



MACHINERY SAFETY SYSTEMS

7000 Series Safety Light Curtains

OPERATING MODES

The operating mode determines how the light curtain is activated on power-up or re-activated after the obstruction of its sensors. This function is activated by means of a single START control which, depending on the chosen configuration, determines the operation of the light curtain. "Start" means the closing of the OSSDs when the light curtain is powered up, and "restart" means the closing of the OSSDs after removal of the object which interrupted the infra-red beam and caused the OSSDs to open. "Interlock" is the condition of waiting for the START command, which is required to Start or Restart the light curtain.

The Operating Modes are:

M1 - Automatic Start and Restart

On power-up the light curtain (if correctly aligned) immediately enables the operation of the guarded machine (OSSDs ON). If the light curtain is subsequently obstructed, the OSSDs switch to open (OSSDs OFF) sending the stop signal to the guarded machine. When the obstruction is removed, the safety outputs automatically revert to the ON state.

M2 - Start with Interlock

When the light curtain is powered up, the safety outputs are OFF. The START command (ON) must be given to assert the outputs. After activating the light curtain, any interruption will cause the outputs to switch OFF but as soon as the obstruction is removed the safety outputs automatically return to the ON state.

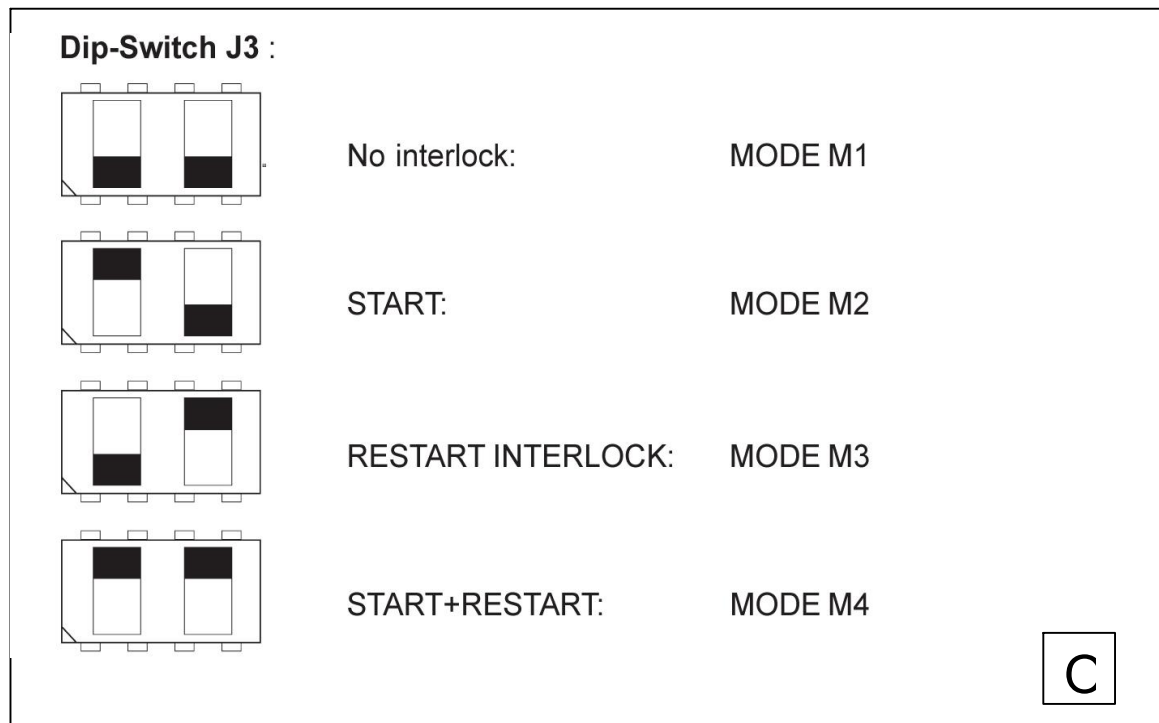
M3 - Restart with Interlock

On power up the light curtain immediately enables the operation of the guarded machine (OSSD ON). If the curtain is interrupted, the OSSDs switch to open (OFF). When the obstruction is removed, the safety outputs remain OFF until the RESTART command is given.

M4 - Start and Reset with Interlock

After the light curtain is powered up, it is not active until the START command is given. If the curtain is interrupted the OSSDs switch to the open (OFF) condition. When the obstruction is removed the safety outputs remain OFF until the RESTART command is given. (This is the default, maximum-safety condition).

The Interlock condition is signalled by the illuminated YELLOW LED on the CU. The DIP switches which select the operating mode of the light curtain are situated on the CU. For the DIP switch settings, please refer to Figure O below.



