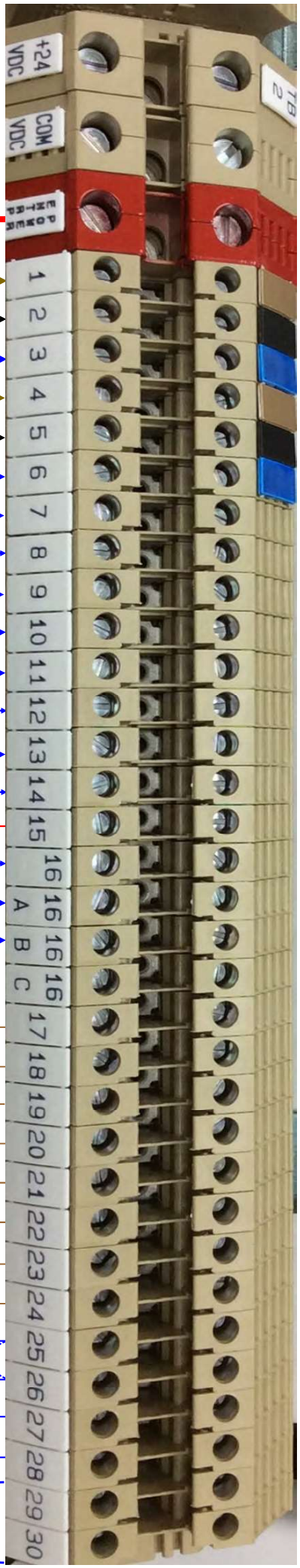
TB 2 Low Voltage Connections



24 VDC Auxiliary Power (2 amps max)

Auxiliary Power Common

24VDC Power for Entrapment Devices and across drive photo beam

Do not cut the sensor cables!

Sensor A

BROWN
BLACK
BLUE

Sensor B

BROWN
BLACK
BLUE

Inputs 7-14 normally open dry relay contacts.

Keypads, card readers etc. should be connected into Free Exit input.

- **Operate** Input
- **Free Exit** Loop
- **Safety** Loop
- **Shadow** Loop

All three devices to be powered from ENTRP POWER and are monitored once per cycle to verify proper operation.
PLC lights X22, X20, & X17 need to be **ON** in a powered up unobstructed state.
When ENTRP POWER is turned **OFF** these inputs must de-activate.

UL 325 Edge Detector Type B2 Contact Device	COM	+24 VDC
	N/C	X22
UL 325 Photo Beam Type B1 Non-Contact Device	COM	
	N/C	X20
Photo Beam (across drive) vehicular only **NOT FOR ENTRAPMENT PROTECTION USE** Works as a vehicular **SAFETY** input	COM	
	N/C	X17

No connection

All outputs are dry relay contact closures rated for 10 A.

- OPEN STATUS
- CLOSED STATUS
- FAULT STATUS (normally closed)
- SIREN WARNING PRESTART

THREE BUTTON STATION INPUTS

* Remove jumper on 25 & 26 for three button station option.

If a three button station is not used, 25 & 26 must be jumpered.

STOP — N.C. — *
OPEN — N.O.
CLOSE — N.O.

Optional **EMERGENCY CLOSE** input

Low Voltage Input & Output Description TB2

1 **Sensor A** (brown) +24VDC

2 **Sensor A** (black) proximity sensor A output

3 **Sensor A** (blue) DC common

4 **Sensor B** (brown) +24VDC

5 **Sensor B** (black) proximity sensor B output

6 **Sensor B** (blue) DC common

7 +24VDC

8 **OPERATE -** Toggles between OPEN - STOP - CLOSE Normally used with car hand transmitters and receiver

9 +24VDC

10 **FREE EXIT -** N/O When activated opens gate - holds gate open - stops and opens gate if closing

11 +24VDC

12 **SAFETY -** N/O When activated will stop and open gate if closing - holds gate open - does not open gate if gate is stopped.

13 +24VDC

14 **SHADOW -** N/O When activated will hold gate open. Once the gate starts to close, the SHADOW input will not stop and re-open the gate. Can be used to prevent tailgating

15 +24VDC

Entrapment devices should be connected at these inputs to meet the UL325 standard. After two consecutive inputs in the same cycle the operator will go into a hard shutdown condition that can only be reset with the internal FAULT reset push button. These inputs are tested once per cycle for proper device operation.

16 **EDGE -** N/C UL325 Type B2 monitored contact device.

16A **PHOTO BEAM -** N/C UL325 Type B1 monitored non-contact device.

16B **PHOTO BEAM -** N/C Activated when beam broken. Works the same as SAFETY INPUT but is still monitored once per cycle. For across road vehicular traffic only. Cannot be used to meet UL325 Type B1 Non-contact device.

16C not used

17 **OPEN STATUS**
18 **OPEN STATUS**
— Dry contact relay output - contacts closed when gate is within the OPEN limit distance.

19 **CLOSED STATUS**
20 **CLOSED STATUS**
— Dry contact relay output - contacts closed when gate is within the CLOSE limit distance.

