

D-2,000 CONTROLLER

11801

I. INTRODUCTION

1. The Econolite D-2000 Series Digital Controller is provided as a low-cost versatile machine capable of controlling a two-phase intersection utilizing vehicle and/or pedestrian actuation. Its modular design allows the Traffic Engineer to equip a two-phase intersection with a basic controller while maintaining the option of plugging in additional features as needed.
2. Timing accuracy and stability is assured through the use of digital circuitry techniques. Timing accuracy is equal to the 60 Hz line frequency transmitted by the local power company.
3. The modular design concept provides ease of maintenance allowing rapid trouble-shooting through module interchange techniques. This yields a lower down-time for each controller should a malfunction occur.

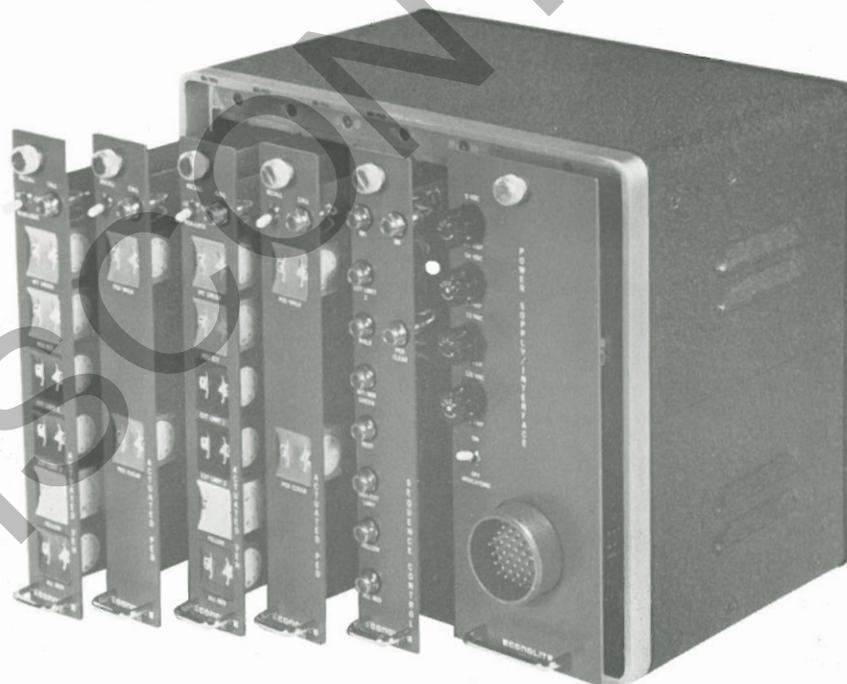


Figure 11801 Model D-2013 Controller

D-2,000 CONTROLLER

II. GENERAL DESCRIPTION

1. The D-2000 Two-phase Controller typifies the latest state-of-the-art techniques from Econolite with the following as standard features:

- a. Digital timing for exact repeat accuracy
- b. Two phases - semi or fully actuated
- c. Locking and non-locking detector memory
- d. Dual extension limits
- e. Remote selection of semi-actuated mode
- f. Recall switch on each module
- g. Detector check circuit
- h. Manual sequencing capability
- i. Color coded timing switches and indicator light on/off switch

2. Additional functions available in the D-2000 are actuated pedestrian modules, exclusive pedestrian feature, and mutual coordination capabilities.

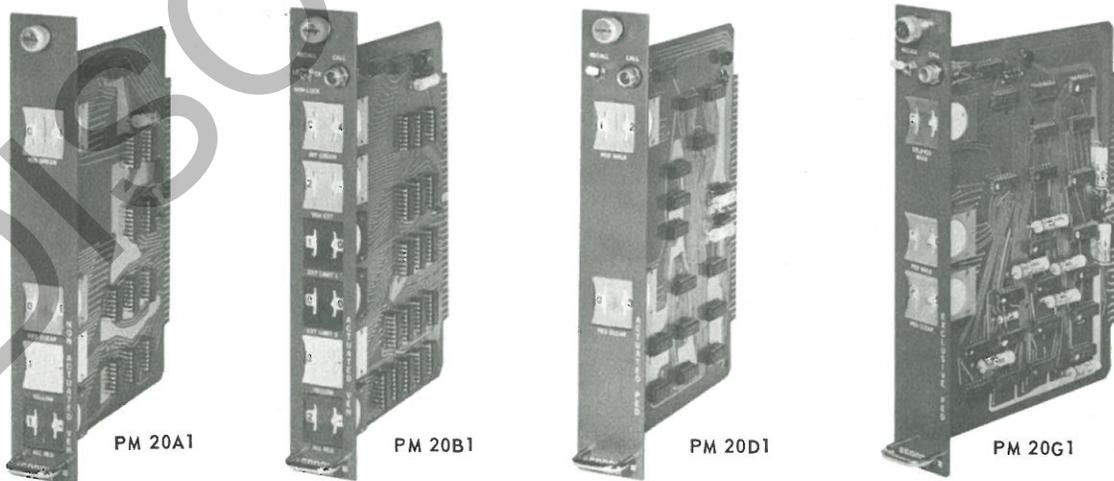


Figure 11802 D-2000 Building-block Modules

D-2,000 CONTROLLER

11803

3. The modules available in the D-2000 series are listed below. Many combinations of these modules may be used to yield the desired operational capabilities required for a specific intersection. These modules are illustrated in figure 11802. Two modules (not illustrated) are required in all D-2000 series controllers. These are the Power Supply/Interface Module and the Sequence Control Module, they are supplied with all D-2000 series frame assemblies. The optional modules are as follows:

