

ATTENTION!
Inputs S1 and S2 cannot be interconnected (changed to single-channel input) or the functionality of the device will change, reducing the safety level.

NOTE!
This device should only be disassembled after its de-energizing. Remove the DIN rail latch using a screwdriver towards the operator and lift the device. This device should be handled and carried with care, it should be disposed likewise.

6 DIMENSIONS

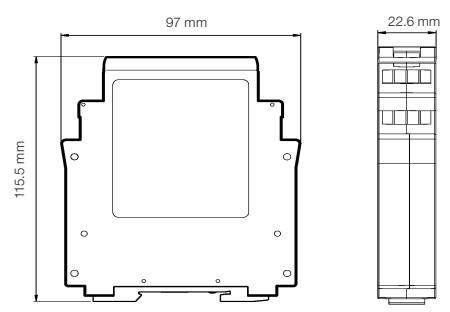


Figure 10: Product dimensions in (mm)

7 DESCRIPTION OF THE CPLS-D FUNCTIONS

Table 3: Description of the terminals

Power supply	A1	+24 Vdc ±10 %
	A2	0 Vdc
Inputs	+/-	Auxiliary power supply for sensors +24 Vdc @ 50 mA
	S1-S2	Positive input of channel 1
Outputs	Y1-Y2	Negative input of channel 2
	13-14	1 st Safety Contact NO
	23-24	2 nd Safety Contact NO
	33-34	3 rd Safety Contact NO
	41-42	Safety auxiliary contact NC

Automatic reset - interconnect terminals Y1 and Y2
Manual reset - pulse terminals Y1 and Y2

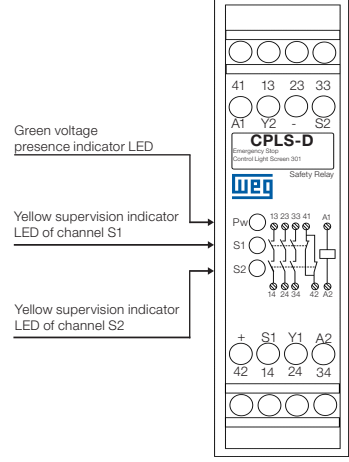


Figure 11: Description of the CPLS-D301 front part

Table 4: Indication of the LEDs

Indication	
Pw	Power supply
S1	Channel S1 enabled
S2	Channel S2 enabled

The activation of the two channels indicates the safety relays were.

5 TECHNICAL FEATURES

Table 1: CPLS-D301 Technical Information

General Data	
Safety level	PLe according to ISO 13849-1
Reset	SILCL3 according to IEC 62061/ IEC 61508
Feedback circuit (Y/N)	Manual / Automatic
Yes	Yes
Mechanical Data	
Connection type	Terminals
Cable type	Rigid or flexible
Max cable cross-section	2.5 mm²
Cable fastening	Parafuso
Screwdriver N°	Slot #3
Maximum torque	0.6 N.m
Lifespan	10 ⁷ operations
Dimensions (H/W/L)	115.5 mm x 97 mm x 22.6 mm
Ambient Conditions	
Ambient temperature	-10 °C to +55 °C (14 °F to +131 °F)
Storage/Transp. Temp.	-40 °C to +70 °C (-40 °F to +158 °F)
Protection level	IP20
EMC Rating	EMC Directive
Electrical Data	
Maximum consumption	2.5 W
Power supply	+24 Vdc ± 10 %
Wire break detection	Yes
Cable length	Check the cable maximum resistance
Conductor's resistance	40 Ohms
Output	
Number of safety contacts	3 NO contacts
Number of auxiliary contacts	1 NC contact
Contact capacity	4.5 A – 30 Vdc / 200 W – 250 Vca
Item Code	
12526241	CPLS-D301 Emergency Stop Control
14880135	CPLS-D301 EN GUIDE

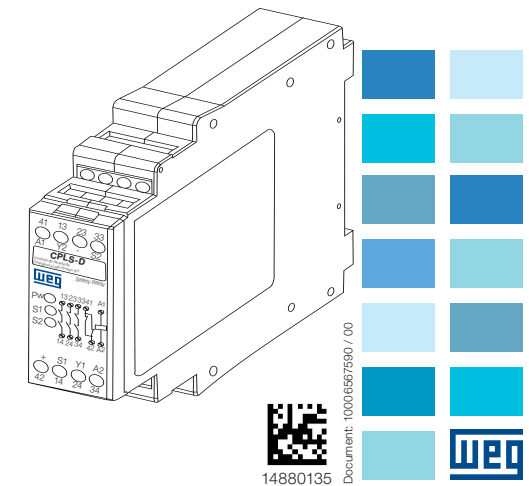
Table 2: Safety levels and applicable standards

Safety Levels	
Category PLe	PLe according to ISO 13849-1
SILCL3	According to IEC 62061
CAT4	According to BS EN 954-1
SIL3	According to IEC 61508
PFH	5.57 E-10 1/h
Service life	20 years

Emergency Stop Relay for Light Screen

CPLS-D301

Installation Guide



1 SAFETY INSTRUCTIONS

- DANGER!**
The procedures recommended in this warning aim at protecting the user against death, serious injuries and considerable material damages.
- ATTENTION!**
The procedures recommended in this warning aim at preventing material damages.
- NOTE!**
The information mentioned in this warning is important for the proper understanding and good operation of the product.