21 **FAULT STATUS**
22 **FAULT STATUS**
— Dry contact relay output - contacts closed when a FAULT condition exists. Must be reset with the FAULT RESET push button inside the controller.

23 **SIREN WARNING**
24 **SIREN WARNING**
— Dry contact relay output - contacts closed when siren is installed and activated

25 +24VDC

26 **STOP** (NC)
27 **OPEN** (NO)
28 **CLOSE** (NO)
— Three button station inputs. Jumper between 25 & 26 must be removed for proper operation. Leave jumper in for two button station.
AUTO CLOSE is disabled when the OPEN button is used.

29 **EMERGENCY CLOSE**
30 **EMERGENCY CLOSE**
— Optional

ENTRAPMENT DEVICES REQUIRED FOR UL 325

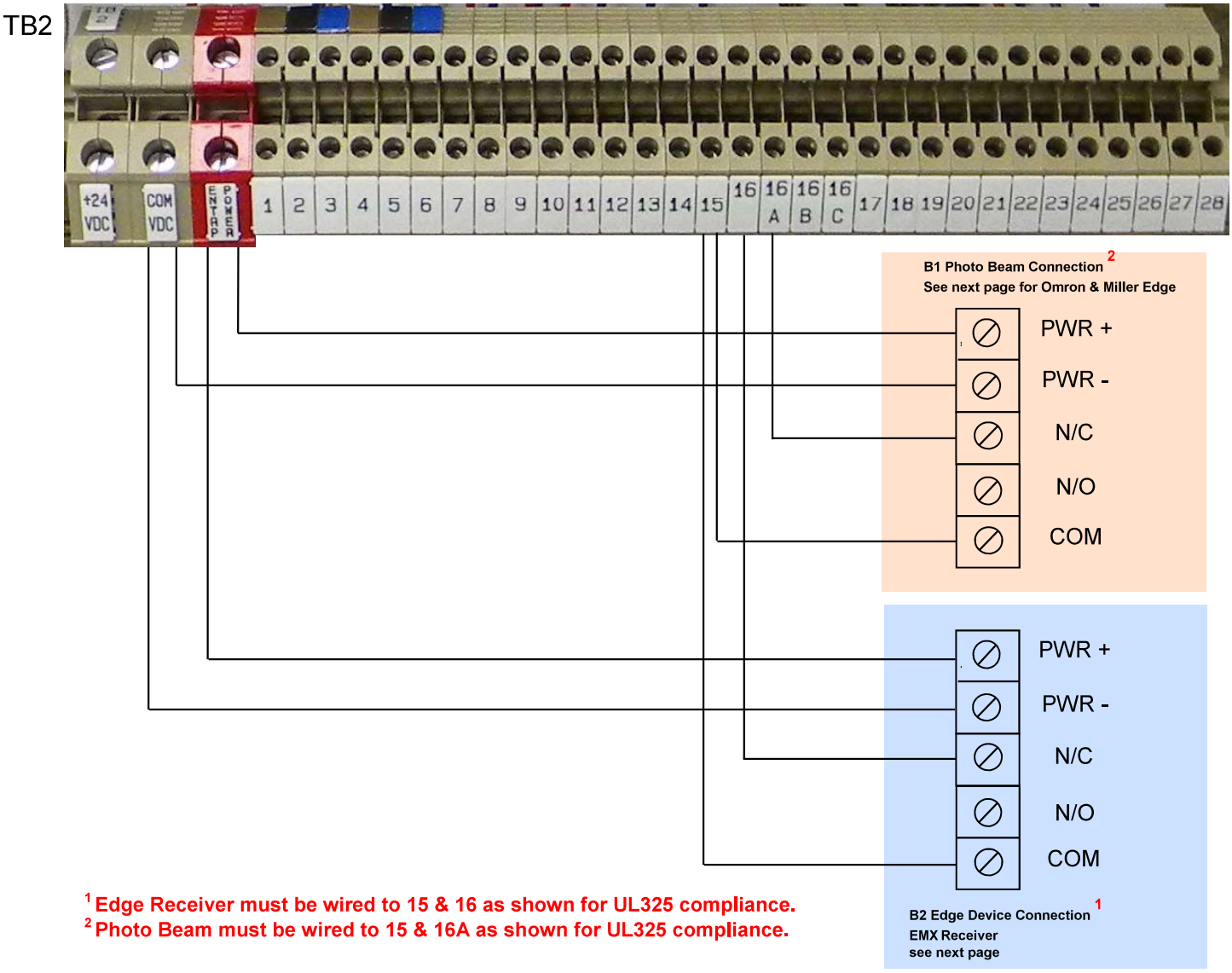
Effective January 12th, 2016 UL325 requires that every entrapment device be monitored for proper operation once every cycle. Vmag has adopted the **Normally Closed** monitoring method which requires that the entrapment devices used must have the output relay energized in the non-detect mode for proper testing. In the event a device is determined to be mal-functioning the operator will shut down and sound an alarm for five minutes. This fault condition can only be cleared by two activations of the **FAULT RESET** push button inside of the controller.

