

# GENERAL NOTES

## XXIV - TRAFFIC RESPONSIVE MASTER CONTROLLER (Continued)

### a. Input:

Each module shall be capable of accepting presence information from one through four presence detectors. It shall be possible to use a total of eight detectors for sampling; four for inbound traffic, four for outbound traffic. A separate input channel shall be provided for each detector.

Each module shall be provided with a front panel control to adjust for the actual number of detectors used.

An indicator light shall be associated with each detector input channel. The light shall be illuminated for the entire period of vehicle detection.

### b. Computation:

Equal computational weight shall be given to information from each detector.

Values of congestion index shall be separately computed for each direction of traffic. The values computed shall be displayed on front panel mounted meters and shall be used in cycle category selection. The meters shall have two ranges 0 to 50 percent and 0 to 100 percent. A meter range selector switch shall be provided for each meter.

The computations shall be averaged over an adjustable time period having the range of 1 to 10 minutes in 1 minute steps.

Direction index, balance of traffic, shall be computed and shall be used as the basis for offset selection.

Front panel controls shall be provided to facilitate traffic adjustment tests. The controls shall cause the adjustment section to generate congestion index values of 50 and 100 percent for each direction.

### c. Classification:

Two groups of three each separately adjustable level controls shall be provided. Each level control shall have the range 0 to 100 percent. One group shall be used to set the level crossover points for cycle category selection, the second group shall be used to set the level crossover points for offset selection. Four cycle and five offset categories shall be provided.

A differential control shall be associated with each group of level controls. The two separately adjustable differential controls shall have the range of 0 to 10 percent and shall be used to establish the category crossover points in the decreasing direction.

Indicator lights shall be provided to show the cycle and offset categories selected.

With a preferential offset called for the congestion index computation used for cycle category selection shall be the value computed from the detectors associated with the preferred direction, example: Inbound offset, inbound detectors shall be used to select cycle category. With an average offset the cycle category selection shall be a function of the computed average congestion index using all detectors.

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### d. Input:

A normally open relay contact shall be provided for each category to direct the operation of associated coordinating units.

Two analog outputs shall be provided to permit recording, on a 1 ma movement recorder, inbound congestion index and outbound congestion index.

### e. Accuracy:

All adjustable controls shall be capable of being set within plus or minus two percent of full scale through the use of front panel markings.

Values once set on the adjustable controls shall be stable within plus or minus two percent over the temperature range minus 30 to plus 165 degrees Fahrenheit with a 60 Hz source within the range 95 to 130 volts.

## B) MASTER COORDINATING UNIT:

1) The coordinating unit shall be equipped with master supervisory dial unit contacts for automatically establishing the offset relationship of the secondary dial coordinating units within the system.

2) All dial coordinating units shall have provision to utilize three dials.

3) Each dial coordination unit shall be designed for provision of split transfer through use of an optional printed circuit board to provide split transfer capability in association with 7 contact dial units.

4) All printed circuit board control relays shall be plug-in type and completely interchangeable with one another to simplify maintenance requirements.

5) The dial coordinating unit shall be plug-connected to the controller panel so that it may be replaced with a similar unit without the necessity of disconnecting or reconnecting individual wires. The plug connection shall be MS type.

6) The coordinating unit shall be equipped with indicating lights for cycle, offset and/or split functions in effect and include test switches to determine cycle and/or split called for by the master.

7) An external free operation relay assembly shall be included to allow free operation of the timer when system interconnect is off or when the coordinating unit is removed from the circuit.

## C) OPERATION:

### 1) Sequence:

The coordinating unit shall provide and allow for consecutive divisions of a time cycle hereafter termed intervals.

### 2) Timing:

It shall be possible to set up a separate and distinct program of interval timing on each dial unit.

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It shall be possible, when specified, to transfer operation from one dial to another, and/or one split to another, remotely or automatically. Automatic transfer shall be accomplished through the use of weekly programmer and time switch.

The coordinating unit shall be so arranged that the transfer of the interval timing from one dial unit to another and/or one split to another may be accomplished at the beginning of the main street green interval or any other chosen interval.

The switching from one dial to another and/or one split to another, shall be accomplished through the use of electrically latched relays.

## D) DESIGN:

### 1) Dial Unit:

Each dial unit shall be plug-connected and shall be so constructed that it may be installed or removed without use of tools.

The timing dial of each dial unit shall be driven by a self starting sealed, synchronous motor requiring no lubrication. This motor shall have ample torque to drive the dial at constant speeds under all normal operating conditions.

On the front of each timing dial there shall be calibrated scale for the setting of each function such as yield and force-off. The dial shall at all times show a visual indication of the percentage of the time cycle allocated to each interval.

Each dial shall be equipped with color coded keys which shall snap in and out easily without tools and shall be self-locking.

The dial shall be equipped with an easily removable time cycle gear, available 30-120 seconds in 5 second steps.

Each dial unit shall have a visual indication of the time cycle set on the dial.

Each dial unit shall be equipped with a five contact block wired for the following function: Three reset contacts, one split and one interlock (yield).

If specified, each dial unit shall be equipped with a seven contact block wired for the following functions. Three reset contacts, one split, one interlock (yield) and two contacts that may be used as required (additional splits and/or resets).

## E) OFFSET INTERRUPTER:

The offset interrupter shall be identical in all respects, and interchangeable with the Master Dial Coordinating Unit with the exception of the programming jumpers.

The interrupter shall be a three dial unit capable of supplying three different cycle lengths.

The interrupter dials shall be equipped with cycle gears giving it a cycle length five seconds faster than the corresponding master and secondary dials in the system. The four reset keys on each interrupter dial shall be placed to divide the cycle into four equal parts.