LK149 manual

Product Features

1、Intelligent Coin Recognition System (User settable)

This device is a memory-type coin acceptor capable of learning and saving parameters and signals of coins according to user's requirements. It also supports custom settings for “1-coin multi-scores” and “1-score multi-coins”, such as “ONE 1-euro gets TWO scores” or “TWO 50-cents get ONE score”, allowing flexible adaptation to diverse operational scenarios. Customers can configure these settings without returning the device to the factory or using specialized tools, greatly improving deployment efficiency and convenience.

2、Dual-Mode Communication System ("Standard Pulse Mode" and "Data Protocol Mode")

Standard Pulse Mode:Compatible with most machine communication modes

Data Protocol Mode:

（1）Achieves accurate and efficient data communication;

（2）Prevents false scores caused by interference signals;

（3）Eliminates score theft by "score stealers"

3、High-Precision Interference Detection System

Controlled by a 32-bit CPU program, it performs multidimensional feature analysis of coins (material, diameter, etc.) achieving accurate recognition and error-free scoring.

15-level dynamic sensitivity is adjustable to accommodate coins of different ages, effectively balancing coin recognition rate and return rate.

4、Enhanced Active Defense Mechanism

Built-in advanced algorithms, including anti-phishing and other cheating prevention methods, monitor abnormal coin insertion behavior in real time. Dynamic analysis based on coin insertion behavior features can effectively distinguish normal operations from cheating methods, ensuring revenue security.

5、Industrial-Grade Stable Structural Design

The core circuitry adopts industrial-grade intelligent chips and high-precision SMT patch technology, ensuring long-term continuous operation stability and durability.

Key components undergo rigorous selection and aging tests, withstanding high-intensity and high-frequency usage scenarios.

6、Intelligent Operation and Maintenance with Status Indicators and Convenient Human-Machine Interaction

Through a user-friendly setting menu with buttons and digital display, core configurations such as coin programming, score setting, signal mode selection, and precision adjustment can be conveniently completed.

Supports device self-check and fault diagnosis with indicator lights providing real-time feedback on the coin acceptor's operating status.

All programmed coin values are retained after power loss, and the modular design facilitates installation and future maintenance, reducing operational costs.

Steps for usage

1.Coin Learning & Storage (see Attachment 1).
2.Select Credit Signal Type ,the communication interfaces for the two signal types are shown in the table below:

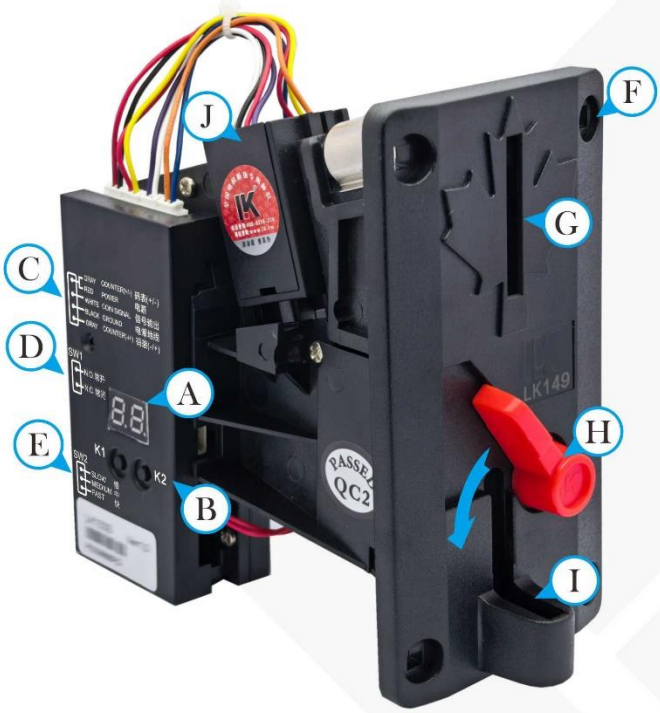
Credit Signal	Signal 1	Signal 2
Protocol Signal①	TXD	RXD
Pulse Signal②	WHITE COIN SIGNAL	GRAY COUNTER

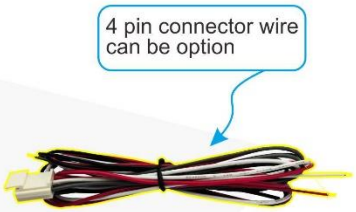
3.Adjust Precision Based on Coin Type, The factory default precision is optimized.
(For adjustment steps, refer to Attachment 1)
(1)Small coin deviations: Decrease the precision value to enhance recognition accuracy.
(2)Large coin deviations: Increase the precision value to prevent valid coins from being rejected.

4.Mount the coin acceptor and connect the power and signal cables.
Annotation①:Protocol Signal
1)The credit signal transmits "credit value" data to the machine.
2)Protocol Signal Specifications:
a)UART serial protocol: Baud rate: 9600bps, 8-bit data, 1 stop bit, no parity.
b)TTL level (weak noise resistance): Add a 10KΩ pull-up resistor to the TXD line. Recommended to use RS232 level for better noise immunity.
(For experts only; commands and data frames are detailed in Attachment 2)
Annotation②:Pulse Signal
1)The credit signal sends pulses to the machine (traditional interface).
2)Pulse Signal Specifications:
a)SW1: Select NO/NC mode (default: NC).
b)SW2: Set pulse width (20ms/40ms/100ms, default: 100ms).

LK149 manual

Product Introduction



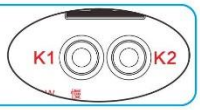


A Digital Tube: Displays menu information

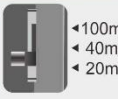
D Set SW1 output mode, select NC/NO, the factory setting is NC.

