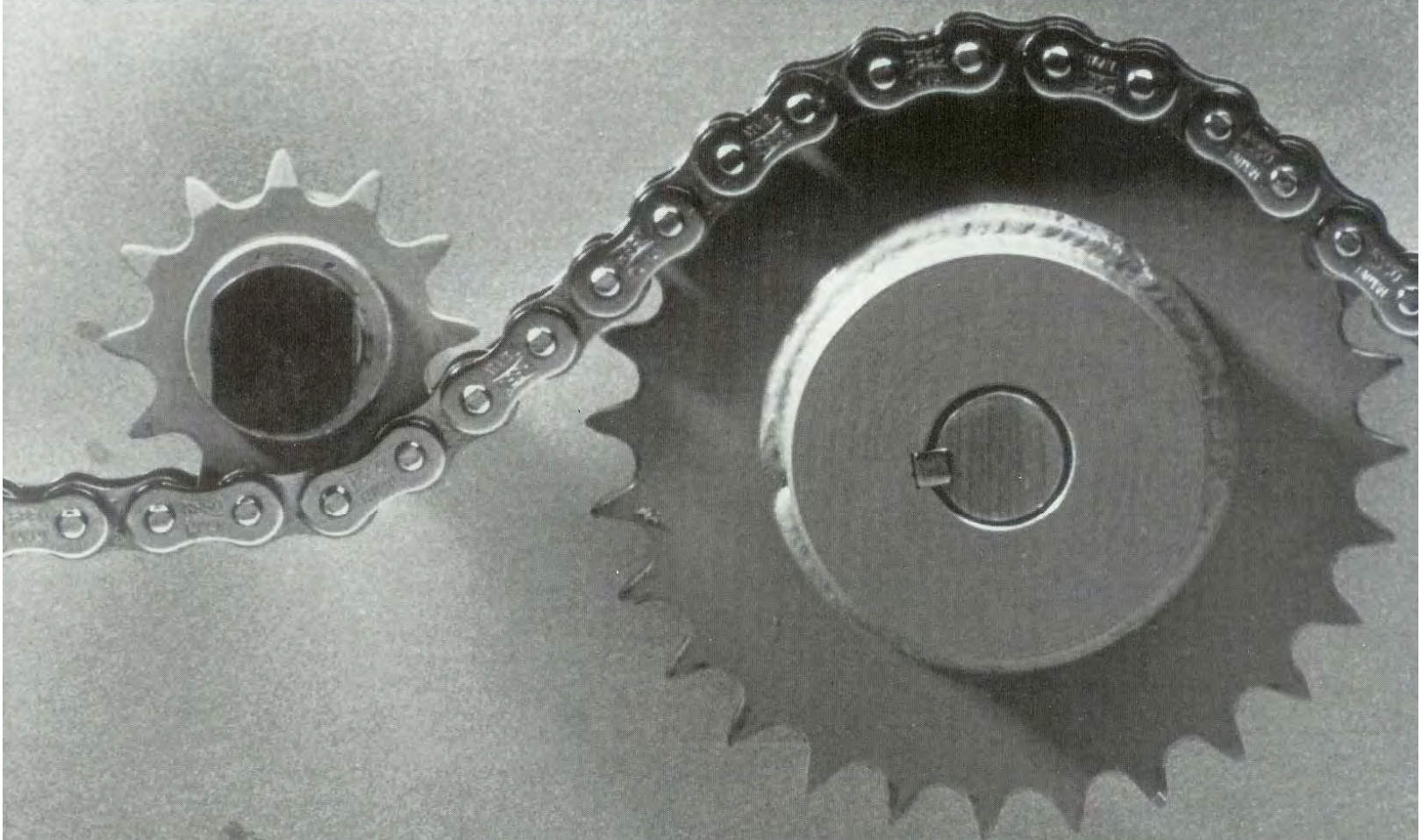
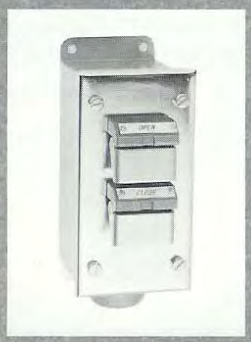
Controls