- DANGER!**
Only qualified personnel, familiar with the CPLS-D and related equipment, must plan or perform the installation, commissioning, operation and maintenance of this equipment. Those people must follow the safety instructions defined by local standards. The non compliance with the safety instructions may result in death risks and/or damages to the equipment.

2 GENERAL INFORMATION

The CPLS-D301 device was developed to increase the safety level of the emergency stop system on machines that use a light screen.

This control supervises the outputs of a light screen (OSSD) and similar safety devices that have outputs with PNP logic.

This guide contains all the information about the CPLS-D301 device, including the mounting, configuration, connection and operation of the safety relay and its attachments, and it ensures safety if it is carefully read and its instruction strictly followed.

This device was developed for safety-related use as part of a machine, whether industrial or not.

The manufacturer of the product shall not take any liability for improper handling or misuse of the device which may lead to any dangerous event. It is not allowed to open the device or make any repairs without prior authorization.

3 CONNECTIONS INSTRUCTIONS

- ATTENTION!**
It is mandatory to have the contacts properly connected in order to avoid misuses and even to guarantee contacts' and device's integrity.

The inputs must be switched on with normally closed contacts such as emergency buttons, safety switches, gate sensors.

For fastening the DIN rail, follow the procedure below:

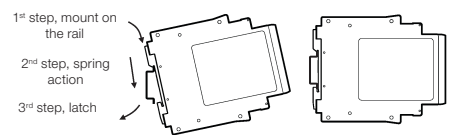


Figure 1: Procedure for mounting on DIN rail

The inputs must be connected to the contacts in a dual-channel system, such as emergency-stop pushbuttons, safety switches, door sensors, light screens or the like.

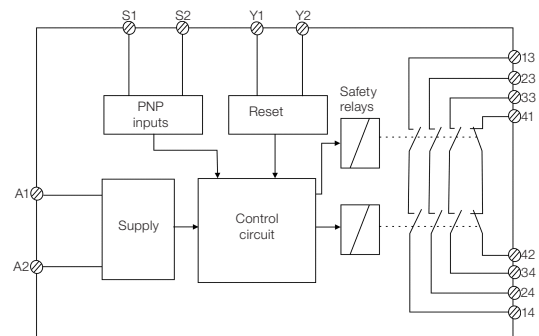


Figure 2: Block diagram

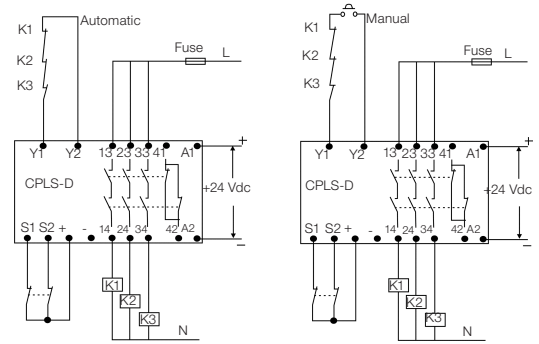


Figure 3: Examples of application

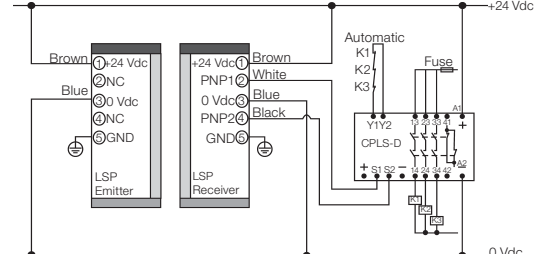


Figure 4: Example of CPLS connection in the automatic mode with the LSP light screen

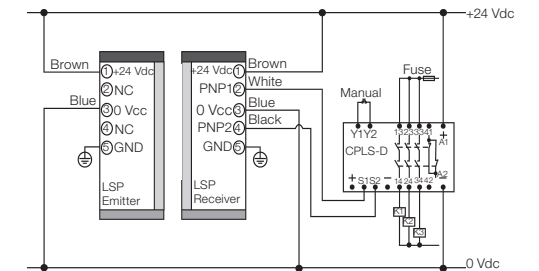


Figure 5: Example of CPLS connection in manual mode with the LSP light screen

4 START-UP AND SETTINGS

The emergency stop control CPLS-D has one input in dual channel and drive with PNP signal system.