G Coin slot:
Please use metal coins when inserting coins. With general inductors (factory default), coins with a diameter of Φ20~Φ30mm and a thickness of 1.2~3.0mm can be inserted.

B Function Keys: K1/K2 for menu navigation



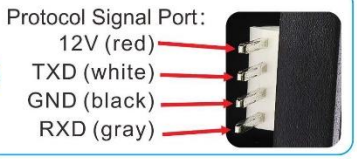
E Set SW2, select the output pulse switch(20 ms/ 40ms/100 ms),the factory setting is 100ms.



H Coin bar:
When a larger diameter coin or a foreign body stuck,flip the level to exit the foreign coin.

I Coin mouth:
False coin/foreign body from here to exit.

C Protocol Signal Port:



F Mounting holes: With a square neck screw diameter of 4mm

J Inductor:
This coin acceptor uses a general inductor by default.

Communication circuit

Coin detected “real coin”, when the circuit gives a pulse signal (the pulse signal can be selected by the switch SW1,normally closed or normally open output;SW2 switch to select pulse width,see Figure 1)

The circuit output of this product is a triode collector or MOS tube drain open output , When it is used,users are advised to use optocouplers to receive signals when designing the interface circuit (see Figure 2).

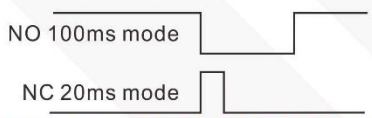


Figure 1

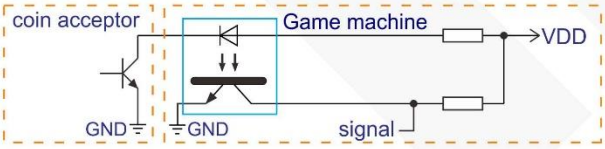
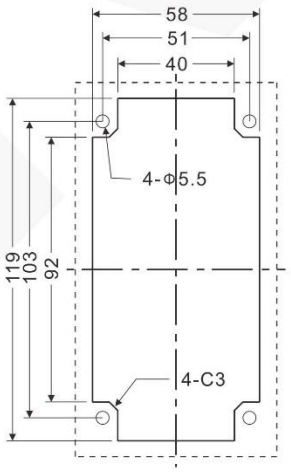
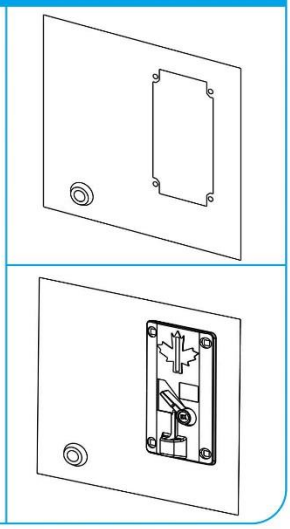


Figure 2

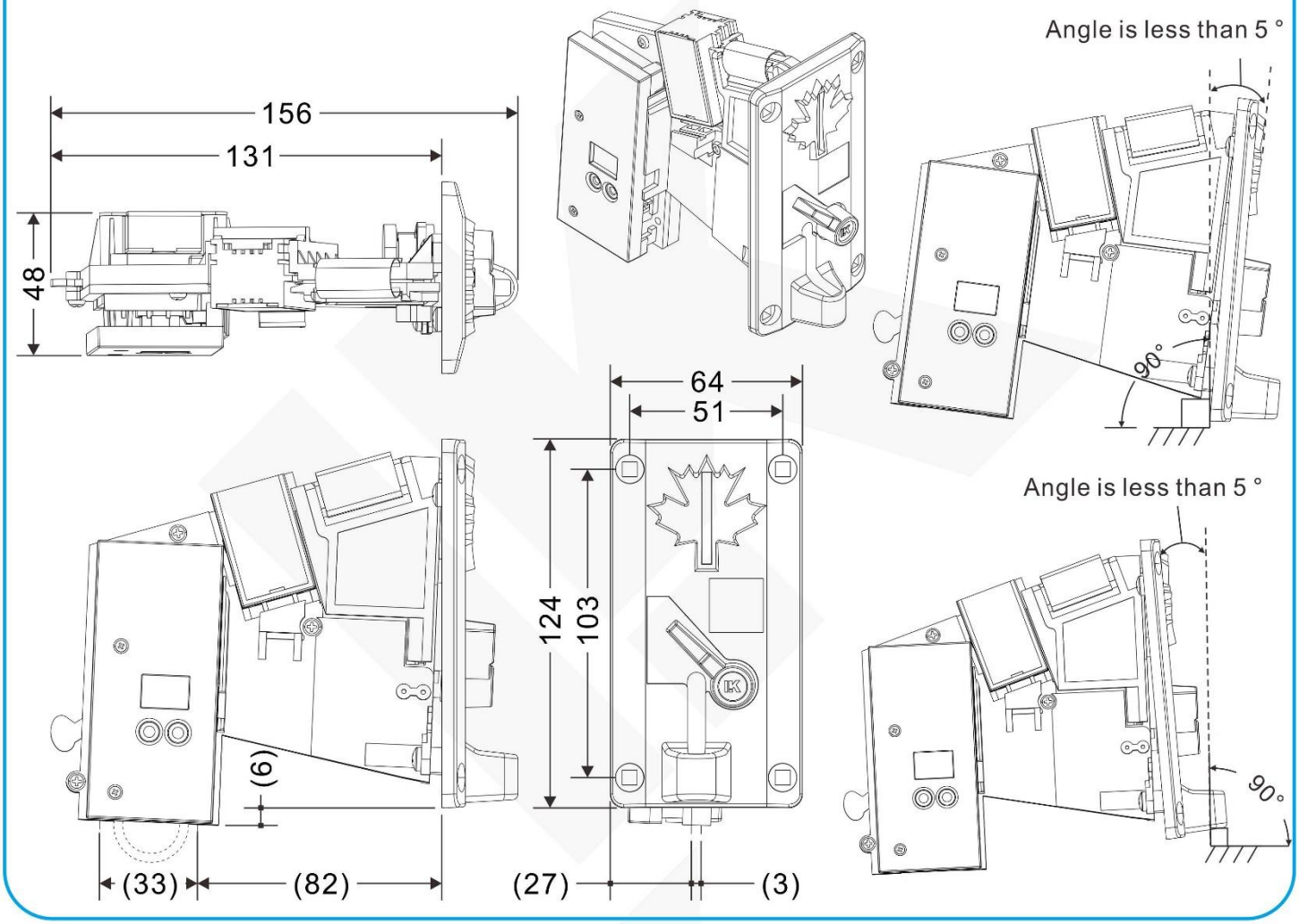
The size diagram and effect diagram Unit:mm





