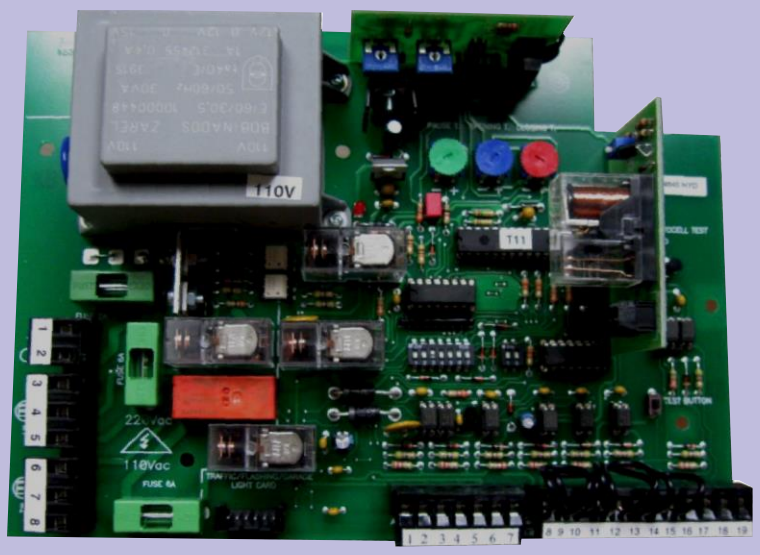


ETL LISTED TO UL 325 STANDARD

G2M+ Control Board

BYAN SYSTEMS INC.

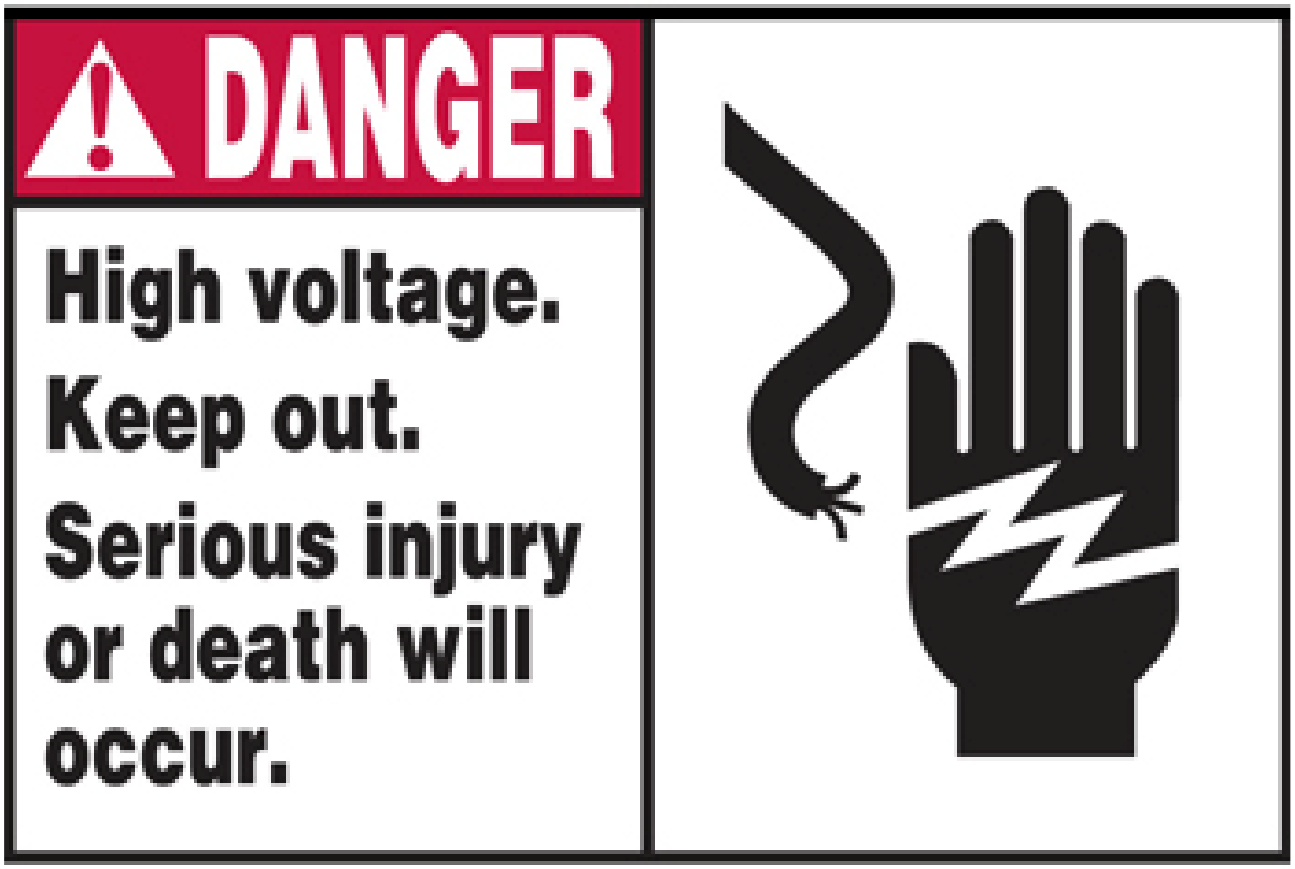
Automatic Gate and Access Control Products

Installation and Operators Manual

Specifications:

Power Supply:	Single-Phase 115-Volt or 220-Volt 50/60 Hz AC
Motor Power Consumption:	Up to 550 Watts or 3/4 HP
Electric Lock Output:	12-Volt DC 1-Amp Maximum
Accessory Power Output:	24-Volt AC 1-Amp Maximum
Input Power Fuse:	2-Amp, 250-Volt; 5mm x 20mm Tubular Glass
Motor Power Fuses:	6-Amp, 250-Volt; 5mm x 20mm Tubular Glass

307.334.2865
Fax: 307.334.2028
P.O. Box 1384 | 413 South Linden Street | Lusk, Wyoming 82225
www.byan.com
Toll Free: 800.223.2926



THIS EQUIPMENT USES HIGH VOLTAGE. TO REDUCE THE RISK OF SEVERE INJURY OR DEATH, FOLLOW ALL INSTALLATION INSTRUCTIONS.

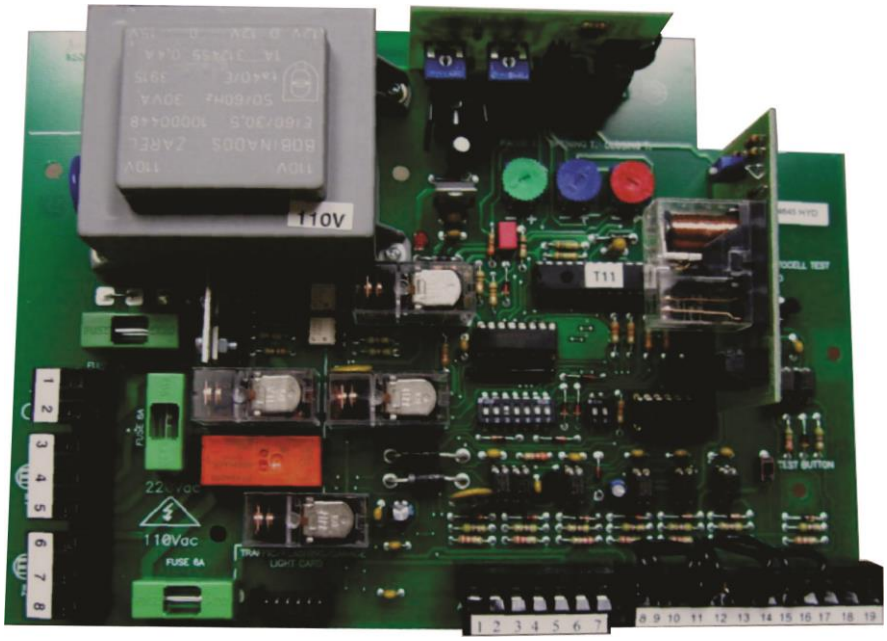
THIS SYSTEM SHOULD ONLY BE INSTALLED AND/OR MODIFIED BY QUALIFIED TECHNICAL PERSONNEL.

ALL INSTALLERS, REGARDLESS OF EXPERIENCE, SHOULD REVIEW PAGES 6 THROUGH 11 BEFORE INSTALLING THIS ACTUATOR.

As a Byan Systems gate installer, you MUST inform your customer about all safety equipment that should be installed on each job site. This is in accordance with your legal liability to your customer. Ensure that the protection and warning signaling devices are operational and visible. These steps will aid in your defense should you become involved in litigation regarding injury or damage.

Table of Contents

BYAN SYSTEMS G2M+ CONTROL BOARD



The Byan Systems G2M+ Control Board is designed for both 10KΩ and Normally Closed technology safety devices by implementation of a built-in daughter card. The G2M+ is a single phase, microprocessor controlled unit. It is capable of controlling up to two ¾-hp, 115-Volt or 220-Volt AC motors. Two different plug-in accessory cards are available for the G2M+: a leaf delay card (which comes standard with every board), and a traffic light card (which is available separately). There are three timing potentiometers as well as nine DIP switches incorporated into the board to control different output functions.

This control board is required to have two separately connected, monitored safety devices installed, either photocells (through-beam or a reflective) and/or sensing edges may be used (See Page 53).

Photocell power must be connected to the 24+ Terminal above Terminal 18 on the backplate or to the red wire from the daughter card. The other power lead from the photocell should be connected to Terminal 18 on the backplate or Terminal 3 of the G2M+ board. The other red wire should be connected to Terminal 19 on the backplate or Terminal 4 of the G2M+ board.

To operate the control board, the micro switch that is on the photocell card must be in the ON position and after any changes are made to safety devices, it must be reset. If the photocells fail to work, it is possible to run the operator by mode of a constant pressure switch using the Command Open and Command Close inputs. To use this procedure, a constant pressure switch must be pressed continuously for three (3) seconds to start movement and remain depressed through the entire cycle.

The Byan Systems G2M+ Control Board is UL 325 compliant and monitors devices in both directions (open and close). This means that if the gate comes into contact with an object, it will stop and reverse briefly. If the object is hit a second time, or if a monitored safety device fails, the board will lock out and must then be manually reset before the system will operate again. (This includes a broken photocell beam.) Any time a safety connection is changed, you must also reset the board. This is done by shutting off the power switch and turning it back on.

Per the current UL 325 requirements, all new automated gate systems (post 2016) require a minimum of two entrapment prevention devices, connected separately. Both safety devices **MUST** be monitored in both the open and close functions. You must also have either an audible or visual alarm device in operation. **Please follow all installation instructions from the accessory's manufacturer**.

Terminal Strips:

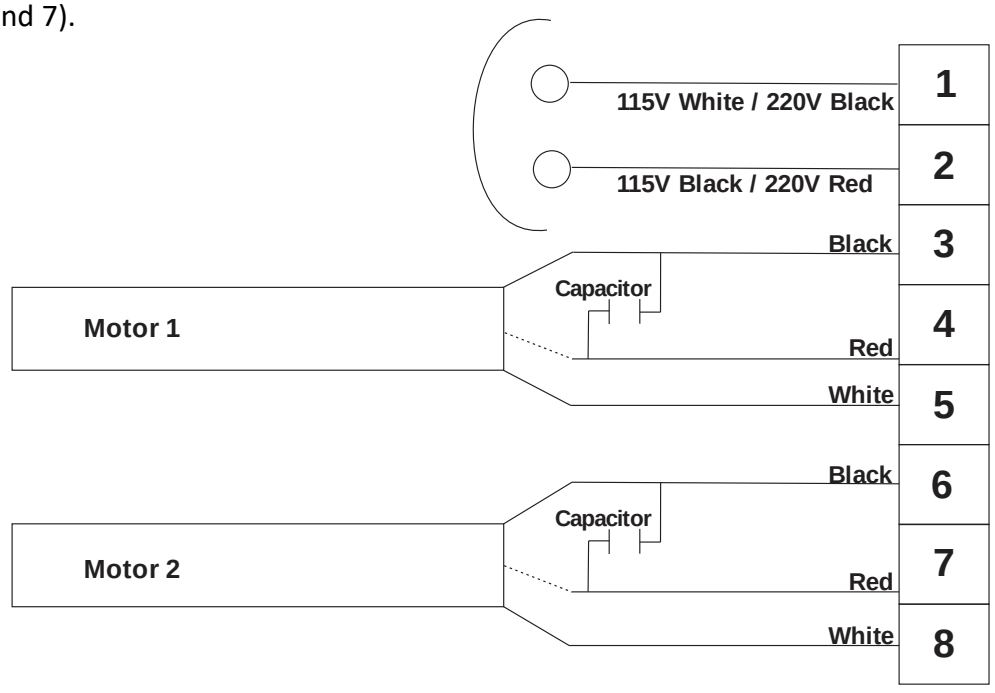
There are two sets of terminals on the G2M+ control board. The first terminal strip is the Power and Motor Run Terminal Block, located on the left side of the board below the transformer. This is where the incoming commercial power and the outgoing power to the operators are connected. This terminal strip is made up of three terminal blocks: 1) In-coming Power; 2) Motor One; and 3) Motor Two.

