Controlled Access

The Leader in Pedestrian Control Systems
Waist & Full Height Turnstiles and Matching Gates

INSTALLATION

&

SERVICE MANUAL

FOR

FASTPASS SERIES

FP-500-P

PORTABLE

WAIST HIGH TURNSTILE

IMPORTANT: Please save this booklet after installation. If installation is done by Construction Company, please give this booklet to customer when installation is complete. They will require it for maintenance and repairs.

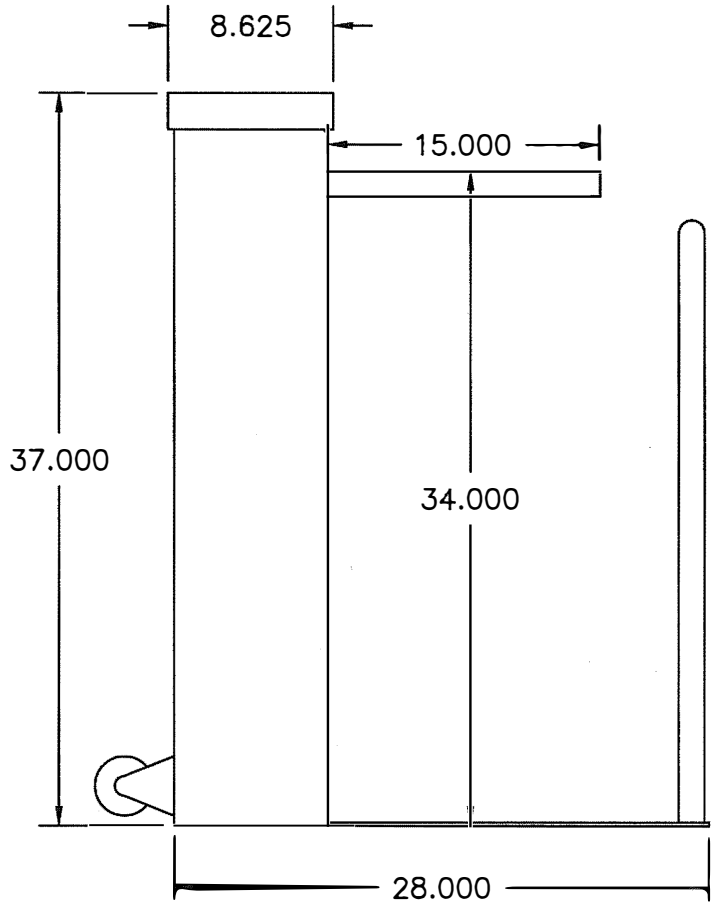
Thank you.

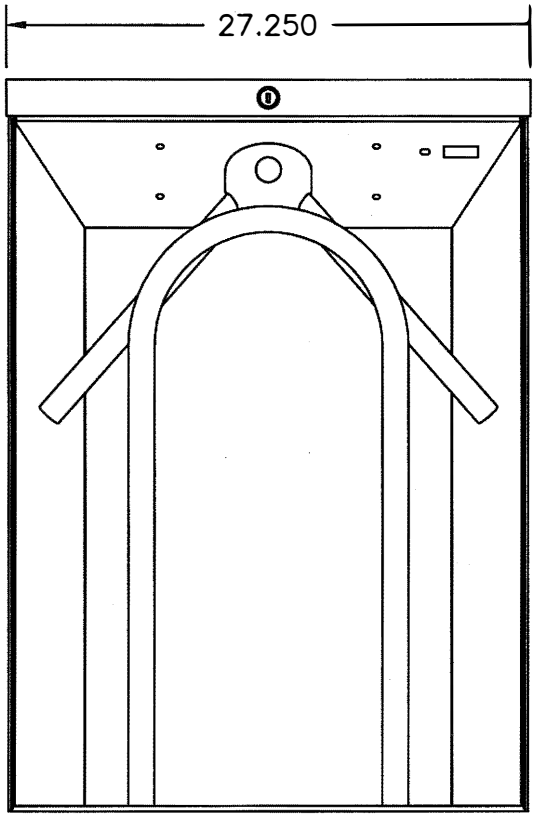
Controlled Access

The Leader in Pedestrian Control Systems
Waist & Full Height Turnstiles and Matching Gates

Table of Contents

P.N. FP500-P



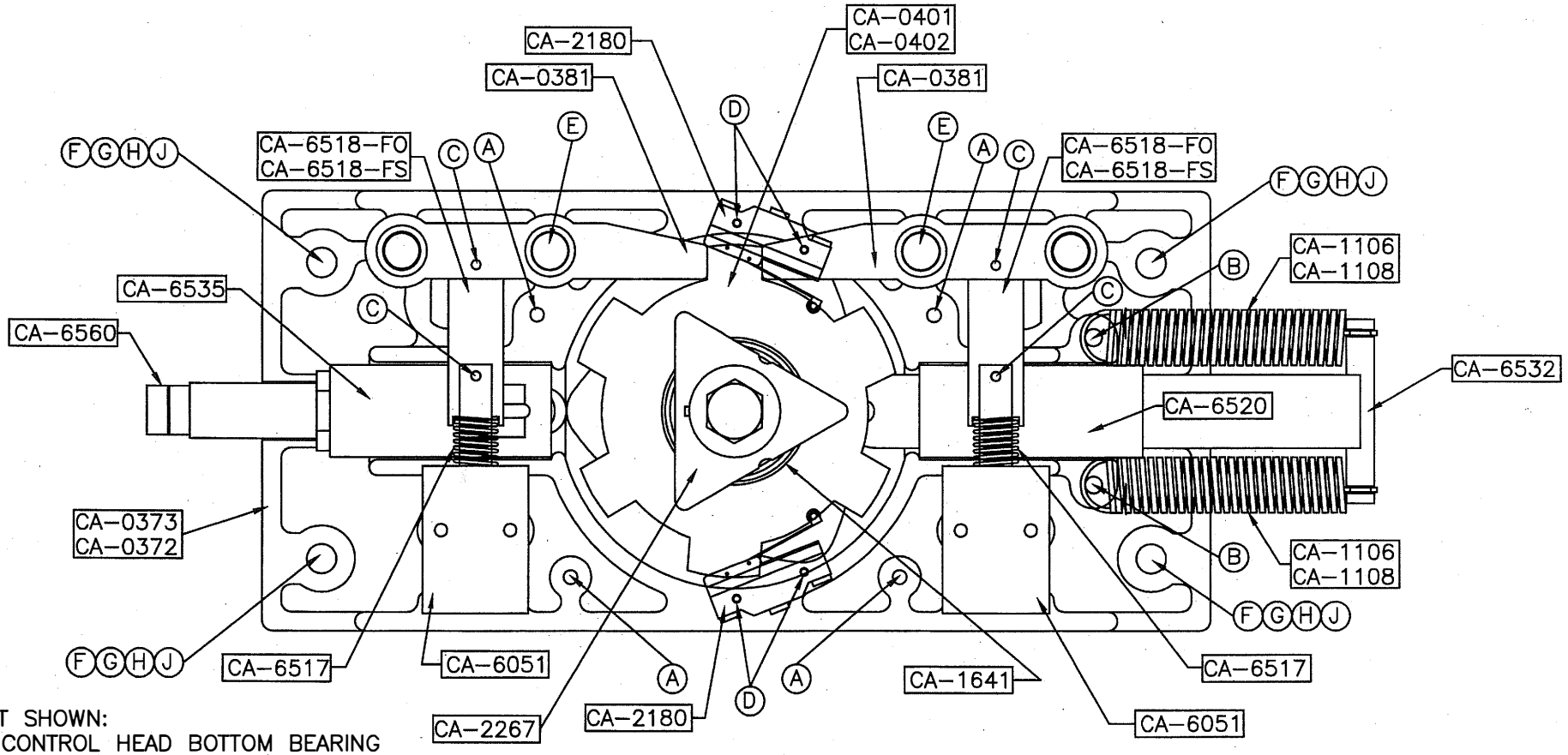


FP500-P

MATERIAL: 304 STAINLESS STEEL	SCALE: 10=1	APPROVED BY:	DRAWN BY: LC III
	DATE: 8/19/03		REVISED:
FINISH: NO. 4 SATIN			
TOL. UNLESS OTHERWISE SPEC. .X ± .1 .XXX ± .015 .XX ± .03 ANGLES .5°			

