

SIMPLE. SOLID. SUPPORTABLE.



*Pixel AC*



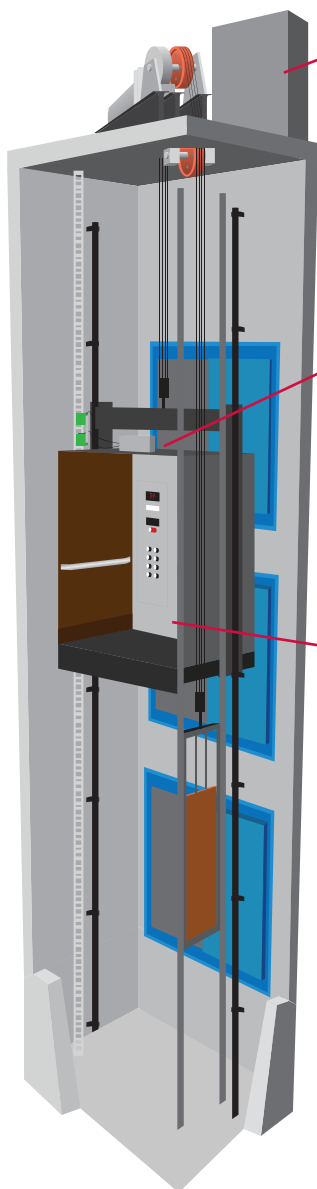
*Pixel DC*



*Pixel Hydro*

## 3 POINTS OF ACCESS

The Pixel Control System offers three points of system access - the Machine Room (or Control Space for MRLs), Cartop, and Car Operating Panel - allowing the most convenient location to be used to complete tasks quickly and easily.



### MAIN CONTROLLER

The Pixel Main Controller is located in a machine room or control space. Various enclosures are available to fit your specific application and meet your NEMA rating requirements.

### TOP OF CAR BOX

The Top of Car interface box provides convenient wiring terminals for the Landa™ Positioning System, door operator, load weigher, safety edge, cab light and fan, traveler cable and more. A worklight, service outlet, alarm bell and cartop inspection station are also available.

### CAR OPERATING PANEL

Another system access point is located at each COP. EC-Ready COP fixtures fully interconnect to the TOC box using a provided TOC-to-COP harness. One wiring harness is all you need.

**WORK FROM THE MOST  
CONVENIENT LOCATION**

Visual representation only.  
Elevator systems may vary.

The Pixel Control System features the Landa™ Absolute Positioning System. The Landa Positioning System is comprised of two independent systems that provide position information with an accuracy of 0.032" (0.8 mm).

### STEEL ENCODED TAPE

The encoded tape, made of high grade stainless steel, runs the entire length of the hoistway. The encoded tape incorporates a permanent encoding method, such that no individual location coding shall be repeated within a one mile section of the steel encoded tape.

### PINPOINT POSITIONING

### DUAL COMMUNICATION CHANNELS

Dual sensor head positioning systems provide the absolute cab location information. Dual communication channels, one for each positioning system, provide independent redundancy for failsafe operation. The positioning sensor heads can be mounted in three different orientations to accommodate challenging hoistway conditions. Because there is no contact between the sensor and the tape, wear, tear and rubbing noises are eliminated. The position sensor system codifies the hoistway, eliminating the need for driving chains or cables. No magnets or additional sensors are required for detection of the car position throughout the hoistway.

### REDUCES HARDWARE

Landa components are few, and are installed quickly. The locations of all landings, travel limits, and slowdown points are defined virtually, stored digitally, and easily adjusted when needed. No magnets, vanes, limit switches and associated hoistway wiring needed (except for mechanical final limit switches, where required by code).



# INTUITIVE INTERFACE

The Pixel Control System has an intuitive and friendly user interface enabling elevator technicians to accomplish routine tasks faster.