Power and Motor Run Terminals

Terminal Number	Terminal Name / Description	Wire Colors
1	Commercial Power Input Neutral	115V White / 220V Black
2	Commercial Power Input Hot	115V Black / 220V Red
3	Motor One Close Directional	Black
4	Motor One Open Directional	Red
5	Motor One Common	White
6	Motor Two Close Directional	Black
7	Motor Two Open Directional	Red
8	Motor Two Common	White

Commercial Power Hook-Up*:

1. Hook up commercial power to Terminals 1 and 2 of the Power and Motor Run Terminal Strip.
2. Connect leads from the Motor No. 1 operator to Terminals 3, 4, and 5 of the Power and Motor Run Terminal Strip.
3. Connect leads from the Motor No. 2 operator to Terminals 6, 7 and 8 of the Power and Motor Run Terminal Strip.
4. Connect Motor Run Capacitors across each set of directional motor leads (between Terminals 3 and 4, and Terminals 6 and 7).



The second terminal strip is the Accessory Terminal Strip. This is where **ALL** of the accessories are connected to the controller board. This terminal strip is located on the bottom right of the G2M+ Controller Board. This terminal strip consists of two socketed blocks to allow you to unplug the connector as a whole without removing wires. The drawings on Pages 10-12 are color-coded for ease in determining wiring connections for accessories.

Accessory Terminal Table

Terminal Numbers	Terminal Name	Possible Uses
1 - 2	Alarm Output	These terminals allow the connection of a device to alert the user that people safe has been activated.
3 - 4	24-Volt AC 1-Amp Output	Power for accessories such as radio receivers, loop detectors, or anything requiring 24-Volt AC 1-Amp may be connected here.
5 – 6	12-Volt DC 1-Amp Pulsed Electric Lock Output	Magnetic or other types of lock release signals may be connected here.
7 – 9	People Safe Alarm Reset Input	A button or other Normally Open contact may be connected here to reset the People Safe alarm output relay.
8	People Safe Input	Normally Closed People Safe devices such as sensing edges are connected here.
9	Safety Common Input	Common wires for people and car safety devices are connected here.
10	Car Safe Input	Normally Closed Car Safe devices such as loop detectors and photo beams are connected here.
11	Limit Switch Common Input	If limit switches are required, the common wires would be connected here.
12	Close Limit Switch Input	If limit switches are required, the close limit switch would be connected here.
13	Open Limit Switch Input	If limit switches are required, the open limit switch would be connected here.
14 – 15	Stop Input	A Normally Closed device used to stop the operators such as a button may be connected here.
16	Control Function Common Input	This is where the common of devices used to open, close, or reverse the gate would be connected.
17	Close Function Input	Devices only used to close the gate such as in-ground loops, buttons, or photo beams are connected here.
18	Open Function Input	Devices only used to open the gate such as in-ground loops, buttons, or radio receivers are connected here. (Any Normally Open devices used to access the gate key pads, card readers, etc.)
19	Reverse Function Input	Devices used to reverse the gates' direction such as in-ground loops, buttons, or radio receivers are connected here.
24+	Monitored Safety Input	Provides 24-Volt power to the daughter card for controlling add-ons such as keypads, photocells, etc.

Accessory Hook-Ups*:

There are many accessories available that are compatible with the G2M+ that will give the end user different options for safety, security, and system operations. Since it would be impossible to outline all possible combinations, we will simply outline a few of the most common. Keep in mind; these instructions are specific to the brand and model most commonly used by Byan Systems. Your accessories may differ from the ones listed below. **ALWAYS consult the Installation Instructions included with an accessory before connecting it to any operating system.**

Per the current UL 325 requirements, all new automated gate systems (post 2016) require a minimum of two monitored entrapment prevention devices, separately connected. Monitoring **MUST** occur in both open and close functions. You must also have either an audible or visual alarm device in operation.

The Byan Systems G2M+ Control Board is capable of handling a maximum of 8 accessories (wired together in series) and one accessory wired in parallel.

Linear GRD_1 Radio Receiver:

1. Separate the four wires coming out of the bottom of the Receiver (1 Red, 1 Black, and 2 Gray).
2. Connect the black wire to Terminal 3 of the Accessory Terminal Strip.
3. Connect the red wire to Terminal 4 of the Accessory Terminal Strip.
4. Connect one of the gray wires to Terminal 16 of the Accessory Terminal Strip.
5. Connect the other gray wire to Terminal 18 of the Accessory Terminal Strip for open only or Terminal 19 for use as a reversing device.
6. If an external antenna is required, locate the Bulk Head Connector supplied with the Receiver.
7. Drill one 3/8" hole in the enclosure where you would like to mount the antenna.
8. Install the Bulk Head Connector in the hole using the hardware included with the Receiver. Be sure to use thread locking compound in the threads when installing the connector.
9. Connect the supplied coax between the Receiver and the Bulk Head Connector and attach the antenna to the outside of the connector.

Mag-Lock Relay Using IDEC SH2B-05 Base w/RH2B-UDC12V Relay:

1. Connect Terminal 13 on the Relay Base to Terminal 5 of the Accessory Terminal Strip on the board.
2. Connect Terminal 14 on the Relay Base to Terminal 6 of the Accessory Terminal Strip on the board.
3. Connect Neutral or Ground from the Mag-Lock Transformer directly to the Mag-Lock.
4. Connect Hot from the Mag-Lock Transformer to Terminal 9 of the Relay Base.
5. Connect Terminal 1 on the Relay Base to the Mag-Lock.

Loop Detector Using IDEC SR3P-06 Base w/EDI LMA1500-120 Loop Detector:

1. Connect Terminals 7 and 8 to the in-ground loop leads.
2. Connect 120-Volt AC Neutral to Terminal 2 of the Detector Base.
3. Connect 120-Volt AC Hot to Terminal 1 of the Detector Base.
4. Connect desired signal wires from the Detector Base to the Accessory Terminal Strip of the G2M+.

Shadow Using IDEC SH2B-05 Relay Base and RH2B-UAC110-120 Relay:

1. Connect Terminal 9 of the Relay Base to Terminal 5 of the Detector Base.
2. Connect Terminal 5 of the Detector Base to Terminal 9 of the Accessory Terminal Strip.
3. Connect Terminal 5 of the Relay Base to Terminal 10 of the Detector Base.
4. Connect Terminal 10 of the Detector Base to Terminal 10 of the Accessory Terminal Strip.

Safety:

1. Connect Terminal 5 of the Detector Base to Terminal 9 of the Accessory Terminal Strip.
2. Connect Terminal 10 of the Detector Base to Terminal 10 of the Accessory Terminal Strip.

Free Exit:

1. Connect Terminal 5 of the Detector Base to Terminal 16 of the Accessory Terminal Strip.
2. Connect Terminal 6 of the Detector Base to Terminal 18 of the Accessory Terminal Strip.

The Byan Systems G2M+ Control Board is UL 325 compliant and monitors devices in both directions (open and close). This means that if the gate comes into contact with an object, it will stop and reverse briefly. If the object is hit a second time, or if a monitored safety device fails, the board will lock out and must then be manually reset before the system will operate again. (This includes a broken photocell beam.)

Characteristics:

Adjustable Timing Potentiometers:

Color	Description	Minimum Time	Maximum Time
Green	Automatic Closing Timer	1 Second	1 Minute 30 Seconds
Blue	Opening Timer	3 Seconds	30 Seconds *
Red	Closing Timer	3 Seconds	30 Seconds *

*With DIP Switch 1 on S2 turned on, the maximum open and close times are doubled to 1 Minute.

DIP SWITCHES:

Table S1

Number	Option Name	Option Description
1	Reversing Stroke Function	When turned on, the operators will first close for 1 second before opening.
2	Step-by-step Function	When turned on, each movement of the operators by any reverse input will require an individual input (deactivates automatic re-open function).
3	Automatic Closing Function	When turned on, the operators will close by the time set with the green timing potentiometer.
4	Reverse Button Inoperative During Opening	When turned on, any reverse input is deactivated during the open cycle.
5	Closing Order by Car Safety Contact	With DIP switch 3 off and 5 turned on, the operators will close as soon as the car safety contacts are cleared.
6	*See Below	*See Below
7	Car Safety Contact Operative During Opening	When turned on, car safety contacts are active during the open and close cycles. Input safety for vehicles only works on closing movement unless Switch 7 is set ON.

*The function of DIP switch 6 is changed by the position of the jumper (JP1) located below the radio receiver card (J3).
Table S1a describes the function of DIP switch 6 and its relation to JP1.

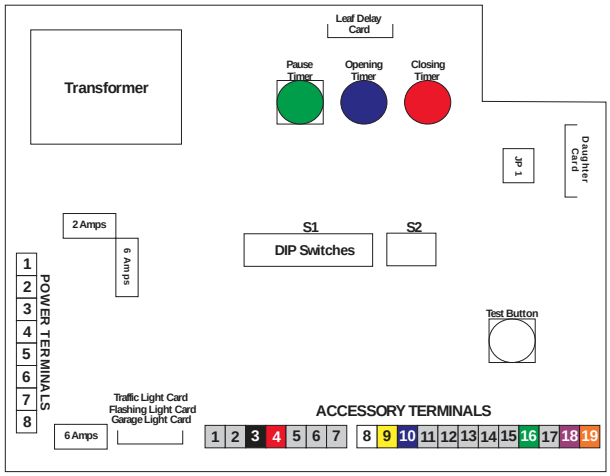
Table S1a

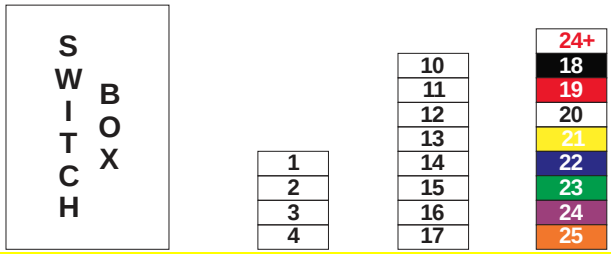
	JP1 Open	JP1 Closed
DIP Switch 6 **ON**	When power is applied to the board, operators will automatically perform a closing function.	The traffic light card will act as a flashing light card (upper relay) and a garage light card (lower relay).
DIP Switch 6 **OFF**	When power is applied to the board, the operator will automatically perform an opening function.	The traffic light card relays will act as a green light (upper relay) and a red light (lower relay).