Note! (1) The new operating mode will come into effect only after switching the CU off and on again.

(2) If the start/restart contact closes when the curtain is working in normal conditions (closed safety contacts) the curtain will immediately turn the contacts into an OFF condition (open contacts); this is due to a monitor circuit, which prevents the possibility to have undesired start/restart conditions of the curtain caused by a short circuit on the contact of the start/restart control device.

Caution! The operating mode must be chosen in accordance with the application of the light curtain and the type of machine on which it is installed.

Range

The range is the maximum distance between the Transmitter and Receiver at which the light curtain can function. The range is set using the DIP switches on the CU. There are three possible settings:

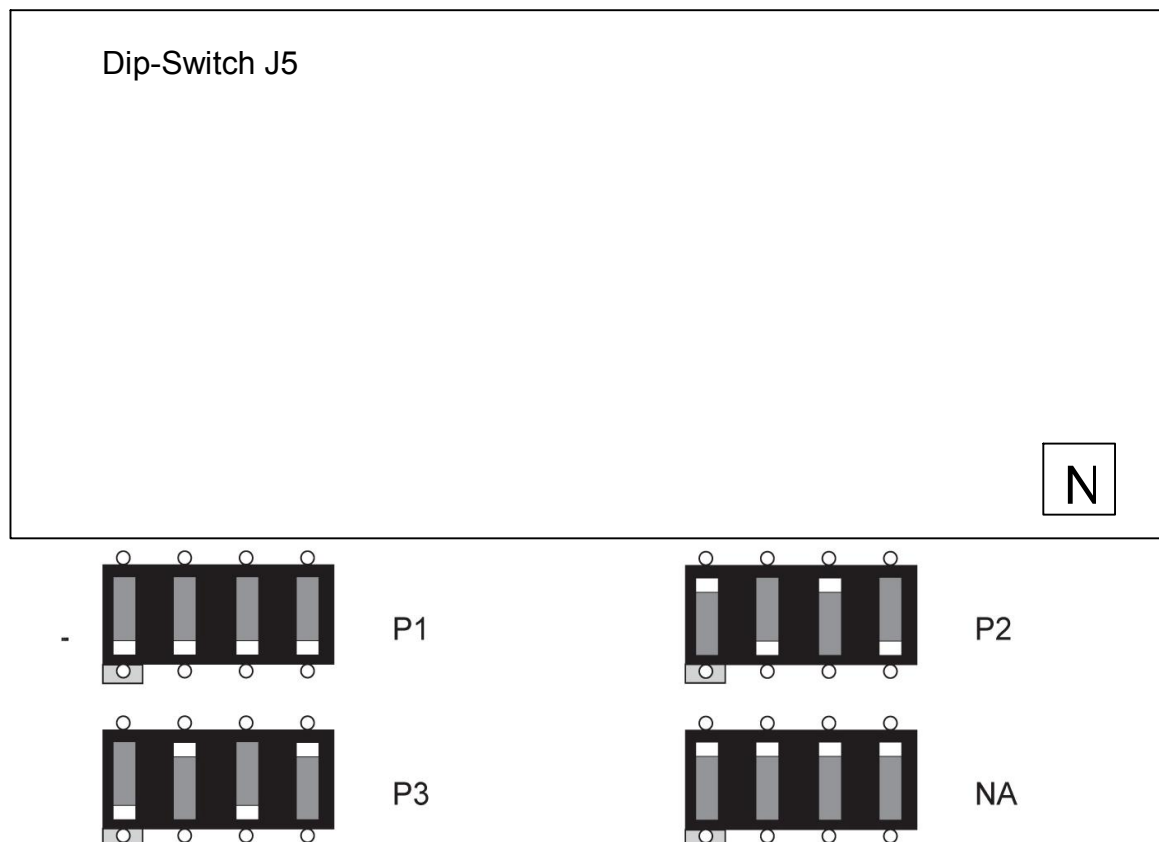
- for 30mm-, 70mm-, 300mm- and 420mm- resolutions

- P1 From 0.5m to 1.5m ($\pm 0.1m$)
- P2 From 1.5m to 5m ($\pm 0.2m$)
- P3 From 5m to 15m ($\pm 0.3m$)

- for 14mm-resolutions:

