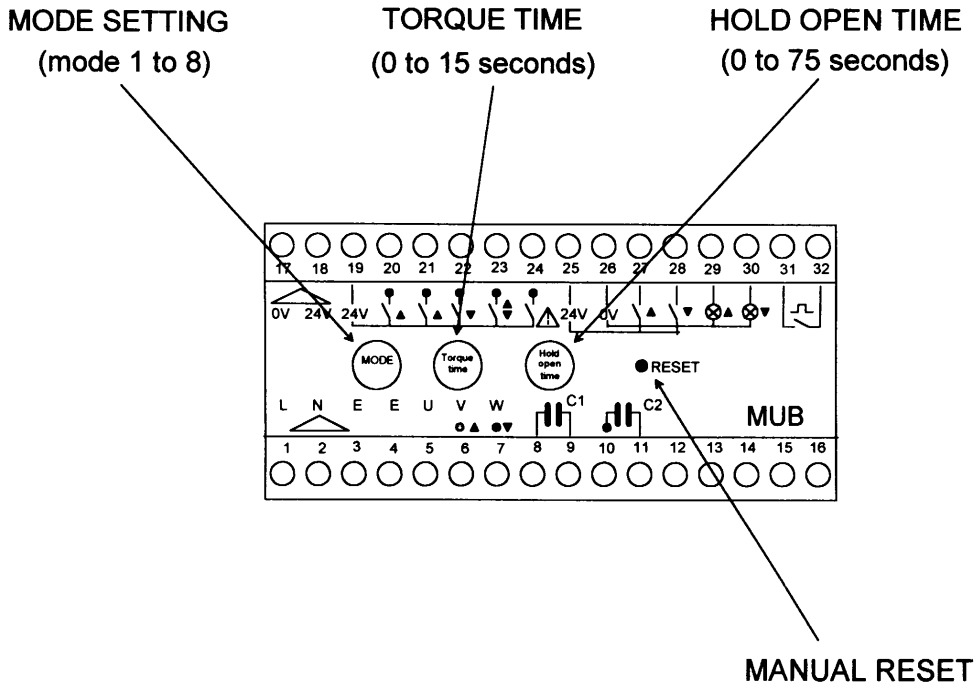
EMS

ELECTRO MECHANICAL SYSTEMS LIMITED



MUB - Universal Control Unit

Mode setting

Mode 1 Simple switch operation between terminals 19 and 22
Contacts open = barrier open
Contacts closed = barrier closed

Mode 2 Dead man function, two push button contacts - limit switch required between terminals 19 & 23.
Terminals 19 & 20 = open pulse.
Terminals 19 & 22 = close pulse, close pulse must be maintained until the limit switch is reached.

Mode 3 Pulse control with one push button connected between terminals 19 & 20.
First pulse opens the barrier, next pulse closes.

Mode 4 Pulse control, two push button contacts.
Terminals 19 & 20 = open pulse
Terminals 19 & 22 = close pulse

The above mode settings can be used for simple applications where the operator is in control of the barrier movement. If a safety loop is not installed a wire bridge must be connected between terminals 19 & 24 (or 24 & 25).

The following settings require a safety loop to prevent the barrier closing while a vehicle is under the boom.

Mode 5 Dynamic function
Terminals 19 & 20 = open pulse
Terminals 19 & 21 = opening loop
Terminals 19 & 22 = close pulse
Terminals 19 & 24 = safety loop (a limit switch is also required to isolate the loop when the barrier is in the closed position)
An open signal opens the barrier, it will automatically close after a pre set time (hold open time) or when a vehicle passes over both loops.

Mode 6 Similar to mode 5 but with direction sensing, the barrier closes immediately the safety loop has been cleared.

Mode 7 Static function, similar to mode 5 but without automatic closing after a pre set time (hold open time). The barrier remains open until both loops have been crossed or a close signal is given.

Mode 8 Similar to mode 7 but with direction sensing, the barrier closes immediately the safety loop has been cleared.

Note With opening (free exit) and safety loops the vehicle should momentarily trigger both loops.

Torque time

This should be set to the barrier operating time plus 2 or 3 seconds. The rotary switch can be set between 0 & 15 seconds, each division equals 1 second.

Hold open time

With modes 5 & 6 the hold open time must be set long enough to allow the barrier to raise and the vehicle trigger the safety loop, otherwise the barrier will close immediately after the open signal has been released. This can be set between 0 & 75 seconds on the rotary switch, each division equals 5 seconds.