FOR ELECTRICALLY OPERATED DOORS AND GATES

CROWN INDUSTRIAL OPERATORS

Aut-o-doR





Switches • Safety Edges

Push Button Stations

Control Panels • Radio Controls

Keyless Entry • Custom Systems

Controls for Crown Industrial Electric Door and Gate Operators

Today's need for efficient automatic door or gate operation requires a variety of control systems and safety devices. Crown Industrial Operators' (CIO) engineering staff has developed a cost-effective line of control systems that are readily adaptable to these requirements. Crown controls are designed for use with our **Aut-o-doR** electric operators, which accept every conceivable control arrangement. These include switches, timers, loop detectors and photoelectric beams. In addition, we build custom engineered control systems and can supply non-standard controls. Send us a description of your requirements and we will be happy to return a comprehensive proposal for your control needs.

We reserve the right to modify or change, without notice, any statements or information contained herein. If exact dimensions or specifications are required, we will furnish certified prints without charge. Likewise, once the full system is determined, we are happy to provide—at no additional charge—a complete wiring diagram for each electric operator and control system. Please call us for further information.

Control requirements and specifications vary with almost every industrial door or gate installation. As a result, control equipment costs are not included in price of CIO Electric Operators and must be ordered separately.

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NEMA Enclosure Standards

Standards of National Electrical Manufacturers Association

NEMA 1: General Purpose

This enclosure meets the specifications of Underwriters' Laboratories, Inc. for NEMA 1 enclosures. This enclosure is for general indoor application, where atmospheric conditions are normal. It is intended primarily to prevent accidental contact with the control apparatus.

NEMA 3: Weather Resistant

This enclosure is for outdoor application and has proper protection against rain and sleet.

NEMA 4: Water-tight, Dust-tight, Weather-proof

This type of enclosure is designed to keep out all moisture and dust. It is suitable for outdoor applications, on ship docks, in dairies or breweries.

NEMA 7: Explosion-proof Hazardous Gas Locations

This type of enclosure meets the explosion-proof requirements of the National Electrical Code for Class 1, Group D, hazardous locations. It is designed according to the latest rigid specifications of the Underwriters' Laboratories.

NEMA 9: Explosion-proof Hazardous Dust Locations

NEMA 9 enclosures meet the explosion-proof requirements of the National Electrical Code for Class 2, Groups F and G, hazardous dust locations. These are used widely in the flour, powder and starch industries.

NEMA 12: Oil-tight

The oil-tight NEMA 12 enclosure is for use in the industries where protection against oil, coolant, metal chips, dust, dirt and lint is required. This enclosure features a cover with an oil seal gasket.

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Crown Standard Control Systems

Crown Industrial Operators offers four classes of control systems for our electric door and gate operators. These systems feature a basic component and support a variety of additional control options. The standard components for each class are listed below with the most typical optional controls. If the controls your system requires are not included below, custom systems can be developed. Please give us a call.