## ENHANCED FULL COLOR DISPLAY

Pixel displays information on a vivid, high resolution, full-color LCD screen at each system access point. The enhanced display is highly visible and easy to read in both light and dark environments. Pixel's screens continuously display valuable information - understood at a glance - from multiple system access points.

## PIXEL MENU SYSTEM

Menu content is strategically organized and logically sequenced with related tasks grouped together. The breadth and depth of the Pixel menu system provides access to the extensive parameters demanded by the most experienced adjuster, with many of the top two or three tiers satisfying the majority of their needs.

## PIXEL NAVIGATION

Pixel uses a simple rotary knob for navigation and selection, so everything needed is at your fingertips. Rotate the knob to scroll up and down any selection list. Press the knob inward to select the desired function (or setting) and keep working. The dashboard also provides soft-touch buttons for simple selection, including the following:

- **Help Button:** a yellow button for immediate access to context-responsive help.
- **Home Button:** return to the main menu any time by pressing the green button.
- **Direct Select:** flexible grey buttons select options depending on screen choices.

## ON-BOARD DIAGNOSTICS

Powerful yet simplified diagnostics are built into each system access point, including the ability to intuitively view and easily reprogram personality parameters, access fault diagnostics, play back operating sequences, and more.

## HOME SCREEN

Instant real-time awareness of current car operation is provided on the home screen. The home screen continuously displays information including visual door status, mode of operation, intended direction, current and destination floors, speed, control system configuration, and active faults ordered by priority (if any) or an indication of no faults.



The Pixel Control System is packed full of advanced technology and software to provide labor and material savings.

### **CAN-bus TECHNOLOGY**

Dual CAN-bus controller area networks provide high speed internal system communication. Use of this industrial standard communication protocol opens the door to interoperability with a variety of current and future CAN-bus enabled products, including door operators, load weighers, and position indicators.

Overall system reliability is enhanced through the use of surface-mount electronic components, large scale integrated circuits, and state-of-the-art PC boards.

### **ENHANCED c-LINK**

Serial Communication allows multiple signals to share the same wiring. Enhanced c-LINK Serial Communication, integral to every Pixel Control System, reduces the wire count for hall, car and car top signals without compromising safe and sensible standards. This system reduces the traveler conductor count, time, labor, and material costs otherwise required to run dedicated wires for each signal.

### **FIELD REPROGRAMMABLE**

The Pixel Control System includes provisions for viewing and changing field-configurable parameters. Parameters are user configurable without the need for any external device, or knowledge of any special programming language. Most parameter changes will immediately take effect without requiring a system reboot. Some of the configurable parameters include: ride, car and group performance.

### **BUILT-IN DIAGNOSTICS**

Powerful yet simple-to-use diagnostics are built into the Pixel Control System. The built-in diagnostics system is capable of displaying current fault status and details as diagnosed by internal logic. Additional inquiry and display capabilities include an extensive fault history, fault occurrence counters, playback of captured operational sequences, controller network health status, and more.

### **DYNAMIC EFFICIENCY IMPROVEMENT**

This system continuously and dynamically updates, assigns, and reassigns cars to hall calls in order to address current, real-time conditions as building conditions constantly change. Pixel's distributed dispatching architecture provides redundancy in the assignment of building hall call demand.

### **POSITION & VELOCITY FEEDBACK**

All Pixel Systems provide cab position feedback, enabling the powerful Pixel microprocessor to continuously adjust the mathematically-computed optimal speed output as a function of distance from the target floor. The control system produces an optimized velocity profile utilizing a dual-loop feedback system based on car position and speed.



## ENHANCED SAFETY

The Pixel Control System utilizes the latest technology to increase safety in elevator control equipment. It simplifies the process for field technicians without compromising safety, as Elevator Controls has already engineered several features into the control equipment.

### PARALLEL INDEPENDENT SAFETY

The control system is equipped with parallel safety processors comprised of two independent, redundant means to monitor safe operation. If either of Pixel's two independent safety systems identifies a fault, an automatic system shutdown is executed to keep passengers safe. Elevator Controls devised SP1, a powerful software-based safety processor, which is continuously cross-checked by SP2, a hardware-based FPGA (field-programmable gate array) safety processor.