Product size Unit: mm

Note: Band () is the relative size of the coin slot



Common abnormalities handling

A.Coin not passed
1.If there is poor contact in the coin power outlet;
2.If the wiring is correct;
3.If there is a foreign body in the coin track;
4.If power supply 12V is normal;
5.If the out mouth of coin is smooth;
6.If mounting depth is enough;
7.If there is a foreign body in the coin track, such as electric eye position is blocked.

B. Coin not score
1.If SW1 NO/NC is set matched;
2.If SW2 plus width is matched;
3.If the signal is connected well,if connection method is correct;
4.Coin signal and open collector output,if the target board is connected with pull-up resistor.

C. Coin not smooth
1..If coin slot is smooth,such as hopper tank depositing port and slot machine outlet slot are aligned;

D. . Code mode doesn't move
1.If the wiring is correct(An end of the code table is connected with code table line , the other end of DC+12V);
2.If the code mode is bad;
3.Cable resistance is too large, resulting in power is below standard;
4.The power supply voltage and rated voltage code table required are the consistent.

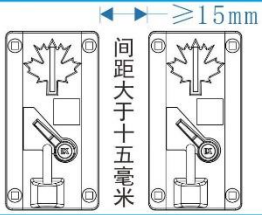
If product technology improved, it will be edited in the new manual without notice.
The ultimate interpretation of this manual is up to GuangzhouLikang Electronic Technology Co.,Ltd.

Basic parameters

Operating voltage			DC12V±10%
Standby currency			<50mA
Operating currency (Maximum current)			<650mA
Operating temperature			-15℃~65℃
Output mode			OC.
Output signal			20ms/40ms/100ms
Coin diameter (General inductor)			Ø20~Ø30mm
Coin thickness			1.2~3.0mm
Angle assembly			-5°~5°
Individual packaging	Meas		161*69*131mm
	Gross weight	Without wire	286g
		With wire	295g
Carton packaging	Package		30PCS/SET
	Meas		51*37*28cm
	Gross weight	Without wire	9.4KG
		With wire	9.7KG

Assemble requirements

To prevent interference from adjacent signals, the adjacentmounting distance should be greater than 15mm.

