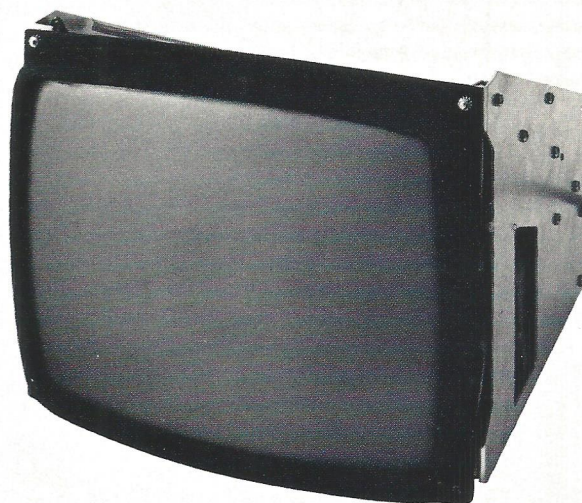
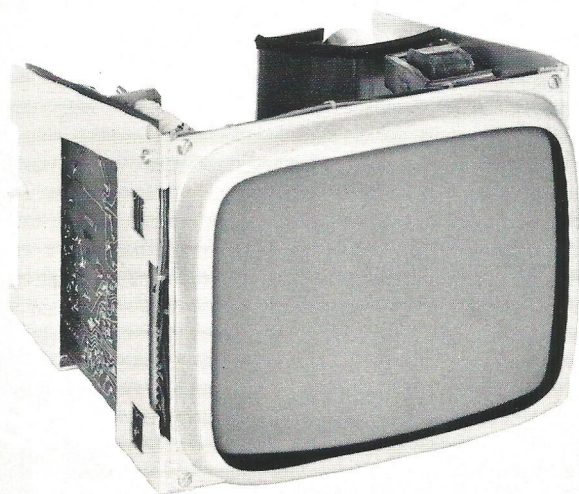


# CONRAC

## ANA Alphanumeric Data Display Module

For computer terminals and consoles



### Features

- Most versatile and modular A/N display available.
- Accepts TTL, mixed sync, or composite signals.
- Operates from unregulated dc, regulated dc, or ac.
- Free running horizontal and vertical oscillator.
- Available with 9 or 12 inch CRT.
- Excellent image quality and readability.
- Competitively priced.
- MTBF greater than 10,000 hours.

### Application Versatility via Modular Options

The new Conrac ANA alphanumeric display module has been engineered to be the most versatile unit available to the OEM. In its basic version, it operates from computer generated TTL horizontal sync, vertical sync, and video input signals. But by the simple addition of a plug-in board, the ANA will accept mixed sync or composite signal inputs.

ANA versatility extends to input voltages too. The basic chassis operates from a source of 19 volts regulated dc. (Other dc input voltages from 15 to 20 volts can be accepted on special order.) Optionally, a regulator can be added to allow operation from unregulated dc. For ac, a power supply can be incorporated to permit operation from standard domestic and international ac power sources. Also, the ANA contains free running horizontal and vertical oscillators which make it necessary to only provide trigger pulses.

This type of versatility and modular construction means that the ANA can be easily tailored to each application, and only those options specifically required need to be purchased.

### Choice of Phosphors and Safety Features

Versatility is also found in the choice of phosphors and safety features. Phosphors can be either the standard P4, or optionally P39. Implosion protection can be provided by means of laminated faceplates or tension bands, or customer supplied safety windows. Faceplates can have 90%, 55%, or 31% transmittance, depending on the need for contrast enhancement. Or the panel can be etched to counteract the effect of specular reflections from ambient light.

### Compact Physical Size and Mechanical Integrity

In physical size, Conrac has made the ANA as small as possible. The limiting criteria on height, width, and depth are literally the outside dimensions

of the CRT itself. Mechanical integrity and strength are assured through the use of sturdy sheet metal construction. The mounting configuration is such that the ANA can be easily incorporated in nearly any type of cabinet or console without losing mechanical stability and strength, or putting strain on components.

### Operator Convenience

To simplify operation, the only control required in normal use is intensity. For versatility in selecting the type and location of this control, the intensity circuit is brought out to three terminals on the rear so that a customer supplied control and cable (up to ten feet in length) can be attached. All other controls are factory or maintenance depot adjustments, easily accessible from the rear of the chassis.