### LOCAL DIAGNOSTICS

Pixel has designed reliability and flexibility into the control system. Simple on-board I/O testing is supported at each system access point. Local diagnostics function regardless of whether a particular access point has an active system network connection.

## REDUNDANT SAFETY MEASURES

### VIRTUAL SAFETY LIMITS

The Landa car positioning system captures high resolution position data that is maintained through power cycling. During the hoistway 'learn' procedure, the control system generates and records the location and associated position for all required virtual safety limits.

### SAFETY CODE COMPLIANCE

Safety code compliance is confirmed via application of tests described in control equipment documentation, including compliance with current code requirements.





The Pixel Control System makes field wiring faster and easier through intelligent design that simplifies the wiring process and reduces the wire count.

### PRE-WIRED FIXTURES

Pixel's design allows for the pre-wiring and pre-testing of signal fixtures by the fixture manufacturer, or at the convenience of a workbench at the shop. Once pre-wired, field installation is performed efficiently with minimized field wire connections.

### CONSOLIDATED FIELD WIRING

The Pixel control cabinet is designed to bring field wiring into functionally assigned terminal strips. Consolidated field wiring saves time, which helps prevent component-damaging wiring errors.

### CAN SERIAL HALL CALL/LANTERN CONNECTION CABLE PACKAGE

The CAN Serial Hall Call/Lantern Node Cable Package makes wiring to the Pixel Hall Call and Hall Lantern Nodes easy. Plug-in CAT5 cables eliminate the need to strip and terminate individual wires, and eliminate the possibility of connection errors. The standard package includes network line splitters and CAT5-Ethernet cables to accommodate typical 12 ft. floor heights.

### SCREW-IN OR PRE-WIRED PLUG & PLAY TERMINALS

The Pixel Control System offers two options for wire terminals. Screw-In terminals allows the technician to wire existing fixtures to the control equipment. Pre-Wired Plug and Play Terminals save field labor time with simple installation.

### PRE-WIRED INSPECTION STATION

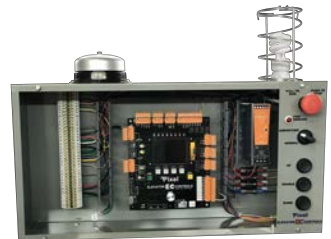
Pixel offers a pre-wired and pre-tested inspection station and alarm bell, built into the Top of Car access point, saving additional time in the field.

### CUSTOM LABELED HARNESS

A custom-labeled wire harness is included to interconnect the TOC to the main COP.

### CUSTOM TRAVELING CABLE

Elevator Controls' Traveling Cable for Pixel simplifies installation and saves you time & maintenance costs by preventing installation errors. Our traveling cable is custom-labeled to quickly and easily match Pixel terminal strip labeling.



## OPTIONAL FEATURES

### CARD READER INTERFACE

A card reader interface can be provided. The card reader vendor shall provide a dry contact output which shall be used to restrict registration of calls. Such contacts shall be provided per opening, per call or for groups of calls and openings as required.

### ALTERNATE CALL SCHEME

The elevator system can provide a means for switching from the main hall call push-button system to an ACS Alternate Call System. The ACS option shall allow one of the following:

- In buildings having all double opening cars, the system shall switch service from one side opening to the alternate side opening.
- In buildings having some double opening cars, access to the alternate side opening shall be selectively switched on/off, allowing cars to serve both side or the main side opening only.
- Access to floors served by only one or more cars in the system shall be restricted by switching to ACS operating mode.
- A general 'remapping' of a building's hall call service system shall be selectable, thereby adding or removing service to some floors by switching to ACS operating mode.

### ATTENDANT OPERATION

The elevator control system is configured such that it can be operated with or without an attendant.

