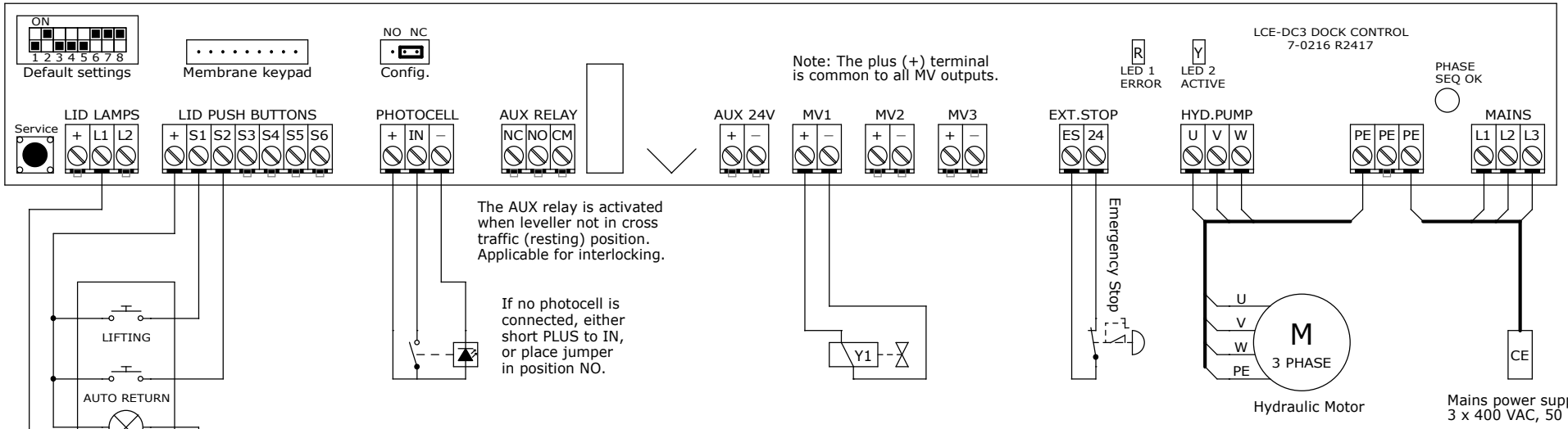
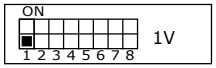
TNV 2B1VS 2021-02-18

Connection Diagram for 1-valve Swing-lip Dock Leveller Control



FUNCTION	PUMP	MV1
LIFTING	ON	ON
EXTEND	ON	ON
LOWER	OFF	ON
FLOAT	OFF	ON
STOPPED	OFF	OFF

Operation Mode



Switch OFF for 1-valve.

LED 1 and 2 displays status information and error codes:

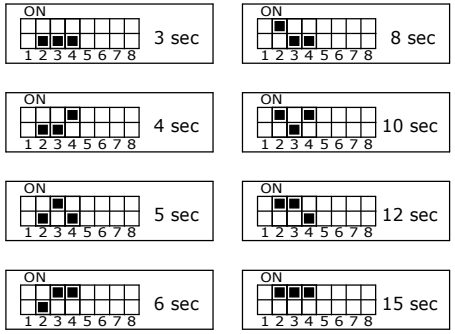
Yellow only: Manual or automatic operation in progress.
Alternating: Operation blocked by photocell (check jumper).
Yellow flash: No longer blocked, simply awaits re-activation.
Red+Yellow: External STOP (must be shorted if not applied).

Errors (to be reset by power cycling the unit) are displayed continuously according to the below (ERR + ACT) encoding:

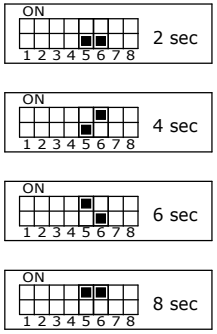
1 + n : Button n is stuck (upon 3 seconds of power-on).
2 + 1 : No power consumption (disconnected motor).
2 + 2 : Unbalanced power consumption (phase failure).
2 + 3 : High motor power (overload protection tripped).
2 + 4 : Control unit overheated (100 degrees Celsius).
3 + 1 : Contactor does not switch on when energised.
3 + 2 : Contactor does not switch off when de-energised.
3 + 3 : Contactor operation timeout (more than 45 sec).
4 + 1 : MV1 valve is on even though output switched off.
4 + 2 : MV2 valve is on even though output switched off.
4 + 3 : MV1 valve is off even though output switched on.
4 + 4 : MV2 valve is off even though output switched on.
5 + 1 : Power-on EPROM read/write failure (HW fault).
5 + 2 : Asymmetrically wrapped current transformers.
5 + 3 : Current transformer TR3 ground out of range.
5 + 4 : Current transformer TR4 ground out of range.
6 + n : Software failure (real-time operating system).

The service button (upper left corner) has two functions:
- If replacing the hydraulic pump, push and hold the button while turning on the control unit to reset the stored motor protection settings. Confirmed by alternated LED flashing.
- Push the button (repeatedly) at any other time to display the internal operations counter. The red LED counts the digit (1 for 10s, 2 for 100s, and up to 5 for 100,000s) and the yellow LED counts the value of the selected digit.