CONTROLLED ACCESS. INC.
1636 W. 130th St.
Brunswick, OH 44212
330-273-6185
FAX 330-273-4468
USA 1-800-942-0829
FAX 1-800-942-0828

FASTPASS PORTABLE TURNSTILE



PARTS NOT SHOWN:
CA–8641 CONTROL HEAD BOTTOM BEARING
CA–AB24 CONTROL HEAD KEY LOCK
CA–2030 ARM ADAPTER / PROXIMITY SENSOR CAM
CA–CUB7 6 DIGIT LCD COUNTER
CA–AB21 KEY RESET FOR COUNTER
CA–IM12 PROXIMITY SENSOR
CA–6589 PROXIMITY SENSOR BRACKET
CA– 789 COMMAND MODULE
CA– 780 24 VDC 3 AMP POWER SUPPLY

CONTROLLED ACCESS, INC.
1636 W. 130th St.
Brunswick, OH 44212

6500 SERIES CONTROL HEAD

SYM	QTY	DESCRIPTION
Ⓐ	4	1/4–20 x 1" SOCKET HEAD
Ⓑ	2	1/4"ø x 1 1/4" SPRING PIN
Ⓒ	4	1/8"ø x 5/8" SPRING PIN
Ⓓ	4	6/32 x 1" MACHINE SCREW
Ⓔ	2	1/2"ø X 2 1/4" DOWEL PIN

WAIST HIGH UNITS		
Ⓕ	4	5/16 x 1–1/4" SS BUTTON HEAD
Ⓖ	4	5/16 SS FLAT WASHER
Ⓗ	4	5/16 SS LOCK WASHER
Ⓙ	4	5/16 SS HEX NUT

FULL HEIGHT UNITS		
Ⓕ	4	3/8" x 1–1/2" SS CARRIAGE BOLT
Ⓖ	4	3/8 SS FLAT WASHER
Ⓗ	4	3/8 SS LOCK WASHER
Ⓙ	4	3/8 SS HEX NUT

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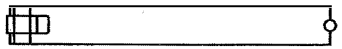
FAX 1-800-942-0828
WEB: WWW.CONTROLLEDACCESS.COM
EMAIL: SALES@CONTROLLEDACCESS.COM

PARTS LIST FOR CA-6500 SERIES HEAD

★ RECOMMENDED SPARE PARTS

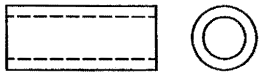
COMPLETE CONTROL HEADS
MANUAL CONTROL HEAD $750.00
ELECTRONIC CONTROL HEAD W/LIMIT SWITCHES $1012.00
ELECTRONIC CONTROL HEAD W/PROXIMITY SWITCHES $1087.00



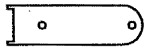
CA-6532
INDEX PIN
$38.37

CA-0381
LOCKING BAR WITH
IKO BA882 BEARING
$28.76

CA-2030
ARM ADAPTER
PROXIMITY SENSOR CAM
$48.50



CA-6520
INDEX TUBING
$22.60

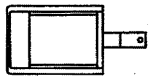


CA-6518-FO
LOCKING BAR LINKAGE (FAIL OPEN) $8.40

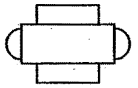
CA-6518-FS
LOCKING BAR LINKAGE (FAIL SECURE) $8.40

CA-789
COMMAND MODULE
$152.10

CA-1106
LIGHT SPRING FOR WAIST HIGH
CENTURY 80861
.75 x 3.5 x .075
$4.78



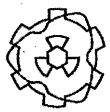
CA-6051
SOLENOID
DETROL 53717-82
★
$39.09



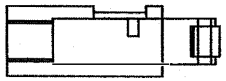
CA-780
24 VDC 3 AMP POWER SUPPLY
$39.00

CA-1108
HEAVY SPRING FOR FULL HEIGHT
CENTURY 80881
.75 x 3.5 x .085
$5.74

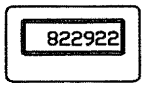
CA-6517
SOLENOID SPRING
CENTURY 3879 .625ø X 1.44
$2.08



CA-0401
TURNSTILE CAM ASSEMBLY
SPECIFY STANDARD LIMIT SWITCH OR
PROXIMITY SWITCH
$180.00

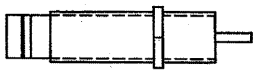


CA-6535
SHOCK ROLLER ASSEMBLY
$129.60



CA-CUB7
6 DIGIT LCD COUNTER
RED LION CUB70000
$62.50

CA-0402
ADA GATE CAM ASSEMBLY
SPECIFY STANDARD LIMIT SWITCH OR
PROXIMITY SWITCH
$180.00

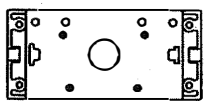


CA-6560
HYDRAULIC SHOCK ABSORBER
ENIDINE-OEM .5 x .875 w/01 OIL
$125.79

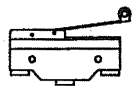
CA-2267
LIMIT SWITCH CAM
$29.89

CA-AB24
CONTROL HEAD KEY LOCK
ABA 24001
$9.87

CA-AB21
KEY RESET FOR COUNTER
ABA 2100
$16.40



CA-0373, CA-0372
CONTROL HEAD BODY
TOP HALF / BOTTOM HALF
MATCHED SET
$299.00

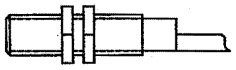


CA-2180
LIMIT SWITCH
MICRO BZ-2RW82-A2
★
$20.77

FASTENER A
1/4" -20 x 1" SOCKET HEAD
QTY. 4
$1.12

FASTENER B
1/4" x 1 1/4" SPRING PIN
QTY. 2
$1.04

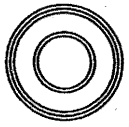
CA-1641
CONTROL HEAD TOP BEARING
GENERAL 1641DCG
$20.84



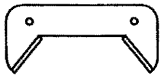
CA-IM12
PROXIMITY SENSOR
SICK IM1204VNSZWK
$63.45