The inputs can be individually actuated in dual channel system without the need to be simultaneously, however to disable the outputs just need one of the entrances to be switched off.

However, to reset the outputs, even in the automatic mode, it is necessary that both inputs are first turned off and then turned back on.

The CPLS-D is supplied with 24Vdc and works with two modes: Automatic and Manual.

For the manual mode, the CPLS-D requires a reset button connected to the terminals Y1 and Y2, which may be a pushbutton with a simple normally open contact (NO).

In automatic mode, inputs Y1 and Y2 must be connected. Under the CPLS-D front cover, a DIP switch is provided to select the device operating mode, as shown in Figure 6. To activate the mode, automatic or manual, both dip must be moved to the same direction.

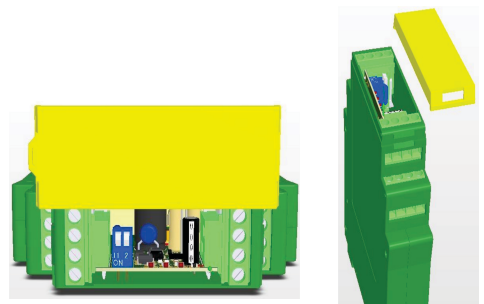


Figure 6: Automatic and manual modes operation principle

To remove the device front cover, it is necessary to insert a screwdriver into the slot on the front cover (shown in the figure below) and carefully force the slot, moving the screwdriver backwards until the slot disengages from the latch.

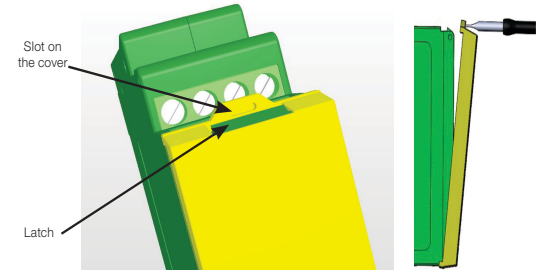


Figure 7: Removing the front cover

4.1 AUTOMATIC MODE OPERATION – DIP-SWITCH KEY IN OFF STATE (FACTORY ADJUSTMENT)

With power circuit within the rated voltage and inputs switched off, all outputs remain off.

Due to auto start, Y1 and Y2 interconnected system, by activating the S1 and S2 inputs, the safety relays will switch on automatically, which shall remain actuated until one or the two inputs are switched off.

For a new trigger (new cycle) it will require that the two inputs, S1 and S2, are switched off and then actuated again.

In the automatic operating mode, the two DIP switches must be positioned upwards according to Figure 8.

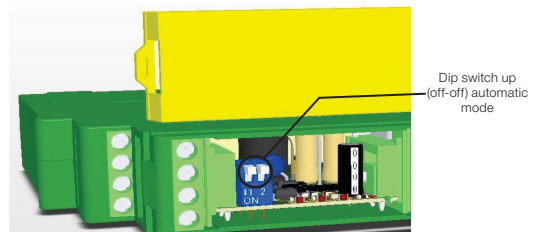


Figure 8: Automatic mode dip switch in OFF

4.2 MANUAL OPERATING MODE – DIP-SWITCH KEY IN ON STATE

With power circuit within the rated voltage and inputs switched off, all outputs remain off.

Even if S1 and S2 are actuated, the safety relays remain off waiting for the activation of "manual start" button.

When the button is pressed, the safety relays are actuated and the system goes into operation, and remain until one or both inputs are switched off.

For a new trigger (new cycle) it will require that the two inputs, S1 and S2, are switched off and then actuated again.

In the manual operating mode, the two dip switches must be in the down position, as shown in Figure 9.

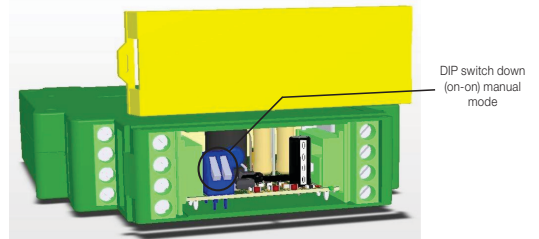


Figure 9: Manual mode dip switch ON

- ATTENTION!**
According to EN 60204-1 automatic restart is not allowed after an emergency stop. For this reason the machine control must prevent an automatic start after emergency stop.

4.3 SETUP AND MAINTENANCE

The device should be tested before full operation. For that, the correct fixing should be assured as so the cable and connections integrity and the electrical function of the device should be checked.

Regular inspections should be performed to check the integrity of all parts described above.

- ATTENTION!**
The device has to be integrated into the periodic check-ups, however at least 1x/year.