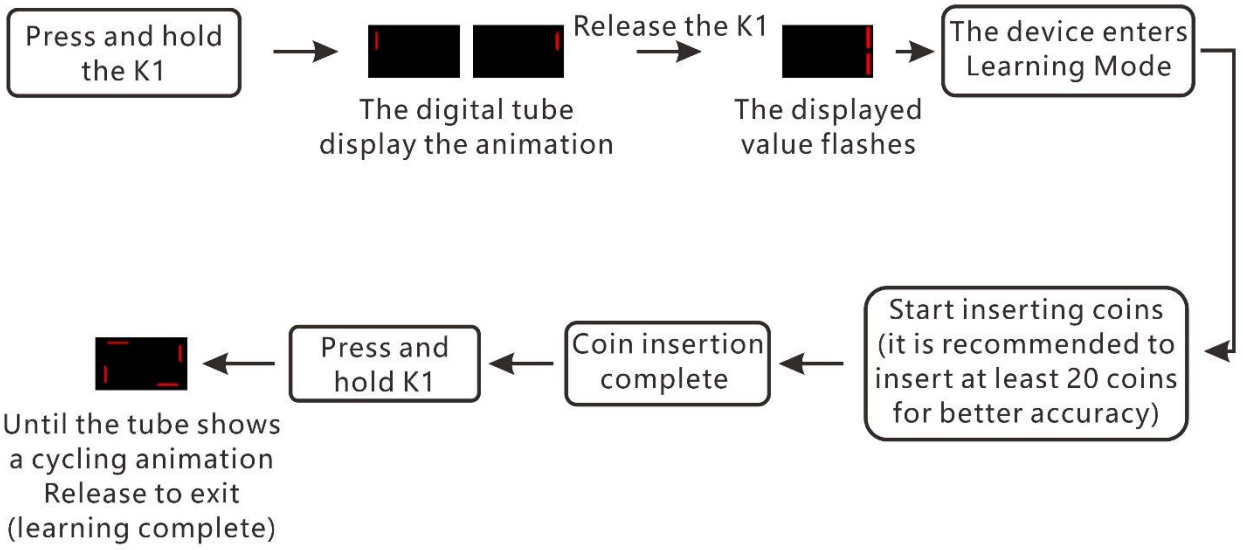


Likang Electronic Technology Co.,Ltd.
www.lkchina.asia

Keyboard Shortcuts and Functions of LK149

1

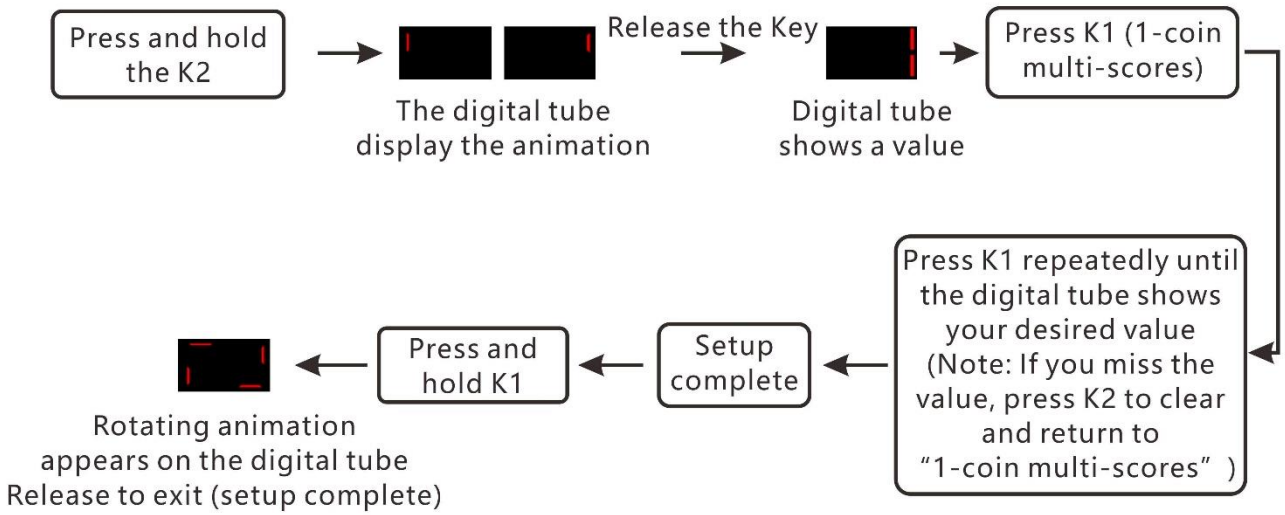
Quickly enter Learning Mode (please prepare the coin to be used for learning in advance).



2

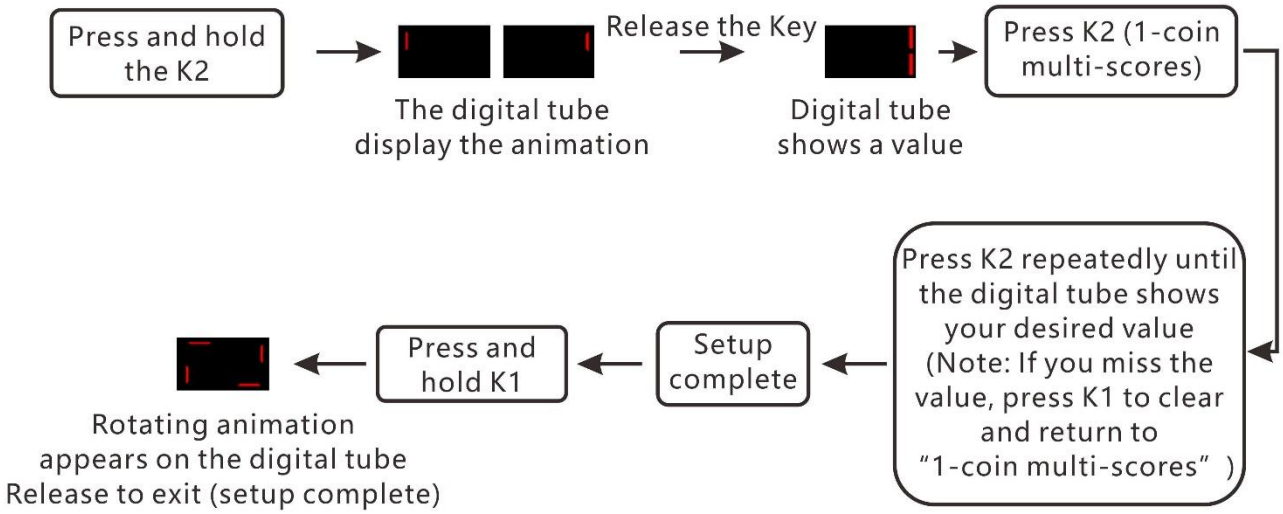
Quick access to the "1-coin multi-scores" or "1-score multi-coins" settings.

(2-1). Set "1-coin multi-scores".



