

# CHAMBERLAIN

SPEC NO 190Axxxx

Tubular Motor Wall Mounted 390Mhz transmitter design  
Specification

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## PURPOSE

This specification defines the design parameters of the Billion code Tubular motor 120V wall mountable transmitter. This transmitter uses the CGI rolling code transmitter chip, P/N 125C0130 programmed for fixed, billion-code operation.

## II. GENERAL CRITERIA

- A. Description: The device is a wall mountable transmitter designed for use with the TM 120V receiver. The transmitter shall operate from one 3 volt lithium coin cell type CR2032 or BR2032. The device shall be designed to operate in a protected, interior, but not necessarily temperature controlled environment. The transmitter shall have two buttons that when either is actuated shall provide a unique unchanging radio code, individual to that button
- B. The transmitter shall meet or exceed the following radio emissions specifications:
  - B.1. FCC Part 15, Subpart C
  - B.2. IC RSS-210 (Industry Canada)

## III. DEFINITIONS

Durability: life cycle and stress tests, which demonstrate that the product conforms to its own specification.

Fully Functional: The transmitter shall activate a programmed receiver.

## IV. PRODUCT CHARACTERISTICS

- A. Operating Temperature Range: -25°C to 85°C
- B. Storage Temperature Range: -40°C to 85°C
- C. Emissions
  - C.1. EC801: ESD testing encompasses  $\pm 1$  to  $\pm 8$  kV, direct contact with the transmitter case.
    - C.1.1. Testing is to be done on the ground plane
    - C.1.2. Testing is to be done on a non-metallic surface
  - C.2. The transmitter shall be fully functional following exposure to the indicated ESD voltages.

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## D. ELECTRICAL PERFORMANCE

(Over -25°C to +85°C temperature range unless otherwise noted)

Ref.	Parameter	Conditions	Min.	Typical	Max	Units
D.1	Center Frequency	25C, Wall mounted, any button	389.5	390	390.5	Mhz
D.2	Frequency drift		-0.5		0.5	%
D.3	Battery Voltage Operating Range	Measured at battery terminals	2.25	3	2.5	V
D.4	Step up Converter output voltage	Vbat=3.0V	8.55	9	9.45	V
D.5	Transmitter Time Out	Any button held down to cessation of transmission	117.9	131	144.1	S
D.6	RF Output Field Strength	Free Space, 3 meters from source	5.8			mV/m
D.6	Transmitter Range	Open Field, TM 120 receiver		500		Feet
D.7	Tuning Range		380		400	Mhz
D.8	Current Draw	Transmitting			3.0	mA
D.9	Idle Current Draw	Not Transmitting			2	uA

## E. Other performance parameters

E.1 Modulation type: OOK

E.2 Packet structure: Packet consists of 2 Frames containing 20 trinary, pulse width encoded symbols

E.3 Each P/N 125C0130 transmitter chip shall generate a unique fixed code for each button input. The chip shall generate the correct timing, Frame format, and symbol generation.

E.4 Durability: The transmitter shall remain fully functional after 50K button actuations at room temp.

E.5 Housing Requirements: The Housing shall be of similar construction, functionality and durability as the Lift Master TCTX2E transmitter.

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### F. Environmental Specifications

Ref.	Parameter	Conditions	Requirements
F.1	Electrostatic Discharge (ESD)	Human Body Model, +-8KV air discharge, and +-4KV direct contact applied to any point internal or external to housing. Per Specification IEC 1000-4-2:1995	The device shall maintain full functional and parametric performance
F.2	RF immunity	100V/M, 80-1000MHz 80% AM modulation @ 1KHz. Per Specification IEC 1000-4-3:1995	The device shall maintain full functional and parametric performance
F.3	Storage Temperature Range	-40°C to 85°C. Continuous and cycled.	The device shall maintain full functional and parametric performance
F.4	Humidity	35°C, 75% RH, 96hr soak	The device shall maintain full functional and parametric performance following test

### G. Typical Transmitter Circuit using the P/N 125C0130