Table S2

Number	Option Name	Option Description
1	Double Timing	When turned on, maximum opening and closing time is extended from 30 Seconds to 1 Minute and maximum pause time is extended from 45 Seconds to 1 Minute 30 Seconds.
2	Repositioning the Gate	When turned on, the operators will cycle in the last direction of operation for 2 seconds every hour

Byan Systems 12 x 10 Prewire Layouts:





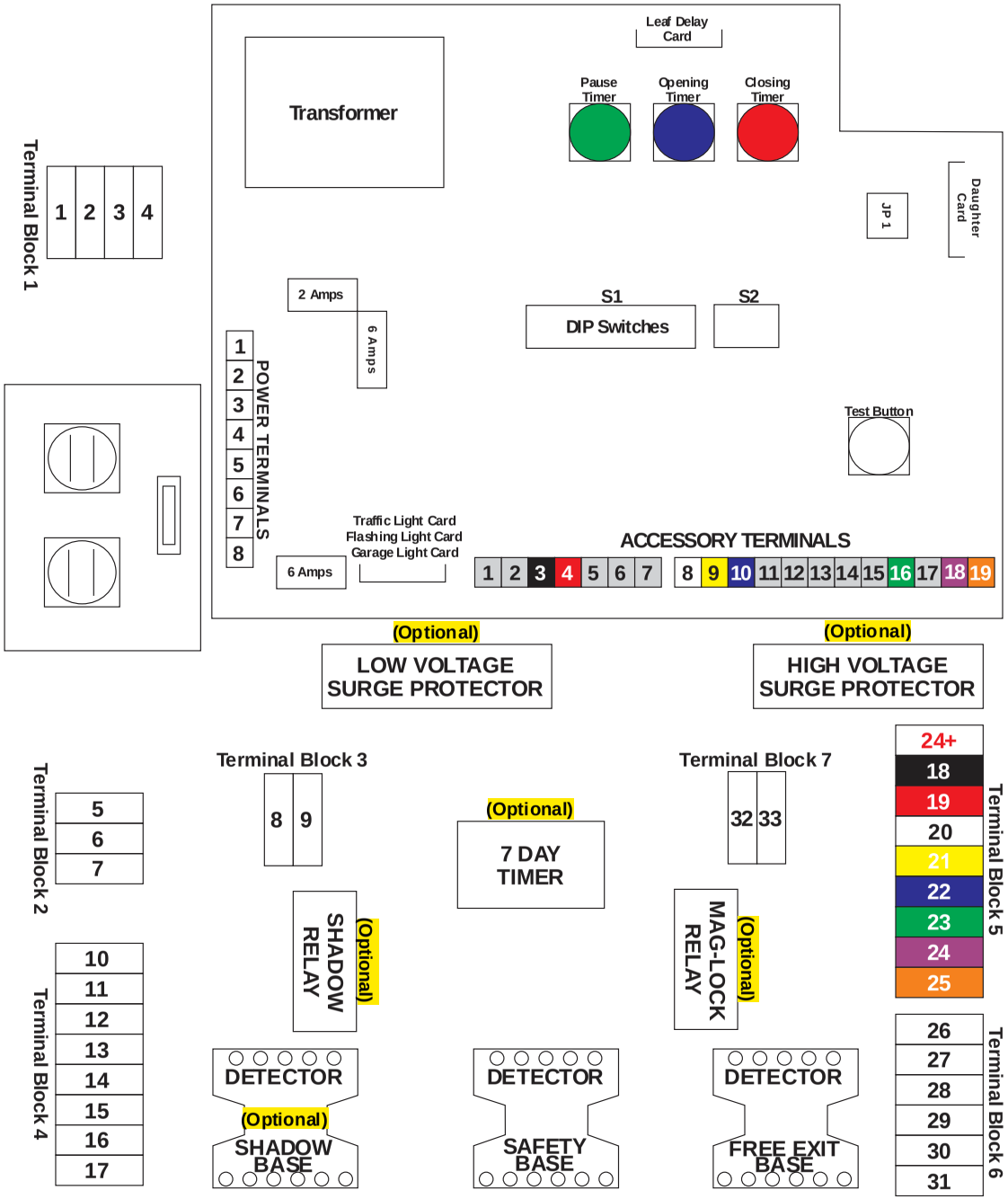
NOTE: When Leaf Delay is engaged, Motor 1 will open first and Motor 2 will close first.

TERMINAL BLOCK 1		COMMERCIAL POWER
1	220-Volt AC Hot	(Red)
2	115-Volt AC Hot	(Black)
3	115-Volt AC Neutral	(White)
4	Ground	(Green)

TERMINAL BLOCK 2		OPERATOR MOTOR TERMINALS
10	Ground	(Green)
11	Motor Directional	(Black)
12	Motor 1 Directional	(Red)
13	Motor 1 Common	(White)
14	Ground	(Green)
15	Motor 2 Directional	(Black)
16	Motor 2 Directional	(Red)
17	Motor 2 Common	(White)

TERMINAL BLOCK 3		ACCESSORY TERMINALS
24+	Monitored Safety	(Red)
18	24-Volt AC Common	(Black)
19	24-Volt AC Positive	(Red)
20	People Safe (Normally Closed)	(White)
21	Common Safety	(Yellow)
22	Car Safe	(Blue)
23	Common Open/Reversing	(Green)
24	Command Open (Normally Open)	(Purple)
25	Command Reversing (Normally Open)	(Orange)

20 x 16 PREWIRE LAYOUT



TB1 COMMERCIAL POWER TERMINALS

1	220-VOLT AC HOT	(RED)
2	115-VOLT AC HOT	(BLACK)
3	115-VOLT AC NEUTRAL	(WHITE)
4	GROUND	(GREEN)

TB2 OPERATOR MOTOR TERMINALS

5	UN-INTERRUPTIBLE 115-VOLT AC	(BLACK)
6	UN-INTERRUPTIBLE 115-VOLT AC	(WHITE)
7	GROUND	(GREEN)

3 INTERRUPTED VOLTAGE TERMINALS

8	INTERRUPTED HIGH VOLTAGE 115 -VOLT AC	(BLACK)
9	INTERRUPTED HIGH VOLTAGE 115 -VOLT AC	(WHITE)

TB4 OPERATOR MOTOR TERMINALS

10	GROUND	(GREEN)
11	MOTOR 1 DIRECTIONAL	(BLACK)
12	MOTOR 1 DIRECTIONAL	(RED)
13	MOTOR 1 COMMON	(WHITE)
14	GROUND	(GREEN)
15	MOTOR 2 DIRECTIONAL	(BLACK)
16	MOTOR 2 DIRECTIONAL	(RED)
17	MOTOR 2 COMMON	(WHITE)

TB5 ACCESSORY TERMINALS

24+	MONITORED SAFETY	(RED)
18	24-VOLT AC COMMON	(BLACK)
19	24-VOLT AC POSITIVE	(RED)
20	PEOPLE SAFE (NORMALLY CLOSED)	(WHITE)
21	COMMON SAFETY	(YELLOW)
22	CAR SAFE	(BLUE)
23	COMMON OPEN/REVERSING	(GREEN)
24	COMMAND OPEN (NORMALLY OPEN)	(PURPLE)
25	COMMAND REVERSING (NORMALLY OPEN)	(ORANGE)

TB6 LOOP TERMINALS

26	FREE EXIT LOOP	(GRAY)
27	FREE EXIT LOOP	(BROWN)
28	SAFETY LOOP	(GRAY)
29	SAFETY LOOP	(BROWN)
30	SHADOW LOOP	(GRAY)
31	SHADOW LOOP	(BROWN)

TB7 MAG-LOCK TERMINALS

32	MAG-LOCK	(BROWN)
33	MAG-LOCK	(BROWN)

NOTE: WHEN LEAF DELAY IS ENGAGED, MOTOR 1 WILL OPEN FIRST AND MOTOR 2 WILL CLOSE FIRST

24 x 20 PREWIRE LAYOUT

24 x 20 PREWIRE TERMINAL STRIP GUIDE

TB1 COMMERCIAL POWER

1	220-VOLT AC HOT	(RED)
2	115-VOLT AC HOT	(BLACK)
3	115-VOLT AC NEUTRAL	(WHITE)
4	GROUND	(GREEN)

TB3 OPERATOR MOTOR TERMINALS

10	GROUND	(GREEN)
11	MOTOR 1 DIRECTIONAL	(BLACK)
12	MOTOR 1 DIRECTIONAL	(RED)
13	MOTOR 1 COMMON	(WHITE)
14	GROUND	(GREEN)
15	MOTOR 2 DIRECTIONAL	(BLACK)
16	MOTOR 2 DIRECTIONAL	(RED)
17	MOTOR 2 COMMON	(WHITE)

TB5 ENTRY ACCESSORY TERMINALS

24+	MONITORED SAFETY	(RED)
18	24-VOLT AC COMMON	(BLACK)
19	24-VOLT AC POSITIVE	(RED)
20	PEOPLE SAFE (NORMALLY CLOSED)	(WHITE)
21	COMMON SAFETY	(YELLOW)
22	CAR SAFE	(BLUE)
23	COMMON OPEN / REVERSING	(GREEN)
24	COMMAND OPEN (NORMALLY OPEN)	(PURPLE)
25	COMMAND REVERSING (NORMALLY OPEN)	(ORANGE)

TB6 ENTRY LOOP TERMINALS

28	SAFETY LOOP	(GRAY)
29	SAFETY LOOP	(BROWN)
30	SHADOW LOOP	(GRAY)
31	SHADOW LOOP	(BROWN)
32	MAG-LOCK	(BROWN)
33	MAG-LOCK	(BROWN)

TB9 ENTRY INTERRUPTED VOLTAGE TERMINALS

8	INTERRUPTED HIGH VOLTAGE 115-VOLT AC	(BLACK)
9	INTERRUPTED HIGH VOLTAGE 115-VOLT AC	(WHITE)

TB2 OPERATOR MOTOR TERMINALS

5	UNINTERRUPTIBLE 115-VOLT AC	(BLACK)
6	UNINTERRUPTIBLE 115-VOLT AC	(WHITE)
7	GROUND	(GREEN)

TB4 EXIT OPERATOR MOTOR TERMINALS

10	GROUND	(GREEN)
11	MOTOR 1 DIRECTIONAL	(BLACK)
12	MOTOR 1 DIRECTIONAL	(RED)
13	MOTOR 1 COMMON	(WHITE)
14	GROUND	(GREEN)
15	MOTOR 2 DIRECTIONAL	(BLACK)
16	MOTOR 2 DIRECTIONAL	(RED)
17	MOTOR 2 COMMON	(WHITE)

TB7 EXIT ACCESSORY TERMINALS

24+	MONITORED SAFETY	(RED)
18	24-VOLT AC COMMON	(BLACK)
19	24-VOLT AC POSITIVE	(RED)
20	PEOPLE SAFE (NORMALLY CLOSED)	(WHITE)
21	COMMON SAFETY	(YELLOW)
22	CAR SAFE	(BLUE)
23	COMMON OPEN / REVERSING	(GREEN)
24	COMMAND OPEN (NORMALLY OPEN)	(PURPLE)
25	COMMAND REVERSING (NORMALLY OPEN)	(ORANGE)

TB8 EXIT LOOP TERMINALS

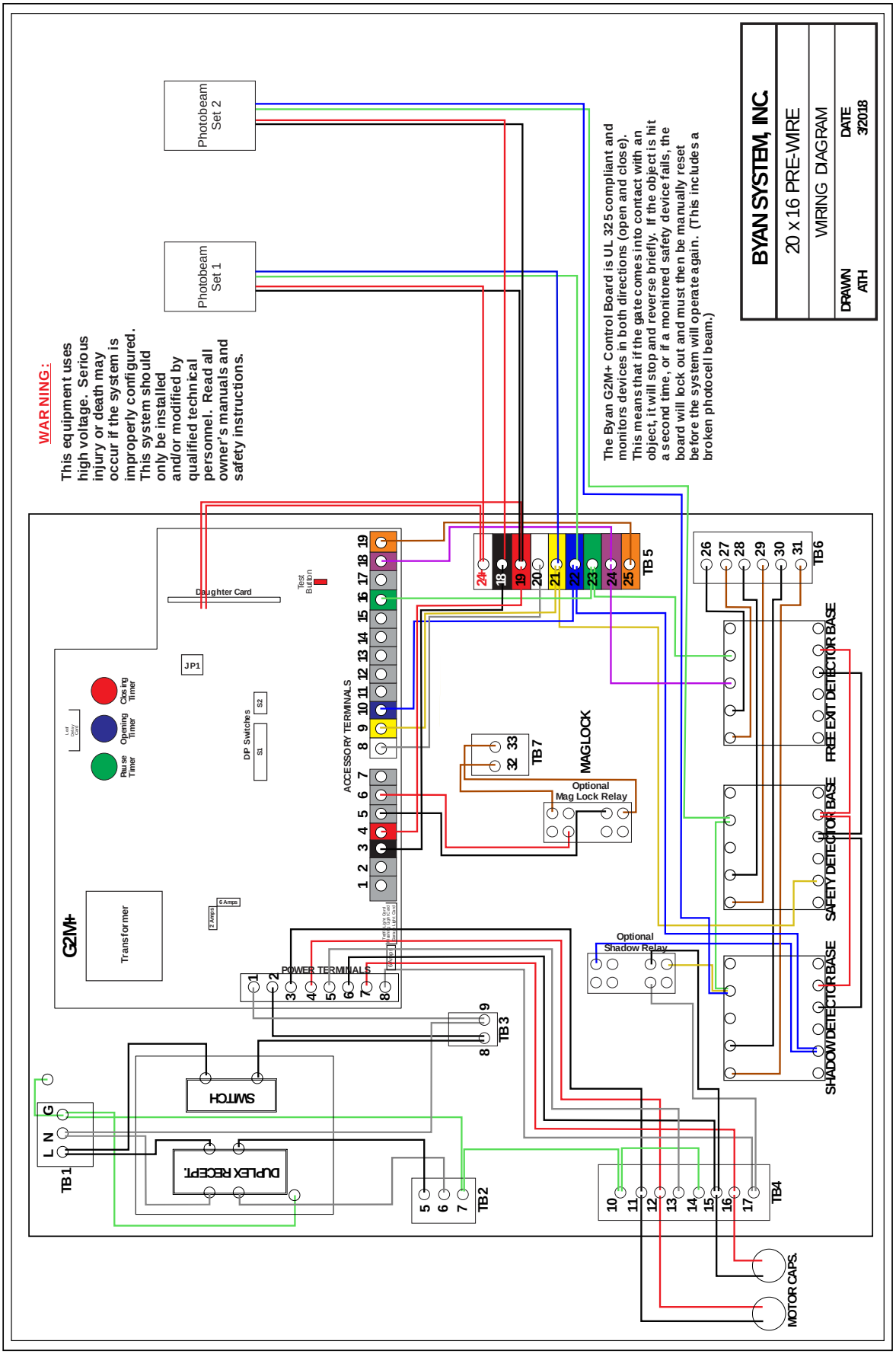
26	FREE EXIT LOOP	(GRAY)
27	FREE EXIT LOOP	(BROWN)
28	SAFETY LOOP	(GRAY)
29	SAFETY LOOP	(BROWN)
30	SHADOW LOOP	(GRAY)
31	SHADOW LOOP	(BROWN)
32	MAG-LOCK	(BROWN)
33	MAG-LOCK	(BROWN)

