Catalyst®

Your all-in-one data logging
and remote monitoring solution

RACO®
REMOTE ALARMS AND CONTROLS

Manage all your critical systems from anywhere, anytime.

Only Catalyst® handles data logging, alarm notification and status checking in a single-package solution, all backed by RACO's legendary reliability. Catalyst integrates with existing controllers in water / wastewater, energy and other critical environments, using standard communication protocols — no extra service contracts or plug-ins required! Just install, configure and enjoy these benefits:

Peace of Mind

Depend on Catalyst's fail-safe design to maintain constant communication with your controllers and ensure every alarm gets resolved as soon as possible.

- Communication failure, power loss or violation of alarm criteria will trigger alarms.
- System contacts up to 96 user destinations during an alarm, calling at programmed intervals until acknowledged.
- Backup batteries last 10 hours and stay charged via precision voltage charging.

Rest assured that Catalyst is completely secure, so you never have to worry about tampering.

- Four levels of PIN passwords ensure protection (read-only, acknowledge, change configuration settings and administrator).
- Modem-to-modem communication ensures data is never exposed to the Internet.

Flexible Functionality

Configure Catalyst to monitor exactly what matters to you — no need to filter through data you don't want.

- Catalyst integrates with PLCs to monitor equipment and processes.
- Any type of data can be monitored, including digital and analog inputs and outputs.
- Four standard internal inputs, plus up to 256 remote channel inputs.
- RTU communicates via mobile device, landline, pager or fax.

Get all the field data you need to fully analyze all your operations on your desktop computer.

- System collects up to 740,000 data samples at a minimum of 10-second intervals.
- Reports sent to your computer or fax machine.
- The free companion software, Alarmware® 2.0, downloads data to your computer for analysis.

Superior Efficiency

Configure your channels quickly and easily — both now and as your needs change over time.

- Alarmware 2.0 software allows for programming via your computer instead of the unit keypad, saving time and money.
- System programming and alarm messages can be archived for quick system restoration if needed.
- Saved configurations can be transferred to other units for fast commissioning.
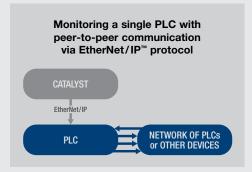
Do more with less effort.

- Fail-proof alarm notification ensures quick resolution, improving uptime.
- Ability to monitor remotely minimizes the need to visit equipment sites.
- Less time spent on monitoring means more time to focus on your work.
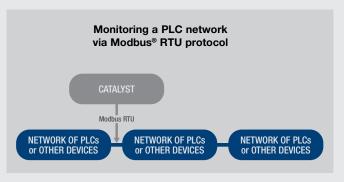
Seamless Integration

Catalyst fully integrates with Allen-Bradley® and other popular controllers. It can monitor a single PLC, control system or entire network.
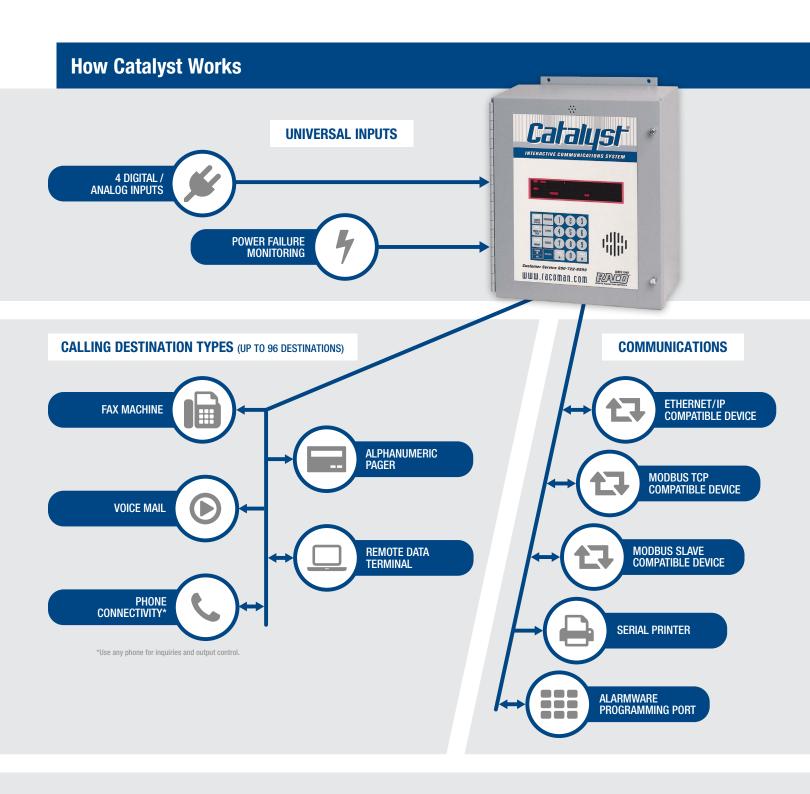
EtherNet/IP™