CIO CLASS WIRING CIRCUITS	BASIC CONTROL COMPONENT	ADDITIONAL CONTROLS (Plus any quantity or combination of the following equipment)	SAFETY DEVICES
CIO CLASS A — CONSTANT CONTACT TWO-BUTTON OR KEY SWITCH CONTROLS These controls require constant pressure to keep the door or gate in motion in either direction. If pressure is released during the cycle, the door or gate will stop. It is restarted — in either direction — only when the control is again activated.	2-Button Stations: 1500-2SF 1500-800-2HF4 1500-K Key Switch	2-Button Stations: 1500-2SF 1500-800-2HF4 1500-K Key Switch	None Required
CIO CLASS B — MOMENTARY CONTACT THREE-BUTTON CONTROLS This class of control requires momentary contact to start the door or gate. Three button stations include open, close and stop commands. Pressing the stop button during the cycle will immediately halt the door or gate which can then be restarted in either direction.	3-Button Stations: 1500-S 1500-800-3HD4	3-Button Stations: 1500-S 1500-800-3HD4 1504 Radio Control	Photoelectric Safety Beam Safety Edges Loop Detector
CIO CLASS C — SINGLE MOMENTARY CONTACT WITH TIME SWITCH This class features single position stations to open the door or gate and a timed switch to close it. Momentary contact will start the cycle, move the door or gate to full open, stop for a preset time and then close. Controls activated during the closing cycle will instantly reverse the door or gate, move it to full open and reset the timer. Controls activated during the opening cycle or while the door or gate is fully open will simply reset the timer.	1500-T Timer	1-Button Stations: 1500-1SB 1500-800-1HB4 1500-K Key Switch 1500-C Ceiling Switch 1500-WPC Ceiling Switch 1500-PE Photo Beam 1504 Radio Control 1295-LD Loop Detector 1295-CK Card-Key System 1295-TP Touch-Pad 1500-DK Digital Keypad 1500-DF Digital Flush Keypad	Photoelectric Safety Beam Safety Edges Loop Detector
CIO CLASS D — SINGLE MOMENTARY CONTACT WITH SEQUENCE RELAY This class features a combination of single position stations with a sequence relay. Momentary contact activates the circuit and moves the door or gate in either direction. If the control is operated while the door or gate is in motion, it will instantly reverse, travel to the end of the cycle and stop.	Sequence Relay: 1500-SR	1-Button Stations: 1500-1SB 1500-800-1HB4 1500-K Key Switch 1500-C Ceiling Switch 1500-WPC Ceiling Switch 1504 Radio Control 1295-CK Card-Key System 1295-TP Touch-Pad 1500-DK Digital Keypad 1500-DF Digital Flush Keypad	Photoelectric Safety Beam Safety Edges Loop Detector

Interior Push Button Stations

1500-1SB

1500-1SB

One-Button Station

(For CIO Class "C" and "D" Systems)

This one-button (start) control station is a momentary contact switch with double-break silver-to-silver contacts in a separate bakelite chamber.

The 1500-1SB is for surface mounting, (2-1/4" wide by 4" high and projects 2-1/4" from the wall). It features a metal base and ends with a bakelite front and sides.

1500-2SF

1500-2SF

Two-Button Station

(For CIO Class "A" System)

This two-button (open-close) control station is a momentary contact type with double-break silver-to-silver contacts. Each unit is in a separate bakelite chamber.

The 1500-2SF is for surface mounting, (2-1/4" wide by 4" high and projects 2-1/4" from the wall). It features a metal base and ends with a bakelite front and sides.

1500-S

1500-S

Three-Button Station

(For CIO Class "B" System)

This three-button (open-close-stop) control station is a momentary contact type and has double break silver-to-silver contacts.

The 1500-S Push Button Station is for surface mounting, (3-1/2" wide by 8-1/2" high and projects 3-3/8" from the wall).

Weatherproof Push Button Stations and Key Switch

1500-800-1HB4

One-Button Station
(For CIO Class "C" and "D" Systems)

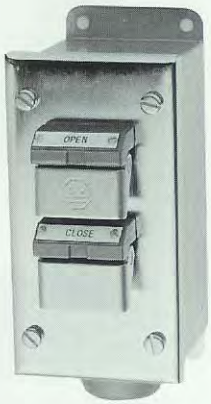
This heavy duty, weatherproof one-button control station is a momentary contact switch with double-break silver-to-silver contacts. The switch box and cover are No. 304 stainless steel. The station is 3-3/8" wide by 5-3/16" overall and projects 4-1/8" from wall. The 1500-800-1HB4 is for surface application only.

1500-800-1HB4

1500-800-2HF4

Two-Button Station
(For CIO Class "A" System)

This heavy duty, weatherproof two-button (open-close) control station is a momentary contact switch. It has double-break silver-to-silver contacts. The switch box and cover are No. 304 stainless steel. The unit measures 3-3/8" wide by 8-1/8" high overall and projects 4-1/8" from wall. The 1500-800-2HF4 is for surface application only.