TB10 EXIT INTERRUPTED VOLTAGE TERMINALS

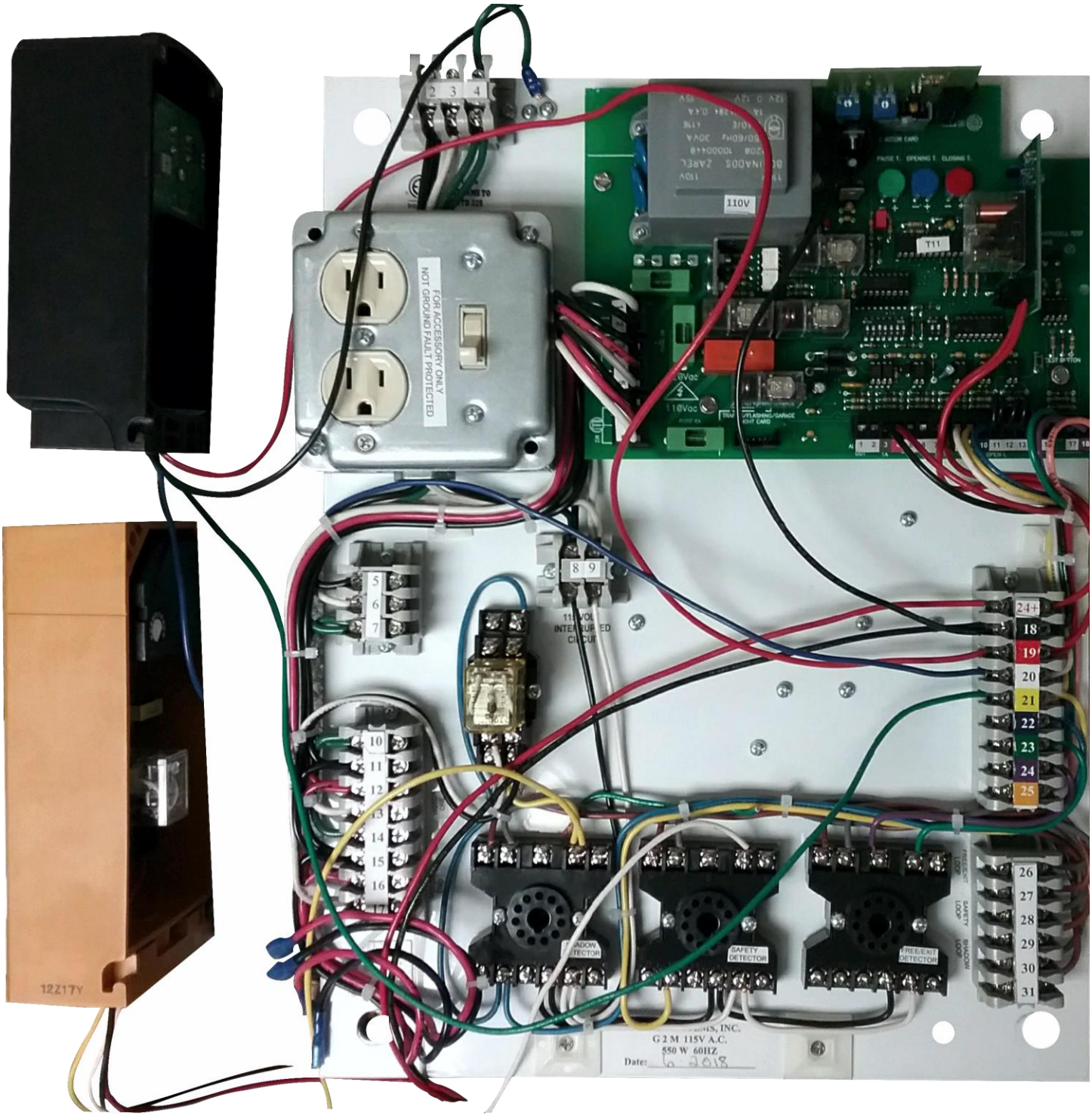
8	INTERRUPTED HIGH VOLTAGE 115-VOLT AC	(BLACK)
9	INTERRUPTED HIGH VOLTAGE 115-VOLT AC	(WHITE)

NOTE: WHEN LEAF DELAY IS ENGAGED, MOTOR 1 WILL OPEN FIRST AND MOTOR 2 WILL CLOSE FIRST.

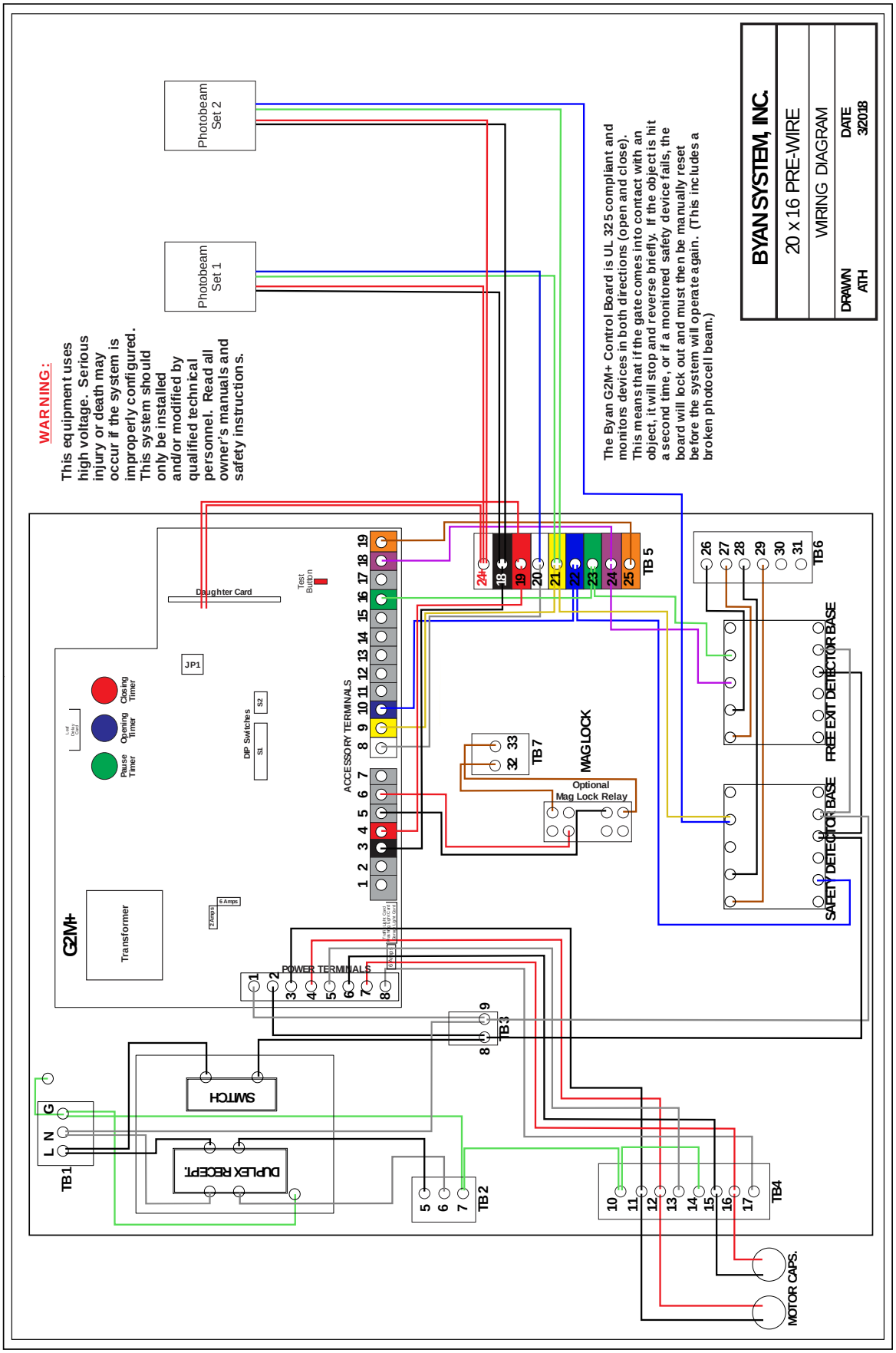
20x16 Prewired Enclosure with Safety, Shadow & Free Exit Bases Wired to 2 Sets of Photobeams



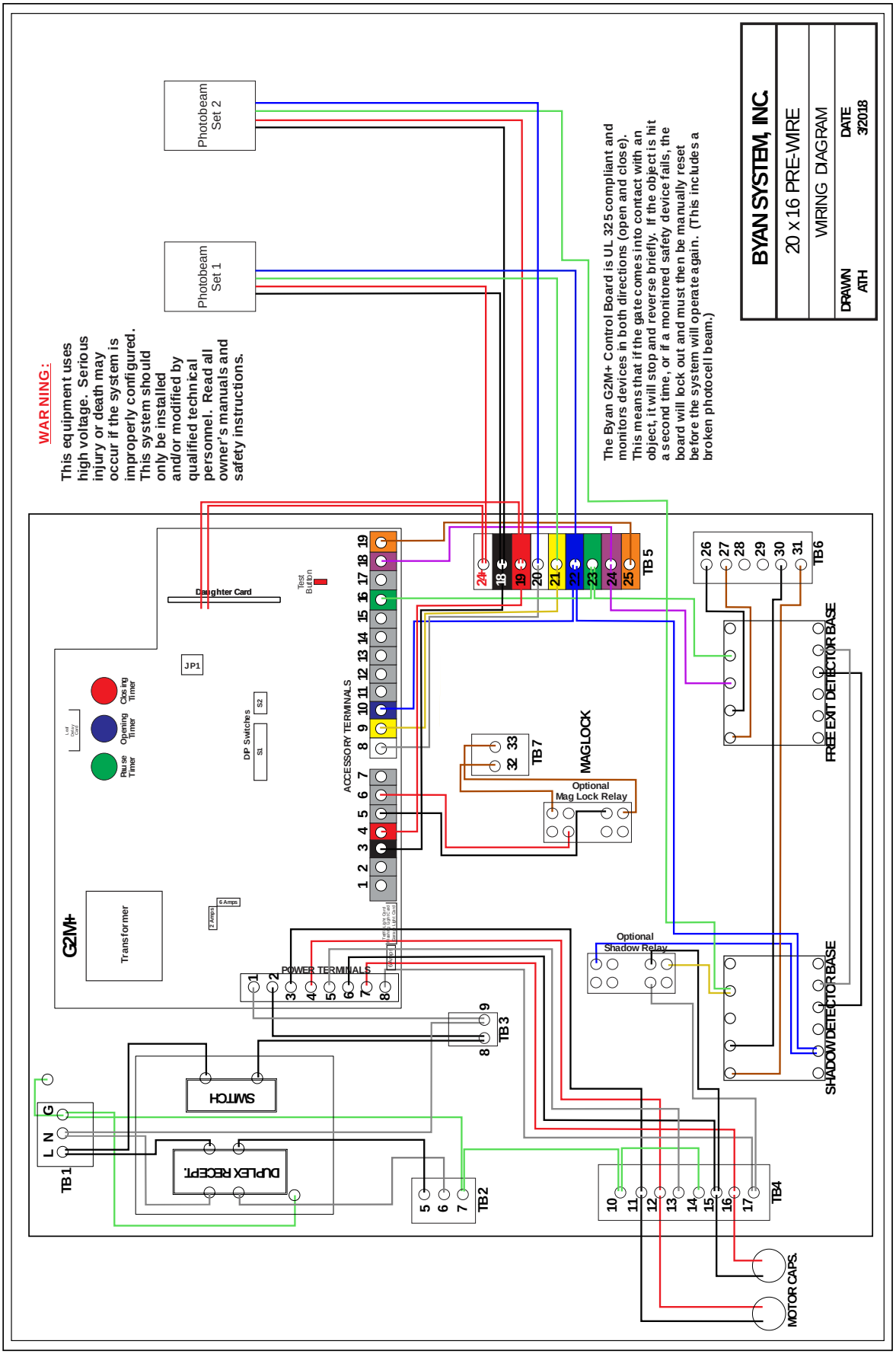
BYAN 20x16 PREWIRE CONNECTED TO 2 SETS OF PHOTOBEAMS



