



SPECIFICATIONS

SOLENOID LOGIC CARD IC3645TMM10A



Application

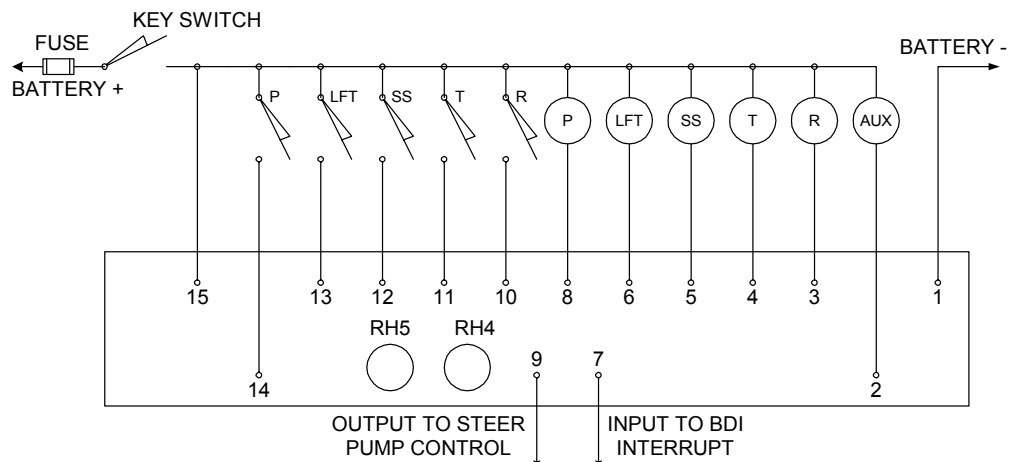
The solenoid logic card controls the functions and fluid flow of the hydraulic system of the industrial truck in which it is installed. While the hydraulic control or contactor controls the actual speed at which a function is completed, the solenoid logic card directs the flow of hydraulic fluid to perform the desired function, in response to switch inputs. Addition of the solenoid logic card to the

system enables the elimination of complicated latches and relays, simplifying the system and providing possible cost savings to the user.

Functions and Features

- The five switch inputs of the card must be switched to battery positive.
- The five switch outputs of the card complete the path to battery negative and can be controlled independently.
- The "AUX" output turns on automatically when any of the side shift (SS), tilt (T) or reach (R) outputs are activated.
- As a safety feature, the card monitors outputs for open circuits when they are in the off or neutral state to prevent operation of the hydraulic system when an open circuit is detected.
- Another safety feature prevents operation of the hydraulic system when excessive current is detected in the outputs
- To prevent unpredictable responses, the card views an invalid input as no input, and does not respond.
- The card provides an interface to the lift interrupt function of the traction control.
- The card provides hydraulic system diagnostics information to the user via two LED's (located beneath cover, labeled as RH4 and RH5). If either LED is lit, the card will not operate.
 - RH4 lights when there is an invalid input switch condition, i.e. a state not defined by the truth table (pins 10, 11, 12, 13 or 14).
 - RH5 lights when the BDI interrupt input is not 12V (pin 7), or if one of the output terminals is open. The check of the outputs is made when they are off. The card verifies that battery volts are present at pins 3, 4, 5, 6 and 8. In some applications, a solenoid may not be attached to output terminals 2 and/or 5. In these cases, internal board jumpers may be added to satisfy the output voltage condition.
 - RH4 and RH5 will both light if an internal solenoid driver transistor is shorted.
- The card contains an auxiliary 12V output that is available when any of the side shift (SS), tilt (T) or reach (R) outputs are activated.
- Reverse battery protection prevents needless component damage from an incorrect battery connection.
- Internal coil suppression for all solenoids eliminates the need for external suppression.
- Intended for use with transistor controls rated between 24 – 48 V only. Refer to GE for applications involving SCR controls or other voltages.

