

W5 - ACS

170, 170-HC11, 2070, ATC, SBC Adaptive Control Software



DESCRIPTION

W5ACS is the most advanced, user friendly, and most widely used local smart controller firmware in the country. The ACS stands for "Adaptive Control System" and this name certainly reflects its critical function - Traffic Adaptive Control. W5ACS operates all 170, 170HC11, and 170ATC controllers. This versatile 170 program uses terms and timing parameters found in NEMA programs with the addition of many important features not found in any other programs. A unique command box feature allows users to "customize" the program to accomplish things that no other program can. It can collect traffic data from radar or video detectors and do traffic adaptive or responsive control by itself or driven by the central. It also can communicate with other locals for optimization of green band.

The philosophy at Wapiti Micro Systems is to provide a software package that is versatile enough to meet any unique applications your intersection may require. This concept eliminates the need for single application software that will only work in limited locations, this allowing the user to standardize on one software package that can be used anywhere! We designed the structure and operation of the program to meet the needs of the practicing Traffic Engineer and Signal Technician for now and in the future.

FEATURES

In addition to the standard features of W4IKS:

- 4(2) Rings, 16(8) Phases, 16(8) Peds, 16(8) Overlaps, 8(4) EV Preempts, 4(2) RR Preempts
- Retrieve Traffic Data from Radar or Video Detectors
- Built-In Traffic Adaptive Feature (Predictive and Feedback Control)
- Built-in Traffic Responsive Control (Dynamic Green, Cycle Length, Split and Offset)
- Flashing Left Turn Arrow Feature
- GPS Time Reference Update—Pulse/Serial
- Texas Diamond Feature (TTI 3 Phase, 3 Phase Modified, and 4 phase)
- Over 4096(384) lines of command Box (Ladder Logic Design)
- Controller Memory Cleanup Feature
- CRC error Checking Communications Protocol
- Support SNMP and STMP(NTCIP thru Wapiti NetBox*)
- Multi-Serial Ports with different communication protocol specified.
- Critical Intersection coordination Handling (crossing arterials, and Green Band Opt)
- Shortcut to Data Display
- Low Priority Preemption for Transit Systems — Light Rail Train and Bus
- Logs Reviewable thru LCD Display
- Programmable Service

W5ACS Local Firmware

FEATURES - (Continued)

Functions per Phase Basis:

Vehicle recall (max & min)
 Ped recall
 Lock and non-lock detection
 Lead phases
 Double entry
 Sequential timing
 Exclusive phasing
 Simultaneous gap
 Restrictive phasing
 Rest in walk
 Advance walk
 Red rest
 Volume density (gap reduction)
 Max phase time
 Sequential timing phases
 Soft Recall

Intervals per Phase:

Max
 Max II
 Min green
 Passage time
 Min gap
 Max initial
 Yellow
 Red Clearance
 Walk
 Ped Clearance
 Added initial
 Time to reduce
 Time before reduction
 Red revert
 Walk II
 Walk Delay

Coordination:

32(18) Plans - cycle, offset, force-off, coord-phase(s)
 3 coordination modes with Perm Veh & Ped Windows
 Short and Fast Coordination Sync
 Optimize Green Band Responsively during peak hour
 Coordination on Critical Intersections

Detection:

64(40) Inputs with 255 input functions assigned
 16(8) system or speed detectors
 8 zones from Traffic Responsive or Adaptive Control
 Detectors Diagnostics Plan and Strategies

Logs:

512(200) records of Preemption and Power Outage
 1024(200) records of traffic counts
 1024(200) records of plan change
 256 records of traffic data collection (Vol, Spd, Occ)

Scheduler:

64 daily events with TOD/DOW functions assigned
 9 holidays events (smart day and weekly holidays)
 32 Exception Days with 9 week patterns thru 52 weeks

Communication:

Mult-Serial Ports with 1.2 - 19.2 Kbps
 Protocol: Wapiti(CRC), STMP(NTCIP), JHK, P-90.
 Ethernet Port with UDP/IP

Traffic Management Software

W5ACS firmware has been designed to operate with W7OSM, an on-street master program also developed by Wapiti Micro Systems. Both have been developed to communicate with [TrafficView32](#), an advanced Closed Loop Traffic Management System. The purpose is to create a powerful system that allows a Traffic Engineer to fully control & maintain all of his intersections right from his desktop. [TechView](#) is a "Lite" version of [TrafficView32](#) designed for the field technician to upload and download timings in the field. [PocketView](#) is another management tool that allows users to communicate to a controller through a pocket pc instead of a bulky laptop.

[Artery](#), is an advanced program designed to work with [TrafficView32](#) and Wapiti software to aid the traffic engineer in designing optimal flow of traffic.

[OverView](#), is an Advanced Traffic Management Systems with Database Server and Communication Server. It Integrates Video Surveillance, GIS Database, and Signal Inventory Management. Friendly User Interfaces with graphics are easy to configure and manage the whole system or sub-system with different privileges authorized. It also has the capability of Traffic Adaptive/Responsive Control, which provides traffic predictive and feedback control to balance traffic fluctuation and smooth traffic movement. System monitoring for intersections can be configured and managed for multi-agents or jurisdictions thru secured web-client applications. It is effectively scalable to fulfill traffic Operations from small towns to major metropolitan areas. Expanded Control without Losing Closed Loop Capabilities While all of the features of a closed loop system are included to support Masters and Master controlled intersections.

HARDWARE

W5ACS will operate on 170 controllers with Motorola 6800 processors & HC11 processors. A new version of W5ACS is now available to work with the 2070L controller, Intelight's Smart-Card Processor, SBC Controller, and ATCnx Controller.