Rockwell Automation
Encompass™
Product Partner
Americas

Monitoring a single PLC with peer-to-peer communication via EtherNet/IP™ protocol

CATALYST

EtherNet/IP

PLC → NETWORK OF PLCs or OTHER DEVICES

Monitoring a system with a compatible protocol

CATALYST

Supported Protocol

DAS, SCADA or DCS SYSTEM

Monitoring a PLC network via Modbus® RTU protocol

CATALYST

Modbus RTU

NETWORK OF PLCs or OTHER DEVICES — NETWORK OF PLCs or OTHER DEVICES — NETWORK OF PLCs or OTHER DEVICES

How Catalyst Works

UNIVERSAL INPUTS

4 DIGITAL / ANALOG INPUTS

POWER FAILURE MONITORING

CALLING DESTINATION TYPES (UP TO 96 DESTINATIONS)

FAX MACHINE

ALPHANUMERIC PAGER

VOICE MAIL

REMOTE DATA TERMINAL

PHONE CONNECTIVITY*

*Use any phone for inquiries and output control.

COMMUNICATIONS

ETHERNET/IP COMPATIBLE DEVICE

MODBUS TCP COMPATIBLE DEVICE

MODBUS SLAVE COMPATIBLE DEVICE

SERIAL PRINTER

ALARMWARE PROGRAMMING PORT

DATA LOGGING

CHANNEL DATA SAMPLES

CONFIGURATION CHANGES

ALARM LOGGING

740,000 SAMPLES

STATE LOGGING

UP TO 256 CHANNELS

Primary Features

1. Continuously monitors up to 256 PLC addresses.

2. Collects up to 740,00 data samples at 10-second minimum intervals.

3. Digitally recorded user messages up to 45 minutes of recording time.

4. Easily configured via Alarmware 2.0 software.

5. Verbally reported status checking.

6. Visual display of channel status.

7. Built-in microphone allows listening to local sounds from remote locations.

8. 10-hour battery backup.

Other Features

- All programming included; configuration and voice messages managed and archived by Alarmware 2.0 software.
- Network monitoring supported by a robust set of diagnostic, status and alarm capabilities.
- User-recorded alarm and normal messages for each monitored point.
- Extensive surge protection.
- Built-in speakerphone permits operator to place phone calls and communicate with remote callers.

Catalyst delivers clear voice messages via mobile device, landline, pager or PA systems.

Serial printer port is provided for local data logging.

Serial port enables local connection with Alarmware 2.0 software.

Programmable Features

Alarm Call Grouping
- Alarm calls to up to 96 phone number groups.

Alarm Criteria
- Alarm on open circuit.
- Alarm on closed circuit.
- Status only.
- High/low setpoint.

Alarm Reset
- On/off.

Alarm Reset Time
- 0.1–99.9 hours.

Redial Attempts
- 1–5 redial attempts.

Alarm System Enable/Disable
- Local and remote enable or disable.

Alarm Trip Delay
- 0.1–999.9 seconds.

Time Between Alarm Calls
- 0.1–60 minutes.

Ring Delay
- 1–20 rings.

Autocall Test
- On/off.

Autocall Time Interval
- 0.1–2,376 hours.

Number of Message Repetitions
- Unlimited repetitions.

Station ID & Message Recording Time
- User variable.

Phone Numbers
- 96 phone numbers up to 255 digits each.

Dialing Format
- Touch-tone or rotary pulse.

Data Logging
- Number of channels: 1–256.
- Frequency intervals: 10 seconds–24 hours.
- Number of samples: Up to 740,000.

Data Download
- Automatic data download based on available memory or user-defined schedule.

Read/Write Data Registers
- Any discrete or integer data register.

Standard Specifications

PLC COMMUNICATIONS

- **Fully Compatible:** Requires no modifications to existing network configuration, PLC writing or programs.
- **Remote Data Table Access:** Monitor or alter any data table location on demand via Alarmware 2.0 software, front panel or telephone.
- **System Security:** Access protected by security codes.
- **Alarm Monitoring:** Continuously monitors 56, 96 or 256 PLC addresses.
- **I/O Export:** Able to continuously transfer internal I/O and alarm data to PLCs.
- **Supported Protocols:** Modbus RTU Master, Modbus TCP and Allen-Bradley EtherNet/IP. Contact factory for others.
- **Latency:** Depends on configuration and other network traffic. Typical range of 1–10 seconds.
- **Memory:** Up to 5 MB of memory for user speech and data log file.
- **Channel Grouping:** May assign channels to different destination groups for responsible personnel targeted calling.
- **Configuring:** Programmed via front panel, remote telephone or Alarmware 2.0 software.