FASTENER C
1/8" ø x 5/8" SPRING PIN
QTY. 4
$1.05

FASTENER D
6/32 x 1" MACHINE SCREW
QTY. 2
$1.07



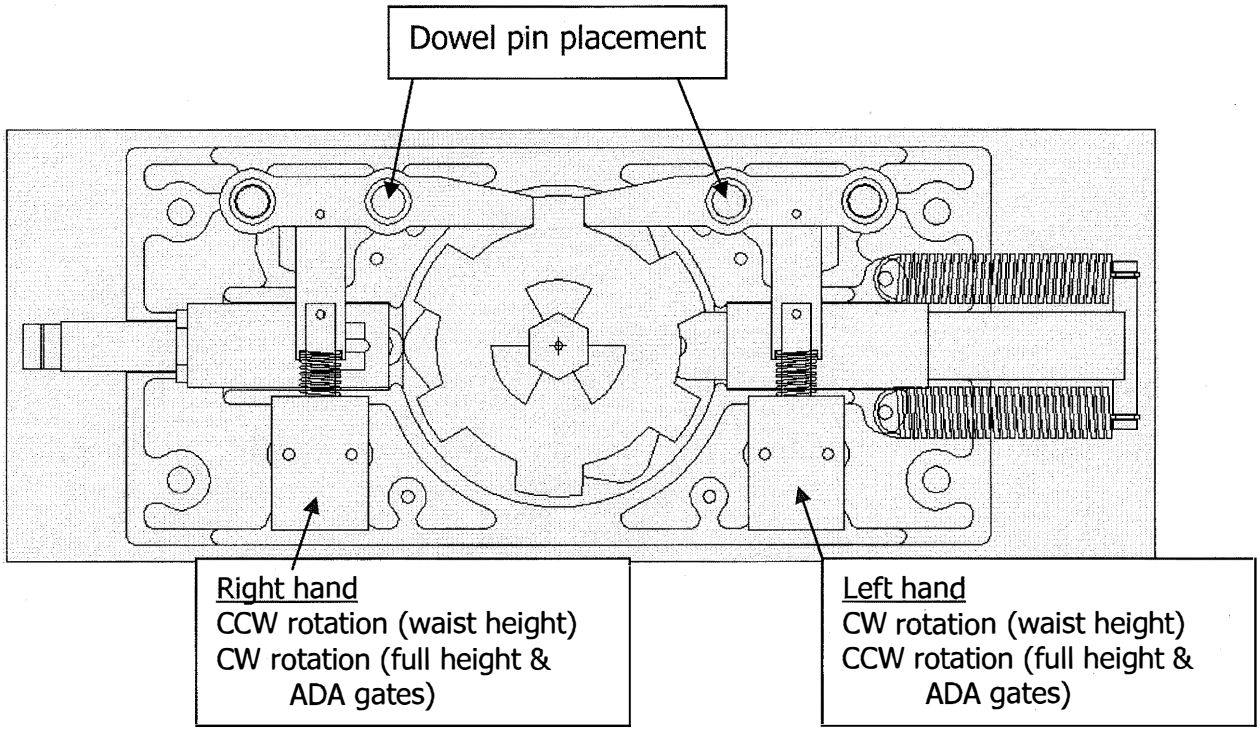
CA-8641
CONTROL HEAD BOTTOM BEARING
GENERAL 6007RSNR
$28.50

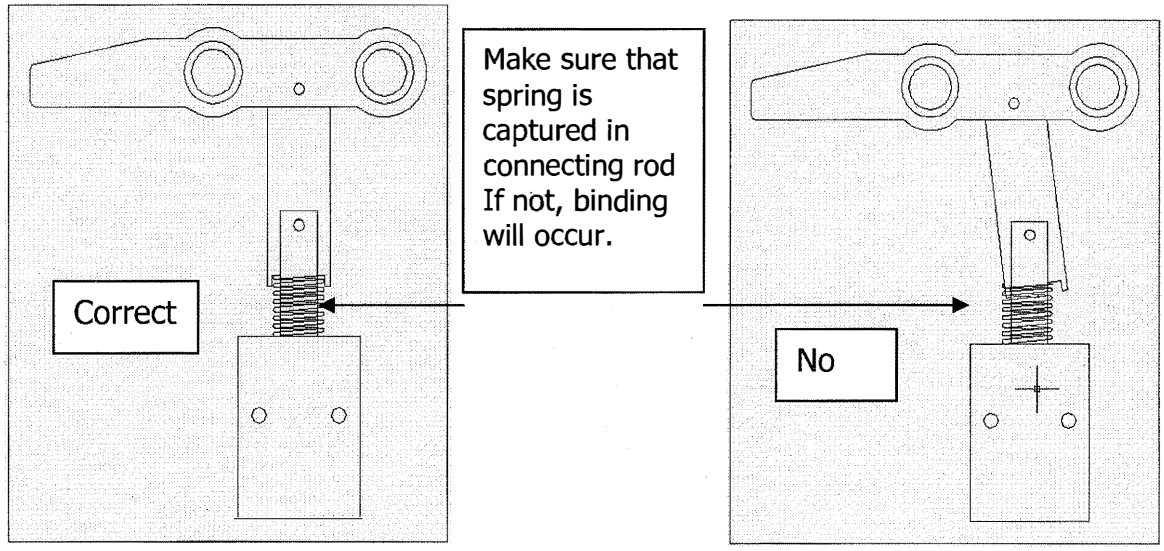


CA-6589
PROXIMITY SENSOR BRACKET
$8.40

FASTENER E
LOCKING BAR PIN
1/2"ø x 2 1/4" DOWEL PIN
$2.64

ALL PRODUCTS ON THIS PAGE ARE SHIPPED UPS F.O.B. HINCKLEY, OHIO. ALL PARTS ORDERS UNDER $500.00 MUST BE VISA/MASTERCARD OR COD. PRICES SUBJECT TO CHANGE WITHOUT NOTICE.





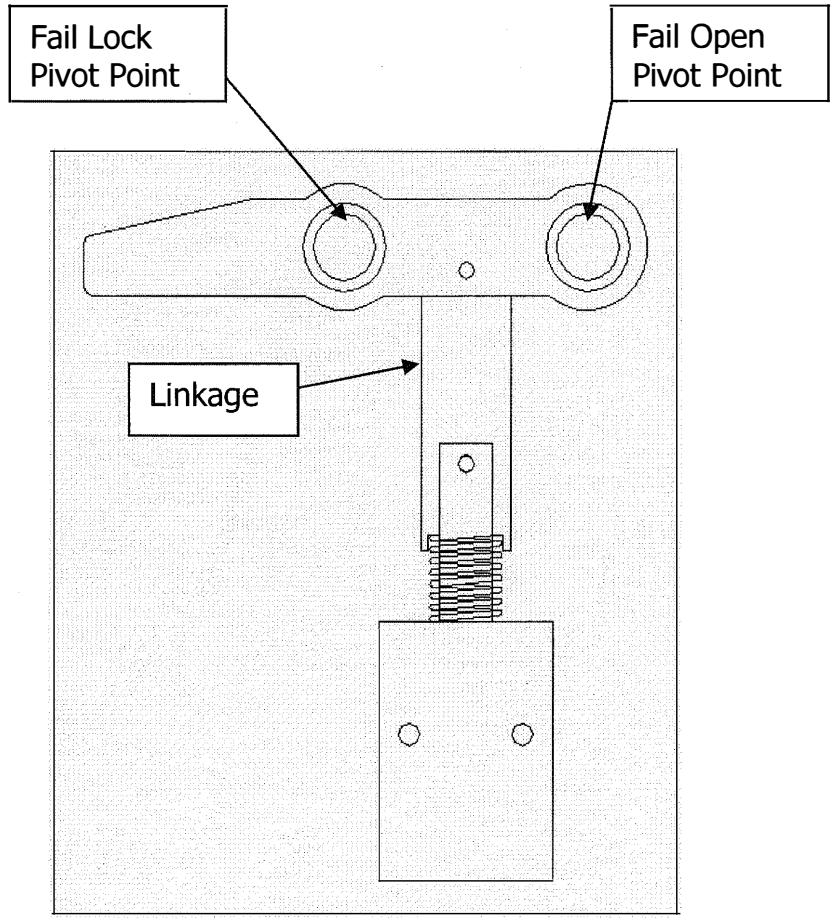
Mechanical turnstile locking bar location;