**VARIOUS  
OPTIONAL  
FEATURES  
AVAILABLE**

### EMERGENCY POWER OPERATION

When emergency power generation is detected, elevator cars are automatically returned one by one to the main lobby. As each car arrives, doors will be opened and the car shall remain at the lobby with the doors opened. While each car is being returned to the lobby, all other cars shall be shut down to avoid any overload of the emergency power generating system.

### MEDICAL EMERGENCY SERVICE/CODE BLUE

Medical Emergency Service/Code Blue calls an eligible in-service elevator to a floor on an emergency basis, operating independently of the Group System and landing call signals. A medical emergency call switch shall be installed at each floor where the ability to enable medical emergency service operation is desired.

### SWING CAR OPERATION

The elevator system provides a means to remove one car from a multi-car group system, and convert it to a simplex collective selective. This car operates independently of the group system, and responds to its own 'inconspicuous' hall call riser.



## **EXPEDITE SERVICE**

Expedite Service shall call any eligible in-service elevator to any floor on an express basis, operating independently from the group system and landing call signals. An Expedite Service call key switch, or card reader, shall be installed at each floor where the ability to enable Expedite Service operation is desired. Each key switch shall be a two-position, key-operated, momentary-pressure, spring-return-to-off switch, with a call registration light provided adjacent to each switch.

## **LOADED CAR OPERATION**

Should any car become loaded to a user preset adjustable load level, all door dwell timers shall be reduced, and car doors shall close with minimal delay. Additionally, the car shall be automatically removed from group availability until the car load is reduced below the preset threshold.

## **LIGHT LOAD AND PHOTO EYE ANTI-NUISANCE OPERATION**

All registered car calls shall be canceled, if a user-preset adjustable number of entered car calls is exceeded, and the load in the car has not caused the light load switch to open. Also, if a user-preset adjustable number of car calls are answered without activation of the photo eye input, all registered car calls shall be cancelled.

## **EC BASIC SECURITY**

EC Basic Security prevents unauthorized individuals from entering car calls and allows only authorized individuals to access restricted floors.

## **MOTORS**

Elevator Controls provides motors designed specifically for elevator duty applications. Controller/motor packages provide one-call ordering convenience and the assurance that all components will work well together.

## **LOAD WEIGHING**

The elevator control system provides inputs for signals from a load weighing device, any of the following devices are acceptable:

- Rope Tension: measures the load at the point where the cab is suspended by the hoist rope.
- Crosshead Deflection: measures minute crosshead bending as cab load increases.
- Isolated Platform: measures movement of 'floating' floor supported by resilient pads which compress with passenger load.

## **VARIOUS CONTROLLER ENCLOSURES**

Elevator Controls specializes in making control products for adverse environmental conditions, for example: dust-proof, water-proof, corrosion-resistant, or air-conditioned controller cabinets. We can engineer and design custom control systems to meet specific applications.

## NON-PROPRIETARY

Products that carry the Elevator Controls brand label are provided with on-board Non-Proprietary diagnostics and are designed to satisfy the list of functional requirements below.

### DIAGNOSTICS

All diagnostics shall be provided on-board.

### SERVICE TOOL

No service tool shall be required for equipment installation, adjustment, maintenance or troubleshooting.

### PARTS

Spare or replacement parts shall be available at published prices to anyone without restriction.

### TRAINING

Regularly scheduled technical training classes shall be available at reasonable cost to anyone without restriction.

### TELEPHONE SUPPORT

Telephone hotline support shall be available from trained, experienced technicians.

### FIELD SUPPORT

Field engineering support shall be available at the customer's location by prior arrangement at a reasonable cost.

### DOCUMENTATION

All installation, adjustment, maintenance and troubleshooting manuals and documents required for proper equipment operation shall be provided with equipment at time of delivery. As-built prints shall be included. Replacement copies of these documents shall be readily available at a reasonable cost.



In some circumstances, a functional specification can have the effect of creating a 'sole source', when desired, by including additional language seen below.

### **TELEPHONE TECHNICAL SUPPORT**

Telephone technical support shall be provided for customers at no charge.