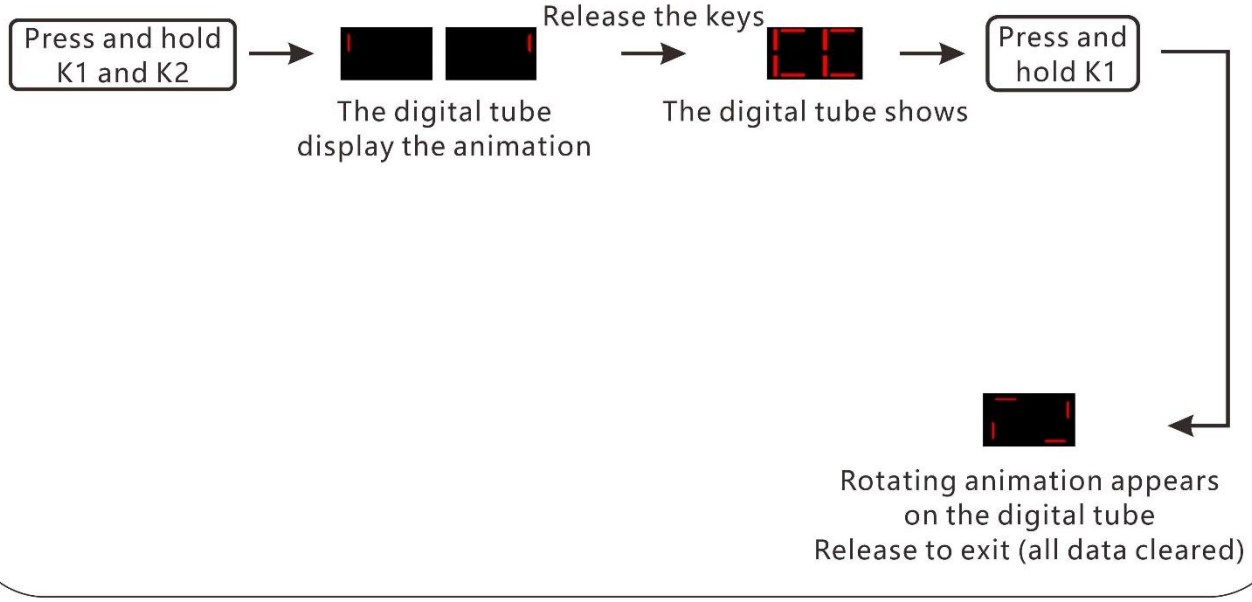
Keyboard Shortcuts and Functions of LK149

(2-2). Set "1-score multi-coins" .

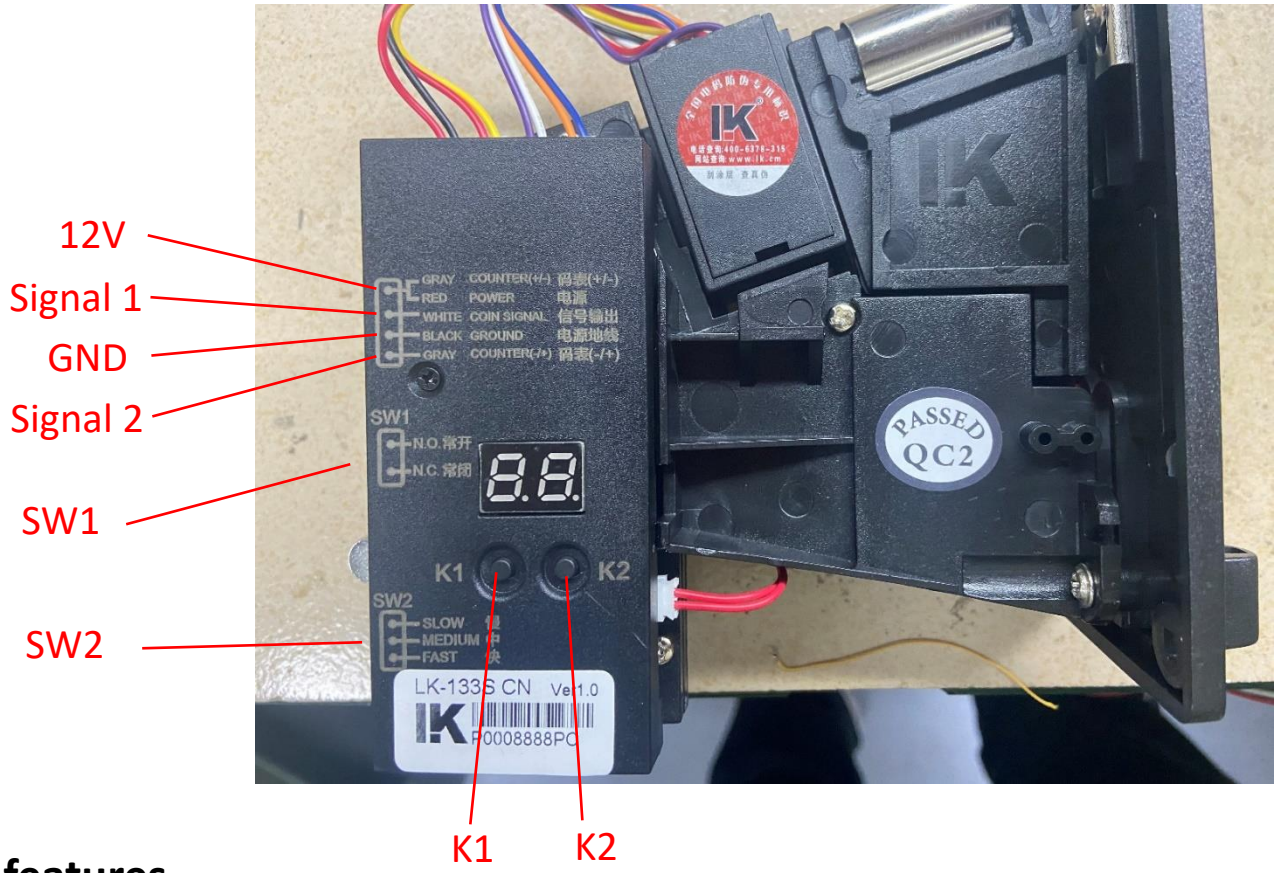


3

Quickly clear data(Caution).