RESET

After power failure or function change the manual reset button should be pressed. If used in mode 5, 6, 7 or 8 the unit is automtically reset once the safety loop safety loop is crossed.

PLEASE NOTE:
The current unit MUB 3B-100 does not require external resistors in series with the capacitors although if they are used they will not impair the barrier operation.

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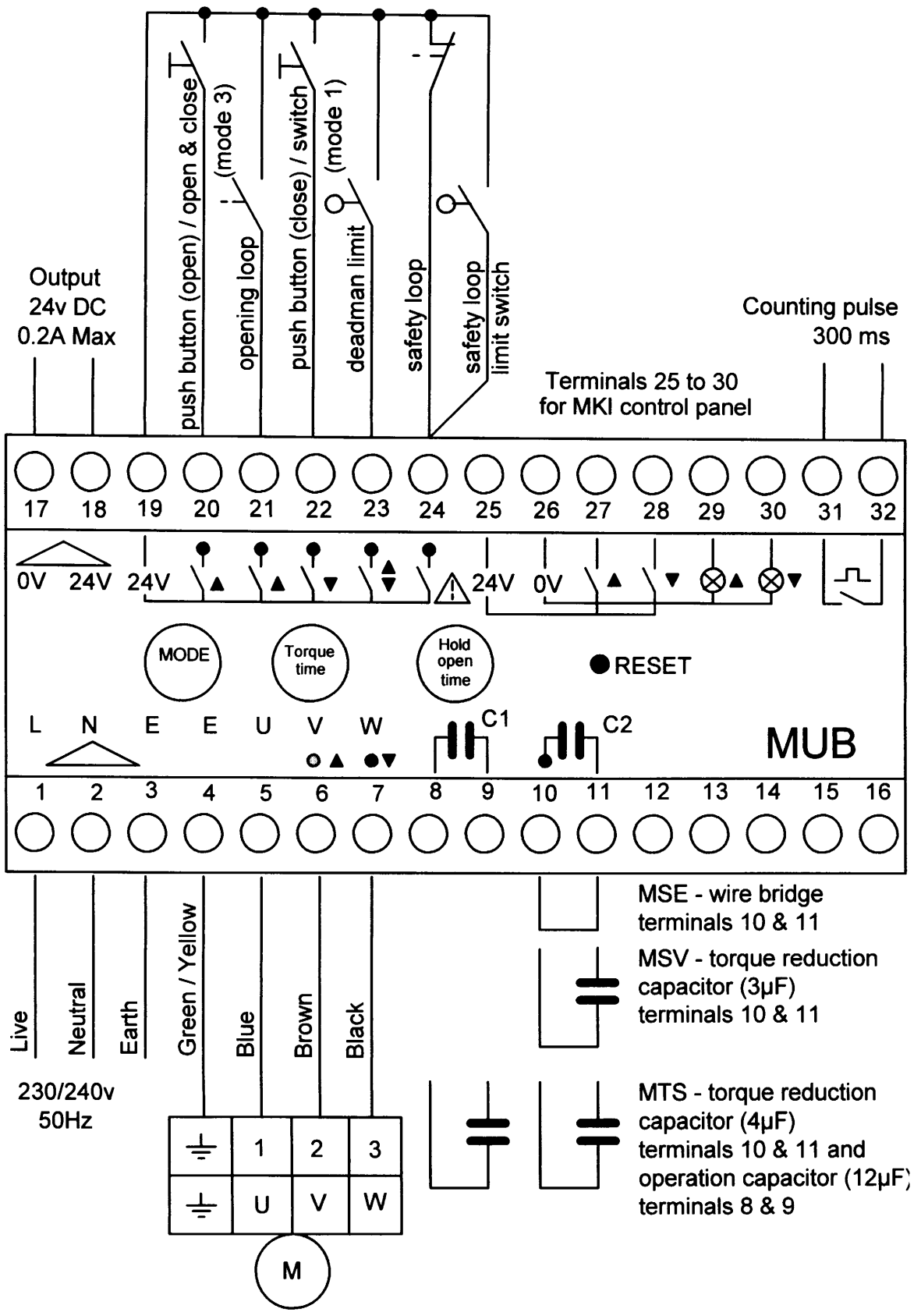
Electrical Connections