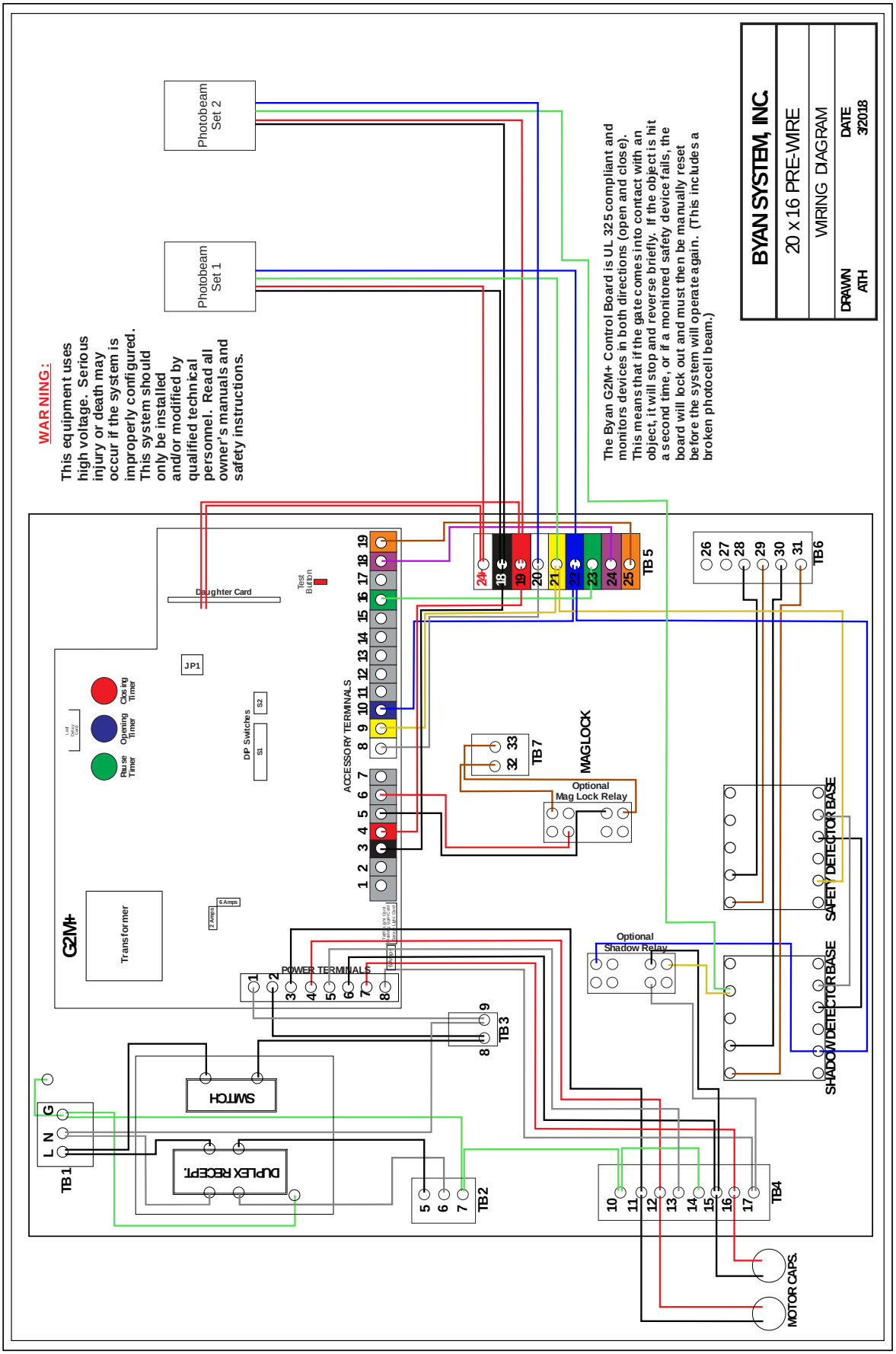
20x16 Prewired Enclosure with Safety & Free Exit Bases Wired to 2 Sets of Photobeams



20x16 Prewired Enclosure with Shadow & Free Exit Bases Wired to 2 Sets of Photobeams

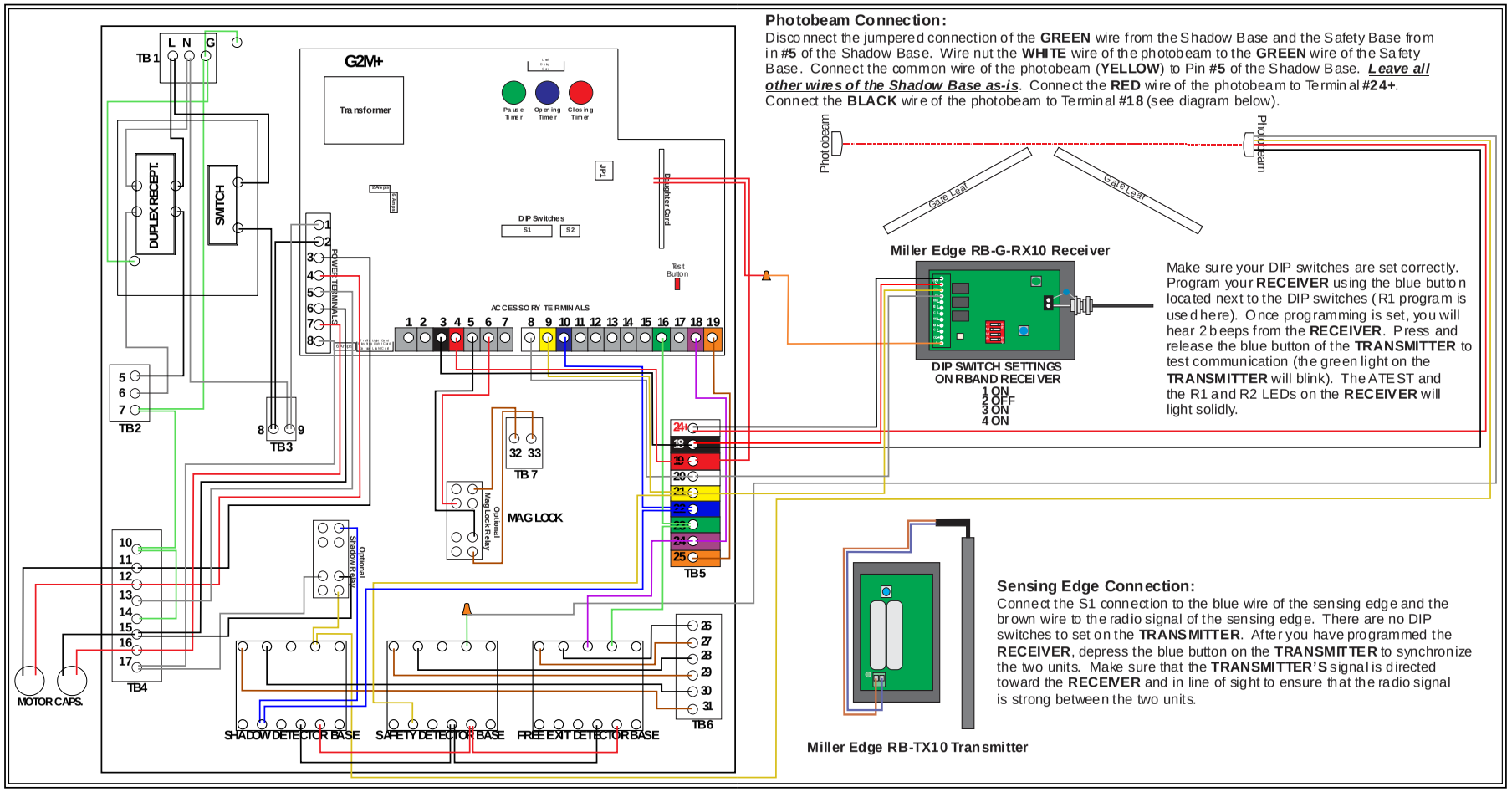


20x16 Prewired Enclosure with Shadow & Safety Bases Wired to 2 Sets of Photobeams



20x16 PRE-WIRED BACKBOARD WITH RBAND RB-G-K10 SENSING EDGE AND PHOTOBEAMS

In this example, all accessories are wired as NORMALLY CLOSED on a BYAN SYSTEMS 3-base pre-wired backplate. Only one accessory can be connected through Terminal #24+ on the pre-wired backplate. The second accessory will be connected to Terminals #18 and #19. (Either accessory can be wired as Car Safe OR as People Safe.)



Photobeam Connection:

Disconnect the jumpered connection of the **GREEN** wire from the Shadow Base and the Safety Base from in **#5** of the Shadow Base. Wire nut the **WHITE** wire of the photobeam to the **GREEN** wire of the Safety Base. Connect the common wire of the photobeam (**YELLOW**) to Pin **#5** of the Shadow Base. ***Leave all other wires of the Shadow Base as-is***. Connect the **RED** wire of the photobeam to Terminal **#24+**. Connect the **BLACK** wire of the photobeam to Terminal **#18** (see diagram below).

Miller Edge RB-G-RX10 Receiver

DIP SWITCH SETTINGS ON RBAND RECEIVER
1 ON
2 OFF
3 ON
4 ON

Make sure your DIP switches are set correctly. Program your **RECEIVER** using the blue button located next to the DIP switches (R1 program is used here). Once programming is set, you will hear 2 beeps from the **RECEIVER**. Press and release the blue button of the **TRANSMITTER** to test communication (the green light on the **TRANSMITTER** will blink). The ATEST and the R1 and R2 LEDs on the **RECEIVER** will light solidly.