1. take apart casting by removing 4- ¼ -20 bolts
2. split casting apart
3. place locking mechanism on the either side for direction needed
4. reassemble control head

Dowel pin placement:

Each solenoid can be individually operated as fail lock(secure) or fail open(safe). This is a matter of dowel pin location. The configuration is set at the factory as requested by the customer. If no request was made the unit will be sent fail lock. If configuration needs to be changed then a new linkage between the locking bar and solenoid needs to be ordered. Refer to the Part# CA-6518-FO Fail open linkage

Part# CA-6518-FS Fail lock linkage



Shock Adjustment & Replacement

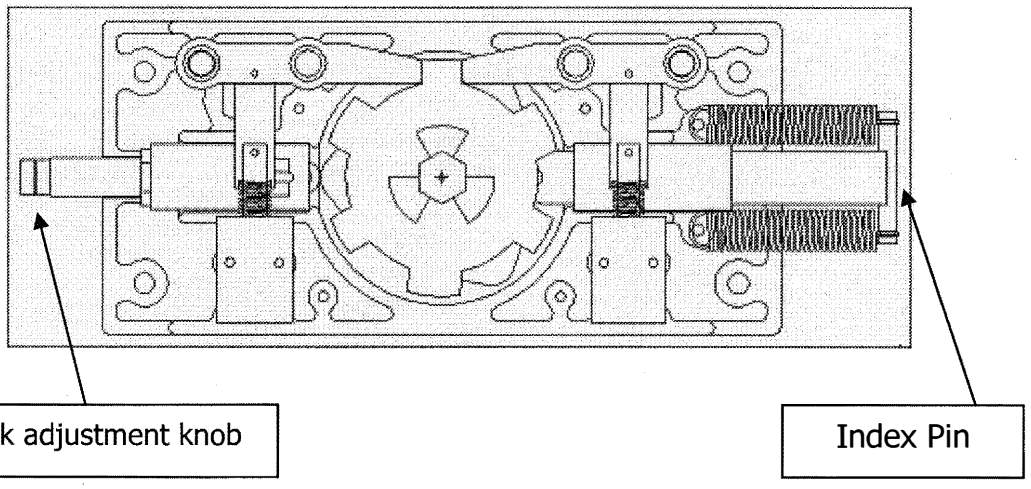
The turnstiles and ADA gates shock tension are factory set. Field adjustment maybe required depending upon temperature conditions. Field adjustment should be made to accommodate the variety of conditions. The turnstile or gate should fall into center gradually.

Adjust the shock tension with the centering bar (index pin) in the locked position. The shock tension is adjusted with the shock set screw. Do not attempt to adjust shock tension using the lock nut to adjust the shock distance in the housing.

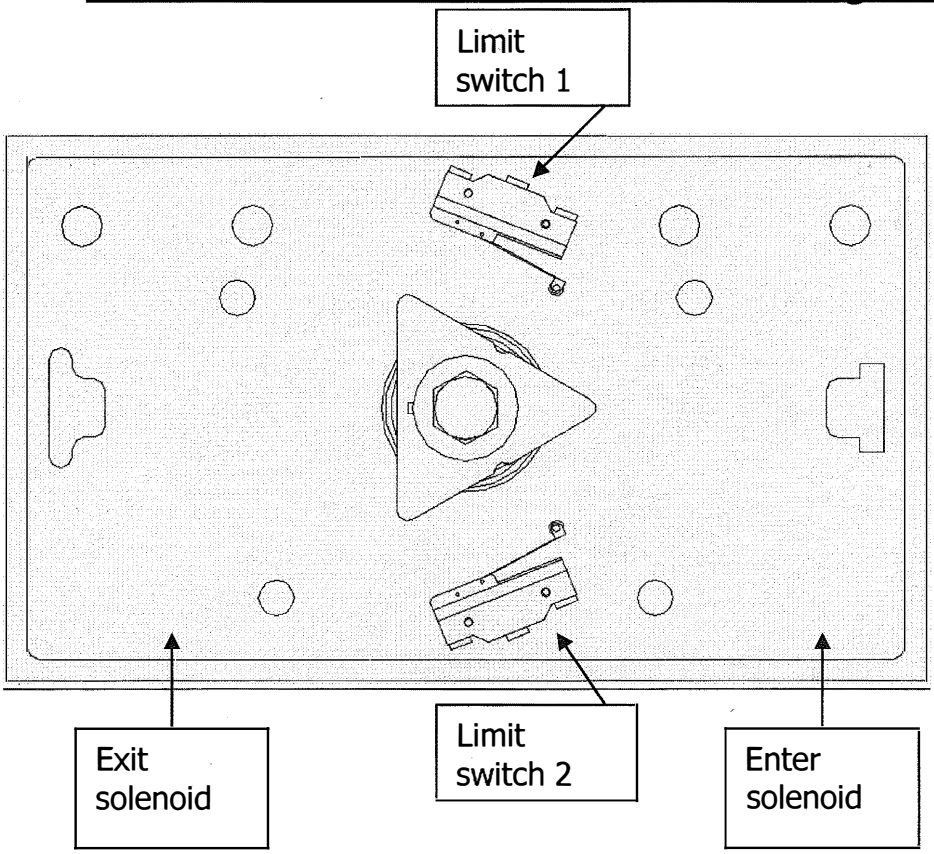
Approximate tension settings:

Full Height – 0
ADA Gate -3
Waist Height-5

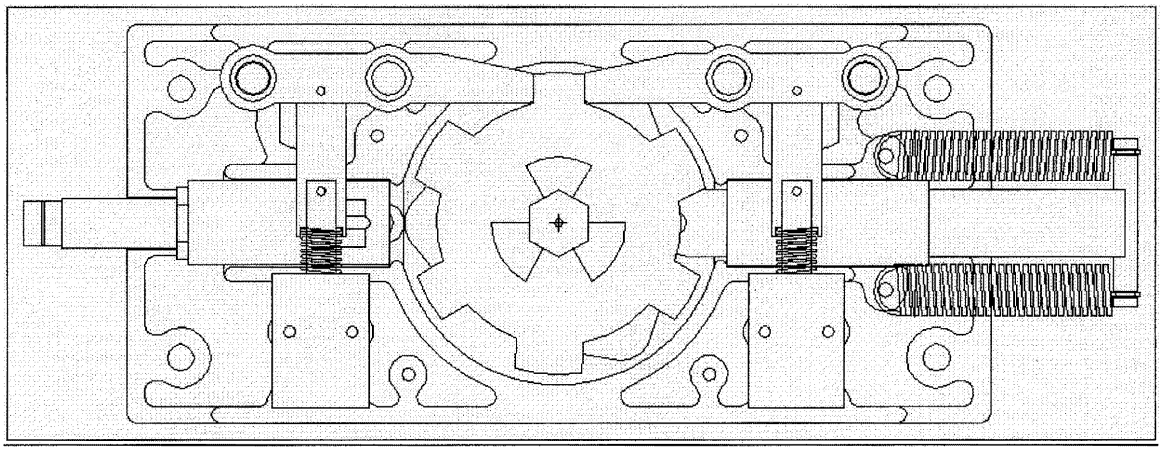
If replacement of the shock is necessary: Set the shock at the lightest setting. Make sure centering bar is in locked position. Thread the shock into the housing until it stops then back out 1 ½ - 2 turns. Lock it down with the lock nut. Adjust the tension setting as needed.