Typical Connection Diagram





Truth Table

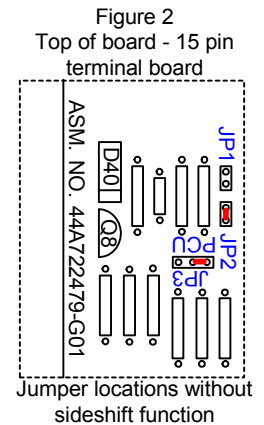
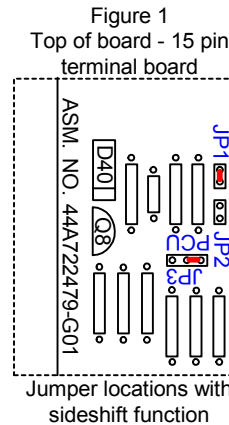
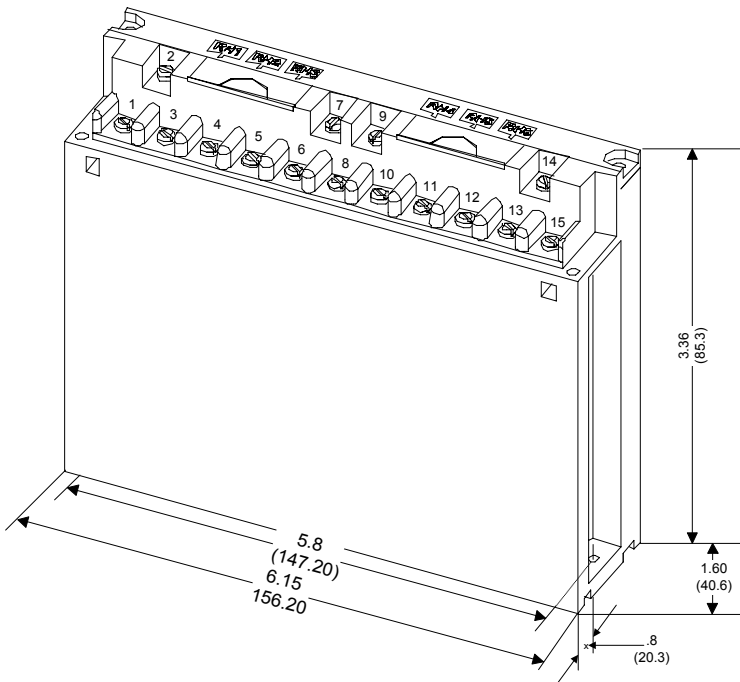
Input/Output	Inputs					Outputs					
	P	LFT	SS	T	R	P	LFT	SS	T	R	AUX
Terminal	14	13	12	11	10	8	6	5	4	3	2
Function											
Neutral	O	O	O	O	O	OFF	OFF	OFF	OFF	OFF	OFF
Valve Lift	C	O	O	O	O	ON	OFF	OFF	OFF	OFF	OFF
PB Lift	O	C	O	O	O	ON	ON	OFF	OFF	OFF	OFF
Valve Lower	O	O	O	O	O	OFF	OFF	OFF	OFF	OFF	OFF
PB Lower	O	O	O	O	O	OFF	OFF	OFF	OFF	OFF	OFF
Reach	O	O	O	O	C	ON	OFF	OFF	OFF	ON	ON
Tilt	O	O	O	MC	C	ON	OFF	OFF	ON	ON	ON
Side Shift	O	O	MC	O	C	ON	OFF	ON	ON	ON	ON

O = switch open C = switch closed MC = switch momentarily closed (latching)

Notes:

1. When a switch is momentarily closed, it remains closed until a second switch is held closed, then it is released. The selected momentarily closed function will continue to operate until a second switch is released. As a result, there is a 0.5 second time delay before another function can be activated.
2. Output 2 (AUX) will be energized (ON) anytime that either outputs 3, 4 or 5 is ON.
3. Inputs must be less than 5 mA.
4. Output 8 (pump) is rated at 2 amps maximum, and all others are rated at 1.5 amps maximum.
5. The total maximum allowable current in any condition is 6.5 amps. Should this condition be exceeded, the solenoid logic card will shut down, and the key switch must be re-cycled to re-start it.
6. The above truth table is a typical example. Refer to GE for availability of custom programming for additional applications.

Outline (for Reference Only)



When IC3645TMM10A is supplied by the factory, it will include two small black jumpers installed on the board at JP1 and JP3, as indicated in Figure 1 above. The jumper located at JP1 enables the use of the side shift function.

If the side shift function is not used (there is no solenoid connection to terminal 5 of the board) the JP1 jumper must be removed and installed across the two pins at JP2 (as shown in Figure 2 above).

The jumper at JP3 should not be moved for any reason.

Replacement jumpers can be ordered from the factory under GE part number 44A295040-001.