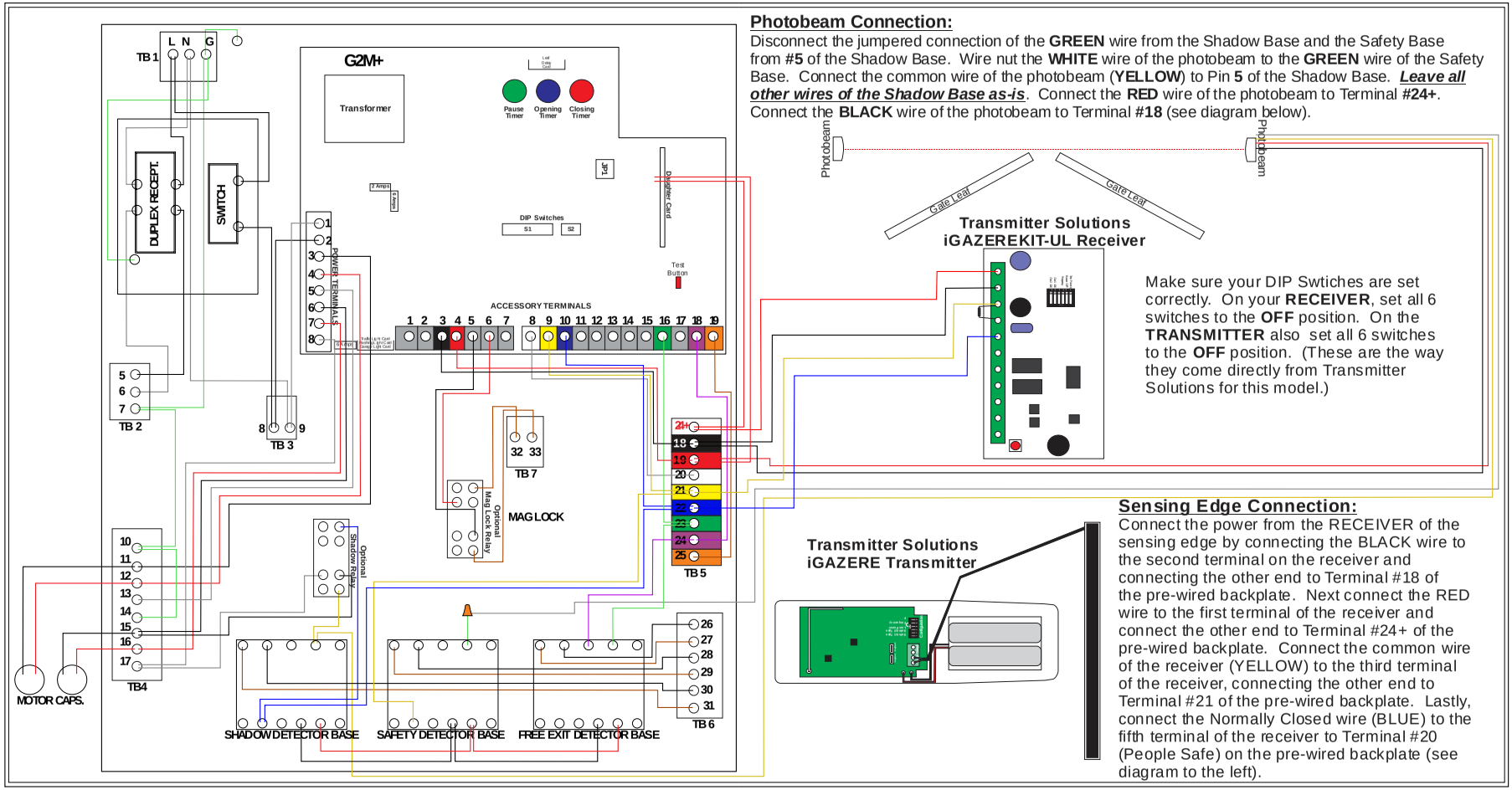
Miller Edge RB-TX10 Transmitter

Sensing Edge Connection:

Connect the S1 connection to the blue wire of the sensing edge and the brown wire to the radio signal of the sensing edge. There are no DIP switches to set on the **TRANSMITTER**. After you have programmed the **RECEIVER**, depress the blue button on the **TRANSMITTER** to synchronize the two units. Make sure that the **TRANSMITTER'S** signal is directed toward the **RECEIVER** and in line of sight to ensure that the radio signal is strong between the two units.

20x16 PRE-WIRED BACKBOARD WITH Transmitter SOLUTIONS RBAND iGAZEREKIT-UL SENSING EDGE AND PHOTOBEAMS

In this example, all accessories are wired as **NORMALLY CLOSED** on a BYAN SYSTEMS 3-base pre-wired backplate. Only one accessory can be connected through Terminal #24+ on the pre-wired backplate. The second accessory will be connected to Terminals #18 and #19. (Either accessory can be wired as "car safe" OR as "people safe".)



Photobeam Connection:

Disconnect the jumpered connection of the **GREEN** wire from the Shadow Base and the Safety Base from **#5** of the Shadow Base. Wire nut the **WHITE** wire of the photobeam to the **GREEN** wire of the Safety Base. Connect the common wire of the photobeam (**YELLOW**) to Pin **5** of the Shadow Base. ***Leave all other wires of the Shadow Base as-is***. Connect the **RED** wire of the photobeam to Terminal **#24+**. Connect the **BLACK** wire of the photobeam to Terminal **#18** (see diagram below).

Transmitter Solutions iGAZEREKIT-UL Receiver

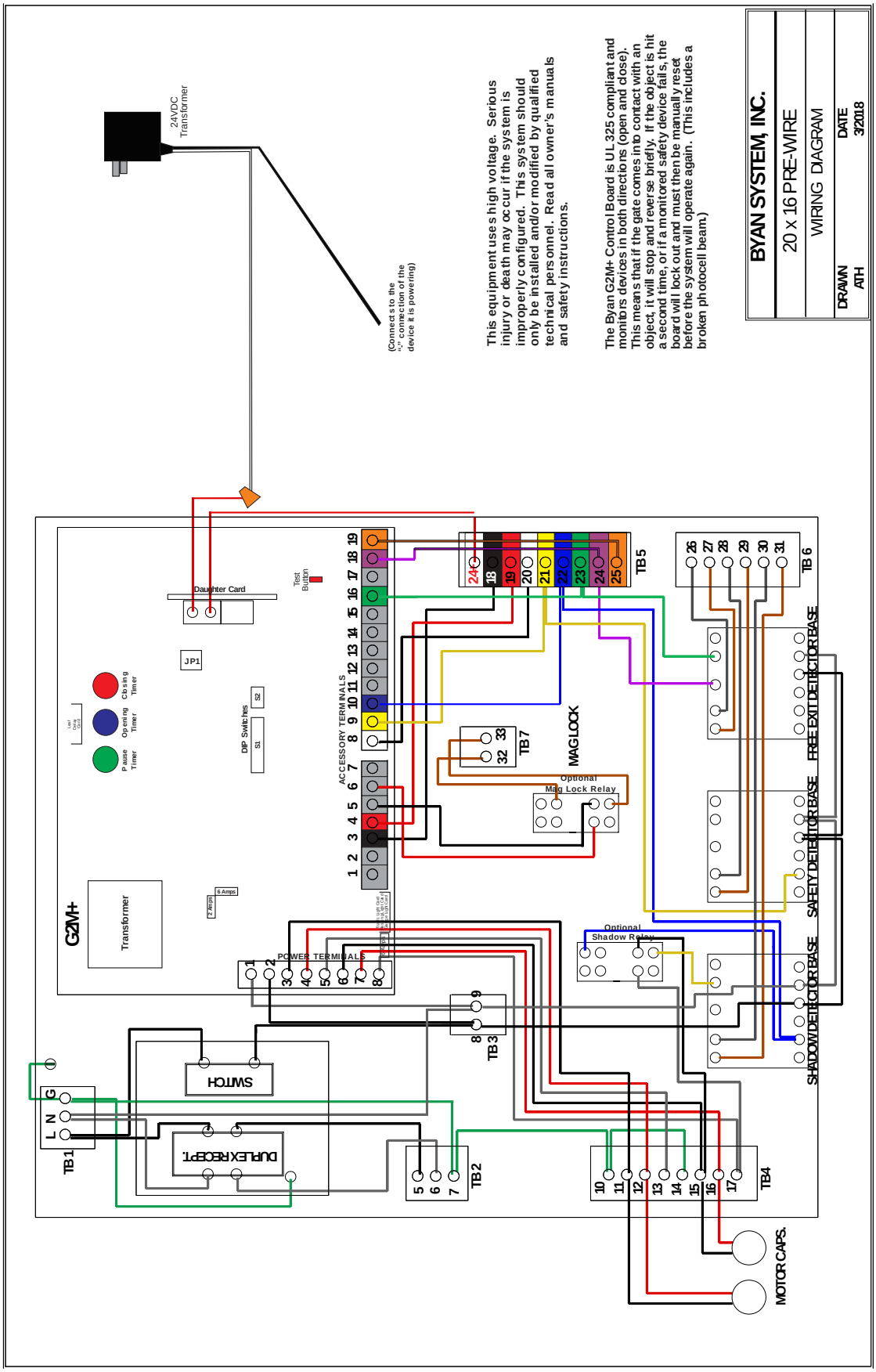
Make sure your DIP Swtiches are set correctly. On your **RECEIVER**, set all 6 switches to the **OFF** position. On the **TRANSMITTER** also set all 6 switches to the **OFF** position. (These are the way they come directly from Transmitter Solutions for this model.)

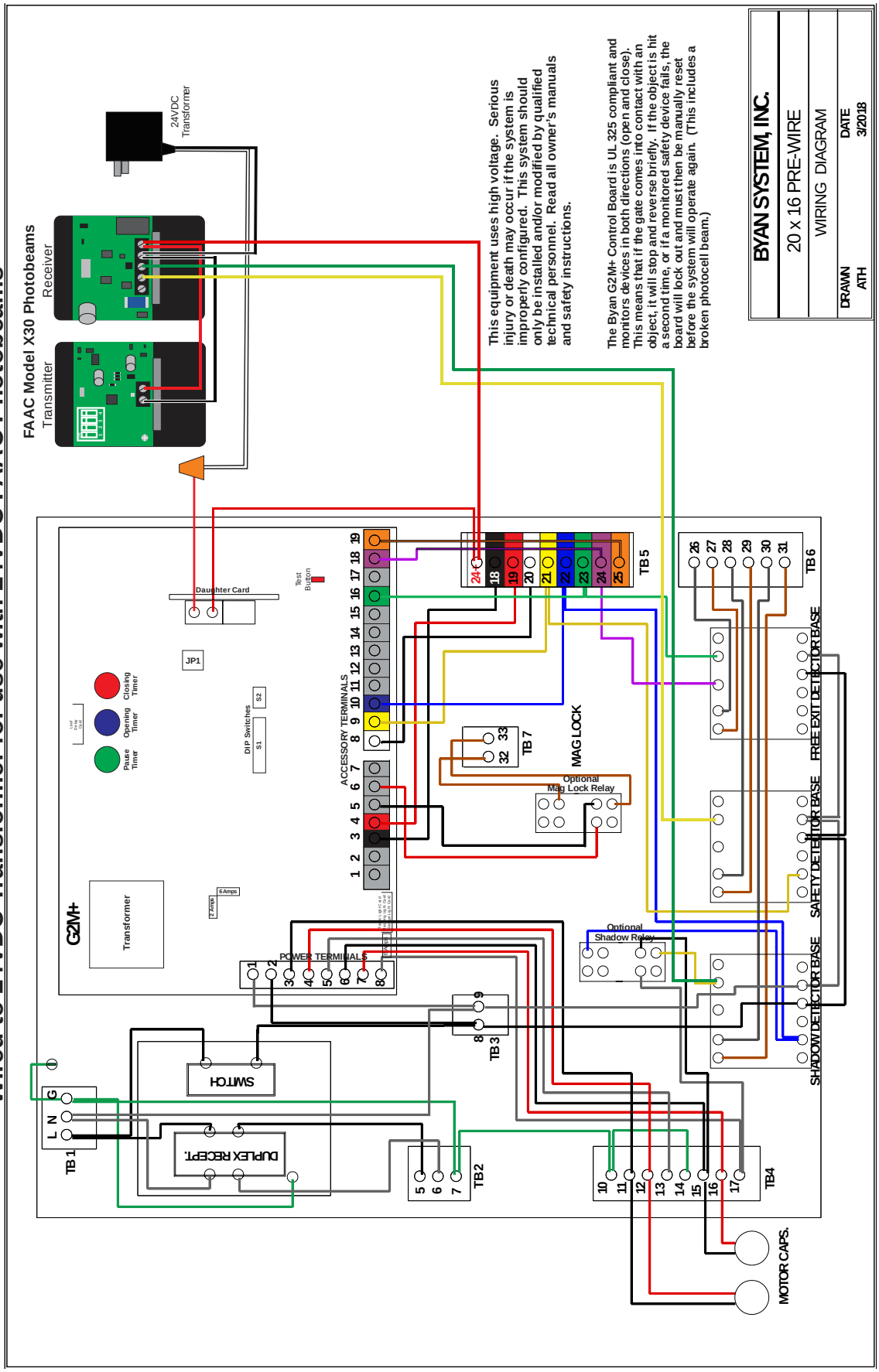
Transmitter Solutions iGAZERE Transmitter