### Competitively Priced

A major advantage of the Conrac ANA is its price. OEM customers benefit from large volume production economies on any version of the unit, since all ANA's start out as part of large runs of the basic chassis.

### Ease of Maintenance

Computer equipment maintenance techniques have been factored into the design of the ANA. By means of its plug-ins and modular components, maintenance at the customer installation level can easily be accomplished by the substitution methods commonly used with computers and peripheral equipment.

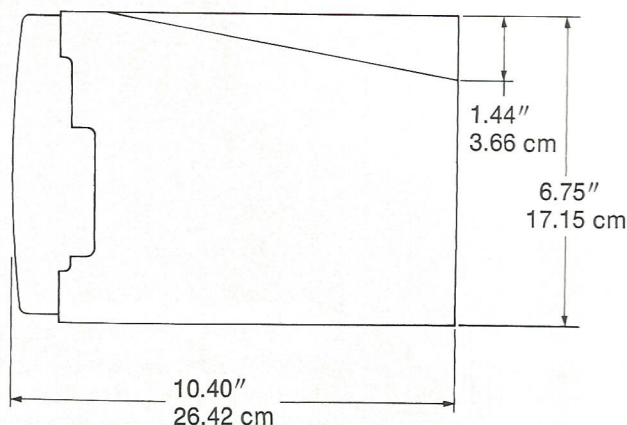
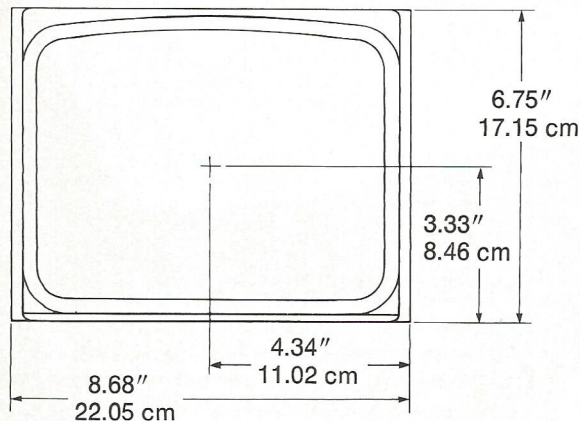
### Reliability

The circuitry and mechanical design of the Conrac ANA are based on

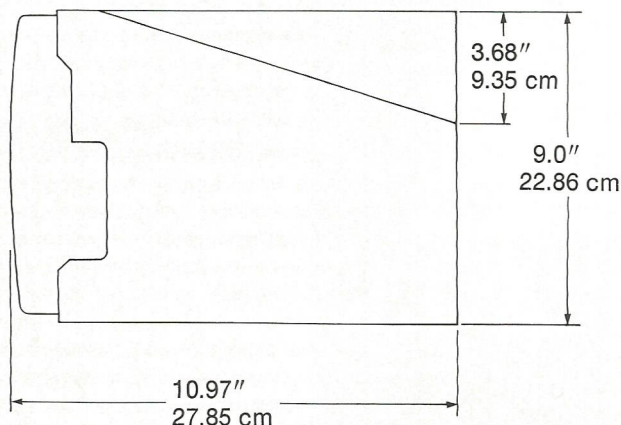
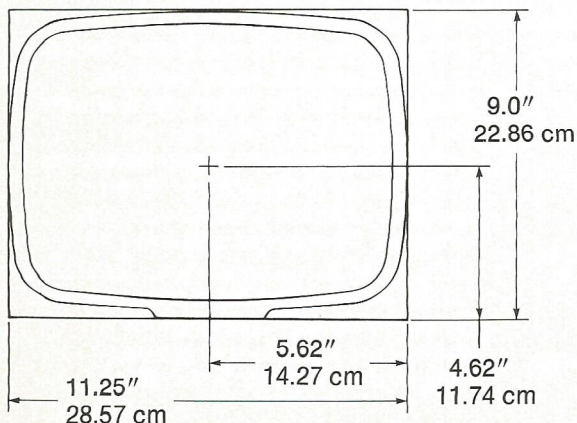
proven Conrac products which have an established record of long term reliability in rugged use. MTBF for the ANA is estimated to be in excess of 10,000 hours. Mean time to repair is estimated at less than five minutes.

The ANA display is designed and manufactured in Covina, California, by the Conrac Division of Conrac Corporation. For over 21 years, Conrac has been the leading supplier of picture monitors and data displays for professional applications throughout the world.

