



All images: Siemens AG

## When three become one

With LOGO! 8, multi-phase systems for home automation can be set up in a single configuration that is simple and easy to use.

While three-phase systems are the rule for residential applications, most logic modules on the market require a separate basic unit for each of these phases. In most cases, however, this is not cost-effective because it requires additional space. In this article, we will show you how LOGO! 8 makes it easy to take care of all three phases in a single configuration – creating a user-friendly and uncomplicated setup that also saves space.

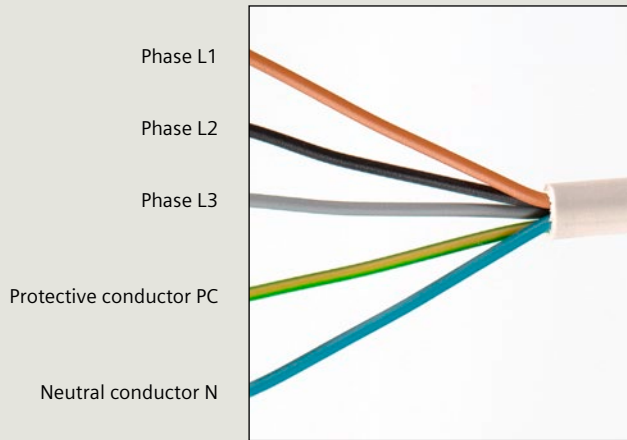


Figure 1

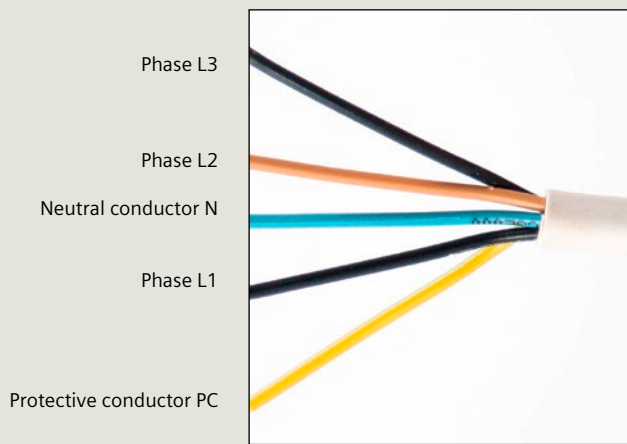


Figure 2

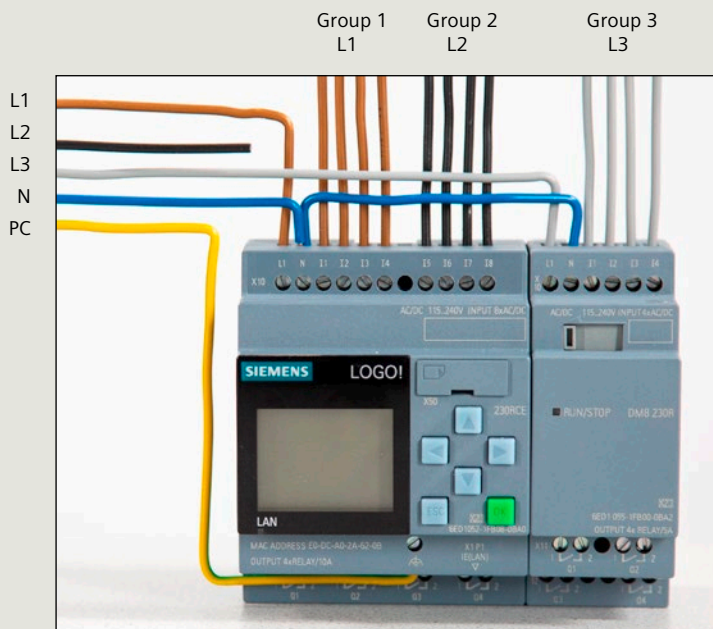


Figure 3

On a typical main distribution board, there is a system with the three phases of L1, L2, and L3. In order to process switching signals from the entire residence, it is often the case that these signals come from all phases. A typical application for this is when you want to use the switches for what is known as a ‘panic circuit’ – all lights inside and outside the house are turned on by several switches at the same time through extended actuation.

We have here used the current color coding of the phases, **Figure 1**, but expressly point out that older color codes, **Figure 2**, are still widely used and that the regulations also differ by region. In addition, only qualified electricians may make changes to the electrical installation.

Different phases can be used on all basic units for 230 V operation. In the following, we will look at the LOGO! 8 230RCE device. On this unit, the eight digital inputs are divided into two groups – that is, two different phases can be connected. The third phase can be connected to an expansion module such as the DM8 230R, **Figure 3**.

However, when connecting different phases to a LOGO! configuration, the following rules must be strictly observed:

- In a group of four inputs, all four signals must come from the same phase.
- LOGO! 230RCE: The power supply of the basic unit must come from the phase of the first group (phase L1 in this case); the second group does not have its own power supply.
- DM8 230R: The power supply of the expansion module must come from the phase of the group (phase L3 in this case).

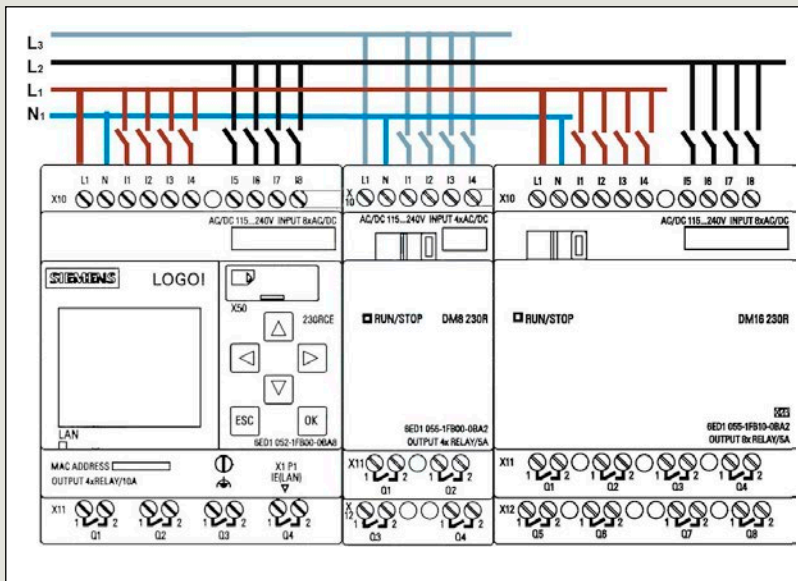


Figure 4

If more input signals are required, the configuration can be expanded further.

Also, an additional expansion module such as a DM16 230R can be integrated, **Figure 4**. The following must be observed:

- The power supply of the additional expansion unit must come from the phase of the first group (phase L1 in this case); the second group does not have its own power supply.

#### The following applies in general:

- Only apply signals from one phase within a group.
- The order of the phases of the individual groups does not matter.
- The power supply of the module must always come from the phase of the first group of this assembly.

**Note:** The relay outputs of the 230 V modules are all potential-free. This means that the phases can also be used so that they are mixed on the outputs.