## **INSTALLATION INSTRUCTIONS**

MODELS LT16 and LT12 SL KIT UPGRADE 202026 Rev. B 2016-12-22

Prime Controls, Inc. 4528 Gateway Circle Dayton, Ohio 45440-1712

T 937.435.8659 F 937.435.2091 vip@primecontrols.com www.primecontrols.com



## INTRODUCTION

Prior to installation, review Figures 1 and 2, Table 1 and drawing 201996 (located at the back of this document) to familiarize yourself with the components of the LT-12-16 SL Kit Upgrade. The kit supports systems with either six or eight lamps. The drawings in this document and show the eight lamp variant. Installation is identical for both systems with the exception of the number of TL102A/L lamps installed on the light blocks. Many of the figures in this document are part of drawing 201996 and may be more readable in the drawing itself.

When installing screws and bolts, use thread locking compound in accordance with best practices for your machine.

- 1. Remove old halogen lamps and illumination system.
- 2. Install the adapter plate (item1) using the instructions below in Detail A. See Table 1 and Figures 3 and 4 for part identification.
- 3. Install the mounting brackets with hardware (items 2 through item 19) as shown below.
- 4. Note that there are two TL102ALs in a six lamp configuration and four TL102ALs in an eight lamp configuration. The TL102AL has a Fresnel lens and the LEDs appear blurred. The TL102A does not have a Fresnel lens and the LEDs are clearly visible. The model numbers are also marked on the subassembly. Populate item 2, the top and bottom assemblies, with TL102A/Ls before installing them into the system.
  - a. For a 6 lamp configuration install top: 2x TL102A + bottom: 2x TL102A + sides: 2x TL102AL.
  - b. For an 8 lamp configuration install top: 2x TL102A, 1x TL102AL + bottom: 2x TL102A, 1x TL102AL + sides: 2x TL102AL.
  - c. Use heatsink compound (not supplied) between the entire bottom surface of the TL102A/TL102ALs and their respective heatsinks and mounting brackets. The compound should be spread thinly and used sparingly to only fill any minute gaps between the surfaces. Slide the mating surfaces slightly back and forth to expel any excess. Also use heat sink compound between the surfaces of the two 202007 blocks their respectively heatsinks and mounting brackets.
- 5. After installation insure there is sufficient clearance between all fixed and moving parts. Adjust as necessary to correct. The shapes of the heat sinks may be altered as necessary to achieve this end. However, they should remain flat where they contact other parts of the lighting system to insure adequate heat transfer.

	QTY with 6	QTY with 8		
ITEM	lamps	lamps	PART #	DESCRIPTION
1	1	1	201997	PLATE, BRACKET MOUNT
2	1	1	201999	BRACKET, UPPER LIGHT
3	2	2	202000	BRACKET, SIDE LIGHT
4	1	1	202001	PEDESTAL, LOWER LIGHT
5	6	6	202002	SPACER, BRACKET MOUNT PLATE
6	2	2	202007	BLOCK, LIGHT MOUNT
7	4	4	TL102A	TL102 TEST LIGHT
8	2	4	TL102AL	TL102L TEST LIGHT
9	16	16	201922	WASHER, LOCK .250
10	8	8	201923-0.750	SHCS .250-20 X 1.38
11	16	24	201923-1.375	SHCS .250-20 X 1.38
12	8	8	201923-2.250	SHCS .250-20 X 2.25
13	12	12	201924-1.250	SHCS .375-16 X 1.25
14	6	6	201924-3.750	SHCS .375-16 X 3.75
15	16	16	201925	WASHER, FLAT .250
16	8	8	101356	NUT, HEX .250-20
17	18	18	201927	WASHER, FLAT .375
18	8	8	202003-0.375	SHSS .313 X .25
19	8	8	202004	WASHER, FLAT .313
20	18	18	202005	WASHER, LOCK .375
21	2	2	202019A	TL102A TRIPLE FLAT HEATSINK
22	2	2	202020A	TL102A TRIPLE BENT HEATSINK
23	2	2	202018A	TL102A FLAT HEATSINK

Table 1







Figure 2

## ASSEMBLY NOTES:

ASSEMBLY NOTES.
BOLT THUR ITEM 1 USING (2) EXISTING 3/8-16 TAPPED HOLES MARKED "13" ON EXISTING 2.5" RISER BLOCK
DRILL AND TAP (6) 3/8-16 HOLES IN GEARBOX FACEPLATE MARKED "14"
USE A HOLE LOCATION TRANSFER PUNCH TO TRANSFER HOLES (REF MCMASTER-CARR P/N 3374A33)
USE ITEM 5 AND SLOTS IN ITEM 1 TO HELP GUIDE THE TRANSFER PUNCH
HOLE LOCATIONS NOT CRITICAL. SLOTS IN ITEM 1 ALLOW FOR HOLE LOCATION ADJUSTEMENT TO AVOID EXISTING MACHINE FEATURES















