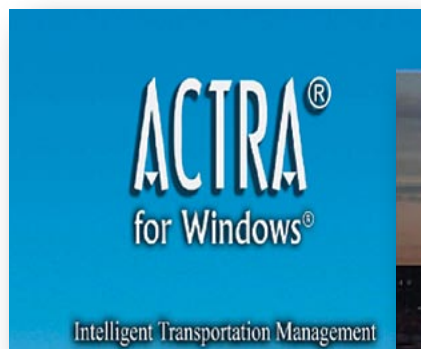


ACTRA[®] Software



ACTRA, a PC-based intelligent transportation management system monitors and controls traffic from a central control center. Its modular design allows system customization to address specific traffic requirements and provides a growth path as traffic needs change.

Traffic Management

- Respond to an individual traffic event - whether planned or unexpected - through a user selected traffic mode.
- View parameters and control any connected intersection by uploading or downloading information from any system workstation.
- Provide preemption / priority for railroads, emergency vehicles, and public transit.
- Interface with other traffic products, such as dynamic message signs, video cameras, highway advisory radio/telephone (HAR/HAT) systems, or ramp metering controllers.
- Integrate SCOOT, an adaptive control system by Siemens, and third party systems, such as parking guidance and incident detection.
- Provide dynamic intersection grouping and pattern selection.

Basic ACTRA features

- Scalable to support smaller systems with fewer intersections and groups or very large systems with virtually unlimited entities.
- Supports multiple client workstations, including laptop computers and handheld devices.
- Simultaneous multiple user system access from workstations in the central control center, remote locations, and multiple agencies.
- Adaptive operation through either direct connections or through on-street masters.
- Supports a variety of communications media and data transfer rates.
- Graphical user interface that conforms to the Microsoft Windows format.

Part Number 122-ACTRA



TOTAL TRAFFIC CONTROL

ACTRA allows full control of equipment in the field. Intersections can be controlled and monitored either directly or through closed loop master controllers. An unlimited number of system arterial intersections can be grouped for control purposes. Intersections can be switched manually or automatically between groups, allowing complete restructuring flexibility.

Traffic Control Modes

For signal plan selection, ACTRA offers a wide range of customizable system control modes, each of which can provide real-time data. These include:

- *Time Base Control*, with user defined schedules and pattern assignments.
- *Traffic Responsive*, with user assigned patterns for traffic level conditions. Threshold values for each level are user defined, triggered by selected detector and computational channel data.
- *Quick Response*, with planned, user defined responses to possible critical situations for dynamic reaction to changing street conditions. Events and triggers in this incident / demand management mode are defined through a series of logically combined conditions, such as detector volume, intersection status, etc.
- *Manual Mode*, with timing plans selected by entire group or individual intersection.



Traffic Analysis

ACTRA allows integration of convenient traffic analysis optimization tools including AAP[™] (Passer[™] and TRANSYT[™]) and Synchro[™]. Time-space diagrams can provide visualization of arterial progression and timing plans.

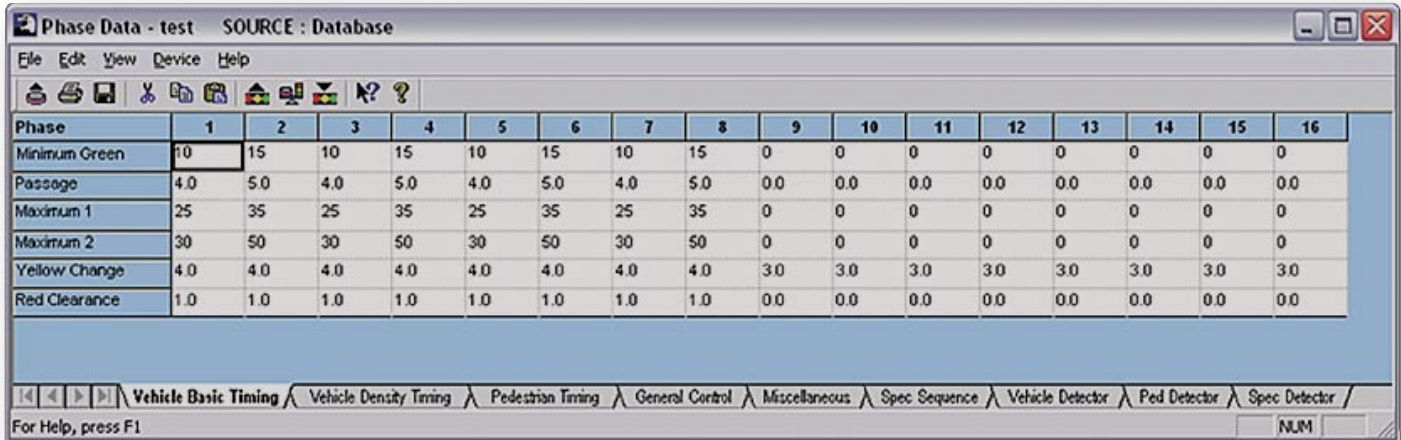
Adaptive Traffic Control

ACTRA offers adaptive control, which can provide additional benefits over fixed signal timing plans, particularly in “hot spots.” These “spots”- freeway off-ramps, incident-prone segments, stadiums, and major events facilities - are often the sites of unpredictable traffic flows.