Electronic Solenoid & Limit Switch Wiring Placement



Note: Enter & Exit are used for reference to the circuit board. They may be reversed depending upon right hand or left hand application. Refer to the mechanical locking bar location page for direction. **Do not** change wiring configuration, Switch the inputs to achieve desired direction.



Annual Maintenance

The CA6500 control head has up to 5 moving components of which should be greased approximately 75,000 passages. These include: Centering bar (index pin)

Shock roller assembly

Use a lithium complex base grease. (lightweight synthetic)

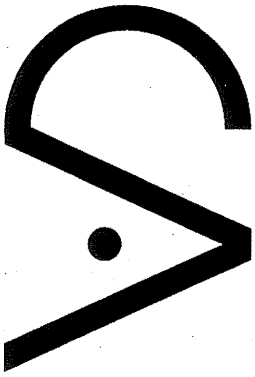
Locking bar bearings

Bottom rotor bearing (full height only)

The control heads should be disassembled, cleaned, and re-greased on the average of 150,000 passages or every 2 years. At this time check all components for wear and replace if necessary.

Refer to the mechanical locking bar location page for disassembly instructions.

TURNSTILE/GATE



ENT. TIMER

EXT. TIMER

ALARM TIMER

ENT. INPUT+

ENT. INPUT−

LIM. SWITCH 1+

LIM. SWITCH 1−

EXT. INPUT+

EXT. INPUT−

LIM. SWITCH 2+

LIM. SWITCH 2−

ALARM INPUT+

ALARM INPUT−

INPUT 24V+

INPUT 24V−

FAIL LOCK

FAIL OPEN

ENT. SOL. COM

ENT. LIGHT NO

ENT. LIGHT NC

ENT. LIGHT COM

FAIL LOCK

FAIL OPEN

EXT. SOL. COM

EXT. LIGHT NO

EXT. LIGHT NC

EXT. LIGHT COM

ALARM OUTPUT NO

ALARM OUTPUT NC

ALARM OUTPUT COM

NOT USED

NOT USED

NOT USED

CONTROLLED ACCESS, INC.
1515 WEST 130TH ST.
HINCKLEY, OHIO 44233
(330) 273-6185 PHONE
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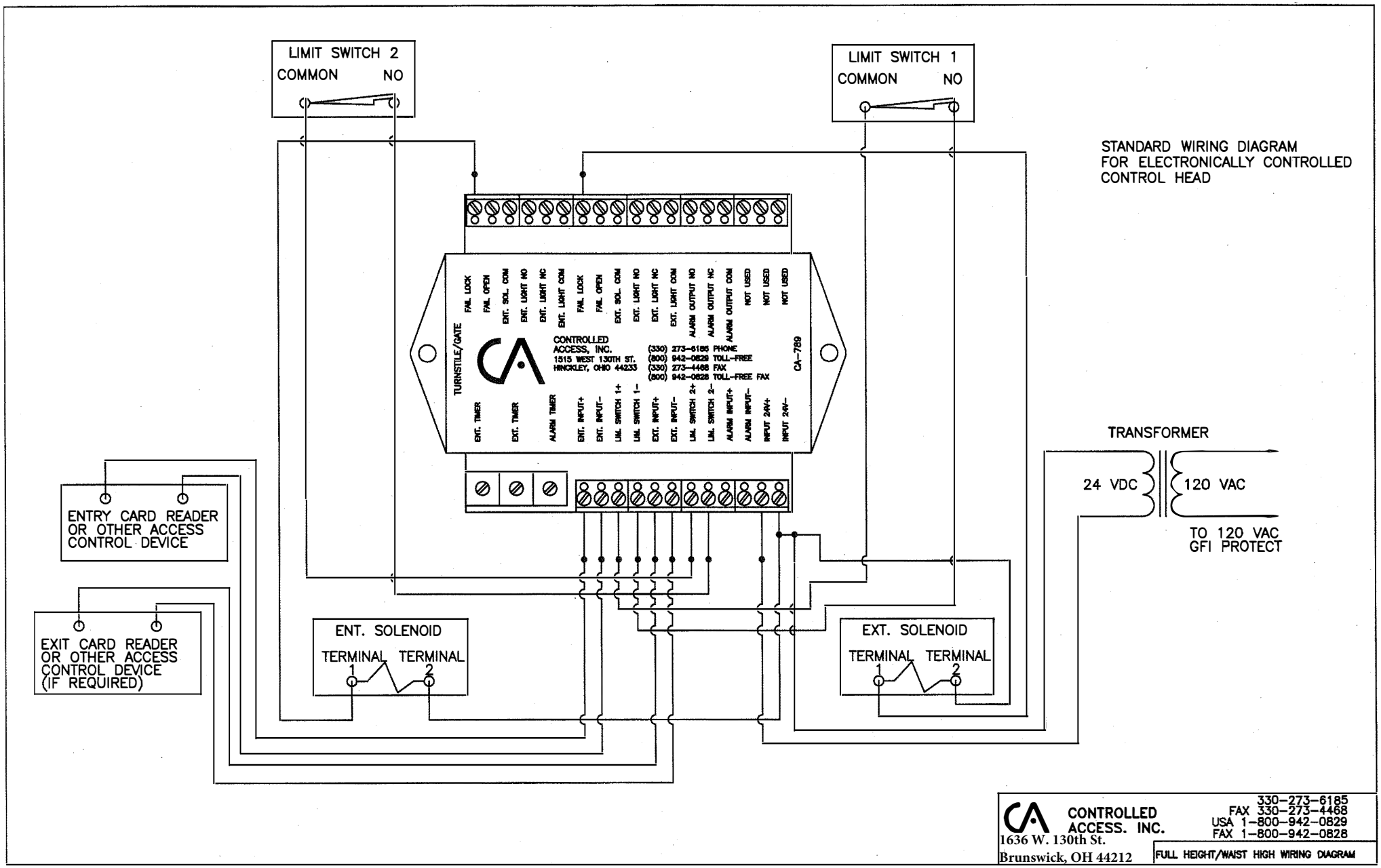
CA-789



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FULL HEIGHT/WAIST HIGH WIRING DIAGRAM

WIRING LEGEND FOR 789 TURNSTILE CONTROL BOARD

NOTE!! THIS IS A MULTIPURPOSE CONTROL BOARD – NOT ALL FUNCTIONS ARE USED

All outputs on right side of board are 24 vdc+, use 24 vdc- terminal bottom left side for other leg when wiring solenoids and lights.

Timer controls length of time for person to enter	**ENT TIMER**	**ENT SOL NO**	Enter fail lock Solenoid 24 vdc+
		ENT SOL NC	Enter fail open Solenoid 24 vdc+
Timer controls length of time for person to exit	**EXT TIMER**	**ENT SOL COM**	Not Used
Timer controls length of alarm to sound	**ALARM TIMER**	**ENT LIGHT NO**	Status light 24 vdc+
		ENT LIGHT NC	Status light 24 vdc+
Contact closer of these two terminals by push button or card reader unlocks turnstile entrance	**ENT INPUT +** **ENT INPUT -**	**ENT LIGHT COM**	Not Used
		EXT SOL NO	Exit fail lock Solenoid 24 vdc+
Contact closer of these two terminals by limit switch on control head relocks after one person enters	**LIM SWITCH 1+** **LIM SWITCH 1-**	**EXT SOL NC**	Exit fail open Solenoid 24 vdc+
		EXT SOL COM	Not Used
Contact closer of these two terminals by push button or card reader unlocks turnstile exit	**EXT INPUT +** **EXT INPUT -**	**EXT LIGHT NO**	Status light 24 vdc+
		EXT LIGHT NC	Status light 24 vdc+
Contact closer of these two terminals by limit switch on control head relocks after one person exits	**LIM SWITCH 2+** **LIM SWITCH 2-**	**EXT LIGHT COM**	Not Used
		ALARM OUTPUT NO	Cover alarm 24 vdc+
NOTE- If only one limit switch exits install jumper wire to LIM SWITCH 1+ and LIM SWITCH 2+		**ALARM OUTPUT NC**	Not Used
		ALARM OUTPUT COM	Not Used
Contact closer of these two terminals by cover tamper switch turns alarm on	**ALARM INPUT +** **ALARM INPUT -**		
		ANTI SOL NO	Anti-backup solenoid Fail open 24 vdc+
18 to 30 vdc power supply input and one leg from all solenoids attached to vdc -	**INPUT 24 V +** **INPUT 24 V -**	**ANTI SOL NC**	Anti-backup solenoid Fail lock 24 vdc+
		ANTI SOL COM	Not Used