- 6. Install Items 24 through 32 with adequate gauge wiring to support 1.25 amps per each TL102/L. DIN rail mounting is recommended. The dimer circuit is optional. Leave the DIM connector on the TL102/L open with no connection if the dimmer is not installed. Wiring diagrams for the section updated with and without DIM are shown below.
  - a. Install a total of 6 connectors for a 6 lamp configuration: top:2xTL102A + bottom:2xTL102A + sides:2xTL102AL.
  - b. Install a total of 8 connectors for an 8 lamp configuration: top:2xTL102A,1xTL102AL + bottom:2xTL102A,1xTL102AL + sides:2xTL102AL.
- 7. Prime Controls requires disabling power to the TL102A/Ls when the tester is idle.

	OTV			D.45-	
TTEIVI	QIY	PART#	DESCRIPTION	IVIII	IVIIT P/IN
			Circuit Breaker Assembly		
24	1	201947	Circuit Breaker, 1P 4A D Curve	Altech	1DU4R
25	1	201889	Auxiliary Contact Switch	Altech	H1COR
26			Relay assembly		
27	1	201943	Relay, 120V Coil 16A(DC) DPDT	Magnacraft	788XBXM4L-120A
28	1	201944	Relay Socket	Magnacraft	70-788EL11-1
29	1	201945	Relay Clip	Magnacraft	16-1351
30	1	201946	Relay Protection Diode	Magnacraft	70-BSMD-250
31	1	201897	Alternate Relay, 24V coil 16A(DC) DPDT	Magnacraft	788XBXM4L-24D
32	1	201901	Pot, LED Lamp Dimmer	Eaton	M22-R10K
33	1	201948	Power Supply, 90-264VAC, 24VDC 20A	TDK Lambda	DPP480-24-1

Table 2





- 8. It is critical to adjust the slide mounts so the TL102As and the TL102ALs are centered with the can. That will make the TL102As and the TL102ALs all the same distance from the plate.
- 9. It is also critical that the TL102As and the TL102ALs are in position and centered with the can in its top most position as shown in Detail A above. That will make corresponding TL102As and the TL102ALs equidistant from the can in its top most position.
- 10. Anchor all cables and check that there are no mechanical interference issues with parts before jogging or running the system.
- 11. Modify the shroud as needed to allow function of interlocks and proper fit.
- 12. Power up the TL102A/Ls and verify all are functional with their indicator lights on and all LEDs lit. The indicator light will not illuminate if there is no power, or if there is an internal fault with the lamp. A cell phone camera may be used to check to see if the individual LEDs are on. Be aware that some cell phones do not detect infrared light or may only dimly show the infrared light.
- 13. If necessary, number the pockets starting with 1 on the wheel of the machine near the LT20s; in the same order and correlation as the display on the user interface. Check a can at each pocket for a fit that is not too loose to give false indications or too tight to cover up cracked flanges.
- 14. Calibrated leakers may be run or jogged through the system by watching the error log at the user interface. Verify the hole drilled in the can is flattened to the curve of the can so that there are no shadows cast on the calibrated orifice. Please also verify that the orifice is clear and free of debris.

## LIMITATION AND EXCLUSION OF WARRANTIES

All goods purchased from Prime Controls, Inc. shall be free from defects in materials, design and workmanship under normal conditions of use for one year from the date of shipment. THIS WARRANTY IS THE SOLE WARRANTY AND IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE. THE LIABILITY OF PRIME CONTROLS TO ANY PURCHASER SHALL BE LIMITED EXCLUSIVELY TO THE COST OF REPLACEMENT OR REPAIR OF DEFECTIVE PARTS, AND SHALL NOT INCLUDE LIABILITY FOR ANY DIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES WHATSOEVER, WHETHER FORESEEN OR UNFORESEEN, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOST SALES OR INJURY TO PERSONS OR PROPERTY.