1500-800-2HF4

1500-800-3HD4

Three-Button Station
(For CIO Class "B" System)

This heavy duty, weatherproof three-button (open-close-stop) control station is a momentary contact switch with double-break silver-to silver contacts. The switch box and cover are No. 304 stainless steel. The station is 3-3/8" wide by 10" high overall and projects 4-1/8" from wall. It is for surface application only.

1500-800-3HD4

1500-K

Key Switch
(For CIO Class "A", "C" and "D" Systems)

The 1500-K Key Switch consists of two momentary contact type switches with silver-to-silver contacts. It is used as a constant pressure or single impulse type station.

The standard switch is mounted on the 1251-KSP Post Assembly noted below. Using the 1500-K Key Switch with the Post Assembly will place the key height at about 3'6" above the ground. A surface mount version is also available.

1500-K

1251-KSP

Key Switch Post Assembly
The 1251-KSP unit is for mounting the 1500-K Key Switch, and all our standard Exterior Push Button Stations. The cast iron base includes four holes which allow the assembly to be bolted to concrete. The steel pipe is 1.9" outside diameter and is three feet high. Custom heights may be specified.

1251-KSP

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CROWN INDUSTRIAL OPERATORS

Keyless Entry Systems

Digital systems are available with many features. Models range from simple three-code key pads to 1,000-code key pads with a lighted panel. Computerized systems are also available for applications that require detailed reports and logs. These keypads can be ordered with post assemblies.

1500-DK

1500-DK

Digital Keypad
(For CIO Class "C" and "D" Systems)

Our 1500-DK Digital Keypad, with lighted panel and non-volatile memory, can be programmed for 1, 50 or 100 four-digit codes. The unit is stainless steel and weatherproof.

1500-DF

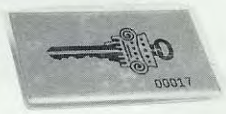
1500-DF

Digital Flush Keypad
(For CIO Class "C" and "D" Systems)

Our 1500-DF Digital Keypad has been tested for over one billion cycles and is backed with a five-year limited warranty. The unit is stainless steel, weatherproof, vandal and impact resistant. It stands-up to extreme temperatures — from -40 degrees F. to +160 degrees F. No heater or special enclosure is required.

The 1500-DF has two levels of operating codes (five-digit code required).

1295-CK



1295-CK

Card-Key Systems
(For CIO Class "C" and "D" Systems)

Coded plastic cards, when inserted into a card reader, start the door or gate permitting a vehicle to pass through. Simple card systems provide an economical way to change the key when too many out-dated cards are in use. Our systems provide a card-unit that accepts as many as 3500 different codes.

Push button, key switch or timer controls can be used in conjunction with our card-key systems. The Card-Key Reader operates on 115 volts.

1295-TP

1295-TP

Touch-Pad Systems
(For CIO Class "C" and "D" Systems)

Uses durable barium ferrite touch plate cards. Coded plate cards, when brushed up against a reader, start the door or gate permitting a vehicle to pass through.

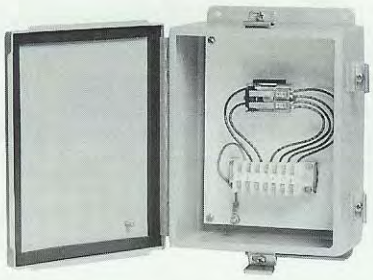
Control Boxes and Panels

1500-SR

Sequence Relay

(For CIO Class "D" Systems)

The 1500-SR Sequence Relay is for semi-automatic control of doors or gates. The relay works with any combination of single impulse controls to sequence travel direction. This relay is a heavy-duty industrial type, furnished with a general purpose (NEMA 1) enclosure. All NEMA enclosure types are available upon request.



