灰度科技
HUIDU TECHNOLOGY

PRODUCT SPECIFICATION

3-in-1 Integrated Control Board

HD-RP375

V1.0

Update history

Release version	Release time	Release Notes
V1.0	Nov. 5, 2025	First release

1. Product Overview

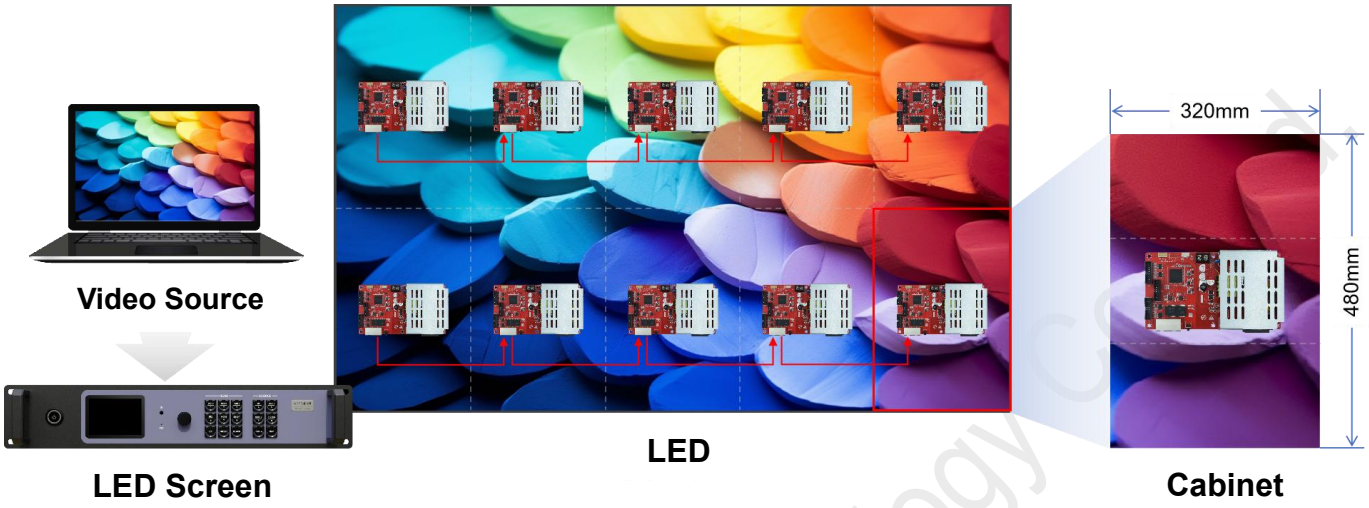
The RP375 is a 3-in-1 integrated controller, combining a built-in power module with support for both synchronous and asynchronous control systems. It converts 100V-240V AC to 4.2V DC to directly drive LED panels. With three on-board standard HUB75E interfaces and robust stability, it supports 6 sets of RGB parallel data and can control up to 98,384 (384x256) pixels.