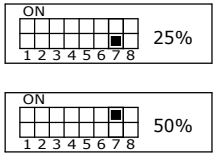
Auto Return Lift and Retract Time



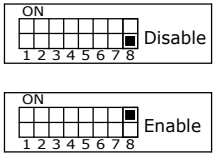
Auto Return Lowering



Auto Return Lip Retract



Automatic Topstop



If leveller has reached top limit during auto-return, the lip may have become somewhat extended and the leveller has to lower a bit (switch 5 and 6) and lift again for a percentage (switch 7) of the applied lowering time to fully retract the lip.
If topstop (switch 8) is enabled, automatic return ends if leveller happens to reach top limit before timeout (as set by switch 2 to 4).

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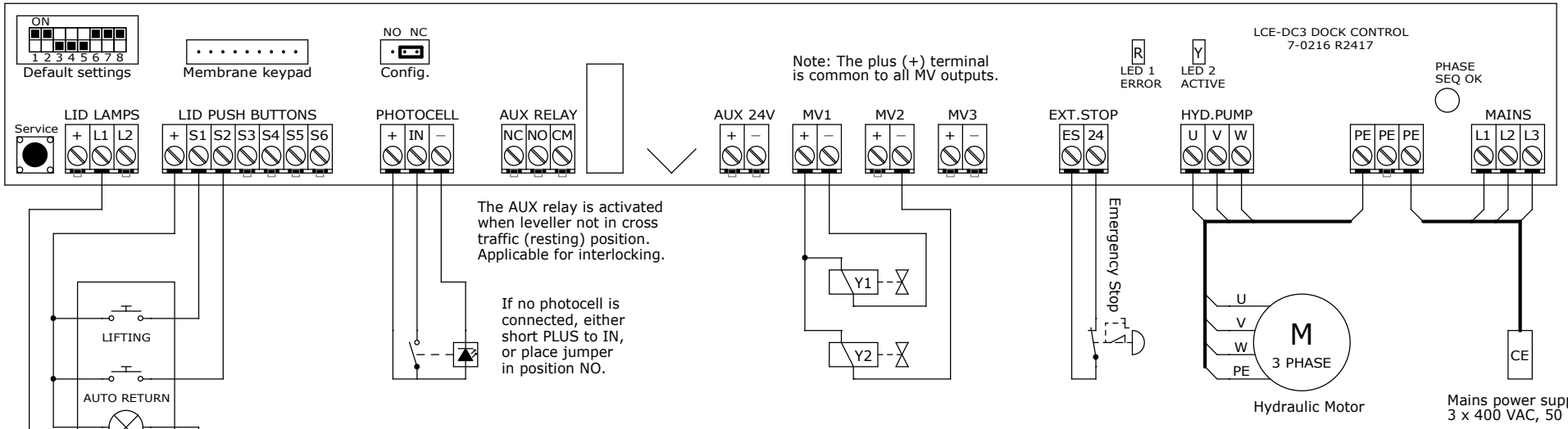
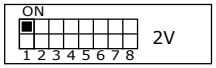
Connection Diagram for 2-valve Swing-lip Dock Leveller Control



FUNCTION	PUMP	MV1	MV2
LIFTING	ON	OFF	ON
EXTEND	ON	OFF	OFF
LOWER	OFF	ON	OFF
FLOAT	OFF	ON	ON
STOPPED	OFF	OFF	OFF

Operation Mode



Switch ON for 2-valves.

LED 1 and 2 displays status information and error codes:

Yellow only: Manual or automatic operation in progress.
Alternating: Operation blocked by photocell (check jumper).
Yellow flash: No longer blocked, simply awaits re-activation.
Red+Yellow: External STOP (must be shorted if not applied).

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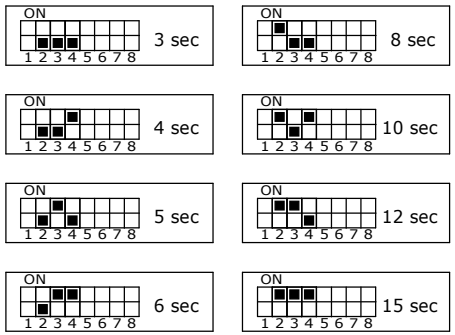
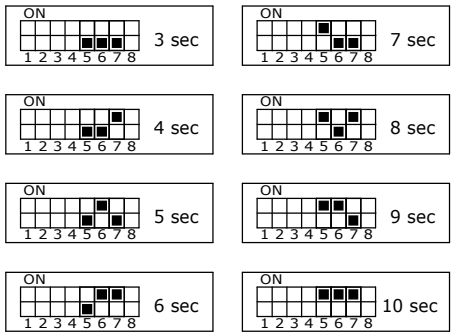
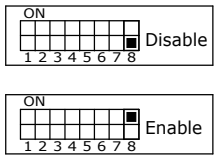
Auto Return Lift and Retract Time



Lifting Time Before Lip Extend



Automatic Topstop



If topstop is enabled, automatic return ends if leveller happens to reach top limit before timeout. Furthermore, the leveller turns immediately to extend-lip, if it reach top limit before timeout of the set lifting time.