1500-SR
(Shown in NEMA 4 enclosure)

1500-T

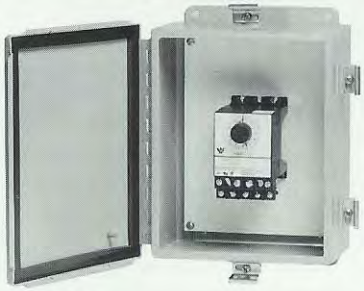
Electric Time Switch

(For CIO Class "C" Systems)

The 1500-T Electric Time Switch is used for industrial doors, firehouse doors, entrance gates, or other applications where it is necessary to keep the door or gate open for a fixed time and then close automatically. A telechron motor drives an electric time switch that can be set for a cycle time of fifteen seconds to five minutes. The switch has a constant duty coil that can be energized continuously without damage to the coil.

The 1500-T is operated by momentary contact from any CIO single impulse device. The switch then runs through its cycle of operation and returns to its original starting point. With any additional contact, the timer is automatically reset for a full time cycle before starting to close the door or gate. When activated after the door or gate has started to close, the system instantly reverses, returns the closure to full open position and resets the timer.

Please specify the NEMA type enclosure required for your application.

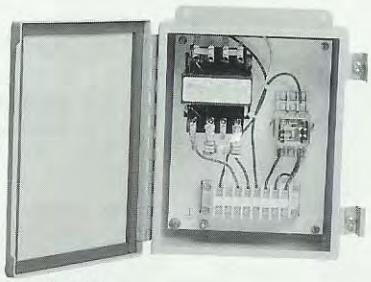


1500-T
(Shown in NEMA 4 enclosure)

1500-DP

Control Box

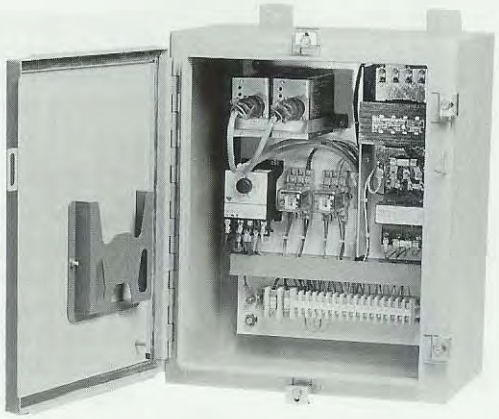
The 1500-DP Control Box is for supplying 24 volts to operate with safety edge switches. The steel enclosure houses a heavy duty step-down transformer (115 volts to 24 volts) and one sensitive SPST relay with silver-to-silver contacts. It is available in all NEMA enclosure types as needed.



1500-DP
(Shown in NEMA 4 enclosure)

Custom Control Panels

Crown pre-wired control panels ensure your application has the NEMA style enclosure specified and proper wiring of components. These panels deliver a system that is up and running with a minimum of field installation time. Available to suit any application, Crown panels are custom built in any NEMA type enclosure. All components are pre-mounted and pre-wired to a sub-panel inside the enclosure. Complete testing of each panel is performed before shipment.



Custom Control Panel

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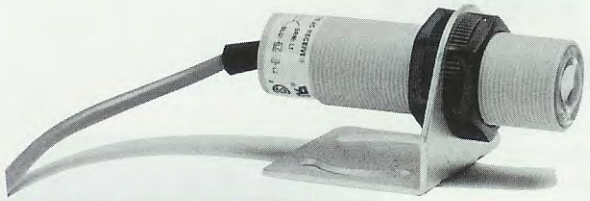
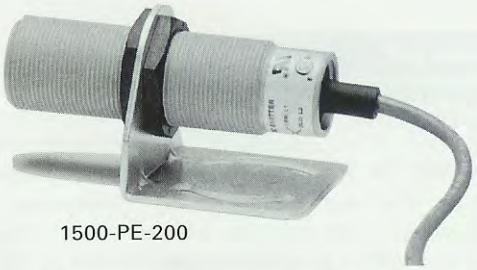
CROWN INDUSTRIAL OPERATORS

Photoelectric Systems





1500-PE-200

1500-PE

Photoelectric System and Mini Beam
(For CIO Class "B", "C" and "D" Systems)

The 1500-PE Photoelectric System employs a reflex self-contained unit for door or gate control by light beam interruption. Whenever a beam is broken by the passage of a pedestrian or vehicle, the door or gate opens.