789 CIRCUIT BOARD TROUBLE SHOOTING

1) Isolate the card reader from the turnstile (card reader time should be less than 1 second anything more may allow two people to walk through the unit) A one shot timer is available for purchase if the time cannot be achieved.

2) Using a jumper, make a **momentary** contact between either **ent+ and ent-** or **exit + and exit -** depending on which side you are trying to activate.

3) At this point the solenoid should release and the turnstile can be rotated. If successful the turnstile will lock back up after rotation is completed. The card reader is the problem.

A) If not successful look to see if the triangle cam is actuating the limit switch. The limit switch will lock the unit back up.
Try actuating the limit switch by hand to see if it is working

B) Check for loose wires

C) Use meter to check for 24VDC
1st check transformer
2nd place one leg of meter on 24VDC negative on circuit board
place the other leg of meter on ENT SOL NC contact or EXT SOL NC contact. This checks for current going through the relay. If power is not there then the jumper on the circuit board may be missing or the relay may be bad.

D) Use meter to check Solenoid for 24VDC
If solenoid is wired into a normally open contact then initiate the turnstile
A normally closed contact should have power going to the solenoid.
If using transformer to check solenoid, solenoid must be disconnected from the Circuit board or back-feed will occur and could possibly short out the board.

4) If still unsuccessful the return the control head to the factory & our technicians will fully test the unit and make any repairs needed.

Tel +1 (717) 767-6511
Fax +1 (717) 764-0839
www.redlion-controls.com

Bulletin No. CUB7-E
Drawing No. LP0336
Released 7/02

MODEL CUB7 - MINIATURE ELECTRONIC 8 DIGIT COUNTER

- *LCD, POSITIVE IMAGE REFLECTIVE OR NEGATIVE IMAGE TRANSMISSIVE WITH YELLOW/GREEN OR RED LED BACKLIGHTING (9-28 VDC power supply required for versions with LED backlighting)*
- *0.35" (8.90 mm) HIGH DIGITS*
- *REPLACEABLE INTERNAL LITHIUM BATTERY PROVIDES UP TO 7 YEARS OF UNINTERRUPTED OPERATION*
- *NEMA 4X/IP65 SEALED FRONT BEZEL*
- *FRONT PANEL RESET OR REMOTE RESET*
- *COUNT SPEEDS UP TO 10 KHz*
- *WIRE CONNECTION MADE VIA SCREW CLAMP TYPE TERMINALS*
- *FITS DIN STANDARD CUT-OUT 1.77" (45 mm) x 0.874" (22.2 mm)*

CE

DESCRIPTION

The CUB7 is an 8-digit miniature counter with large 0.35 inch (8.90 mm) high digits. It has an LCD read-out available in Positive Image Reflective (CUB7000), Negative Image Transmissive with yellow/green backlighting (CUB70010) or red backlighting (CUB70020).The backlight versions require an external 9 to 28 VDC power supply.

The CUB7 counters use a CMOS LSI counter circuit chip, mounted on a gold-plated substrate, that is electrically connected by ultrasonic wire-bonding. Proven micro-electronic assembly and manufacturing techniques provide these units with the reliability and dependability required for industrial service.

The CUB7 series is housed in a lightweight, high impact plastic case with a clear viewing window. The sealed front panel with the silicone rubber reset button meets NEMA 4X/IP65 specifications for wash-down and/or dusty environments, when properly installed.

SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in the manual or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Do not use this unit to directly command motors, valves, or other actuators not equipped with safeguards. To do so, can be potentially harmful to persons or equipment in the event of a fault to the unit.

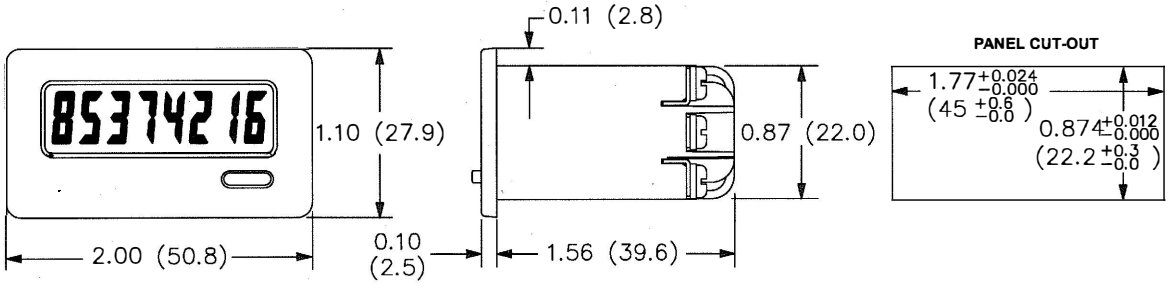
CAUTION:
Read complete instructions prior to installation and operation of the unit.

SPECIFICATIONS

1. **DISPLAY:** 8-digit LCD, 0.35" (8.90 mm) high digits.
2. **POWER SOURCE:** Replaceable Internal 3.0 V lithium battery to provide up to 7 years of continuous operation. (Battery life is dependent upon usage. Count and reset contacts that remain closed for long periods of time reduce battery life.)
3. **BACKLIGHT POWER REQUIREMENTS:** 9 to 28 VDC; 35 mA. typical, 50 mA max. Above 26 VDC, derate max. operating temperature to 40°C. Must use the MLPS or a Class 2 or SELV rated power supply.
4. **INPUTS (All);** V_{IH} = 2.0 V min. (3 V max), V_{IL} = 0.5 V max.
5. **HIGH SPEED INPUT:** 10 KHz max. from 3.0 V bipolar output with a 50% duty cycle.
6. **LOW SPEED INPUT:** 30 Hz max. from switch contact or open collector transistor with a 50% duty cycle.
7. **REMOTE RESET:** 15 msec min. pulse width (active low) from 3.0 V bipolar output, an open collector transistor, or a switch contact to common.
8. **ENVIRONMENTAL CONDITIONS:**
   Operating Temperature Range: 0 to 50°C Derate max. operating temperature to 40°C above 26 VDC. (Backlight versions)
   Storage Temperature Range: -30 to 80°C
   Operating and Storage Humidity: 85% max. (non-condensing) from 0°C to 50°C.
   Altitude: Up to 2000 meters
9. **CERTIFICATIONS AND COMPLIANCES:**
   SAFETY
   IEC 1010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.
   IP65 Enclosure rating (Face only), IEC 529
   Type 4X Enclosure rating (Face only), UL50

DIMENSIONS *In inches (mm)*

Note: Recommended minimum clearance (behind the panel) for mounting clip installation is 2.15" (54.6) H x 3.00" (76.2) W.