DATA LOGGING

- **Frequency Interval:** 10 seconds–24 hours.
- **Number of Samples:** Up to 740,000.
- **Number of Channels:** Up to 256.
- **Internal Log File:** Collects periodically sampled channel data, alarms, state and configuration changes. Log file transfers to faxes, data collection stations and Alarmware 2.0 software.

CONNECTIVITY

- **Modbus Port:**
  RS232 9-pin D Sub male.
  RS485 9-pin D Sub male.
- **Ethernet Port:** RJ45.
- **Alarmware Programming Port:** RS232C 9-pin D Sub male.
- **Serial Printer Port:** RJ45 modular connector.

ELECTRICAL

- **Power Requirements:** 105–135 V AC, 50/60 Hz, 15 watts maximum or 8–14 V DC at 500 mA maximum.
- **Battery Charging:** Precision voltage controlled, including automatic rapid recharge after drain.
- **Battery Backup:** 10 hours.
- **Current Draw:**
  Standby: 420 mA.
  Active: 450 mA.
- **Internal Input Sensing:**
  Digital: Unpowered contact inputs. Open contacts see 5 V DC; closed see 10 mA DC.
  Analog: 4–20 mA current loop, scalable in engineering units; resolution: 0.1%, accuracy: 10 bits.

PHYSICAL

- **Surge Protection:** Integral gas tube and solid-state protectors on all phone, power and signal lines.
- Rugged metal indoor enclosure.
- **Weight:** 8 lbs. (3.6 kg)
- **Dimensions:** 11 $\frac{7}{8}$" H x 9" W x 5" D.
- **Mounting Centers:** 11 $\frac{3}{8}$" vertical x 6" horizontal.

ENVIRONMENTAL

- **Temperature Range:** 20–130° F.
- **Humidity:** 0–95%, noncondensing.

TELEPHONE

- Rotary pulse or touch-tone dialing, keyboard selectable.
- Dials up to 96 different numbers, each up to 255 digits long.
- Allows programming of multiple PBX delays in 1-second increments.
- FCC Registered Part 68, "Ringer Equivalence": 0.3 A.
- Alarm acknowledgment is by touch-tone key, Alarmware 2.0 software or by calling back.
- Built-in speakerphone allows for two-way conversation.
- Compatible with most cellular telephone systems.
- **Destination Types:** Mobile device, landline, numeric and alphanumeric pagers, fax machines, data log collection stations, Alarmware 2.0 software and PA systems.

SPEECH MESSAGES

- Users record up to 45 minutes of their own messages. Also includes resident vocabulary for programming guidance and for default "alarm/normal" speech if no user messages are recorded.

WARRANTY

- 5-year parts and labor warranty. See our separate warranty card for details.

PHYSICAL UNIVERSAL INPUTS

- Standard 4 physical universal inputs.

FACTORY OPTIONS

- **Power Supply:** UL approved, CSA/UL approved.
- **Enclosure:** System available in NEMA 4X enclosure, which is corrosion-proof and sealed against 12' of water.
- **Environmental:** Heater with thermostat control.
- **4 MB Memory:** 4 MB memory upgrade for the following models: C10-S-020-1450 and C10-S-020-1450ET.

Additional Cables / Alarmware

- **Additional Cables:**
  Serial Printer Cable: 6' Catalyst-to-serial-printer cable.
  Modbus Cable: 6' Catalyst-to-Modbus cable.
  Alarmware Cable: 6' Catalyst-to-computer cable.
- **Cellularm® Cellular Communication System**

ALARMWARE 2.0

- Locally or remotely configures units, collects log files and maintains configurations for multiple units.
- **Firmware Upgrades:** Use Alarmware 2.0 software to upgrade unit without changing hardware or returning unit to factory.

Catalyst Models

Modbus Compatible

C10-S-020-1450
Monitors 56 total channels, including 4 internal digital/analog inputs, 1 MB memory, 120 V AC power source.

C10-1-020-1450
Monitors 96 total channels, including 4 internal digital/analog inputs, 5 MB memory, 120 V AC power source.

C10-2-020-1450
Monitors 256 total channels, including 4 internal digital/analog inputs, 5 MB memory, 120 V AC power source.

EtherNet/IP & Modbus Compatible

C10-S-020-1450ET
Monitors 56 total channels, including 4 internal digital/analog inputs, 1 MB memory, 120 V AC power source.

C10-1-020-1450ET
Monitors 96 total channels, including 4 internal digital/analog inputs, 5 MB memory, 120 V AC power source.

C10-2-020-1450ET
Monitors 256 total channels, including 4 internal digital/analog inputs, 5 MB memory, 120 V AC power source.

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Why RACO?

Since 1948, RACO has built a reputation for reliability, innovation and customer service. We look for the latest breakthroughs and insist that they meet our standards before introducing them to our customers.

Catalyst, your all-in-one data logging and remote monitoring solution, is just one product in a complete family of alarm detection and notification systems designed for a variety of applications. From the latest innovations to the trusted industry standards, RACO has a solution to fit your needs.

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