

# HCS07 AUTO TORCH HEIGHT CONTROLLER

## INSTRUCTION MANUAL

The controller adopts advanced digital adjusting technology and double-insulation measure for reliable, steady and high precision application.

Dimension: 70mm×121mm×205mm

There are three types for the Model HCS07 Torch lifter controller as below:

1. HCS07-R Capacitor type
2. HCS07-H Arc-voltage type
3. HCS07-Z Compatible type (switchable between capacitor type and Arc-voltage model)

Parameter:

- l Power voltage:AC19V
- l Applicable motor:DC24V permanent magnet motor(Max. 100W)
- l Input arc voltage: 0 to -10V (Available at plasma power source subject to voltage-division at 20:1)

Panel layout

There are a 3-bit digitron, 3 LEDs, 3 buttons and an adjusting knob on the lifter controller panel.

**UP/DN:** indicates the motor working status.

**ACT:** light up when the lift controller runs in an automatic mode.

**3-bit digitron** display the setting value accordingly as below:

Capacitor type: 0-100% ;

Arc-voltage type:60-199V

Compatible type: Shift between ARC or CAP. Light stays a second.

**/ button: manually control the torch up or down.**

For capacitor type lift controller. Press button when the motor stops and save the value as the default setting under automatic model

For compatible type lift controller. Press button when the motor stops and can switch between capacitor type and Arc-voltage type.

For arc-voltage type: not defined yet.

### Wiring

There are 3 water-proof connections at the back of lift controller for wiring to machine system.

There are 4 sets terminal defined as below on the main circuit board:

#### 1. CN1: Connects to CNC machine system

CN1.1 AC18V input

CN1.2 AC18V input

CN1.3 Selection of Arc-voltage/capacitor mode(applicable for HCS07-Z)

CN1.4 Common terminal for control signal (COM)

CN1.5 Auto selection

CN1.6 Manual up selection

CN1.7 Manual down selection

## **2.CN2: Connects to HF box**

There's a cable between CN2 and HF box for Capacitor type and Compatible type lifter controller but none for Arc-voltage type.

CN2.1 0 V

CN2.2 +15V

CN2.5 Signal input

CN2.3 Not defined

CN2.4 Not defined

## **3.CN3:Connects to motor and limit switch**

CN3.1 0 V

CN3.2 Lower limit switch( Optionally connects NC. Contact to CN3.1)

CN3.3 0 V

CN3.4 Upper limit switch( Optionally connects NC. Contact to CN3.3)

CN3.5 Motor armature V-

CN3.6 Motor armature V+

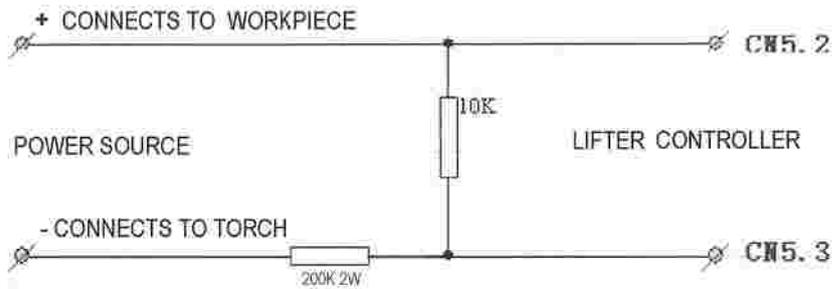
## **4.CN5**

CN5.1 Not defined

CN5.2 Arc-voltage ground( connect with steel/iron,+ terminal)

CN5.3 Arc-voltage signal (0 to -10V, achieved after voltage-division at 20:1)

## **Voltage division wiring illustration.**

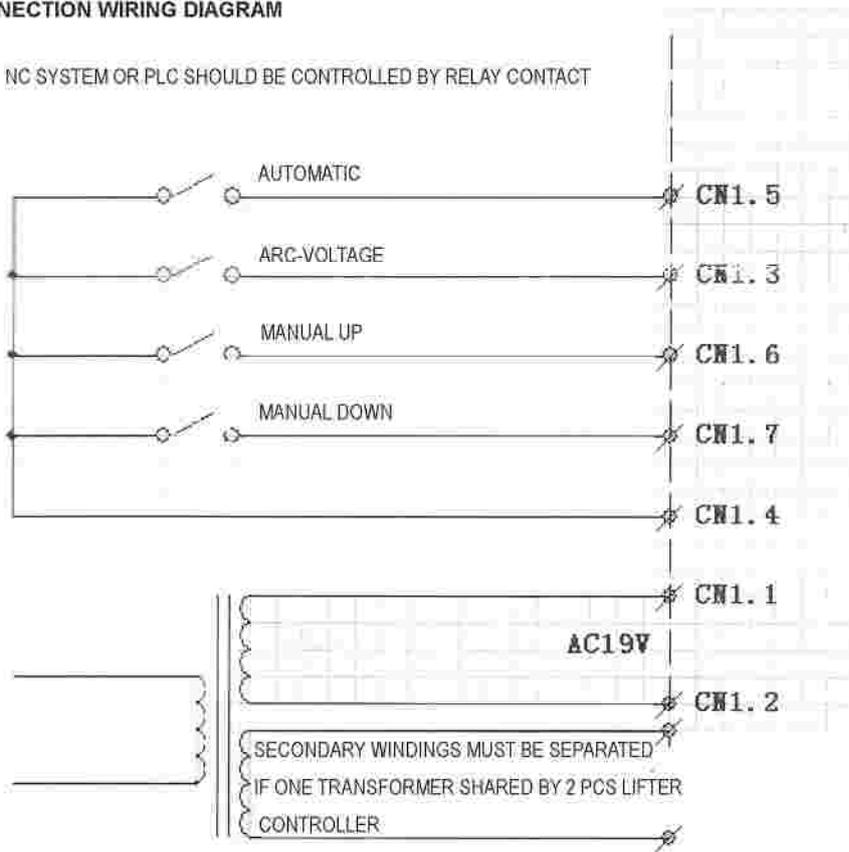


NOTE: THE 200K RESISTANCE MUST BE MOUNTED AT - TERMINAL IN SERIES.

VOLTAGE-DIVISION WIRING DIAGRAM FOR ARC-VOLTAGE

**CONNECTION WIRING DIAGRAM**

NC SYSTEM OR PLC SHOULD BE CONTROLLED BY RELAY CONTACT



TRANSFORMER(ONLY FOR LIFTER)

### **Adjusting and setting**

There are 4 toggle switches on circuit board of controller HCS07 as below:

SW1,SW2 defines the sensibility.

<b>SW1</b>	<b>SW2</b>	<b>Sensibility</b>
<b>ON</b>	<b>ON</b>	<b>Highest</b>
<b>ON</b>	<b>OFF</b>	<b>High</b>
<b>OFF</b>	<b>ON</b>	<b>Middle</b>
<b>OFF</b>	<b>OFF</b>	<b>Low</b>

SW1,SW2 defines the reaction speed

<b>SW1</b>	<b>SW2</b>	<b>Reaction speed</b>
<b>ON</b>	<b>ON</b>	<b>Most Fast</b>
<b>ON</b>	<b>OFF</b>	<b>Fast</b>
<b>OFF</b>	<b>ON</b>	<b>Middle</b>
<b>OFF</b>	<b>OFF</b>	<b>Slow</b>

New setting will be adopted at next start if the parameters settings changed by user

**The loopy trimming potentiometer W5 on circuit board can be used for setting of manual lift speed. User can be adjusted if needed.**