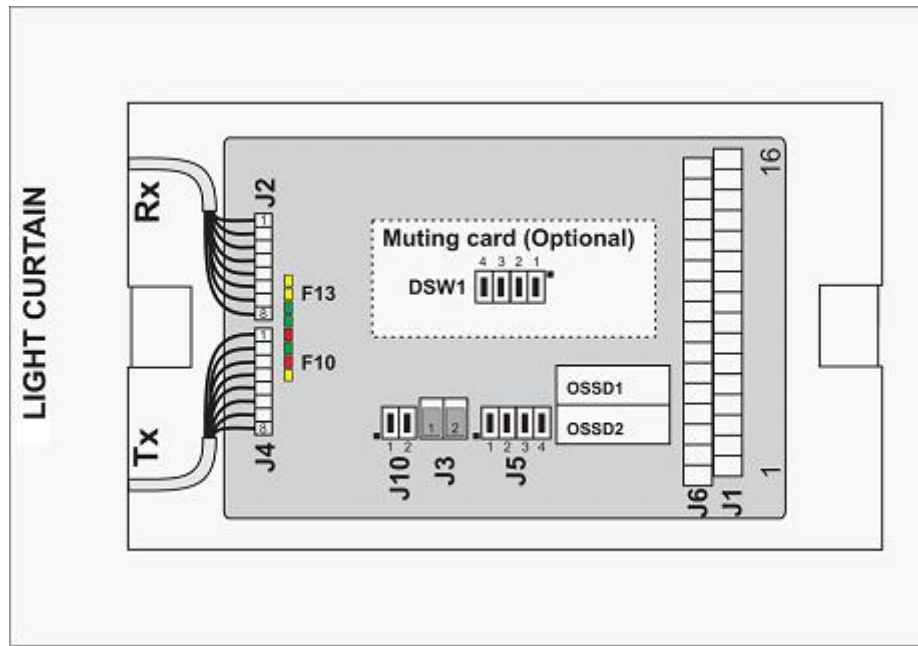
- P1 From 0.5m to 1m ($\pm 0.1m$)
- P2 From 1m to 3m ($\pm 0.2m$)
- P3 From 3m to 5m ($\pm 0.2m$)

To set the range DIP switches refer to Figure N below.



Layout of the terminals and switches in the Control Unit

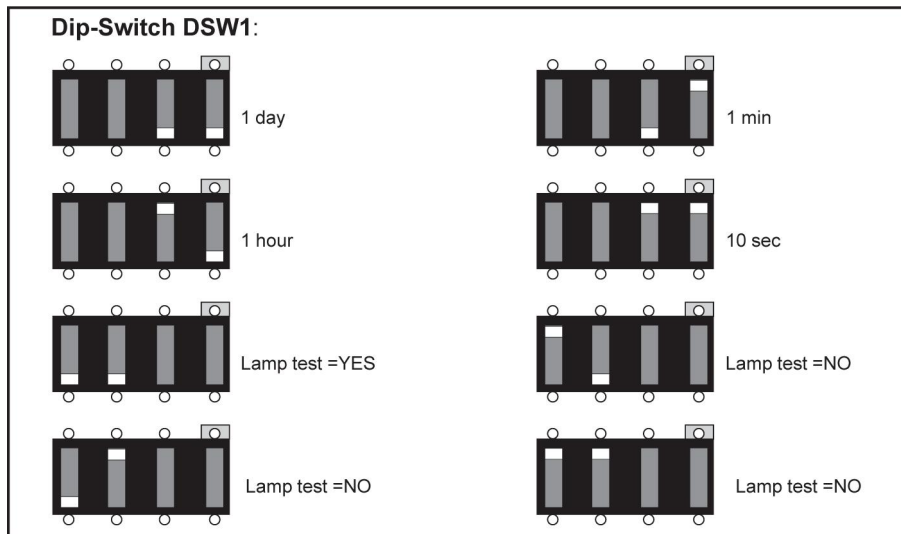
The below shows the layout of the terminals and manual switches on the Control Unit interface board.



J4xx	Transmitter connector
J2xx	Receiver connector
J3	Dip switch of the Functioning Mode selector
J5	Dip switch of the Capacity selector
J10	Dip switch of the Partial Dynamic Muting selector
DSW1	Dip switch of the Muting function (option)
F13	Control LED
F10	Control LED
J1xx	User connector
J6xx	User connector

Mute Function Settings

If the muting function is used, the two controls must be connected to terminals 6J11 (+24Vdc) and 6J12 (0 V) and the muting indicator lamp between 1J13 and 1J14.



Dynamic Partial Mute Function Settings

The table below shows the connections for activating the requisite number of beams to be blanked. If these terminals are not connected the function will not be active. Select the dynamic partial mute timeout.

No. of blanked beams	1J7	1J8	1J9	1J10
None	n.c.	n.c.	n.c.	n.c.
1	H	L	L	H
2	L	H	H	L
3	H	L	H	L

L= 0V, H+24Vdc, n.c. = not connected.