Sensing Edge Connection:

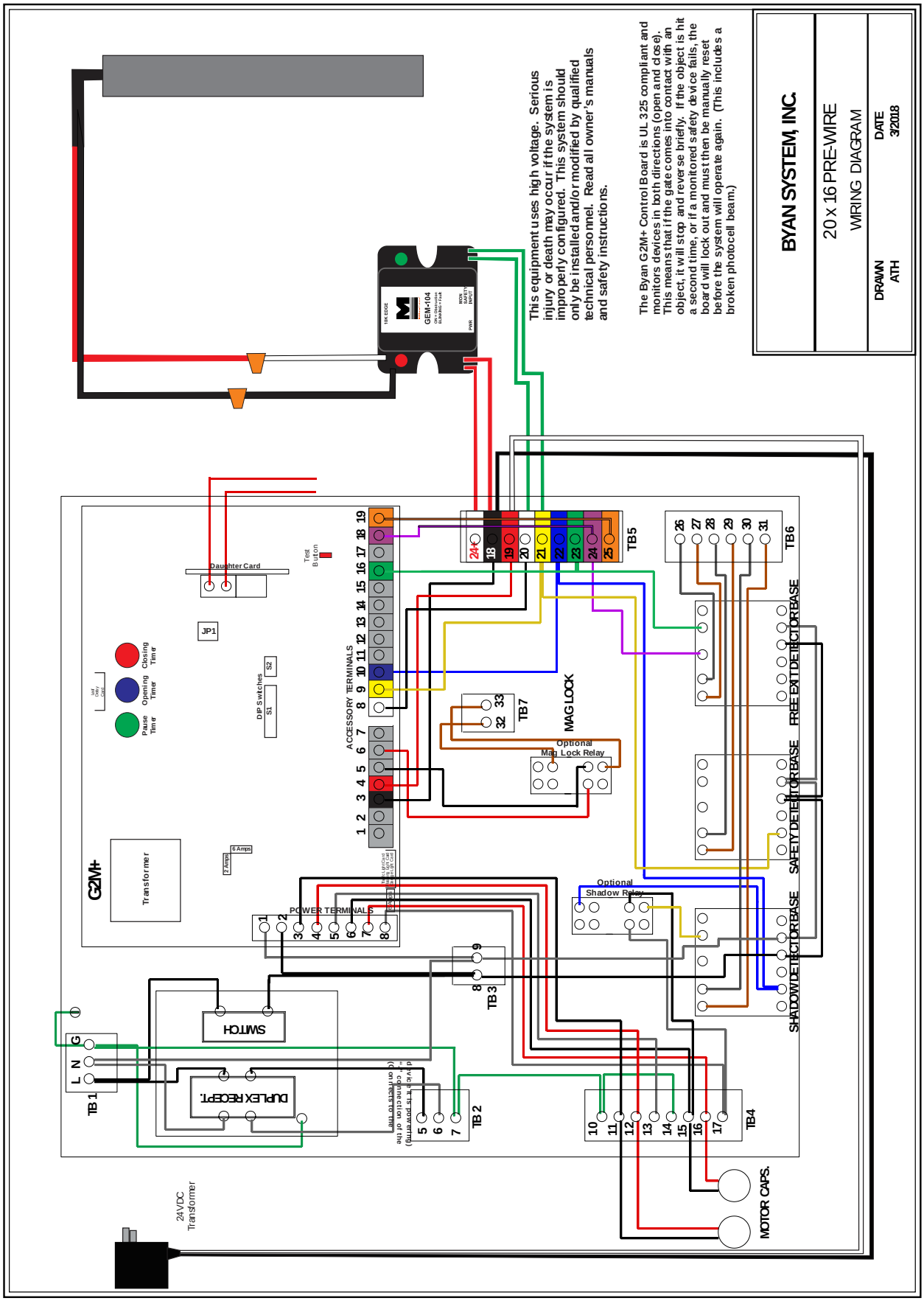
Connect the power from the RECEIVER of the sensing edge by connecting the BLACK wire to the second terminal on the receiver and connecting the other end to Terminal #18 of the pre-wired backplate. Next connect the RED wire to the first terminal of the receiver and connect the other end to Terminal #24+ of the pre-wired backplate. Connect the common wire of the receiver (YELLOW) to the third terminal of the receiver, connecting the other end to Terminal #21 of the pre-wired backplate. Lastly, connect the Normally Closed wire (BLUE) to the fifth terminal of the receiver to Terminal #20 (People Safe) on the pre-wired backplate (see diagram to the left).

20x16 Prewired Enclosure with 24V DC Transformer

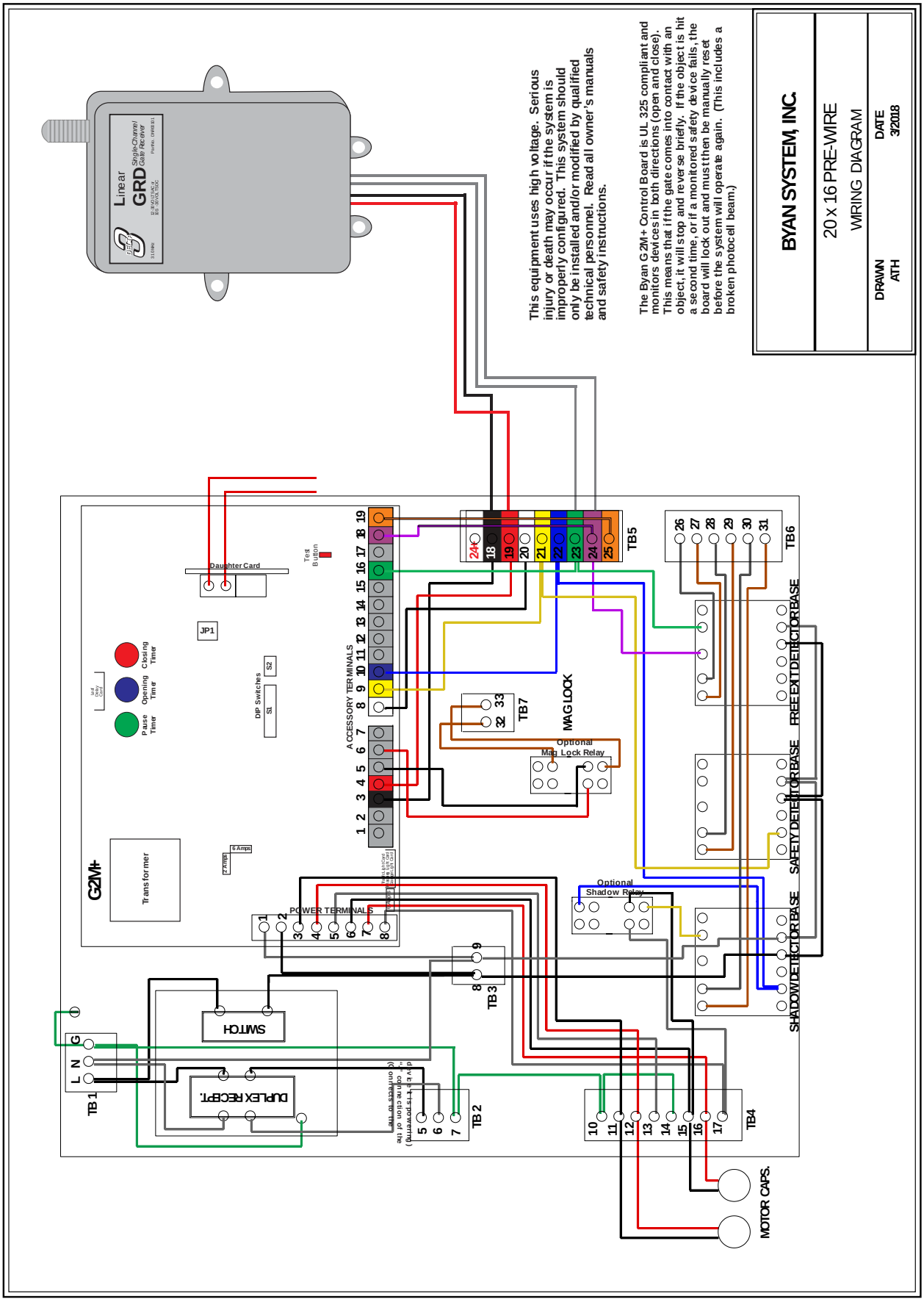



20x16 Prewired Enclosure with Shadow, Safety & Free Exit Bases
Wired to 24VDC Transformer for use with 24VDC FAAC Photobeams
FAAC Model X30 Photobeams
Transmitter
Receiver
24VDC Transformer
This equipment uses high voltage. Serious injury or death may occur if the system is improperly configured. This system should only be installed and/or modified by qualified technical personnel. Read all owner's manuals and safety instructions.
The Byan G2M+ Control Board is UL 325 compliant and monitors devices in both directions (open and close). This means that if the gate comes into contact with an object, it will stop and reverse briefly. If the object is hit a second time, or if a monitored safety device fails, the board will lock out and must then be manually reset before the system will operate again. (This includes a broken photocell beam.)
BYAN SYSTEM, INC.
20 x 16 PRE-WIRE
WIRING DIAGRAM
DRAWN ATH
DATE 3/2018
G2M+
Transformer
Daughter Card
JP1
Test Button
Closing Timer
Opening Timer
Pause Timer
DIP Switches
S1
S2
ACCESSORY TERMINALS
POWER TERMINALS
TB 1
TB2
TB 3
TB4
TB 5
TB 6
TB 7
MAG LOCK
Optional Mag Lock Relay
Optional Shadow Relay
SWITCH
DUPLEX RECEPT.
MOTOR CAPS.
SHADOW DETECTOR BASE
SAFETY DETECTOR BASE
FREE EXIT DETECTOR BASE

20x16 Prewired Enclosure with Miller Edge GEM104
(To convert Normally Open connections to Normally Closed)



20x16 Prewired Enclosure with Linear GRD Receiver



Troubleshooting Guide:

Byan Systems recommends that **ALL** installations be preassembled **PRIOR** to installation on a job site to insure proper functioning.

Symptom	Possible Cause	Possible Solutions
Board will not power up	Power not connected; Switch in prewire not turned on; Board voltage is incorrect; Blown incoming power fuse	Ensure all connections are made and are tight **(make sure that terminal block on pins 1 & 2 for high voltage are secure)**. Make sure the prewire switch is on. Make sure board voltage matches the incoming power. Check 2-Amp fuse on the G2M+ board.
Board is powered up but won't function	Jumper wires in accessory terminal are loose/missing; Safety device malfunctioning; Blown operator fuse	Check all jumper wires for location and make sure they are tight. Make sure safety devices are clear of obstruction and connected properly (the G2M+ uses Normally Closed safety contacts). Check 6-Amp fuses on the G2M+ board. **Ensure that both of the Accessory Connection terminal blocks are secure (Pins 1-7 and 8-19)**.
Operators will not open or close fully	Timers not adjusted properly; Dip-switches are in the wrong position	Timers should be adjusted so operator pistons bottom out completely then run for an additional 3 to 5 seconds. Make sure all dip-switches are in the desired position and making good contact.
Operators run, but there is no piston movement	Capacitor bad or not hooked up; Bypass screw on operator backed out	Check that capacitors are hooked up. If one is suspect, switch capacitors and see if the problem follows the capacitor. Make sure the bypass screw is screwed in and snug.
Safety devices connected properly but not functioning properly	Jumpers in Terminals 8, 9 and 10 are still in; Safety device is malfunctioning	If Car Safe is used, make sure that the jumper between Accessory Terminals 9 and 10 is removed. For People Safe, remove jumper between Accessory Terminals 8 and 9. Make sure the safety device is connected and working properly.
Safety Device(s) only monitoring in the Close Function	DIP Switch 7 is in the OFF position	When turned on, car safety contacts are active during the open and close cycles. Input safety for vehicles only works on closing movement unless Switch 7 is set ON.
Radio receiver will only open the gate	Radio receiver is wired incorrectly	If the receiver is to be used as a reversing device, it must be wired across Accessory Terminals 16 and 19.
Free exit probe not working	Probe is malfunctioning; Probe is wired incorrectly	Make sure probe is working properly and is connected correctly. The probe's Normally Open contacts must be connected across Accessory Terminals 16 and 18. If the probe uses 24-Volt AC for power, it can be connected to Accessory Terminals 3 and 4.
Operators running the wrong direction	Directional wires switched	Reverse the black and red directional wires either at the operator or at the board.

