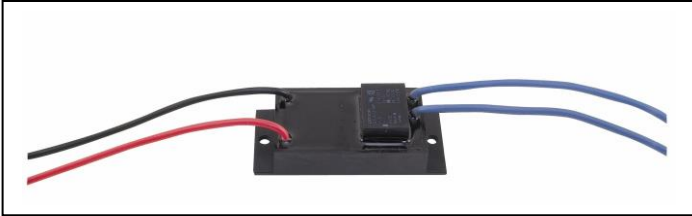


# 4147 Output Relay, Magnetically Latching



Tracer's 4147 Output Relay Module

Single Wire T-Buss™ Loop

99 IDMs Scanned 6x/SEC

## CONTACT OUTPUT

Under control of the T-Buss controller (TCU-7), a remote relay can be turned ON or OFF. The position of the contacts can be read back by the user.

## PROGRAMMING

The 4147 can be set to any address from 0-255. The address is stored internally in an EEPROM. The address is written into the module through the 2-wires connected to the T-Buss™, and can actually be changed while the module is on the T-Buss™. An available TPU-7 Programmer/tester is available through Tracer.

**Note:** TCU-7 supports IDM numbers 1-99.

## The T-BUSS™

The T-Buss™ is Tracer's patented low-cost multiplex system. Two-wires are used to power the ID Modules (IDMs), to send commands to the modules and to receive their data. The commands from the central polling controller to the IDMs take the form of modulating the T-Buss™ voltage between 0-10v. The data returned from the modules is in the form of increased T-Buss™ current.

For technical details on the T-Buss™ and its protocol, please contact Tracer's marketing group.

## HIGHLIGHTS

- Low Cost
- Powered by Buss
- 8A 250VAC relay output
- High Noise Immunity
- Contact position reported back

## DESCRIPTION

The 4147 is a transponder compatible with Tracer's T-Buss™ multiplex system. The module provides a relay contact output under the control of the T-Buss™ central T-Buss™-Driver. The module connects to the T-Buss™ (2-wires) and to the load that is to be controlled. Power for the relay is derived from the 2-wire T-Buss™.

To minimize the current drawn from the T-Buss™, a latching relay is used. Power for switching the relay is stored in a capacitor on the module, thus minimizing the disturbance to the T-Buss™ that would occur during relay switching.

The module requires three consecutive ON or OFF commands before the relay will change its output (transparent to the user). A minimum of 1 second must be allowed between output changes.

When polled, the 4147 returns data at its address. The data represents one of three states - relay contact Open, relay contact Closed or Trouble (module malfunction).

## APPROVALS

The 4147 is designed to meet UL 508 safety requirements.