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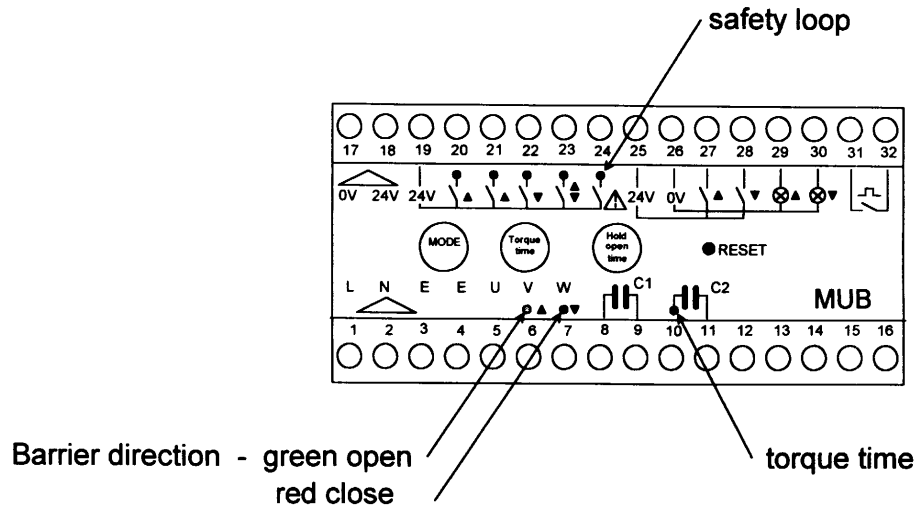
TESTING

To test the barrier operation it is easier to set the MUB control to mode 4, if a safety loop is not installed then fit a wire bridge between terminals 19 & 24 (or 24 & 25). After switching on press the reset button, the barrier should close.

LED indicator lights



The safety loop LED will be on to indicate the circuit is working and that the loop is unoccupied, the barrier direction red indicator shows the barrier position and the torque time indicator lights for the pre-set period. A pulse between 19 & 20 will open the barrier, the green led will indicate the motor direction and the torque LED will show for the torque time. A pulse between 19 & 22 will close the barrier again, the indicator lights at 20 & 22 will show as the control is pulsed.

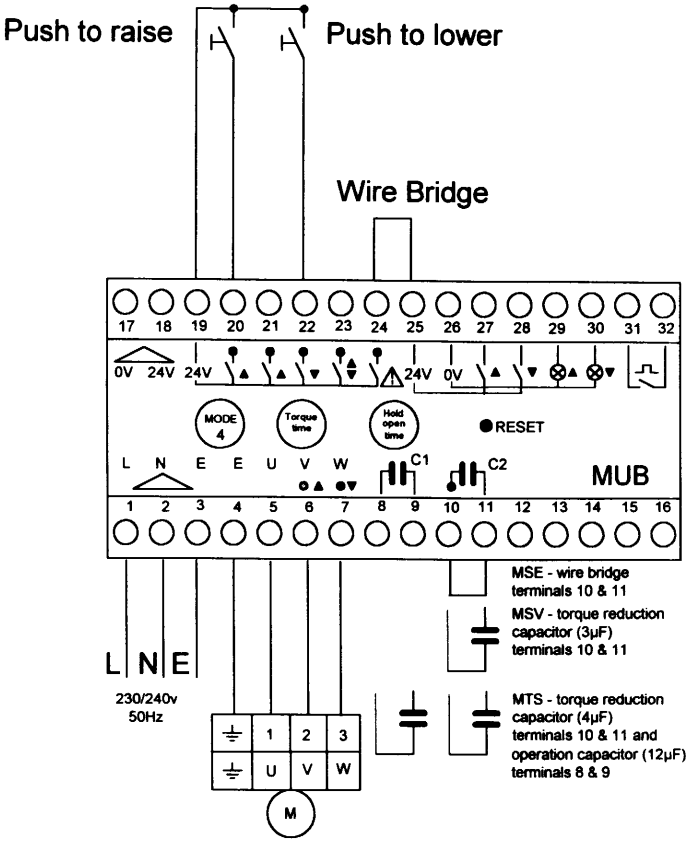
Fault finding

Safety loop LED not working, loop not connected or faulty - test with wire bridge
Torque time LED goes out before the barrier has reached its end position - increase the torque time (see page 2).
Direction LED's not working - check mains supply and fuses.

