having LOGO! Soft Comfort 4.0V installed on it. Also it requires LOGO! PC cable. Sample window is shown below.

Logic programming supports **Ladder Logic (LAD)** and **Function Block Diagram (FBD)** which uses different blocks like AND, Not, Timer... etc for programming. It can consists of maximum

- 24 memory bits
- 34 Function Blocks
- 130 blocks connectable
- 10 message texts
- 1 shift register
- No limitation for number of usable timers and counters.



## 4. List of Modules

| S.No                       | MLFB                | Description  | Remark   |
|----------------------------|---------------------|--|--|
| <b>LOGO! Basic Modules</b> |                     |  |  |
| 1                          | 6ED1 052-1CC00-0BA4 | <b>LOGO! 24 logic module</b> , Power supply 24 V DC, 8 digital inputs 24 V DC, of which 2 can be used in analog mode (0 to 10 V), 4 digital outputs 24 V DC, 0.3 A;                                | <b>No clock</b>                                    |
| 2                          | 6ED1 052-1MD00-0BA4 | <b>LOGO! 12/24RC logic module</b> , Power supply 12/24 V DC, 8 digital inputs 12/24 V DC, of which 2 can be used in analog Mode (0 to 10 V), 4 relay outputs 10 A,                                 |  |
| 3                          | 6ED1 052-1HB00-0BA4 | <b>LOGO! 24RC logic module</b> , Power supply 24 V AC/DC, 8 digital inputs 24 V AC/DC, 4 relay outputs 10 A,   |  |
| 4                          | 6ED1 052-1FB00-0BA4 | <b>LOGO! 230RC logic module</b> , Power supply 115/230 V AC/DC, 8 digital inputs 115/230 V AC/DC, 4 relay outputs 10 A,  |  |
| <b>LOGO! Pure Modules</b>  |                     |  |  |
| 5                          | 6ED1 052-2CC00-0BA4 | <b>LOGO! 24o logic module</b> , Power supply 24 V DC, 8 digital inputs 24 V DC, of which 2 can be used in analog mode (0 to 10 V), 4 digital outputs 24 V DC, 0.3 A; without display and keyboard; | <b>No clock<br/>No display unit &amp; keyboard</b> |
| 6                          | 6ED1 052-2MD00-0BA4 | <b>LOGO! 12/24RCo logic module</b> , Power supply 12/24 V DC, 8 digital inputs 12/24 V DC, of which 2 can be used in analog mode (0 to 10 V), 4 relay outputs 10 A,                                | <b>No display unit &amp; keyboard</b>              |
| 7                          | 6ED1 052-2HB00-0BA4 | <b>LOGO! 24RCo logic module</b> , Power supply 24 V AC/DC, 8 digital inputs 24 V AC/DC, 4 relay outputs 10 A, without display and keyboard;  | <b>No display unit &amp; keyboard</b>              |
| 8                          | 6ED1 052-2FB00-0BA4 | <b>LOGO! 230RCo logic module</b> , Power supply 115/230 V AC/DC, 8 digital inputs 115/230 V AC/DC, 4 relay outputs 10 A, without display and keyboard  | <b>No display unit &amp; keyboard</b>              |
| <b>Digital Modules</b>     |                     |  |  |
| 9                          | 6ED1 055-1CB00-0BA0 | <b>LOGO! DM8 24</b> , Power supply 24 V DC, 4 digital inputs 24 V DC, 4 digital outputs 24 V DC, 0.3 A   |  |
| 10                         | 6ED1 055-1MB00-0BA1 | <b>LOGO! DM8 12/24R</b> , Power supply 12/24 V DC, 4 digital inputs 12/24 V DC, 4 relay outputs 5 A  |  |
| 11                         | 6ED1 055-1HB00-0BA0 | <b>LOGO! DM8 24R</b> , Power supply 24 V AC/DC, 4 digital inputs 24 V AC/DC, 4 relay outputs 5 A   |  |
| 12                         | 6ED1 055-1FB00-0BA1 | <b>LOGO! DM8 230R</b> , Power supply 115/230 V AC/DC, 4 digital inputs 115/230 V AC/DC, 4 relay outputs 5 A  |  |
| <b>Analog Modules</b>      |                     |  |  |
| 13                         | 6ED1 055-1MA00-0BA0 | <b>LOGO! AM2</b> , Power supply 12/24 V DC, 2 analog inputs 0 to 10 V or 0 to 20 mA, resol. 10 bit   |  |