For traffic control optimization, ACTRA, permits the integration of other Siemens software such as SCOOT. Full advantage of unparalleled traffic control capabilities is possible without the need for creating and updating signal plans.



ACTRA® Software



Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Minimum Green	10	15	10	15	10	15	10	15	0	0	0	0	0	0	0	0
Passage	4.0	5.0	4.0	5.0	4.0	5.0	4.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Maximum 1	25	35	25	35	25	35	25	35	0	0	0	0	0	0	0	0
Maximum 2	30	50	30	50	30	50	30	50	0	0	0	0	0	0	0	0
Yellow Change	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clearance	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Data Exchange

From any system workstation, ACTRA can upload from and download to each controller's database, at either the local controller or field master level, without interrupting normal operation. Automatic uploads can also be scheduled through Time of Day.

Preemption / Priority

A truly integrated and interactive system, ACTRA provides reports and status of signal preemption for railroads, emergency vehicles, and bus priority features for public transit. ACTRA also supports third party systems.

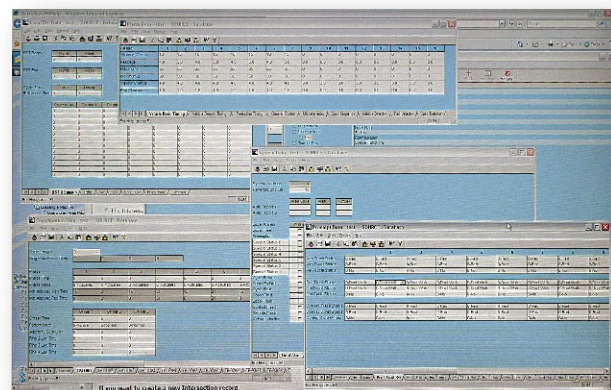
GRAPHICAL USER INTERFACE

ACTRA's graphical interface uses many standard Windows™ features such as dialog boxes, windows that can be moved and sized, toolbars and other buttons, and pulldown and context menus.

Navigation

ACTRA provides two basic methods for navigating within the system:

- *System Guide*, a browser style directory tree that expands to list all entities and program modules.
- *System Maps*, geographic overviews of the system, at the group and system wide levels. Updating map symbols display current status while context menus provide access to data tables and program modules.



Data tables

Spreadsheet style data tables use standard Windows[™] commands to provide easy navigation for data entry and maintenance. Data may be uploaded / downloaded by data group or by entity. The Compare function generates a list of differences between the controller data and the database, giving the user the option to change the data to match either data source.

Reports

ACTRA supports a variety of intersection, group, and system reports. Some are predefined with user selected reporting intervals. Others can be custom-made through Crystal Reports[™]; the Report Viewer is provided with the system.

Reports may be scheduled to run automatically and may be displayed onscreen, printed, or saved to a file. A report wizard is provided to help with data selection.

Intersection Maps

ACTRA supports the simultaneous display of multiple intersection maps in separate windows that can be sized and positioned. Map backgrounds may be selected from a standard library supplied with ACTRA or may be created and imported from most graphics programs.

Information displayed includes:

- Physical layout of the intersection - lanes, approaches, crosswalks, and locations of detectors;
- Vehicle and pedestrian phase status;
- Control mode in effect;
- Traffic pattern;
- Cycle timer;
- Preemption status;
- Special alarm and detector status.

System Maps

System maps display membership groups and current signal, operation, and communication status.

Features include:

- Ability to monitor intersections, MARC Masters, and system detectors;
- Ability to import backgrounds from various CAD or other graphics sources;
- Support of multiple layers;
- Pan and Zoom options in map view;
- Submap option to saved zoomed views;
- Add, remove, view, or modify entities;
- Links to intersections to display intersection maps or data tables;
- Option to view filtered data;
- GIS based System /Area Maps.

Time-Space Diagrams

ACTRA provides Time-Space and platoon progression plots using historical or current data to help provide a clear, concise picture of traffic behavior.

COMMUNICATIONS AND INTERFACES

ACTRA communicates through and with numerous devices, offering the opportunity for a configured and customized system that meets specific traffic management needs.

ACTRA supports a variety of communication media, communication speeds, and communication protocols. The system communicates at rates of 1200 baud or more - data transfer rates vary according to the medium used.

Multiple Media

The varied land line and wireless media supported include:

- FSK via twisted pair
two- or four-wire
- Fiber optic lines
Multi-mode or single mode
- ATM (asynchronous transfer mode)



ACTRA® Software

Multiple Media (continued)

- Coaxial
- Telephone line
- CATV
- Radio
 - Fixed frequency
 - Spread spectrum
 - Microwave
- Ethernet

Protocols

ACTRA supports both NTCIP and ECOM protocols.