There are two types of systems available:

1. Retrofective (emitter and a 3″ reflective target)

   The **1500-PE-30** Photoelectric System use a 30-ft. maximum range for interior or exterior use.

2. Through Beam (emitter & receiver)

   The **1500-MB-30** Mini Beam uses a 30-ft. maximum range for interior only.

   The **1500-PE-200** Photoelectric Eye uses a 200-ft. maximum range for interior or exterior use.

   The **1500-PE-700** Photoelectric Eye uses a 700-ft. maximum range for interior or exterior use.

When you place an order for photoelectric systems, we require the following information: distance the light beam will travel, indoor or outdoor application, intended use as a safety beam or an opening beam.

With this information our Engineering Department will furnish installation instructions that will assure a fast, easy installation, providing years of dependable, trouble-free service.

Ceiling Switches

1500-C
(Outlet box customer supplied)

1500-C

Ceiling Switch—Interior Type, Pull-Cord
(For CIO Class "C" and "D" Systems)

The 1500-C Ceiling Switch is a momentary contact switch with silver-to-silver contacts. It is mounted directly to the ceiling in a standard 4″ x 2-1/8″ round or octagonal outlet box.

1500-WPC

Ceiling Switch—Weather Resistant Type, Pull-Cord
(For CIO Class "C" and "D" Systems)

The 1500-WPC Ceiling Switch is a heavy duty device designed for rugged industrial service. It features silver-to-silver contacts and is ideally suited for loading docks and similar conditions where it is unprotected from the weather.

1500-WPC

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Safety Edge Switches

Crown safety edge switches halt or reverse the motion of a door or gate when the edge makes contact with a person, or vehicle, part-way through the cycle. They put extra safety in your plant and protect your personnel, equipment and doors. CIO offers a wide choice of safety edges to meet your application needs.

1265-M1

Sliding Vertical or Horiztonal Lift Door Safety Edge

The 1265-M1 Safety Edge is a safety strip that acts both as a safety edge and a weather seal. The edge is jacketed in a high tear-strength, vinyl-coated nylon fabric that has been hermetically sealed to form a weatherproof casing over a foam rubber core. This core creates a flexible enclosure for the electrical contact strips. These contact strips are a continuous laminate of aluminum foil bonded to a cloth insulator. The construction results in an assembly that is both flexible and positive in action.

We supply the safety edge complete with neoprene astragal, mounting strips, low voltage transformer (115V to 24V) and control box. Take-up reel, flex cords and radio controls are available. The safety edge is a standard 7′ length and can be ordered in any other length required.

1500-M1

Swinging or Slide-fold Door Safety Edge

The 1500-M1 specifications are the same as the 1265-M1 above. Take-up reels, radio controls are not required.

1500-M3
Swinging Gate Safety Edge (shown installed)

1265-M4

Sliding or Vertical Lift Gate Safety Edge

The 1265-M4 Safety Edge is encased in a sealed neoprene jacket with an extruded neoprene mounting tab. The tab slides into an extruded aluminum mounting channel which attaches to the lead edge of the gate. The safety edge, available in any length, includes a low voltage, NEMA 1, control box and transformer (115 volt to 24 volt). A take-up reel, flex cords, and radio controls are available.

1500-M3

Swinging Gate Safety Edge

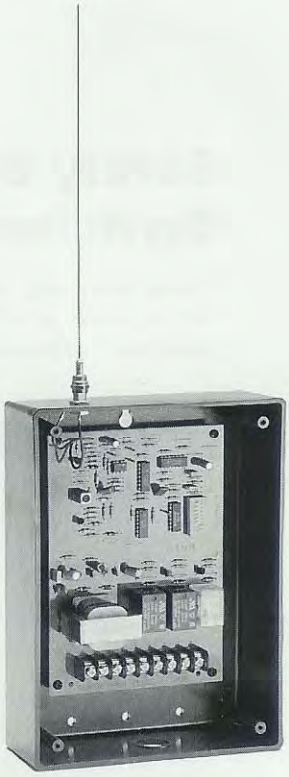
The 1500-M3 specifications are the same as the 1265-M4 above. Take-up reels, cords and radio controls are not needed.