LK149 Memory Coin Acceptor User Guide



i. Product features

1. This device is a memory-type coin acceptor that can learn and save parameters and signals of coins according to user's requirements.
2. It supports two communication modes: Pulse Signal and Protocol Signal.

ii. Communication interface

Use a 4PIN signal cable to connect the machine and the coin acceptor. The interface is defined as follows:

Communication Modes	Signal 1	Signal 2
Protocol Signal①	TXD	RXD
Protocol Signal②	WHITE COIN SIGNAL	GRAY COUNTER

Note①：1）The score corresponding to the signal will be sent to the machine in the form of data.

2）Description of the Protocol Signal：

a）UART serial port communication protocol, Baud Rate: 9600 bps, Data Bit: 8 bit, Stop Bit: 1 bit, with no Parity Bit

b）TTL levels (It is recommended to connect a 10KΩ pull-up resistor to the TXD to enhance anti-interference capability.) The level signal has weak anti-interference ability. It is recommended to use the "RS-232" Signal levels.

3）For example: insert two 0.5CNY coins to get 1 score, insert one 1CNY to get 1 score..... These information will be sent to the machine in the form of data, and the machine will also reply in the form of data to inform the coin acceptor that it has been received, thus forming a complete data "send-receive" process. (Refer to the attachments for the specific data frame structure)

Note②：1）The score corresponding to the signal will be sent to the machine in the form of pulses.(traditional machine interface)

2）Description of the Pulse Signal：

a）Use the "SW1" switch to select "normally open, normally closed signal"

b）Use the "SW2" switch to select the width of the pulse signal. Three levels are available: "Fast - 20ms", "Medium - 40ms", "Slow - 100ms"

3）For example:

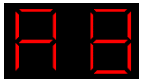
a）"0.5CNY": 1-score 2-coins, i.e. insert two 0.5CNY to send 1 pulse signal.

b）"1CNY": 1-score 1-coin, i.e. insert one 1CNY to send 1 pulse signal.

Note: This content is operated by professional technicians and can be skipped by ordinary users. Refer to the attachments for detailed parameters such as specific data frames and instructions.

iii. *How to enter the function menu when using the coin acceptor for the first time:*

Table 1： Introduction to the function menu

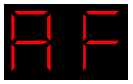
No.	Function	Describe
	Anti-disconnection feature	When the serial port is idle, a handshake signal is sent at regular intervals. The machine must respond promptly; otherwise, it will be considered disconnected.
	Accuracy Adjustment	When the coin is not smooth, reduce the accuracy to relax. When the anti-counterfeit effect is poor, improve the accuracy to prevent. (Default: Level “07”)
	**Set the Protocol Signal**	Change the scoring mode to UART serial communication protocol. (Default: Protocol Signal.)
	Set the Pulse Signal	Change the scoring mode to Pulse Signal.

The function menu is completed by the cooperation of the "K1, K2" keys and the digital tube. The specific operation steps are as follows:

1. Press the “K1” key twice to display . Note: The digital tube will flash every time you click.

2. Then press the “K2” key twice to display . Note: The digital tube will flash every time you click.

3. Press the K1 key once again to display the sequence number .

4. At this point, the system has successfully entered the sequence number switching selection status of the function menu. The sequence number is switched from to  . Press the "K1" key or "K2" key to cyclically switch the sequence number to select the desired function. For details, see <IV. Description and specific operation of each function.

iv. Description and specific operation of each function

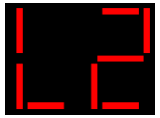
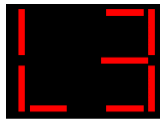
（一）、 Anti-disconnection feature

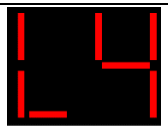
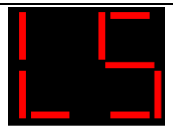
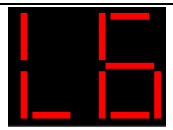
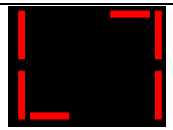
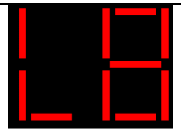
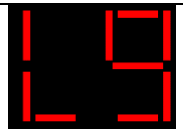
1．Detailed description

（1）In protocol mode: When the serial port is idle, a handshake signal is sent at regular intervals (the interval can be adjusted by the setting). The machine must respond promptly; otherwise, it will enter a disconnected state and will not resume normal operation until it responds to the handshake signal.

（2）Time intervals are divided into ten levels: L0–L9

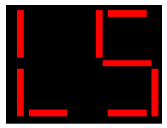
Table 2: Description of Level/Interval Time Parameters

Level	Interval Time
	closed
	5 seconds
	10 seconds
	15 seconds

	20 seconds
	25 seconds
	30 seconds
	1 minute
	2 minutes
	3 minutes

2. Example: To set the interval to the “L5” level, follow the steps below.

Steps	Operation
a)	Select the sequence number in the ***Function Menu*** .

b)	Press and hold the “K1” key to display >>> moving from left to right.
c)	Release K1 , and the tube shows the current interval level, for example means “L0” level.
d)	Press K1 or K2 repeatedly, then choose  “L5”level. (Press the K1 or K2 repeatedly to cycle through and increase or decrease the interval level.)
e)	Press and hold K1, when the tube shows a rotating animation , release the key. The digital tube turns off .The time interval has been successfully set to level “L5”, and the system exits.

（B）、 Accuracy Adjustment

1. detailed description

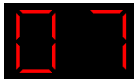
（1）"01-15" level adjustments, factory default accuracy is level "07"

（2）The higher the level, the lower the precision and the smoother the coin insertion.