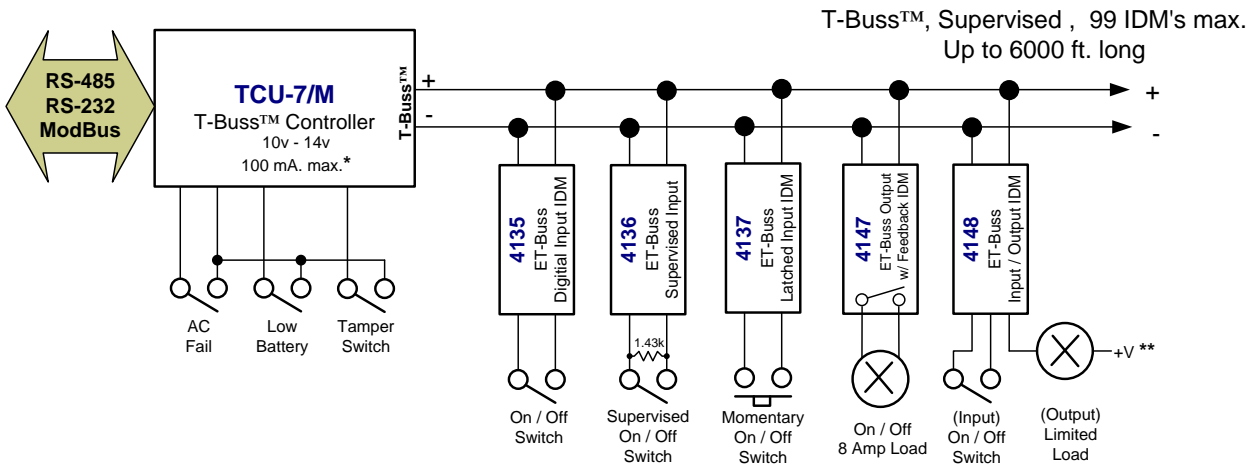
Patented Technology

High Noise Immunity

## SPECIFICATIONS

<b>T-Buss™ Voltage:</b>	8v to 16v (supplied by TCU-7/M)
<b>T-Buss™ Duty Cycle:</b>	50% to 100%
<b>T-Buss™ Current:</b>	15uA typical @ 7v 60uA @ 10v
<b>Operating Power:</b>	Supplied by T-Buss™
<b>T-Buss™ Wiring:</b>	18-22 AWG twisted (unshielded), 6,000 feet or 150 Ohms
<b>Dimension, Body:</b>	63mm L x 30mm W x 18.5 mm H
<b>Leads:</b>	18 AWG, approximately 142mm long Red (+), Black (-) to T-Buss™ Blue (x2) for FORM A relay contact output
<b>Contact Rating:</b>	8A 250VAC Resistive load 3.5A 250VAC 0.4 p.f.

## Tracer T-Buss™ System



\* In the event that the T-Buss™ loop is shorted, the TCU-7 will require up to 300 MA. In order to report the shorted T-Buss condition.

\*\* +V connects to +side of T-Buss™ for limited power draw. Connect to Isolated power for additional capability.

The following applies for ambient temperatures from 0 to 60 C:

Symbol	Parameter Description and Conditions	MIN	NOM	MAX	Units
<b>Is</b>	Standby DC Current				
	Duty Cycle = 100% (Notes 1,2,3)				
	$V_{BUSS} = 8.0V$	65	85	105	uA
	$V_{BUSS} = 10.0V$	120	145	170	uA
	$V_{BUSS} = 15.0V$	350	375	400	uA
	$V_{BUSS} = 15.0V$ , Programming mode	165	190	215	uA
<b>Ia</b>	Answer Current Amplitude (Note 3)				
	$V_{BUSS} = 8.0V$ , relay RESET	6.0	6.5	7.0	mA
	$V_{BUSS} = 8.0V$ , relay SET	3.0	3.3	3.6	mA
	$V_{BUSS} = 10.0V$ , relay RESET	7.4	8.0	8.6	mA
	$V_{BUSS} = 10.0V$ , relay SET	3.7	4.0	4.3	mA
<b>Ic(Tpk)</b>	Peak Charging Current (Notes 2,3, Figure 1a)				
	$V_{BUSS} = 8.0 - 15.0V$		0.7	1.0	mA
<b>dIc/dt (max)</b>	Maximum Ic rate of change (Figure 1a)				
	$V_{BUSS} = 8.0 - 15.0V$		25	50	uA/mS
<b>Ic(1S)</b>	Charging current after one second (Figure 1b)		105	230	uA
<b>Ic(2S)</b>	Charging current after two seconds (Figure 1b)		15	55	uA
<b>Tpk</b>	Peak Charging Current Delay (Figure 1a)	50	70	90	mS
<b>Twait</b>	Time to wait after switching before switching again		0.8	1.0	S
<b>Ridm</b>	IDM small signal AC impedance				
	$Ridm=dv/di$ , $f=1kHz$ , $dv=2.0 V_{pp}$ $V_{BUSS}=8.0-15.0 V$	22.0	23.5	25.0	Kohm

NOTES: 1. This is the Standby current when the duty cycle  $d=1.0$ . For lower duty cycles,  $I_s(d) = (I_s * d) + (14 * (1-d))$  uA.

2. Current is averaged over one clock cycle.

3. Total IDM cu

