

# Q85 Series Long Range Diffuse Sensors

ac/dc sensors with e/m relay output and optional timing logic



- Economical long range diffuse (proximity) sensors in rugged, NEMA-6P (IEC IP67) Cyclocac® ABS housings
- Sensing range of 39 inches (1 meter) referenced to a 90% reflectance white test card
- Operates from 24 to 240 volts ac or 12 to 240 volts dc; totally self-contained
- SPDT electromechanical relay output device; choice of on/off output or programmable timing logic
- Wiring chamber with two conduit entrances for mounting versatility
- LED indicators for OUTPUT ON and LIGHT SENSED (AID™ signal strength indicator system, see text)

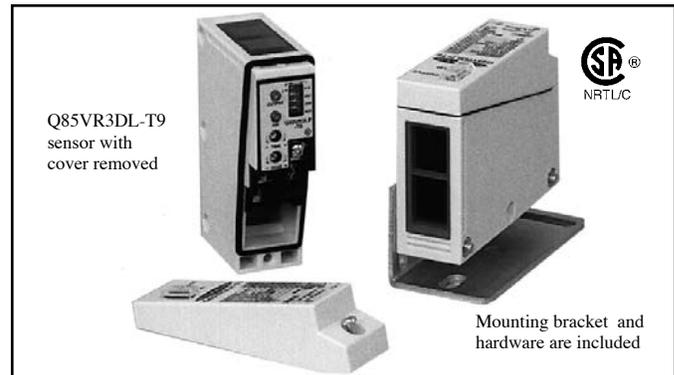
Q85s are compact, economical, infrared diffuse (proximity) mode photoelectric sensors in rugged NEMA-6P rated ABS housings. They are ideally suited to conveyor control and similar applications. The timing logic functions offered in the "T9" models provide additional control capabilities over and above the basic model's ON/OFF (no delay) function. All Q85 sensors feature a convenient wiring chamber with two conduit entrances for ease of connection, positioning, and mounting. Sensing range is 39 inches (1 meter), referenced to a 90% reflectance white test card.

Q85 Series sensors operate from either 24-240V ac or 12-240V dc and draw 2 watts maximum. They have SPDT electromechanical relay output, and are available with a choice of either ON/OFF or programmable timing output logic. Models with programmable timing logic ("T9" models) provide eight switch-selectable logic functions: ON/OFF (no delay), ON delay, OFF delay, ON/OFF delay, one-shot (pulse), on-delayed one-shot, limit timer, and on-delayed limit timer. The adjustable time range for delay functions and pulse length is 0.1 to 5 seconds (see page 2). All models feature a SENSITIVITY control for precise adjustment of sensing gain.

Two top-mounted LED indicators are provided, and are visible through a window in the wiring chamber's gasketed cover. A red indicator (Banner's exclusive, patented AID™ system\*) lights whenever the sensor "sees" the reflection of its own modulated light source, and pulses at a rate proportional to the strength of the received light signal. A yellow output indicator lights whenever the Q85's output is energized.

Q85 Series sensors have rugged yellow Cyclocac® ABS housings with ultrasonically-welded acrylic lenses. A gasketed ABS cover protects the wiring chamber and the timing and sensitivity adjustment controls inside. Two 1/2-14 NPSM conduit entrances are provided, and a plug and gasket are included for a possible unused entrance. Q85 Series sensors are rated NEMA 1, 2, 3, 3S, 4, 4X, 6, 6P, 12, and 13 (IEC IP67). An 11-gauge plated steel mounting bracket and two plated mounting bolts and nuts (see photo above and drawing on page 2) are included.

\*Alignment Indicating Device system, US patent number 4356393



## Specifications, Q85 Series Long-range Diffuse Sensors

### Sensing range:

39 inches (1 meter), referenced to a 90% reflectance white test card.

**Sensing beam:** infrared, 880 nanometers.

**Supply voltage:** 24 to 240V ac, 50/60 Hz or 12 to 240V dc (2 watts maximum). No polarity for power supply hookup.

### Models and Output Configurations:

**Q85VR3DL** = SPDT e/m relay, on/off output

**Q85VR3DL-T9** = SPDT e/m relay, with programmable timer

### Output relay specifications:

Maximum switching power (resistive load): 90W, 750VA. Install transient suppressor (MOV) across contacts that switch inductive loads. Maximum switching voltage (resistive load): 250V ac or 30V dc. Maximum switching current (resistive load): 3A.

Minimum voltage and current: 5V dc, 10 mA.

Mechanical life: 50,000,000 operations.

Electrical life at full resistive load: 100,000 operations.

Maximum switching speed: 25 operations per second.

Closure time (no timing logic in use): 20 milliseconds max.

Release time (no timing logic in use): 20 milliseconds max.

Repeatability (no timing logic in use): 1 millisecond.

All sensors are protected against false pulse on power-up. (False pulse protection circuit causes a 100 millisecond delay on power-up.)

**Adjustments:** All models have a single-turn SENSITIVITY control potentiometer, accessible beneath the ABS wiring chamber cover (T9 models also have a light/dark operate switch). Timing logic (T9 models only) is configured at a DIP switch. Pulse length and delay are set by a single-turn potentiometer (accessible under the wiring chamber cover). The adjustable time range for both functions is 0.1 to 5 seconds; both functions are automatically set to the same value.

**Status Indicators:** LEDs, one red and one yellow, both top-mounted. **Red AID™ system** (Alignment Indicating Device, US patent #4356393) indicator LED lights whenever the sensor "sees" its own modulated light, and pulses at a rate proportional to the strength of the light signal.

**Yellow** indicator lights whenever the sensor's output is energized.

### Construction:

Yellow Cyclocac® ABS housing, plated steel hardware. Acrylic lens. ABS cover for wiring/adjustments access. Rated NEMA 1, 2, 3, 3S, 4, 4X, 6, 6P, 12, and 13; IEC IP67. It is the customer's responsibility to maintain NEMA6P integrity at the conduit entrance(s) in use. Maximum wire size (for connection to wiring terminals) is #14 AWG.

**Operating temperature range:** -25° to +55°C (-13° to +131°F).

**Maximum relative humidity:** 90% at 50°C (non-condensing).

Cyclocac® is a registered trademark of General Electric Co.