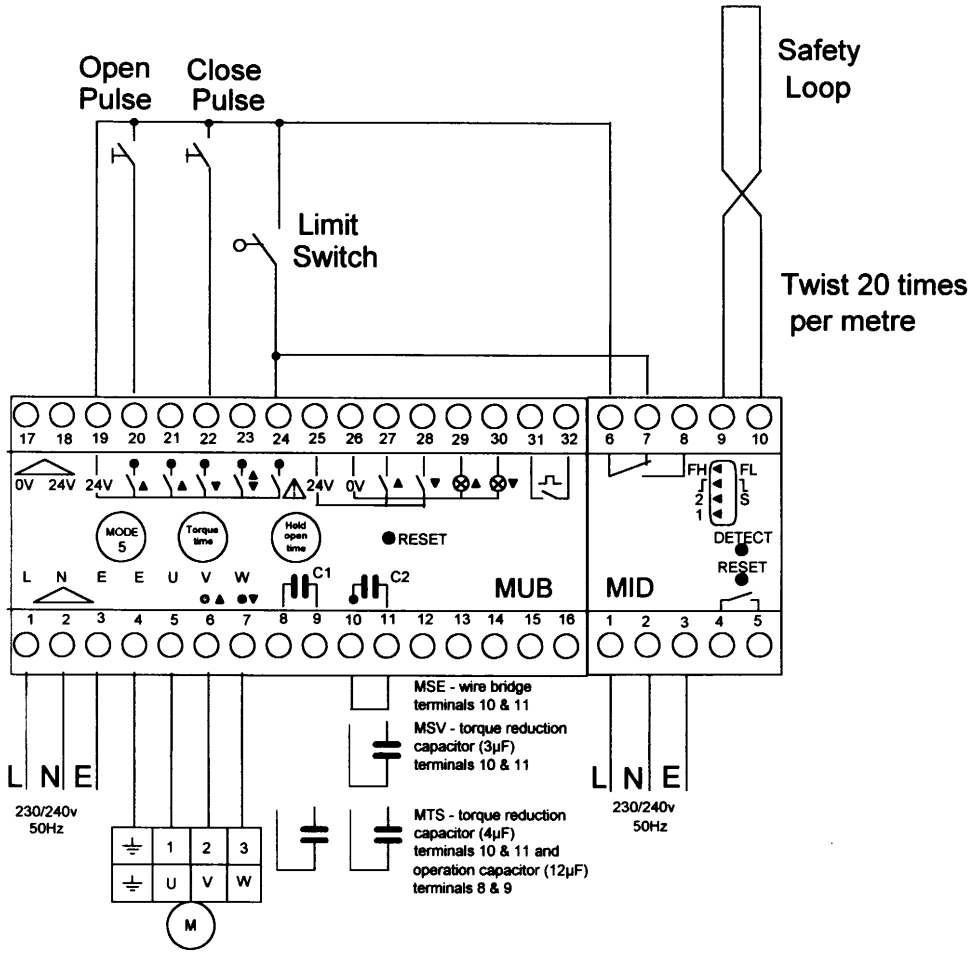
Once the barrier operation has been tested the correct mode can be set, the LED's will indicate the barrier signals and position. The LED at terminal 23 is used in mode 2 (deadman's control) to show when the limit switch is reached. In other modes it can be used as a braking pulse and the LED will light for approximately 2 seconds.

In modes 5 & 6 (dynamic) the hold open time must be long enough to allow normal entry, the barrier will close immediately the safety loops have been passed.