If, at any time, you have a question concerning the Byan Systems G2M+ control board, call (800) 223-2926 for technical support.

T2M Leaf Delay Card

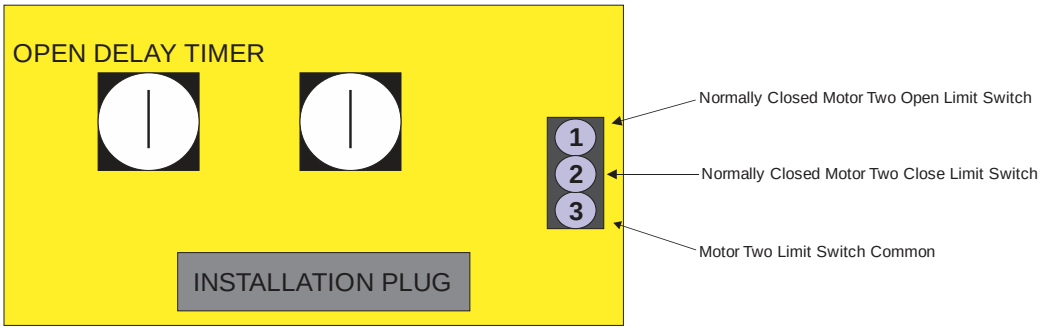
Description:

The T2M Leaf Delay Card will control the opening and closing of the second leaf in a two-leaf gate system. With the card installed and the potentiometers adjusted, the first gate leaf will open first followed by the second when an **OPEN** command is issued. When a **CLOSE** command is issued, the second leaf will close first followed by the first leaf. There are two adjustable potentiometers on the card. The Open Delay Timer sets the delay between the opening of the first leaf and the opening of the second leaf. The Close Delay timer sets the delay between the closing of the second leaf and the closing of the first leaf. There are also inputs on the card for Open and Close Limit switches for the second leaf, if limit switches are required.

Adjustable Timers:

Timer Description	Minimum Delay	Maximum Delay
Open Timer (Left)	0 Seconds	15 Seconds
Close Timer (Right)	0 Seconds	15 Seconds

Board Terminals:



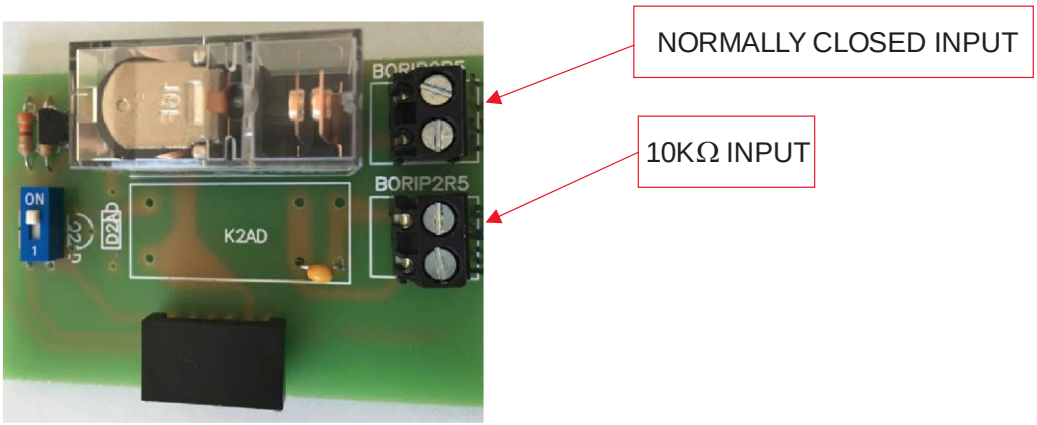
Installation Instructions:

To install the leaf delay card, simply plug it into the card slot marked “2 Motor Card” on the G2M+ Control Board.

Adjustment Procedure:

1. ***To set the amount of delay between the first leaf opening and the second leaf opening***, turn the Open Delay Timer (left timer) with a small screwdriver. To increase the open delay, turn the timer counter-clockwise. To Decrease the open delay, turn the delay timer clockwise.
2. ***To set the amount of delay between the second leaf closing and the first leaf closing***, turn the Close Delay Timer (right timer) with a small screwdriver. To increase the close delay, turn the timer counter-clockwise. To decrease the close delay, turn the timer clockwise.

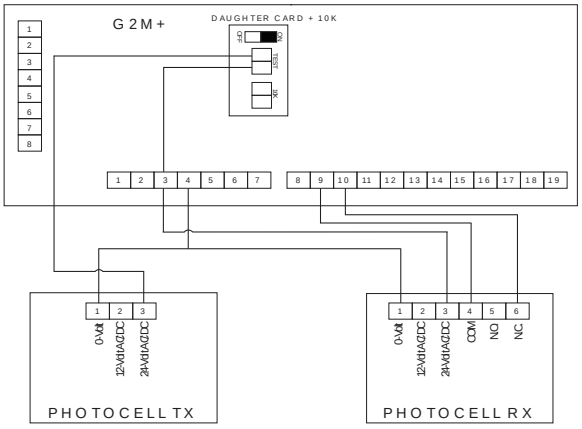
DAUGHTER CARD HOOKUPS



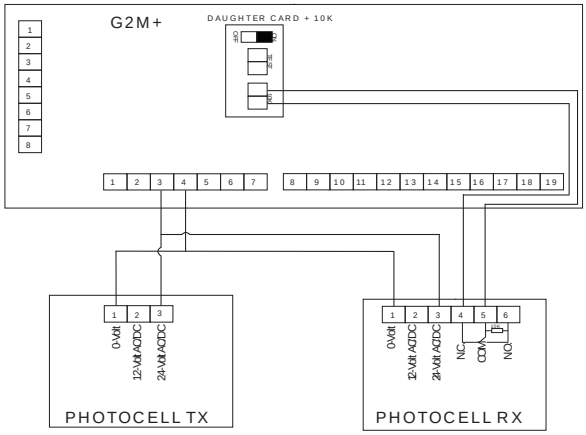
To operate the control panel, the micro switch that is on the daughter card must be set in the ON position and after any changes are made to the state of the safety devices in the system, **it must be reset by turning the switch OFF and ON again**. After a 3 to 4 second wait, the MP panel will be ready to function fully again.

CONNECTIONS:

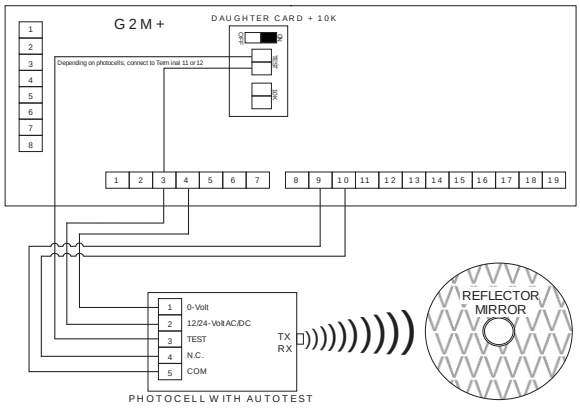
NORMALLY CLOSED MONITORED



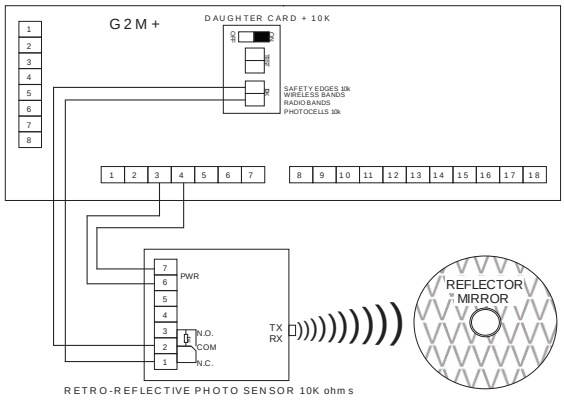
10KΩ



NORMALLY CLOSED MONITORED



10KΩ



The opening and closing commands can be performed by using the reverse button or by radio control. The opening/closing operation ends by timing or by the open/close limit switch. If the reverse button is activated during the operation of the unit, the door stops. **There is no automatic closing time and the next operation (if the reverse button is activated) will close.** If the reverse button is used during the closing operation, the door will stop and it will open if the Switch 2 is set to OFF. If the Switch 2 is in the **ON** position, the door remains paused until a new activation of the reverse button is programmed.

The Safe Cars Input (normally connected to a photocell) acts in the closing operation by reversing the operation. The door stops and then re-opens. In the opening operation, the Safe Cars Input acts by stopping the door only if Switch 7 is set in the **ON** position.

If the People Safe input is used, it is activated when the door is moving. The door stops and reverses its movement for two seconds. If the People Safe input remains active, the alarm relay is activated and the door is paused until the reset alarm is activated. If the alarm is not active, the next operation is to continue the interrupted operation.

The stop button interrupts and stops the door in any operation and it is necessary to activate the reverse button to continue the operation of the door.

TECHNICAL OPERATING CHARACTERISTICS	
Supply Voltage	220-Volt AC ±10% 110-Volt AC ±10%
Frequency	50-60 Hz
Maximum Power on Motor Output	¾ HP
Available Power on Accessories Output	24-Volt AC 1-Amp
Maximum Load on Electric Lock Output	12-Volt AC 1-Amp
Maximum Power Absorption (excluding motors, lights and external loads)	80mA at 220-Volts 160mA at 110-Volts
Automatic Closing Time	5 Seconds to 2 Minutes
Opening and Closing Time (Normal) Opening and Closing Time (x2)	5 Seconds to 1 Minute 1 Minute to 2 Minutes
Radio Control Card	Optional
Second Motor Card	Optional
Flashing Card	Optional
Temperature Range	-40ºF to 185ºF

FINAL SYSTEM WARNINGS

Following all of the setup instructions, you should now have a working system with moving components. Byan Systems, Inc. issues the following warnings for your safety:

READ ALL OWNER'S MANUALS AND SAFETY INSTRUCTIONS

MOVING GATE CAN CAUSE SERIOUS INJURY OR DEATH.

Keep Clear! Gate may move at any time without warning.

Do not allow children to operate the gate or play in the gate area.

This gate is for vehicles ONLY.
All pedestrians must use a separate entrance.

If entrapment protection is set up by constant hold control, an automatic closing device shall not be used with this gate operator.

BYAN SYSTEMS, INC.

FIVE YEAR LIMITED WARRANTY

This warranty pertains only to products manufactured for or by **BYAN SYSTEMS, INC.** for gate operating systems, accessories, and equipment. These products are warranted against all defective material for sixty months from the date of sale.

Defective material returned must be prepaid and accompanied by a **BYAN SYSTEMS, INC.** return authorization number within the warranty period for repair or replacement at the discretion of **BYAN SYSTEMS, INC. BYAN SYSTEMS, INC.** will return warranted item freight prepaid ground service via U.P.S.

This warranty extends only to wholesale customers who buy direct from **BYAN SYSTEMS, INC.** through normal distributor channels. **BYAN SYSTEMS, INC.** does not warranty its products to the end user/consumer. Consumers should inquire from their selling dealer as to the nature and extent of the dealer's warranty, if any. There are no obligations or liabilities on the part of **BYAN SYSTEMS, INC.** for consequential damages arising out of, or in connection with, the use or performance of these products or other indirect damages with respect to loss of property, revenue or profit, cost of removal, original installation or reinstallation.

Warranty will be considered void if damage or malfunction was due to improper, inadequate and/or negligent installation or the use of improper power source, or if the damage was caused by fire, flood, lightning, electrical power surge, explosion, windstorm or hail, aircraft or vehicles, vandalism, riot or civil commotion, or acts of God. All implied warranties for fitness are limited in duration to sixty months from date of sale by **BYAN SYSTEMS, INC.** Some states do not allow for the length of the term of this implied warranty, so this limitation may not apply to you. This warranty by **BYAN SYSTEMS, INC.** is in lieu of all warranties expressed or implied.

Product delivery time is subject to availability. **BYAN SYSTEMS, INC.** is not responsible for any damages caused by delays in shipping or product availability.

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