（3）The lower the level, the higher the accuracy and the better the anti-counterfeit effect.

（4） Level "01" with the highest accuracy, and Level "15" with the lowest accuracy.

2. For example, to adjust the accuracy to level "05". The specific operations are as follows:

Steps	Operations
a)	Select the sequence number in the function menu.
b)	Press and hold the “K1” key to display > > > > moving from left to right.
c)	Release the “K1” key to display the current accuracy level, such as level "07"  .
d)	*Press the “K1” or “K2” key to select level "05"* *. (Press the "K1" key or "K2" key to increase or decrease the accuracy level).*
e)	Press and hold the"K1" key to display the cycling .After release, the digital tube turns off .The accuracy level is set to "05" successfully and exits.

（D）、 **Set the Protocol Signal**

（1）Change the scoring mode to UART serial port communication protocol.

（2）The format of the content of the communication is shown in the attachments.

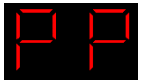
The specific operation steps are as follows:

Steps	Operation
a)	Select the sequence number in the function menu.
b)	Press and hold the K1 key to display > > > moving from left to right.
c)	Release the k1 key to display . (It indicates that the current operation is to set the scoring mode to Protocol Signal)
d)	Press and hold the K1 key to display the cycling .After release, the digital tube turns off .The Protocol Signal is set successfully and exits.
e)	After the setting is completed, the coin acceptor will automatically restart and reset.
f)	The "WHITE COIN SIGNAL" interface changes to the "TXD" interface, and the "GRAY COUNTER" interface changes to the "RXD" interface.

（E）、 **Set the Pulse Signal**

（1）Change the scoring mode to Pulse Signal. As with traditional coin acceptors, the machine detects the pulse signal from the coin acceptor to determine the scores .

The specific operation steps are as follows:

Steps	Operation
a)	Select the sequence number in the function menu.
b)	Press and hold the K1 key to display > > > moving from left to right.
c)	Release the k1 key to display  . (It indicates that the current operation is to set the scoring mode to Pulse Signal.)
d)	K1 key to display the cycling .After release, the digital tube turns off .The Pulse Signal is set successfully and exits.
e)	After the setting is completed, the coin acceptor will automatically restart and reset.
f)	The "TXD" interface changes to the "WHITE COIN SIGNAL" interface, the "RXD" interface changes to the "GRAY COUNTER" interface.

Attachments:

Instruction/Data Overview

Instruction/Data	Byte Content(Frame Structure)	Sender	Receiver
Instruction 1:Communication Handshake Protocol	4C 4B 4F 4B 0A	Coin Acceptor	Arcade Machine
Data1: "Coin Score" Frame Protocol 1	byte0 10 byte1 byte2 byte3 byte4 byte5 0A	Coin Acceptor	Arcade Machine
Data2:"Coin Score" Frame Protocol 2 (Factory Default)	byte0 10 byte1 byte2 byte3 byte4 byte5 bytex bytey 0A	Coin Acceptor	Arcade Machine
Instruction 2:Set Mainboard IP (Factory Default "00")	4C 4B 43 4D 44 00 byte0 0A	Arcade Machine	Coin Acceptor
Instruction 3:Set Data Frame to Protocol 1	4C 4B 43 4D 44 01 0A	Arcade Machine	Coin Acceptor
Instruction 4:Set Data Frame to Protocol 2 (Factory Default)	4C 4B 43 4D 44 02 0A	Arcade Machine	Coin Acceptor
Instruction 5:Set Data Auto-Transmit (Factory Default)	4C 4B 43 4D 44 05 0A	Arcade Machine	Coin Acceptor
Instruction 6:Set Data to be Sent After Querying	4C 4B 43 4D 44 06 0A	Arcade Machine	Coin Acceptor
Instruction 7:Data Query Command	4C 4B 43 4D 44 07 0A	Arcade Machine	Coin Acceptor
Instruction 8:Quickly clear data	4C 4B 43 4D 44 08 0A	Arcade Machine	Coin Acceptor
Instruction 9: Set Coin Acceptor to Reject	4C 4B 43 4D 44 0A 0A	Arcade Machine	Coin Acceptor
Instruction 10: Set Coin Acceptor to Accept (Factory Default)	4C 4B 43 4D 44 0B 0A	Arcade Machine	Coin Acceptor

Instruction 11:Set Accuracy Level (Factory Default "07")	4C 4B 43 4D 44 0C byte0 0A	Arcade Machine	Coin Acceptor
Instruction 12: Set the time interval (Factory Default: "L0")	4C 4B 43 4D 44 12 byte0 0A	Arcade Machine	Coin acceptor
Character 1:No Data Generated	6E 75 6C 6C	Coin Acceptor	Arcade Machine
Character 2:Error Command/Data Transmission Detected	65 72 72 6F 72	Coin Acceptor	Arcade Machine

Notes:

The Coin Acceptor processes commands received from the host device through the following workflow: Upon receiving command, it validates the instruction. If validated, the validator executes the corresponding operation and returns a confirmation signal upon task completion. If validation fails, an error code or invalid data packet is returned to the host.

1. **Instruction 1: Communication Handshake Protocol：** Upon power-on, the machine unit and coin acceptor initiate a ***communication handshake*** to verify signal transmission/reception integrity: The coin acceptor transmits a signal to the machine unit every 1 second, accompanied by a flashing blue LED. Upon receiving the signal, the machine unit responds with an identical signal. When the coin acceptor successfully receives and confirms signal integrity, it ceases further transmissions. Both the blue and red LEDs on the coin acceptor then remain steadily illuminated, indicating successful ***communication handshake***, established device connectivity, and activation of standby mode in the coin acceptor.