2016-12-22



	1			2					
	XISTING 2.5" RISER BLOCK R-CARR P/N 3374A33) NADJUSTEMENT TO AVOID	ARKED "13" ON E KED "14" (REF MCMASTEF PUNCH HOLE LOCATION	PED HOL CEPLATE NSFER H HE TRAN ALLOW	/8-16 TAF ARBOX F, CH TO TR .P GUIDE S IN ITEM	EXISTING 3 OLES IN GE/ NSFER PUNC EM 1 TO HEL FICAL. SLOTS	SSEMBLY NOTES: ) BOLT THUR ITEM 1 USING (2) ) DRILL AND TAP (6) 3/8-16 HC ) USE A HOLE LOCATION TRAN ) USE ITEM 5 AND SLOTS IN ITE/ ) HOLE LOCATIONS NOT CRITI EXISTING MACHINE FEATURE			
D		14 14 0 0 0 0 0 0 0 0 0 0 0 0 0			14 14 Ø 3.44 -				
			25.69		12.85 -			./4 —	
			AIL A E 1 : 5	DE SCA					
			I Y						
	Bracket, Upper Light	1         201997           1         201997           2         202000           1         202001           6         202002			2				
	Bracket, Side Light				3				
	Pedestal, Lower Light			1					
	Spacer, Barcket Mount Plate				5				
	Block, Light Mount	202007	2 202007		6				
	TL102A	201183C 201855A		7 4					
	TL102AL				8				
	WASHER, LOCK 0.250	201922	6		9				
	SHCS, 0.250-20 x 0.750	)1923-0.750	3		10				
	SHCS, 0.250-20 x 1.38	201923-1.375 201923-2.250 201924-1.250 201924-3.750 201925 101356 201927 202003-0.375			11			Ţ	
B	SHCS, 0.250-20 x 2.25				12				
	SHCS 0.375-16 x 1.250				13				
	SHCS 0.375 14 x 3 750				14				
					14	1			
	WASHER, FLAT 0.250				15				
	WASHER, FLAT 0.375				17				
	SHSS, 0.313 x 0.375				18				
	WASHER, FLAT 0.313	202004	3		19				
	WASHER, LOCK 0.375	202005	8		20				
	TL102A Triple Flat Heatsink	202019A	2		21				
	TL102A Triple Bent Heatsink	202020A	2		22				
	TI 102A Flat Heatsink	202018A	>		23				
A	TITLE: LT10-16 Production Mounting Brackets	NAME         DATE           RMC         11/11/16           .         .           .         .           .         .           .         .           .         .           .         .           .         .           .         .           .         .           .         .           .         .           .         .           .         .           .         .	SE SPECIFIED: NINCHES NAL ±0.01 MAL ±0.005 DGES	UNLESS OTHER DIMENSIONS AR TOLERANCES: ANGULAR: MACH±0.5° BEND ±1.0° TWO PLACE DE THREE PLACE DE BREAK ALL SHARF					
REV	SIZE DWG. NO.			1			J	TROIS INC. ANY	
REV A	<b>C</b> 201996			FINISH	USED ON	NEXT ASSY			



	B							
Image: Solution of the solution	A T10-16 Production Aounting Brackets NG. NO. 201996 REV A 1:10 WEIGHT: SHEET 2 OF 8	DATE 11/11/16  	NAME RMC	DRAWN CHECKED ENG APPR. Q.A. COMMENTS:	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL± ANGULAR: MACH± BEND± TWO PLACE DECIMAL± TWO PLACE DECIMAL± INTERPRET GEOMETRIC TOLERANCING PER: MATERIAL FINISH DO NOT SCALE DRAWING	USED ON CATION	NEXT ASSY APPLI	IETARY AND CONFIDENTIAL MATION CONTAINED IN THIS IS THE SOLE PROPERTY OF DMPANY NAME HERE>. ANY TION IN PART OR AS A WHOLE HE WRITTEN PERMISSION OF DMPANY NAME HERE> IS D,

D

С

2













			FRACTIONAL ±	CHECKED	11166.
D CONFIDENTIAL ONTAINED IN THIS E DROADEDTY, OF			ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL +	ENG APPR.	LT10-16 Pr
			THREE PLACE DECIMAL ±	MFG APPR.	Mounting
			INTERPRET GEOMETRIC	Q.A.	///conning
ND CONFIDENTIAL CONTAINED IN THIS LE PROPERTY OF NAME HERES			IOLERANCING PER:	COMMENTS:	
CONTAINED IN THIS LE PROPERTY OF NAME HERE>. ANY PART OR AS A WHOLE IN PERMISSION OF			MATERIAL		SIZE DWG. NO.
	NEXT ASSY	USED ON	FINISH		<b>C</b> 2019
N PERMISSION OF NAME HERE> IS	APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:4 WEIGHT:
	、 、				2





D

С

В

Г						DATE			
AND CONFIDENTIAL N CONTAINED IN THIS SOLE PROPERTY OF IY NAME HERE>. ANY N PART OR AS A WHOLE ITEN PERMISSION OF IY NAME HERE> IS			UNLESS OTHERWISE SPECIFIED:		NAME				
			DIMENSIONS ARE IN INCHES	DRAWN	RMC	11/11/16			
			TOLERANCES: FRACTIONAL ±	CHECKED			TITLE:		I A
			ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ±	ENG APPR.			LT10-16 Prod	uction	
			THREE PLACE DECIMAL ± INTERPRET GEOMETRIC TOLERANCING PER:	MFG APPR.			Mounting Br	ackets	
				Q.A.					
				COMMENTS:					
			MATERIAL				SIZE DWG. NO.	REV	
	NEXT ASSY	USED ON	FINISH	-			<b>C</b> 201996	6 A	
	APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:12 WEIGHT:	SHEET 8 OF 8	
0							1		
	2								