Vmag operators have provisions for one **Type B1** device (photo beam) & one **Type B2** device (edge switch) to comply with UL325.

The following entrapment devices have been tested for use with Vmag gate operators.

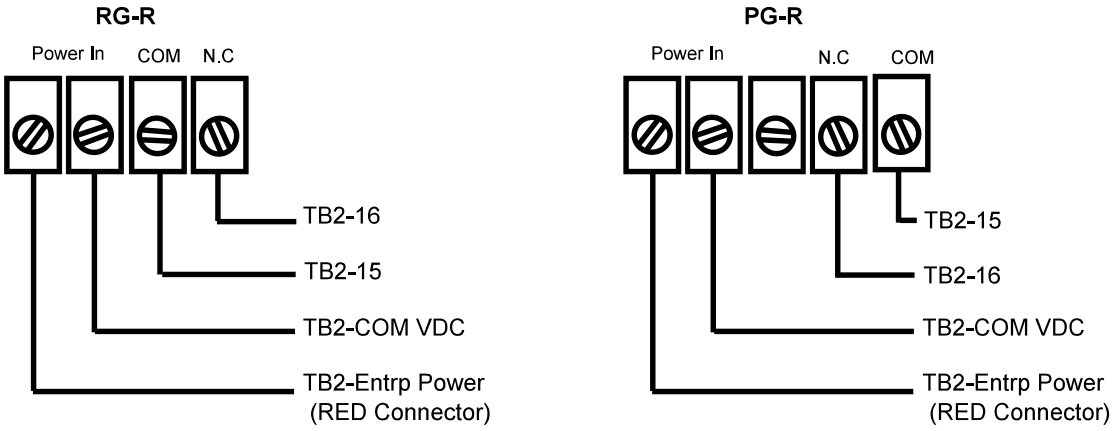
Gate Edge Devices: EMX WEL-200 Transmitter & Receiver used with Miller Edge 10 k edge switches

Photo Beam Devices: Omron - E3K-R10K4-NR (see next page)
Miller Edge - PG-K-R50 through beam
Miller Edge - RG-K-R reflective beam

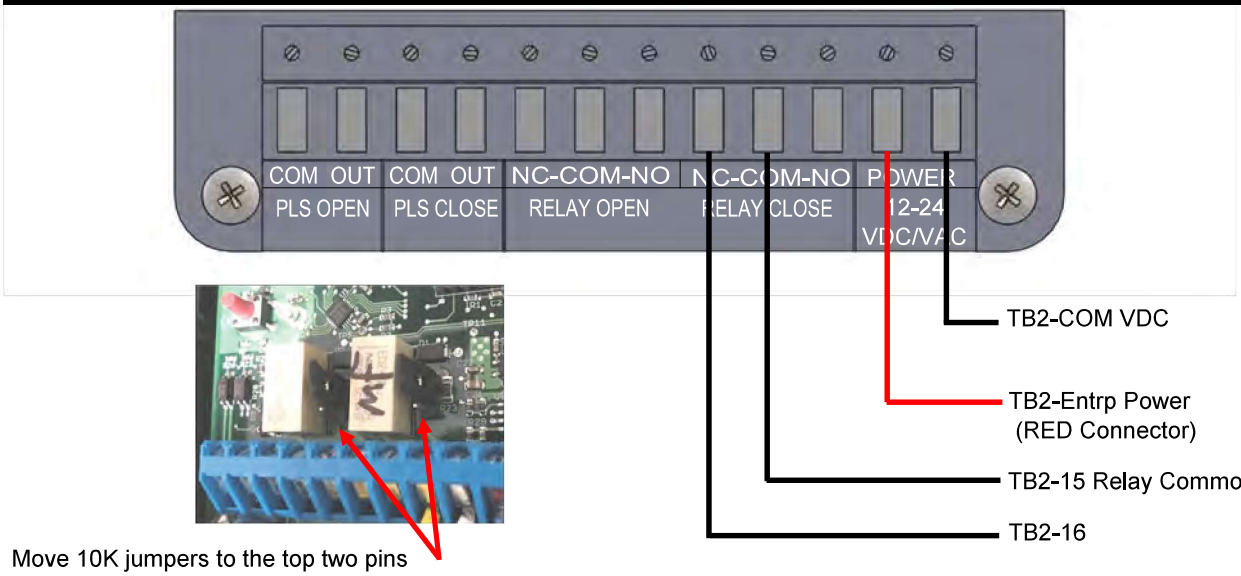


[1] **Edge Receiver must be wired to 15 & 16 as shown for UL325 compliance.**
[2] **Photo Beam must be wired to 15 & 16A as shown for UL325 compliance.**

Miller Edge ReflectiGuard RG-R and PrimeGuard PG-R



EMX WEL-200 Wireless Edge Link



Move 10K jumpers to the top two pins

OMRON E3K-R10K4-NR

Set switch to
LIGHT ON

Make sure
SENSITIVITY
Is not set too low

PWR → TB2-ENTRP PWR
PWR → TB2-COMM VDC

Remove resistor if installed

NC1 → TB2-16A

C1 → TB2-15