

7.3 MEASUREMENT DEFINITIONS

Timing is measured with the input driven by a gated pulse amplifier of the series under test and with the output loaded with gates of the same series. Percentages are assigned as follows: 0% is the initial steady-state level, 100% is the final steady-state level, regardless of the direction of change.

Input/output delay is the time difference between input change and output change, measured from 50% input change to 50% output change. Rise and fall delays for the same module are usually specified separately. Rise time and fall time are measured from 10% to 90% of waveform change, either rising or falling.

7.4 LOADING

Input loading and output driving are specified in "unit loads" where one unit load is 1.6 mA by definition. The inputs to low-speed gates usually draw one unit load. High-speed gates draw 1-1/4 unit loads, or 2 mA.

7.5 MODULE CHARACTERISTICS

The following paragraphs describe the more important TC11 modules that are not described in other documents. These modules are the G879 Transport Detector and the G888 Manchester Read/Write Amplifier. Note that the M228 Mark Track Decoder is described in Paragraph 5.9.3 of this manual.

7.5.1 G879 Transport Detector

The G879 Transport Detector Module is designed to detect an error condition in the select circuits of the DECTape system. This module switches if either the input voltage is too low (indicating that no transport has been selected) or if the voltage is too high (indicating that more than one transport has been selected). If there is no input or more than one input to the module, its output goes negative. If there is only one input, the output remains high (+3V).

Specifications for the G879 module are given in Table 7-2, the circuit schematic is included in the engineering drawing manual (*TC11 DECTape System, Engineering Drawings*), and a description of the unit select logic is given in Paragraph 5.9.1.

Table 7-2
G879 Specifications

Inputs	
Input Impedance:	100 Ω (minimum)
Levels:	0V to -15V
Outputs	
Levels:	Standard TTL levels
Fan Out:	30 Unit Loads
Input/Output Function	
Input Voltage	Output Voltage
-15V to -9V	0V
- 9V to -4.7V	+3V
-4.7V to 0V	0V

7.5.2 G888 Manchester Read/Write Amplifier

The G888 Manchester Read/Write Amplifier module is used to drive (write) or receive (read) current to or from the DECTape read/write heads of the TU56 Tape Transport. One G888 module is used for each of the five read/write heads in the transport.

The write portion of the module is similar to a push-pull amplifier; it can drive current in either direction, depending on the relative polarity of its inputs. It can drive a square current pulse into the write head.

The read portion of the module is a high-gain amplifier with positive feedback. This amplifier responds to inputs of 500 μ V. There are three stages to the read amplifier: a linear amplifier with a gain of 100; a zero crossing detector; and a limiter, which drives a 7400-series TTL gate. A test point (pin M2) is provided to sample the output of the first stage.

Specifications for the G888 module are given in Table 7-3, the circuit schematic is included in the engineering drawing manual (*TC11 DECTape System, Engineering Drawings*), and an explanation of the Manchester recording technique is given in Appendix A.

Table 7-3
G888 Specifications

Write Amplifier	
Inputs:	Standard TTL voltage Load at 0V is 1 unit R2 should be tied to +3V when not used
Outputs:	Can drive 100 mA in either direction Pins L2 and M2 are the outputs of the 7400 TTL gates Pins J2 and K2 are the outputs that drive the tape unit write head
Read Amplifier	
Inputs:	Can detect an input voltage as low as 500 μ V.
Outputs:	Pins U and V are standard TTL voltages
Fan Out:	Pin U2 = 9 unit loads Pin V2 = 10 unit loads
Test Point:	Pin H2 is a test point that monitors the first stage output
Power Dissipation	
	50 mW at +5V 250 mW at -15V