Mission-Critical Applications

ACTRA can be configured to provide high availability for critical installations. Available options to provide the degree of performance required include:

- Redundant Servers - protection against application faults;
- RAID Level 1-5 Disk Drives - protection against loss of data;
- UPS - protection against loss of power.
These options may be included individually or collectively.

Intersection Devices

ACTRA interfaces with NEMA, 170, 2070ATC, and inter-val based local controllers, and master controllers.

Interface capabilities include:

- Once-per-minute polling of all controllers to maintain status and detector data, with optional second per second polling, depending on medium;
- Concurrent handling of extended monitoring, upload/download requests;
- Automatic dial-up of masters and assigning of dial-out modem ports, with option for multiple port servers;
- Handling of up to 32 controllers per communications channel, depending on medium;
- Automatic Paging for user defined critical alarms;
- Event Monitor for viewing message history and generating reports.

Central

The ACTRA system allows users to monitor local and master controllers from a central office. ACTRA operates over a local area network (LAN) capable of supporting multiple client workstations.

- ACTRA - A COMPREHENSIVE SYSTEM

ACTRA is more than just a simple traffic control system. It is what today's traffic engineers need: a robust, adaptable ATMS platform that can be customized, is easy to use, and is configurable, with virtually unlimited expandability.

Advanced Architecture

ACTRA's client / server design provides a high degree of reliability through distributed processing. This allows easy system expansion and customization, including multijurisdictional access and integration with third party systems.

Object-Oriented Structure

ACTRA's central software has an object-oriented structure with discrete modules which allows incremental upgrades and enhancements without requiring a complete system overhaul.

National Architecture Compliance

From the very beginning, we have been actively involved in the development of the national architecture for ITS. As a result, ACTRA is compliant with the national architecture, applicable standards, and protocols.



ACTRA SPECIFICATIONS

GENERAL

Architecture PC-based, Client-Server
 Control Distributed
 Local Area Network TCP/IP
 Standards Compliance Microsoft Interface
 National ITS Architecture

Operating System

File Server Windows 2000/NT/XP[®]
 Clients Windows 2000/NT/XP[®]

Capacity

Devices 2 - 5000
 (Controllers, DMS, CCTV)
 Users Unlimited

Database

MS SQL Server[®], MSDE[®]
 ODBC-compliant

OPERATION

Control Modes

Time-of-Day,
 Manual, Traffic Responsive,
 Quick Response, Flash, Free,
 Adaptive (with SCOOT option)

Reports

Mode One-time, Scheduled
 Types Intersection, Group, System,
 Status, Failure, Summary, MOE, Log.

Output Screen, Printer, File
 Custom User definable

Control Parameters

Upload, Download,
 Compare

Paging

Maintenance, EMS Personnel

Displays

Video Walls, Large Monitors,
 Rear/Front Projection Systems

Traffic Analysis

Synchro[™]
 Transyt-7F[™], Passer[™]
 Arterial Analysis Package (AAP)[™]

Field Devices

Local Controller EPAC[™], 170, 2070ATC,
 EPIC[™].

On-street master MARC[™]

Other CMS, CCTV, MMU, Opticom[™]

Incident Management

Quick Response

Other

Multi-Jurisdictional Security

Display

Supports ESRI shape files,
 AutoCAD, MicroStation, bitmaps,
 and many vector-based formats.
 Multiple layers
 Submap manager to save different views
 Freely definable zoom
 Supports custom graphics

System Maps

Coord Green,
 Monitor Intersection status, and mode.
 Group Membership
 Once per minute monitoring standard
 Optional sec / sec monitoring

Intersection Maps

Signal Display
 Dynamic data updates
 Preconfigured Intersections provided
 Background graphics provided
 Monitor phase and coordination
 Once per minute monitoring standard
 Optional sec / sec monitoring
 User assigned phases and overlaps
 Drag and drop map symbols

COMMUNICATIONS

Land Line

Leased Line 1200 to 9600 baud FSK,
 2 or 4 Wire

City-Owned 1200 to 9600 baud FSK,
 2 or 4 Wire

Fiber Optic 1200 to 19,200 baud
 Single or Multi-mode

CATV 1200 to 19,200 baud

Wireless

Fixed Frequency 1200 to 19,200 baud

Spread Spectrum 1200 to 19,200 baud

Ethernet

Port Servers

Multiple
 Supports remote servers
 Supports standard port expander devices

Windows NT, 2000, XP, MSDE and SQL Server are registered trademarks of Microsoft Corporation; Synchro is a trademark of Trafficware; AAP and Transyt-7F are trademarks of the McTrans Center, University of Florida; Passer is a trademark of TTI, Texas A&M University; Opticom is a trademark of 3M Corporation; Crystal Reports and Crystal Reports Viewer are trademarks of Seagate. EPAC, EPIC, and MARC are trademarks of Eagle Traffic Control Systems.