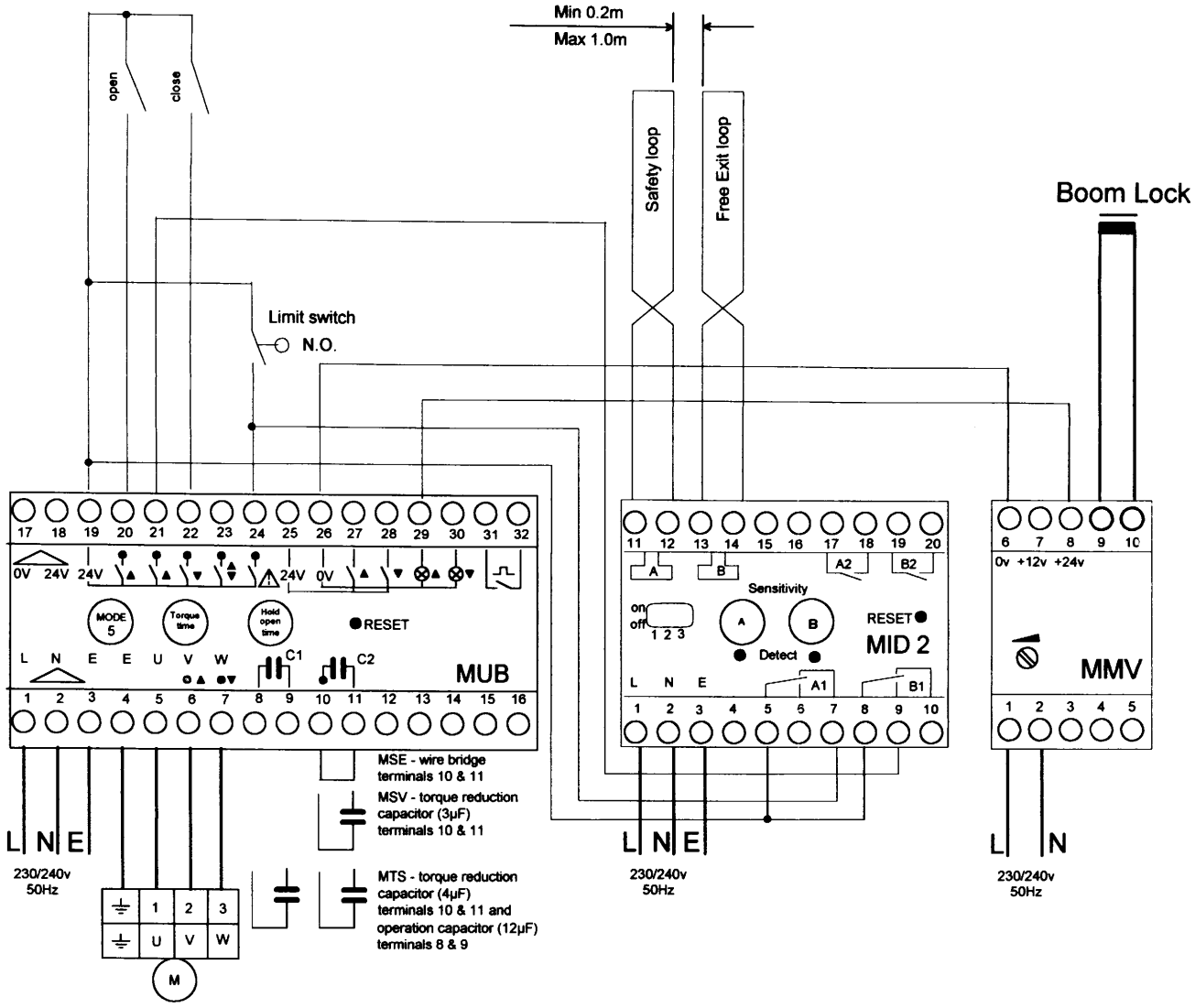
Wiring diagrams



Example 1 - mode 4, push button control from gate house. No loop detectors.



Example 2 - mode 5, open signal with safety loop and automatic closing after passing over the loop, close switch optional.



Example 3 - showing

MUB - mode 5, open signal, (close signal optional).
MID2 with safety loop / automatic closing and free exit loop
MMV boom lock control.

MUB Logic Sequence:

	Condition	MODE
1	The unit is intrinsically fail safe therefore a safety loop or wire bridge must be connected between terminals 19 & 24 (or 24 & 25) if this link is open the barrier will raise and any other signals will be ignored.	All
2	A permanent close signal between terminals 19 & 22 will override all opening signals except for a break in the safety loop circuit	1, 5, 6, 7 & 8
3	A permanent open signal between terminals 19 & 20 will override all closing signals.	2 & 4
4	A permanent close signal between terminals 19 & 22 combined with an open signal on 19 & 20 will cause the barrier to open while the signal (19 & 20) is applied.	2 & 4
5	A permanent open signal between terminals 19 & 20 combined with a close signal on 19 & 22 will cause the barrier to close while the signal (19 & 22) is applied.	1, 5, 6, 7 & 8