ELECTROMAGNETIC COMPATIBILITY

Immunity to EN 50082-2

Electrostatic discharge	EN 61000-4-2	Level 2; 4 Kv contact Level 3; 8 Kv air
Electromagnetic RF fields	EN 61000-4-3	Level 3; 10 V/m 80 MHz - 1 GHz
Fast transients (burst)	EN 61000-4-4	Level 4; 2 Kv I/O [1] Level 3; 2 Kv power
RF conducted interference	EN 61000-4-6	Level 3; 10 V/rms [2] 150 KHz - 80 MHz
Power frequency magnetic fields	EN 61000-4-8	Level 4; 30 A/m
Simulation of cordless telephone	ENV 50204	Level 3; 10 V/m 900 MHz ± 5 MHz 200 Hz, 50% duty cycle

Emissions to EN 50081-2

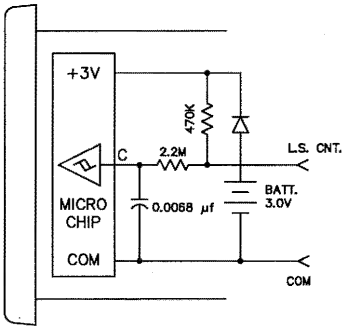
RF interference	EN 55011	Enclosure class B Power mains class B

Notes:

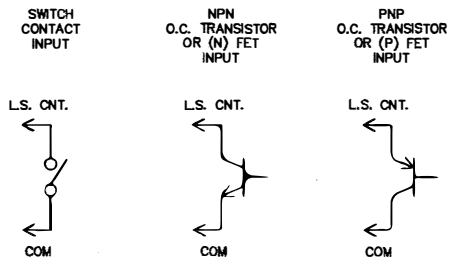
1. *Burst to DC backlight power had a power line filter installed RLC #LFIL0000 or equivalent at the unit.*
2. *Self-recoverable loss of performance during EMI disturbance at 10 V/rms to backlight power lines.*
   LCD segments may flicker during EMI disturbance.
   For operation without loss of performance:
   Install power line filter RLC #LFIL0000 or equivalent at the unit.
   Refer to the EMC Installation Guidelines section of this bulletin for additional information.

10. **CONSTRUCTION:** High impact plastic case with clear viewing window. The front panel meets NEMA 4X/IP65 requirements for indoor use when properly installed. Installation Category I, Pollution Degree 2. Panel gasket and mounting clip included.
11. **WEIGHT:** 2 oz. (57 grams) [with battery]

LOW SPEED COUNT INPUT, 30 Hz MAX.

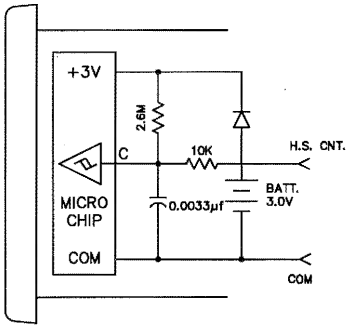


Pulling the "L.S. CNT." Input to Common with a mechanical or solid-state switch increments the counter. The low pass filter (2.2 MΩ resistor and 0.0068 µf capacitor) used with a Schmidt trigger circuit debounces mechanical switch signals. The switch load is 6 µA (max. voltage drop 0.5 V) when ON. The OFF-state leakage current must be less than 2 µA.



Reed switches, mercury wetted contacts, snap action limit switches, and silver alloy relay contacts with wiping action are usually satisfactory for generating count input signals. Motor starter contacts, tungsten contacts, and brush-type contacts should not be used.

HIGH SPEED COUNT INPUT, 10 KHz MAX.



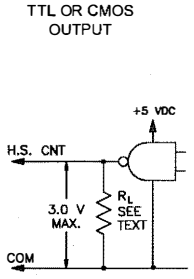


FIG 1

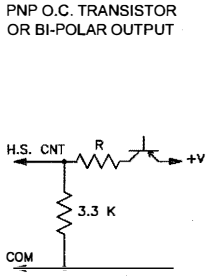


FIG 2

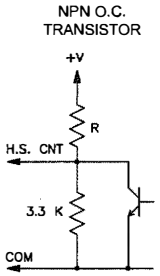


FIG 3

The "H.S. CNT." Input allows the CUB7 to operate at speeds up to 10 KHz when driven by bi-polar outputs or external circuits having an output impedance of 3.3 KΩ or less. Input drive voltage must be limited to 3 V maximum to avoid damage to the counter. CMOS and TTL Logic outputs can be loaded with a resistor (R_L) to limit drive voltage, or a voltage divider can be used as shown for the PNP O.C. Transistor output.

Note: The PSMA Power Supply and Interface Module used for powering RLC sensors with CUB Counters, has the proper interface output for direct drive to the H.S. CNT.

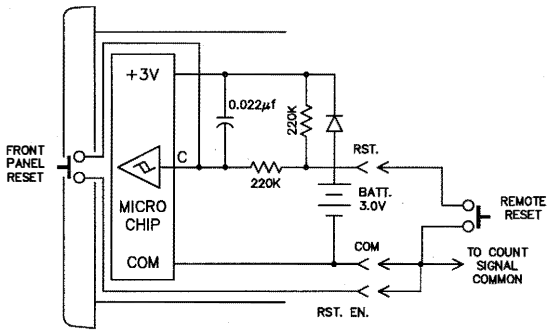
R values for Fig 2 & 3	
+V	R
+5 V	2.2 K
+12 V	10 K
+18 V	16 K
+24 V	24 K

RESET OPTIONS

Connecting a wire from the RST. EN. (Reset Enable) Input terminal to Common will enable the front panel Reset button.

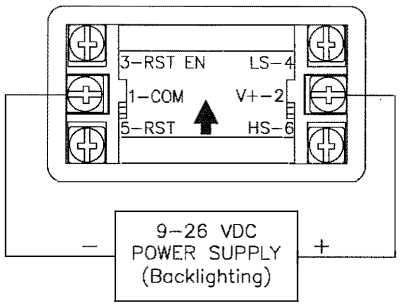
Pulling the "RST." input low causes the counter to reset. The "RST." can be pulled low by either a mechanical switch or solid-state transistor switch. Switch load and leakage are the same as for "L.S. CNT." Input above.

Note: The RC protection circuit on the "RST." Input causes a delay of approximately 15 msec in Reset response.



BACKLIGHT OPTION

Optional backlight versions of the CUB7 require an external 9-28 VDC power supply. The external supply is connected between V+ and Common terminals as shown in the drawing.



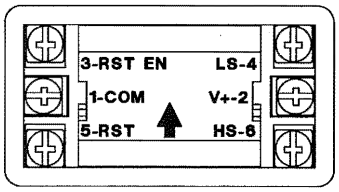
EMC INSTALLATION GUIDELINES

Although this unit is designed with a high degree of immunity to ElectroMagnetic Interference (EMI), proper installation and wiring methods must be followed to ensure compatibility in each application. The type of the electrical noise, source or coupling method into the unit may be different for various installations. In extremely high EMI environments, additional measures may be needed. The unit becomes more immune to EMI with fewer I/O connections. Cable length, routing and shield termination are very important and can mean the difference between a successful installation or a troublesome installation. Listed below are some EMC guidelines for successful installation in an industrial environment.