| S.No                        | MLFB                | Description  | Remark |
|-----------------------------|---------------------|--|--------|
| 14                          | 6ED1 055-1MD00-0BA0 | LOGO! AM2 PT 100, Power supply 12/24 V DC, 2 Pt100 analog inputs, temp. Range -50 °C to 200 °C |        |
| <b>Power Modules</b>        |                     |  |        |
| 15                          | 6EP1321-1SH02       | LOGO! Power 12 V/1.3 A , Input voltage 120/230 V AC; output voltage 12 V DC/1.9 A              |        |
| 16                          | 6EP1331-1SH02       | LOGO! Power 24 V/1.9 A, Input voltage 120/230 V AC; output voltage 24 V DC/1.3 A               |        |
| 17                          | 6EP1322-1SH02       | LOGO! Power 12 V/4.5 A Input voltage 120/230 V AC; output voltage 12 V DC/4.5 A                |        |
| 18                          | 6EP1332-1SH42       | LOGO! Power 24 V/2.5 A, Input voltage 120/230 V AC; output voltage 24 V DC/2.5 A               |        |
| <b>Communication Module</b> |                     |  |        |
| 19                          | 6BK1700-0BA00-0AA1  | LOGO! CM EIB KNX, Communication module for connection to EIB, power supply 24 V DC,            |        |
| <b>Programming Software</b> |                     |  |        |
| 20                          | 6ED1 058-0BA00-0YA0 | LOGO! Soft Comfort V. 4.0  |        |
| <b>Accessories</b>          |                     |  |        |
| 21                          | 6ED1 057-1AA00-0BA0 | LOGO! PC cable, For program transmission between LOGO! & PC                                    |        |
| 22                          | 6ED1 056-5CA00-0BA0 | LOGO! Memory card,   |        |

## 5. Sample Configurations

Illustrations for different I/O configurations with different LOGO! and expansion module types:

| <b>CONFIGURATION 1</b>   |   |
|--|---|
| <b>Application requirement</b>   | <b>Configuration</b>  |
| <b>LOGO! with Analog Inputs</b>  |   |
| <ul style="list-style-type: none"> <li>• Maximum setup of LOGO! with Analog inputs integrated</li> <li>• 24 DI, 16 DO and 8AI</li> </ul> | Typical Configuration will consists of LOGO! Basic Module <b>12/24 RC/RCo</b> and <b>LOGO! 24/24o</b> (Inputs I7, I8 are used as AI1 and AI2) + 4 DM 8 expansion module + 3 AM2 expansion modules |

|                               |               |               |               |               |               |               |               |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| I1.... I6, I7, I8<br>AI1, AI2 | I9...I12      | I13..I16      | I17..I20      | I21..<br>I24  | AI3,<br>AI4   | AI5,<br>AI6   | AI7,<br>AI8   |
| LOGO! Basic                   | LOGO!<br>DM 8 | LOGO!<br>DM 8 | LOGO!<br>DM 8 | LOGO!<br>DM 8 | LOGO!<br>AM 2 | LOGO!<br>AM 2 | LOGO!<br>AM 2 |
| Q1...Q4                       | Q5..Q8        | Q9..Q12       | Q13..Q16      |               |               |               |               |

### Abbreviations-

I-Digital Input, Q-Digital Output, AI-Analog Input

### CONFIGURATION 2

#### For LOGO! without Analog Inputs

- Maximum setup of LOGO! with out Analog inputs integrated
- 24 DI, 16 DO and 8AI

Typical Configuration will consists of LOGO! Basic Module (LOGO! **24 RC/RCo** and LOGO! **230 RC/RCo**) + 4 DM 8 expansion module + 4 AM2 expansion module

|                |               |               |               |               |               |               |               |               |
|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| I1.... I7, I8  | I9...I12      | I13..I16      | I17..I20      | I21..I2<br>4  | AI1,<br>AI2   | AI3,<br>AI4   | AI5,<br>AI6   | AI7,<br>AI8   |
| LOGO!<br>Basic | LOGO!<br>DM 8 | LOGO!<br>DM 8 | LOGO!<br>DM 8 | LOGO!<br>DM 8 | LOGO!<br>AM 2 | LOGO!<br>AM 2 | LOGO!<br>AM 2 | LOGO!<br>AM 2 |
| Q1...Q4        | Q5..Q8        | Q9..Q12       | Q13..Q16      |               |               |               |               |               |

## 6. Advantages for users

- **Cost Reduction**
  - less Hardware costs
  - less Space (Cabinet, Stock)
  - more efficiency during development and Commissioning
  - Best price – performance ratio
- **More flexibility**
  - Different versions to suit various application requirements
  - Easy monitoring & editing of program saving in time & cost
- **Reliability in Planning**
  - Thanks to modularity , Standard product expandable at any time
  - Usable within standard Bus systems KNX (EIB) and LON (open interfaces for Building Management Systems).