### **THE CONTROLLER MANUFACTURER**

The controller manufacturer shall have a track record of over 30 years in business manufacturing microprocessor-based elevator controllers.

### **SYSTEM HUMAN INTERFACE**

The system human interface shall be comprised of a high resolution color display, with functions navigated and selected using a single, multi-function knob.

### **LOCAL DIAGNOSTICS**

Local diagnostics shall function regardless of whether a particular access point has an active system network connection.

### **HELP SYSTEM**

A help system shall be incorporated and embedded in the control system. A help button shall also be provided. When pressed, this function shall cause context relevant help to be displayed on the screen.

### **POSITIONING SYSTEM**

The cab positioning system shall not require floor or slowdown vanes, switches or wiring to be installed in the hoistway. The system shall codify the hoistway in a way not requiring rotary encoders, floor counters, or physical contact between sensing and actuating devices, eliminating wear and tear.

### **CONTINUOUSLY READ POSITION**

Absolute cab position shall be continuously read such that high resolution position data is continuously updated during normal operation. Following a power cycling event, car movement shall not be required to re-establish car position in the hoistway.

### **LED INDICATORS**

Every I/O location shall be equipped with an associated LED indicator to visually confirm status and an active connection.

### **TWO INDEPENDENT SAFETY PROCESSORS**

The control system shall incorporate two independent safety processors to monitor safe operation. One safety processor shall be software based while the other shall be hardware based. Each shall be capable of commanding a system shutdown.

## SAVINGS WITH PIXEL

The Pixel Control System design dramatically reduces the components typically needed to safely operate the elevator.

### PIXEL SAVES TIME

The Pixel Control System specializes in saving field labor, minimizing the amount of installation and adjustment time required for this control system. With three access points, choose the most convenient location to perform routine tasks and troubleshooting. Adjust from the machine room, inside the cab or car top for speedier completion to reduce the number of hours spent on the job site.

### PIXEL REDUCES MATERIALS

The Pixel Control System design dramatically reduces the components typically needed to safely operate the elevator. Our CAN-bus serial communication reduces the number of wires and creates a plug & play system. Reducing additional material expenses will decrease costs for each project.

### PIXEL HARNESSES TECHNOLOGY

With the advanced technology which the Pixel Control System utilizes, we are able to reduce the wire count, provide on-board diagnostics, improve serial communication, create an intuitive vivid interface, save field labor time, provide real-time support, and reduce material costs to provide a more profitable and efficient control system.

### NO WAITING FOR SOFTWARE

The latest software and upgrades are readily available on our website for authorized download and USB upgrade of controller software.



## HYDRO TECHNICAL SPECIFICATIONS

The Pixel Hydraulic Control System has been designed and engineered with the latest technology to make it one of the most advanced control systems on the market. As experts in elevator control system engineering, Elevator Controls can engineer the Pixel Hydro Control System to meet most hydraulic elevator requirements. Our Hydraulic Control System is CSA & TSSA certified.

<b>ELEVATOR TYPE</b>	Hydraulic
<b>BUILDING TYPE</b>	Low Rise
<b>SPEED</b>	All Speeds for Hydraulic
<b>LANDINGS</b>	Up to 128 Landings
<b>DISPATCHING</b>	Simplex, Duplex, Group of up to 12
<b>STARTER OPTIONS</b>	Electronic Soft Starter Y-Delta Across The Line
<b>POSITION FEEDBACK</b>	PF Position Feedback Included
<b>HORSEPOWER</b>	Up to 100 HP
<b>TRAVELER WIRE COUNT</b>	22 Wires
<b>FIXTURE VOLTAGE</b>	24V DC
<b>STANDARD ENCLOSURE</b>	36" W x 30" H x 8" D
<b>MACHINE ROOM TEMP.</b>	32° to 104°F (0° to 40°C)
<b>OPERATING TEMP.</b>	32° to 122°F (0° to 50°C)
<b>STORAGE TEMP.</b>	-22° to 150°F (-30° to 65°C)
<b>HUMIDITY</b>	95% Humidity (non-condensing)
<b>ALTITUDE</b>	12,000 ft. (3,658 m)
<b>WARRANTY</b>	Standard 15 Months

Enclosures may vary in size depending upon system requirements.