2. Data1: "Coin Score" Frame Protocol 1:

（1）byte0: Mainboard IP (default: 00, user-configurable if required)
（2）10: Device type byte:10: Coin acceptor
（3）byte1:High-order byte of sequence number since power-on

byte2:Low-order byte of sequence number since power-on

Sequence number range: 0-0xFFFF

（4）byte3: High-order byte of score in sequence

byte4: Low-order byte of score in sequence

Score range: 0-0xFFFF

（5）byte5: Checksum = (~(Device ID + Sequence Number Bytes + Score Bytes)) + 1

（6）0A: Line feed character

Example:

Coin Information	Customer Coin Insertion	Coin Acceptor Send	Arcade Machine Response	Result
0.5CNY : 1-score 2-coins 1CNY : 1-score 1-coin	Insert 0.5CNY twice Insert 1CNY once	00 10 00 01 00 01 EE 0A	00 10 00 01 00 01 EE 0A	First Data Frame Processed
---	---	00 10 00 02 00 01 ED 0A	00 10 00 02 00 01 ED 0A	Second Data Frame Processed

Notes:

（1）The data frame does not include coin information.

（2）The coin acceptor sends the first data frame first and transmits the second frame only after receiving a reply from the machine unit.

（3）It is recommended to reply immediately upon receiving data. If the machine unit fails to reply promptly, subsequent coin insertion data will accumulate and be sent in bulk after the current data transaction is completed.

3. Data2: “Coin Score” Frame Protocol 2 (Factory Default):

（1）byte0: Mainboard IP (default: 00, user-configurable if required)

（2）10: Device type byte : 10: Coin acceptor

（3）byte1: High-order byte of sequence number since power-on

byte2: Low-order byte of sequence number since power-on

Sequence number range: 0-0xFFFF

（4）byte3: High-order byte of score in sequence

byte4: Low-order byte of score in sequence

Score range: 0-0xFFFF

（5）byte5: Checksum = (~(Device ID + x Coins + y Points + Sequence Number Bytes + Score Bytes)) + 1

（6）bytex: Coin information – x Coins

（7）bytey: Coin information – y Points

（8）0A: Line feed character

Example:

Coin Information	Customer Coin Insertion	Coin Acceptor Send	Arcade Machine Response	Result
0.5CNY : 1-score 2-coins	Insert twice	00 10 00 01 00 01 EB 02 01 0A	00 10 00 01 00 01 EB 02 01 0A	Second Data Frame Processed
1CNY :1-score 1-coin	Insert once	00 10 00 01 00 01 EC 01 01 0A	00 10 00 01 00 01 EC 01 01 0A	

注意：Notes:

（1）The data frame includes coin information.

（2）The two data frames above are transmitted alternately until two replies are received from the machine unit. The number of pending coin data types determines the number of alternating frames sent.

（3）It is recommended to reply immediately upon receiving data. If the machine unit fails to reply promptly, subsequent coin insertion data will accumulate and be sent in bulk after the current data transaction is completed.

4. Instruction 2:Set Mainboard IP (Factory Default “00”):

（1）byte0： "IP" byte. Assign unique IP addresses (0-0xFF) to distinguish coin acceptors if required.

（2）Example: To set “IP” to “0x02”, specific data frame structure:

Arcade Machine Send	Coin Acceptor Response	Result
4C 4B 43 4D 44 00 02 0A	4C 4B 43 4D 44 00 02 0A	Settings saved successfully

6. Instruction 12: Set the time interval (factory default: “L0”)：

（1）byte0: The “Time Interval” byte can be set within the range 0x00–0x09, where 0x00 represents L0, 0x01 represents L1, …, and 0x09 represents L9.

（2）Example: To set the “Time Interval” to “L5 (25 seconds)”, the corresponding data frame is as follows:

Arcade Machine Send	Coin Acceptor Response	Result
4C 4B 43 4D 44 12 05 0A	4C 4B 43 4D 44 12 05 0A	Settings saved successfully

9. The following commands contain only command content without configurable parameters.

Instruction	Arcade Machine Send	Coin Acceptor Response	Result
Instruction 3:Set Data Frame to Protocol 1	4C 4B 43 4D 44 01 0A	4C 4B 43 4D 44 01 0A	Settings saved successfully
Instruction 4:Set Data Frame to Protocol 2 (Factory Default)	4C 4B 43 4D 44 02 0A	4C 4B 43 4D 44 02 0A	Settings saved successfully
Instruction 5:Set Data Auto-Transmit (Factory Default)	4C 4B 43 4D 44 05 0A	4C 4B 43 4D 44 05 0A	Settings saved successfully
Instruction 6:Set Data to be Sent After Querying	4C 4B 43 4D 44 06 0A	4C 4B 43 4D 44 06 0A	Settings saved successfully
Instruction 7:Data Query Command	4C 4B 43 4D 44 07 0A	4C 4B 43 4D 44 07 0A	Settings saved successfully
Instruction 8: Quickly clear data	4C 4B 43 4D 44 08 0A	4C 4B 43 4D 44 08 0A	Settings saved successfully
Instruction 10: Set Coin Acceptor to reject	4C 4B 43 4D 44 0A 0A	4C 4B 43 4D 44 0A 0A	Settings saved successfully
Instruction 11: Set Coin Acceptor to accept(Factory Default)	4C 4B 43 4D 44 0B 0A	4C 4B 43 4D 44 0B 0A	Settings saved successfully