- a. PM20A1 - Non-actuated vehicle phase module with adjustable all-red and concurrent non-actuated pedestrian phase (use in module slot Nos. 1 and/or 3).
- b. PM20B1 - Fully-actuated vehicle phase module with adjustable all-red and remote selectable second extension limit (use in module slot Nos. 1 and/or 3).
- c. PM20D1 - Actuated pedestrian phase module (use in module slot Nos. 2 and/or 4).
- d. PM20G1 - Exclusive pedestrian phase module which provides an exclusive actuated phase during an all-red vehicle interval (use in module slot Nos. 2 and/or 4).

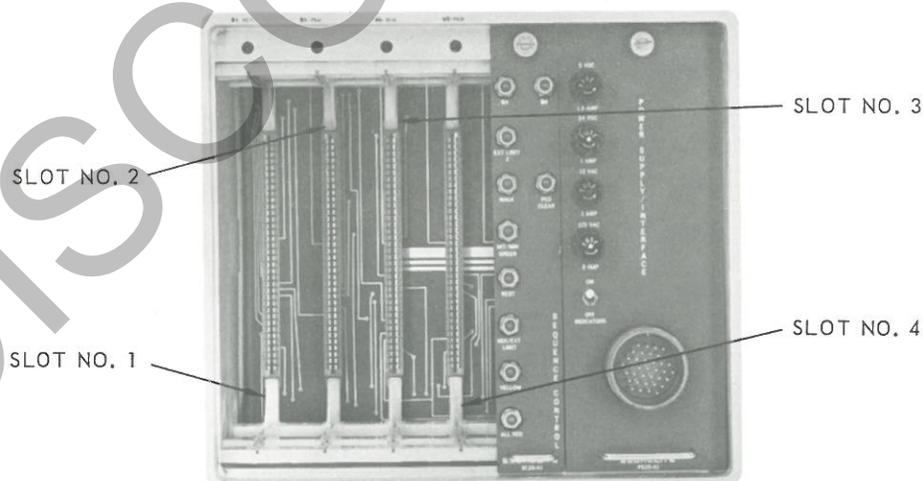


Figure 11803 D-2000 Series Module Slot Numbers

D-2,000 CONTROLLER

III. REFERENCE DATA

1. General - These specifications describe the requirements for a two-phase vehicle and/or pedestrian actuated traffic controller utilizing digital timing techniques. The controller, with appropriate module selection, shall be capable of operating as a semi-actuated or full actuated unit with or without actuated pedestrian control.
2. Modules - Each module shall be plug connected to a master printed circuit board located at the rear of the controller housing. Each module shall be removable from the front of the controller without the use of special tools.
3. Power Supply - The power supply, interface connector and interface circuitry shall be contained in a plug-in module. The power supply shall be fuse protected and provide the necessary regulated voltages and currents required for proper operation of the controller and all operations external to the controller.
4. Phase Sequence Module - This module shall control the order and operation of the phase timing modules. The face of this module shall contain all indicator lights necessary for controller function observation except detector call indicator which shall be located on the phase timing module.
5. Phase Timing Modules - Each phase timing module shall contain thumbwheel switches for interval time setting. Each actuated phase module shall further contain a three-position switch for recall and vehicle memory locking and non-locking selection.
6. Timing Periods: The following adjustable time periods shall be provided:
7. Non-actuated Module -
 - a. Minimum Green 0-99 seconds.
 - b. Pedestrian Clearance 0-99 seconds.
 - c. Yellow 0-9 3/4 seconds.
 - d. All Red 0-9 3/4 seconds.

D-2,000 CONTROLLER

11805

8. Actuated Vehicle Module -
 - a. Initial Green 0-99 seconds.
 - b. Vehicle Extension 0-9 3/4 seconds.
 - c. Extension Limit 1 0-99 seconds.
 - d. Extension Limit 2 0-99 seconds.
 - e. Yellow 0-9 3/4 seconds.
 - f. All Red 0-9 3/4 seconds.
9. Actuated Pedestrian Module -
 - a. Pedestrian Walk 0-39 seconds.
 - b. Pedestrian Clearance 0-39 seconds.
10. Standard Functions - The following function shall be standard integral functions:
 - a. Manual Circuit - A circuit to permit manual advancement of the controller through all sequence intervals.
 - b. Stop-timing - A circuit to stop interval timing.
 - c. Hold - A circuit to permit "holding" a phase timing module in the rest condition.
 - d. Check - A circuit to provide an output when an actuation has been registered.
 - e. Force-off - A circuit to permit early termination of phase B green by remote means.
 - f. Selectable Semi-actuated - A circuit to permit a full actuated controller to be remotely called to semi-actuated mode operation.

D-2,000 CONTROLLER

- g. Dual Extension Limit - A circuit to permit remote selection of a second extension limit.
 - h. LOC - Controller will dwell in all red with no calls in controller.
 - i. +24V dc Output - For external logic.
 - j. 5k Hz Output - For SS switch control.
11. Case - The controller unit shall be enclosed in an attractive metal case with the following dimensions: Height: 10"; Width: 11.5"; Depth: 8".
12. Power Requirements - 115V 60 Hz. requiring no more than 70 watts of power.