CALL FOR HYDRAULIC PROJECTS  
**1-800-829-8106**

AC TECHNICAL SPECIFICATIONS

The Pixel AC Traction Control System has been designed and engineered with the latest technology to make it one of the most advanced control systems on the market. As experts in elevator control system engineering, Elevator Controls can engineer the Pixel AC Traction Control System to meet most AC Traction elevator requirements. Our AC Traction Control System is CSA & TSSA certified.

ELEVATOR TYPE	Traction, MRL
BUILDING TYPE	Low Rise, Mid Rise, High Rise
SPEED	1400 fpm [7 mps]
LANDINGS	Up to 128 Landings
DISPATCHING	Simplex, Duplex, Group of up to 12
DRIVE TECHNOLOGY OPTIONS	Closed Loop Flux Vector PVF Position Velocity Feedback PM Synchronous Motor
HORSEPOWER	Up to 100 HP
TRAVELER WIRE COUNT	22 Wires
FIXTURE VOLTAGE	24V DC
STANDARD ENCLOSURE	36" W x 63" H x 14" D*
MACHINE ROOM TEMP.	32º to 104ºF [0º to 40ºC]
OPERATING TEMP.	32º to 122ºF [0º to 50ºC]
STORAGE TEMP.	-22º to 150ºF [-30º to 65ºC]
HUMIDITY	95% Humidity (non-condensing)
ALTITUDE	12,000 ft. [3,658 m]
WARRANTY	Standard 15 Months

\*Height includes top-mounted resistor box. Enclosures may vary in size depending upon system requirements.

CALL FOR AC TRACTION PROJECTS  
1-800-829-8106



DC TECHNICAL SPECIFICATIONS

The Pixel DC Traction Control System has been designed and engineered with the latest technology to make it one of the most advanced control systems on the market. As experts in elevator control system engineering, Elevator Controls can engineer the Pixel DC Traction Control System to meet most DC traction elevator requirements. Our DC Traction Control System is CSA certified.

ELEVATOR TYPE	Traction
BUILDING TYPE	Low Rise, Mid Rise, High Rise
SPEED	1400 fpm [7 mps]
LANDINGS	Up to 128 Landings
DISPATCHING	Simplex, Duplex, Group of up to 12
DRIVE TECHNOLOGY OPTIONS	Closed-Loop Regenerative DC-SCR Quattro® DC Elevator Drive PVF Position Velocity Feedback
HORSEPOWER	Up to 100 HP
TRAVELER WIRE COUNT	22 Wires
FIXTURE VOLTAGE	24V DC
STANDARD ENCLOSURE	36" W x 63" H x 14" D*
MACHINE ROOM TEMP.	32º to 104ºF [0º to 40ºC]
OPERATING TEMP.	32º to 122ºF [0º to 50ºC]
STORAGE TEMP.	-22º to 150ºF [-30º to 65ºC]
HUMIDITY	95% Humidity [non-condensing]
ALTITUDE	12,000 ft. [3,658 m]
WARRANTY	Standard 15 Months

\*Height includes top-mounted resistor box. Enclosures may vary in size depending upon system requirements.

CALL FOR DC TRACTION PROJECTS  
1-800-829-8106

## ELEVATOR CONTROLS

Established in 1986, Elevator Controls Corporation designs, engineers and manufactures non-proprietary micro-processor based elevator control systems. With over 30,000 units in service worldwide, we can handle any project size and requirements. Our controls are 'simple, solid, and supportable' for easy installation, adjustment and maintainability.

## PIXEL CONTROL SYSTEM SERIES



PIXEL AC



PIXEL DC



PIXEL HYDRO

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