1. Use shielded (screened) cables for all Signal and Control inputs. The shield (screen) pigtail connection should be made as short as possible. The connection point for the shield depends somewhat upon the application. Listed below are the recommended methods of connecting the shield, in order of their effectiveness.
   a. Connect the shield only at the panel where the unit is mounted to earth ground (protective earth).
   b. Connect the shield to earth ground at both ends of the cable, usually when the noise source frequency is above 1 MHz.
   c. Connect the shield to common of the unit and leave the other end of the shield unconnected and insulated from earth ground.
2. Never run Signal or Control cables in the same conduit or raceway with AC power lines, conductors feeding motors, solenoids, SCR controls, and heaters, etc. The cables should be run in metal conduit that is properly grounded. This is especially useful in applications where cable runs are long and portable two-way radios are used in close proximity or if the installation is near a commercial radio transmitter.
3. Signal or Control cables within an enclosure should be routed as far away as possible from contactors, control relays, transformers, and other noisy components.
4. In extremely high EMI environments, the use of external EMI suppression devices, such as ferrite suppression cores, is effective. Install them on Signal and Control cables as close to the unit as possible. Loop the cable through the core several times or use multiple cores on each cable for additional protection. Install line filters on the power input cable to the unit to suppress power line interference. Install them near the power entry point of the enclosure. The following EMI suppression devices (or equivalent) are recommended:
   Ferrite Suppression Cores for signal and control cables:
   Fair-Rite # 0443167251 (RLC #FCOR0000)
   TDK # ZCAT3035-1330A
   Steward #28B2029-0A0
   Line Filters for input power cables:
   Schaffner # FN610-1/07 (RLC #LFIL0000)
   Schaffner # FN670-1.8/07
   Corcom #1VR3
   Note: *Reference manufacturer's instructions when installing a line filter.*
5. Long cable runs are more susceptible to EMI pickup than short cable runs. Therefore, keep cable runs as short as possible.

WIRING CONNECTIONS

The electrical connections are made via screw-clamp terminals located on the back of the unit. All conductors should meet voltage and current ratings for each terminal. Also cabling should conform to appropriate standards of good installation, local codes and regulations. It is recommended that power supplied to the unit (AC or DC) be protected by a fuse or circuit breaker. When wiring the unit, use the battery cover to identify the wire position with the proper function. Strip the wire, leaving approximately 1/4" bare wire exposed (stranded wires should be tinned with solder). Insert the wire under the screw-clamp and tighten down the screw until the wire is clamped in tightly. Each terminal can accept up to two #14 AWG wires.

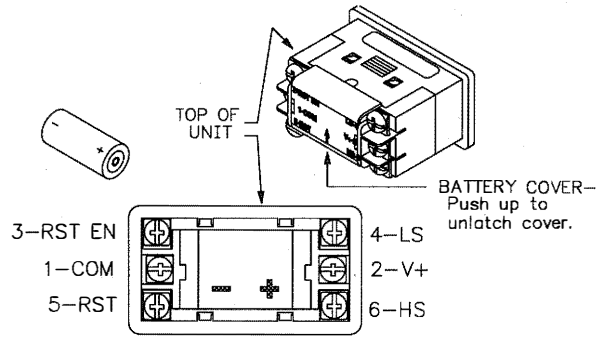


WARNING: *Lithium battery may explode if incinerated. Signal input voltage should not exceed 3 VDC to prevent damage to the counter.*

BATTERY INSTALLATION

1. Remove all power to the unit before removing battery cover.
2. To remove battery cover, push upward in the direction of the arrow on rear cover (See drawing at right), until the cover unlatches. Pull cover straight out from unit to fully remove.
3. Remove old battery* and replace with an RLC battery (BNL10000). Observe proper polarity when replacing battery as shown in drawing.
4. Replace cover. The battery cover is keyed so that it cannot be placed upside down. The arrow on the rear of the cover should point toward the top of the CUB7 when properly installed

* - Dispose of properly.



INSTALLATION ENVIRONMENT

The unit should be installed in a location that does not exceed the maximum operating temperature and provides good air circulation. Placing the unit near devices that generate excessive heat should be avoided.

The bezel should be cleaned only with a soft cloth and neutral soap product. Do NOT use solvents.

Continuous exposure to direct sunlight may accelerate the aging process of the bezel.

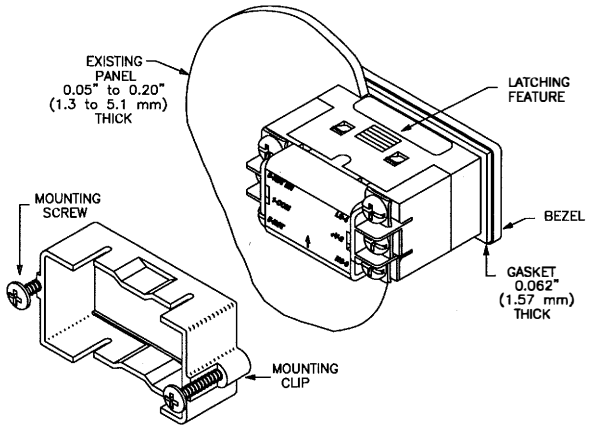
Do not use tools of any kind (screwdrivers, pens, pencils, etc.) to operate the keypad of the unit.

Installation

The CUB7 series of products meets NEMA 4X/IP65 requirements for indoor use, when properly installed. The units are intended to be mounted into an enclosed panel. The viewing window and reset button are factory sealed for a washdown environment. A sponge rubber gasket and mounting clip are provided for installing the unit in the panel cut-out.

The following procedure assures proper installation:

1. Cut panel opening to specified dimensions. Remove burrs and clean around panel opening.
2. Carefully remove and discard the center section of the gasket. Slide the panel gasket over the rear of the unit to the back of the bezel. Insert the mounting screws onto both sides of mounting clip. Tip of screw should **NOT** project from hole in mounting clip.
3. Install CUB7 unit through the panel cut-out until front bezel flange contacts the panel.
4. Slide the mounting clip over the rear of the unit until the clip is against the back of the panel. The mounting clip has latching features which engage into mating features on the CUB7 housing.



Note: It is necessary to hold the unit in place when sliding mounting clip into position.

5. Alternately tighten each screw to ensure uniform gasket pressure. Visually inspect the front panel gasket. The gasket should be compressed to about 75 to 80% of its original thickness. If not, gradually turn mounting screws to further compress gasket.
6. If gasket is not adequately compressed and the mounting screws can no longer be turned, loosen mounting screws, and check that mounting clip is latched as close as possible to the panel.
7. Repeat from step #5 for tightening mounting screws.

TROUBLESHOOTING

For further technical assistance, contact technical support at the appropriate company numbers listed.

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBERS
*CUB7	Counter Positive Image Reflective	CUB70000
	Counter W/Yel-Grn Backlighting	CUB70010
	Counter W/Red Backlighting	CUB70020
BNL	3 V Lithium Battery	BNL10000
For more information on Pricing, Enclosures & Panel Mount Kits refer to the RLC Catalog or contact your local RLC distributor.		

*Battery is included with unit.

Red Lion Controls
20 Willow Springs Circle
York PA 17402
Tel +1 (717) 767-6511
Fax +1 (717) 764-0839

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WARRANTY

Seller warrants the goods against defective workmanship and materials provided that Buyer notify Seller within one (1) year after receipt by Buyer of the goods of any claim under this Warranty. The liability of Seller shall be limited to replacing or repairing defective goods returned by Buyer and delivered to the factory of the Seller, transportation charges prepaid. Replaced or repaired goods will be redelivered freight prepaid to the address of Buyer shown hereon. Except for the Warranty contained herein, there shall be no other warranties, such as warranties of fitness and merchantability or otherwise; expressed or implied, written or verbal, and Seller shall not be liable for consequential damages in any event.

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