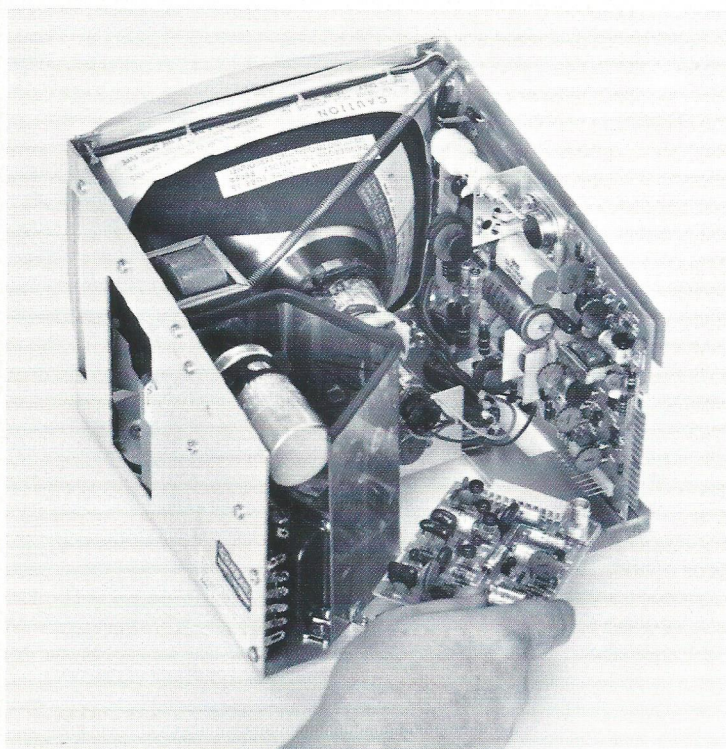
### Dimensions



ANA 9"



ANA 12"



Addition of modular plug-in board allows the ANA to accept mixed sync or composite signal inputs. Optional ac power supply is shown at left.

## Specifications

### Inputs

#### Video

Up level — 2.4 to 5.5 volts.

Down level — 0.0 to 0.6 volts.

Pulse width — 48 to 51 microseconds per horizontal line.

Impedance — Greater than 1000 ohms.

#### Horizontal

Pulse repetition rate — 63.5  $\pm$  1.0 microseconds.

Pulse width — 4.7  $\pm$  1.0 microseconds.

Fall time — Less than 100 nanoseconds from 10 to 90% of average peak amplitude.

Rise time — Less than 500 nanoseconds from 10 to 90% of average peak amplitude.

Impedance — Greater than 4,000 ohms.

#### Vertical

Pulse repetition rate — 16,667  $\pm$  140 microseconds.

Pulse width — 190  $\pm$  20 microseconds.

Fall time — Less than 1 microsecond from 10 to 90% of average peak amplitude.

Rise time — Less than 5 microseconds from 10 to 90% of average peak amplitude.

Impedance — Greater than 10,000 ohms.

### Circuit Performance

#### Video Amplifier

Rise and fall time — Less than 30 nanoseconds for 30 volt change at cathode.

Gain — Greater than 30 volts at cathode for minimum input signal.

### Installation

#### CRT

Sizes — 9 inch and 12 inch rectangular.

Phosphors — P4 standard, P39 optional.

Face Panels — 90% etched or non-etched; 50% etched or non-etched; 31% etched only.

### Power Requirements

Ac Input — 105–130 or 210–260 volts ac, single phase, 50 or 60 Hz, 50 watts maximum.

Dc Input —  $\pm$ 19 volts regulated dc (15 to 20 volts on special order), with 1% line regulation and 0.1 volt peak-to-peak ripple, 1.4 amps maximum current. Unregulated dc, 28  $\pm$  5 volts including line regulation and peak-to-peak ripple. Maximum current 1.4 amps.

**Intensity Control** PCB edge connector for customer supplied intensity control. Cable length can be up to ten feet.

**Weight** 9 inch (22.9 cm) version — 9 lbs. (4.1 kg). 12 inch (30.5 cm) version — 12.5 lbs. (5.7 kg). Both figures include all options.

**Environmental** Operating temperature range — from 50°F to 122°F (10°C to 55°C). Humidity — 10% to 90%, no condensation. Altitude — 7000 feet (2150 meters).

**UL Approval** Designed to meet all UL requirements.

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