Solid State Radio Control Systems

System Features

CIO radio control systems include the following features:

- Complies with all FCC regulations
- Easy code changes with the flip of a switch
- Carrier frequencies available from 286 to 320 MHz. (318 MHz is standard)
- 19,683 possible code combinations per carrier frequency
- Receiver operates on 115 VAC, transmitter operates on standard 9 volt battery
- Compact transmitter size: 2-1/8" W x 4-1/8" H x 13/16" D.



1504

System Specification

1504-R1

Single-Button Radio Control System, General Purpose

The 1500-R1 is a NEMA 1 receiver with a single impulse transmitter, one 1500-1SB push button station and a NEMA 1 sequence relay.

1504-R2

Three-Button Radio Control System, General Purpose

This system is a NEMA 1 receiver combined with one open-close-stop transmitter and a 1500-S push button station.

1504-R3

Single-Button Radio Control System, Weatherproof

The 1504-R3 is the 1504-R1 with the receiver in a NEMA #4 cabinet and a 10′ coaxial antenna.

1504-R4

Three-Button Radio Control System, Weatherproof

The 1504-R4 is the 1504-R2 with the receiver in a NEMA #4 cabinet and a 10′ coaxial antenna.

1500-XM1

Transmitter Specification

1500-XM1

This is a single impulse transmitter with a battery and operation indicator light.

1500-XM3

This unit is a transmitter with three individual open-close-stop buttons and operation indicator lights.

1500-XM4

This unit is a transmitter with three individual open-close-stop buttons and operation indicator lights and three position slide switch for three individual doors.

Other configurations are available up to 27 controls on a single transmitter.

1500-XM3

Loop Detector Systems

1295-LD

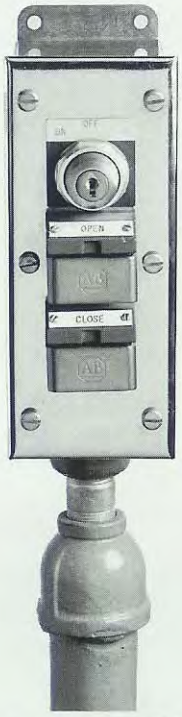
Loop Detector

The 1295-LD Loop Detector is an electronic device that will detect the presence and motion of any metal mass, including aluminum. It features a wire sensing loop (not by CIO) imbedded in the roadway. When a vehicle passes over the loop, the detector produces a signal that activates the electric operator. Sensing loops may encompass one, two or three lanes depending on individual requirements. Loop detectors—with CIO electric operators—are used in two basic arrangements:

1. A sensing loop alone which allows vehicle entrance or exit without the use of keys or other devices.
2. Loop detectors teamed with card-key or other control devices provide the benefits of both systems. The card-key system may screen vehicles before allowing entrance, while the loop detector activates the open or close function as the vehicle progresses through a controlled area.

1295-LD

Loops are field applied using 16GA cross-linked polyethylene XLPE or Polyester insulated wire with Beldon #870 lead-in cable. These are common electrical supply items and are not provided with our loop detector systems.



Weatherproof Custom Control Station on 1251-KSP Switch Post Assembly

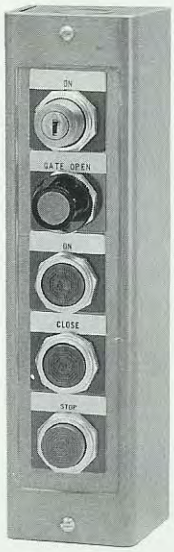
Custom Control Stations

Built to your specs

Custom stations and consoles are available for use with individual or multiple unit controls. These stations include push buttons, pilot lights and selector switches in any combination required. Custom control stations also incorporate name plates and other identifiers as needed.

