

# PLC-...IC/ACT

## PLC-INTERFACE for high switch-on currents



Application note  
100222\_en\_03

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### 1 Description

Relays have to fulfill different requirements due to the various different load types. Capacitive loads are particularly demanding because they cause high switch-on currents. PLC-...IC/ACT is specially designed to handle these high switch-on currents. The relay modules are equipped with a plug-in relay so that they can also be easily replaced for maintenance or service, without any adjustments to the wiring.

### Features

- Plug-in electromechanical relays
- Integrated input circuit
- Flammability class V0 in acc. with UL94
- Safe isolation in acc. with DIN EN 50178
- Screw-type, spring-cage, and push-in connection technology



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This document is valid for the products listed in section "Ordering data" on page 3.

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## 2 Ordering data

Description	Type	Order no.	Pcs. / Pkt.
PLC-INTERFACE for high switch-on currents, consisting of PLC-BSC.../1 IC/ACT basic terminal block with screw connection and plug-in miniature relay, for mounting on DIN rail NS 35/7.5, max. switch-on current up to 130 A, 1 N/O contact, 24 V DC input voltage	PLC-RSC- 24DC/ 1IC/ACT	2967604	10
PLC-INTERFACE for high switch-on currents, consisting of PLC-BSP.../1 IC/ACT basic terminal block with spring-cage connection and plug-in miniature relay, for mounting on DIN rail NS 35/7.5, max. switch-on current up to 130 A, 1 N/O contact, 24 V DC input voltage	PLC-RSP- 24DC/ 1IC/ACT	2912413	10
14 mm PLC basic terminal block for high switch-on currents with screw connection, without relay or solid-state relay, for mounting on DIN rail NS 35/7.5, with load return line connection (BB), 1 N/O contact, 24 V DC input voltage	PLC-BSC- 24DC/ 1IC/ACT	2967837	10
14 mm PLC basic terminal block for high switch-on currents with spring-cage connection, without relay or solid-state relay, for mounting on DIN rail NS 35/7.5, with load return line connection (BB), 1 N/O contact, 24 V DC input voltage	PLC-BSP- 24DC/ 1IC/ACT	2912400	10
PLC-INTERFACE for high switch-on currents, consisting of PLC-BPT.../1 IC/ACT basic terminal block with push-in connection and plug-in miniature relay, for mounting on DIN rail NS 35/7.5, max. switch-on current up to 130 A, 1 N/O contact, 24 V DC input voltage	PLC-RPT- 24DC/ 1IC/ACT	2900298	10
14 mm PLC basic terminal block for high switch-on currents with push-in connection, without relay or solid-state relay, for mounting on DIN rail NS 35/7.5, with load return line connection (BB), 1 N/O contact, 24 V DC input voltage	PLC-BPT- 24DC/ 1IC/ACT	2900260	10

### Accessories

Description	Type	Order no.	Pcs. / Pkt.
Insulating plate, 2 mm thick, required at the start and end of a PLC terminal strip. It is also used for: visual separation of groups, protective isolation of different voltages on adjacent PLC-INTERFACES in acc. with DIN VDE 0106-101, Isolation	PLC-ATP BK	2966841	25

### 3 Lamp loads and capacitive loads

Capacitive loads with high switch-on currents are among the most demanding types of loads. Choosing the wrong relay for these loads can cause the contacts to be welded which would prematurely end the service life of the relay.

High switch-on currents occur on all types of lighting. One cause of this switch-on current is the low cold resistance of the coiled filament.

Another is the circuitry, which causes a high switch-on current when the capacitors are charged. This affects energy-saving lamps, parallel-compensated fluorescent lamps or fluorescent lamps with electronic ballast.

AC motors with start capacitors are another example of a capacitive load with a high switch-on current.

### 4 Switch high switch-on currents reliably

The PLC-...IC/ACT relay module is ideal for switching high switch-on currents. When electromechanical relays are used as a coupling element between the controller and the actuators, usually only the N/O contact of a relay is used. This contact has been optimized in the PLC-...IC/ACT so that switch-on currents can be switched without the contacts being welded. Brief inrush peaks of up to 130 A are switched reliably.

The permissible continuous current is 6 A. Bridging the double contact connections with the FBST jumper makes it possible to support continuous currents of up to 10 A.

### 5 No need for additional return line terminals

Only the N/O contact is used on PLC-...IC/ACT N/O. As a result, the relay module can also be used for connecting all connections of the actuator, i.e. the lamp or motor. The load return line is also fed in directly at the relay module. This eliminates the need for an additional modular terminal block to connect the outgoing return conductors.

### 6 Efficient connection with system cabling

Another way to significantly reduce the effort involved in wiring is to connect the relay and the controller by means of the system cabling and the corresponding PLC...V8 adapter. Connect the adapter directly in the bridge shafts on the relay module. It can be connected to the controller with a 14-position flat-ribbon cable or a 15-position D-SUB connection. This way, there is no longer any need for time-consuming, error-prone individual wiring.

### 7 Optimum use of jumpers

Achieve maximum effectiveness with FBST jumpers. These can be used to bridge the control-side connections A1 and A2, the load supply line 13, and the load return line BB.

The 500 mm jumpers with color-coded insulation can be cut to the required length and inserted into the bridge shafts. Complex wire loop jumpers are no longer needed.