Correctional Facility Systems

Crown offers correctional facility designers a single source for gate hardware, operators and control systems. Our Correctional Facility Systems are custom engineered and feature heavy-duty construction on tracks, trolleys, electric locks and control stations to ensure system reliability and security. For more information on proven CIO gates and controls for correctional facilities, call us directly.



Interior Custom Control Station with keyswitch, indicator light, and three button station

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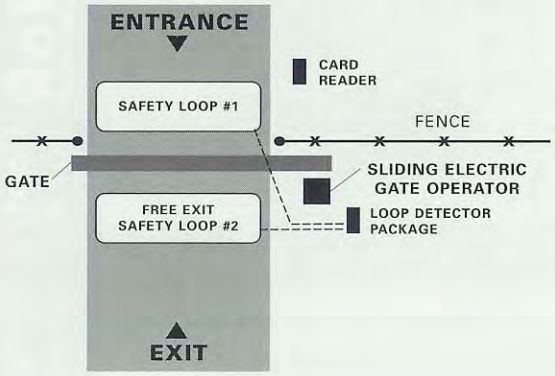
Multiple Access Systems

Crown Industrial Operators delivers all the needed hardware and switches to assemble custom access systems. Described below are two typical systems:

1295-P300

Loop Detector System for a Sliding Gate with Controlled Entrance and Free Exit



Controlled Entrance

1. Vehicle approaches Entrance Gate and driver inserts a coded card into the Card Reader (or punches the code into a Keypad). This transmits an impulse to the Loop Detector timer, actuating the Electric Operator to open the Gate.

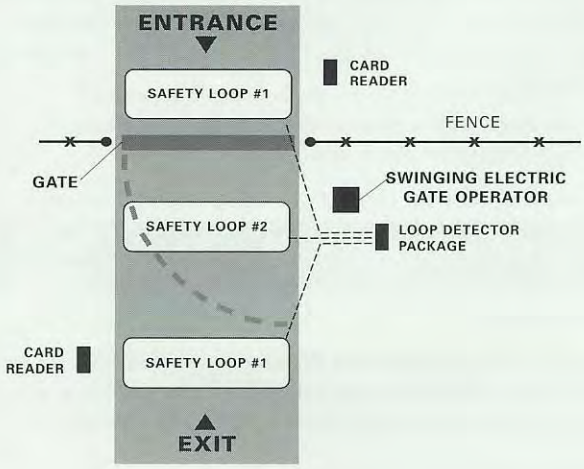
2. Vehicle proceeds through the gate opening passing over underground Safety Loop #1 and #2. After a pre-determined period, the timer sends another impulse to the Electric Operator to close the gate. In the event the vehicle has not yet cleared the gate area (Safety Loops #1 and #2), the Loop Detector will re-cycle the timer, preventing the Gate from closing until the area is cleared.

Free Exit

The exiting vehicle approaches the Exit Gate, the Loop Detector timer is actuated by Safety Loop #2, opening the Gate. The exiting vehicle passes over Saftey Loop #1 which acts as a safety, preventing the Gate from closing. After the vehicle has cleared the gate area, the timer will send an impulse to close the Gate.

1500-P300

Loop Detector System for a Swinging Gate with Controlled Entrance and Exit



Controlled Entrance

Similar to the 1295-P300 Sliding Gate Package.

Controlled Exit

1. Vehicle approaches Exit and driver inserts a coded card into the Card Reader (or punches the code into a Keypad). This transmits an impulse to the Loop Detector timer, actuating the Electric Operator to open the Gate.

2. Vehicle proceeds through the gate opening passing over underground Safety Loop #1 and #2. After a pre-determined period, the timer sends another impulse to the Electric Operator to close the Gate. In the event the vehicle has not yet cleared the gate area (Safety Loops #1 and #2), the Loop Detector will re-cycle the timer, preventing the Gate from closing until the area is cleared.

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