2. Parameters

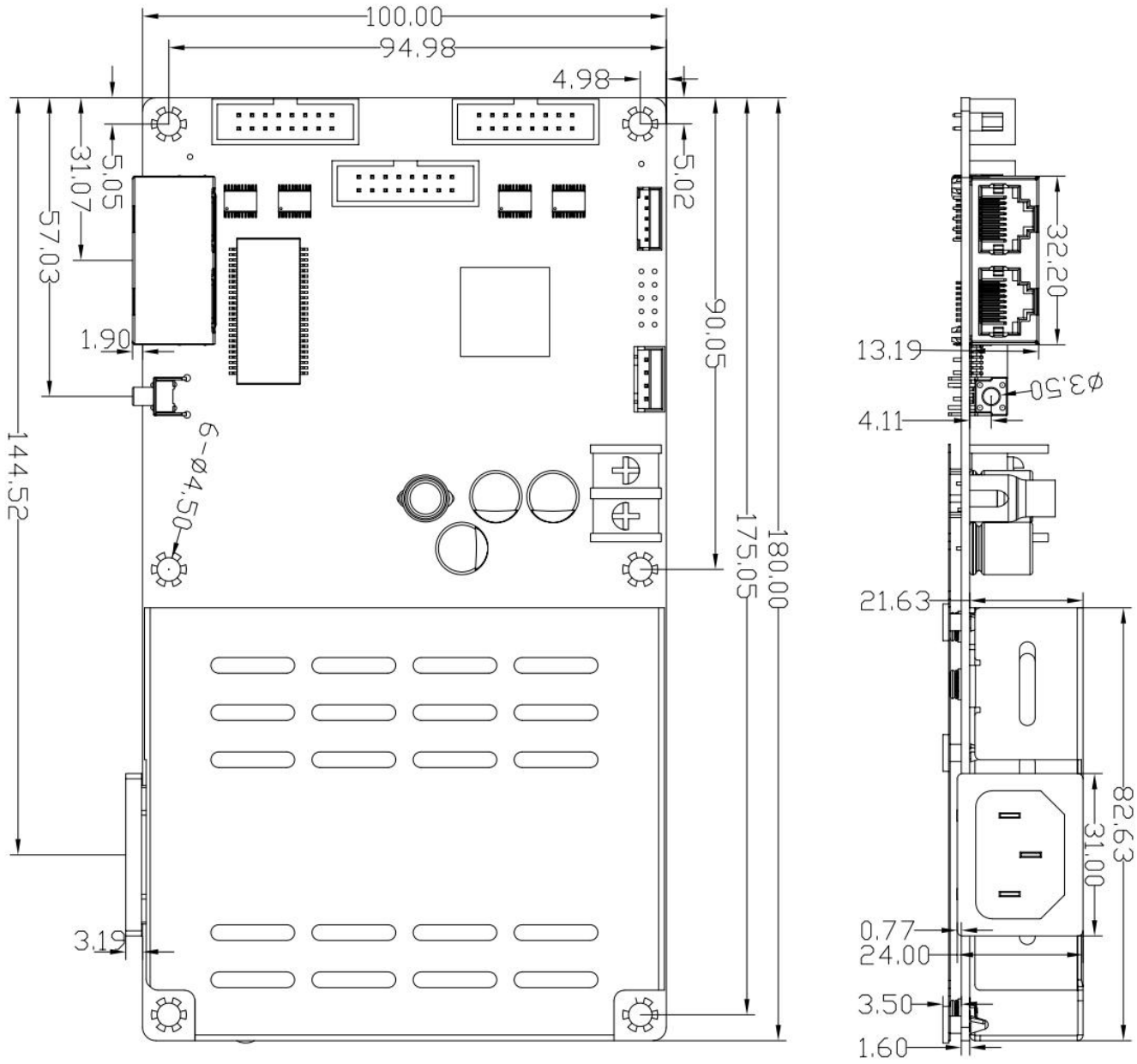
Features	Parameters
With sending card	Dual-mode sending box, Asynchronous sending card, Synchronous sending card, Video processor of VP series.
Module type	Compatible with all common IC module, supported most PWM IC module.
Scan mode	Supports any scanning method from static to 1/128 scan
Communication method	Gigabit Ethernet
Control range	Maximum loading capacity: 262,144 pixels (512*512) Recommended loading capacity: conventional chip 128*1024 pixels, PWM chip 256*1024pixels Note: The actual loading capacity is related to the number of HUB ports/module resolution.
Multi-card connection	Receiving card can be put in any sequence
Gray scale	256~65536
Smart setting	A few simple steps to complete the smart settings, through the screen layout can be set to go with any alignment of the screen unit board
Test functions	Receiving card integrated screen test function, Test display brightness uniformity and display module flatness.
Communication distance	Super Cat5, Cat6 network cable within 80 meters
Point-by-Point Calibration	Works with the Huidu calibration system to support point-by-point brightness and chromaticity calibration, as well as brightness/dark line adjustment and seam repair.
Image Rotation in 90-Degree Multiples	The image can be rotated for display in 90-degree multiples (0/90/180/270 degrees).

3. Connection Method

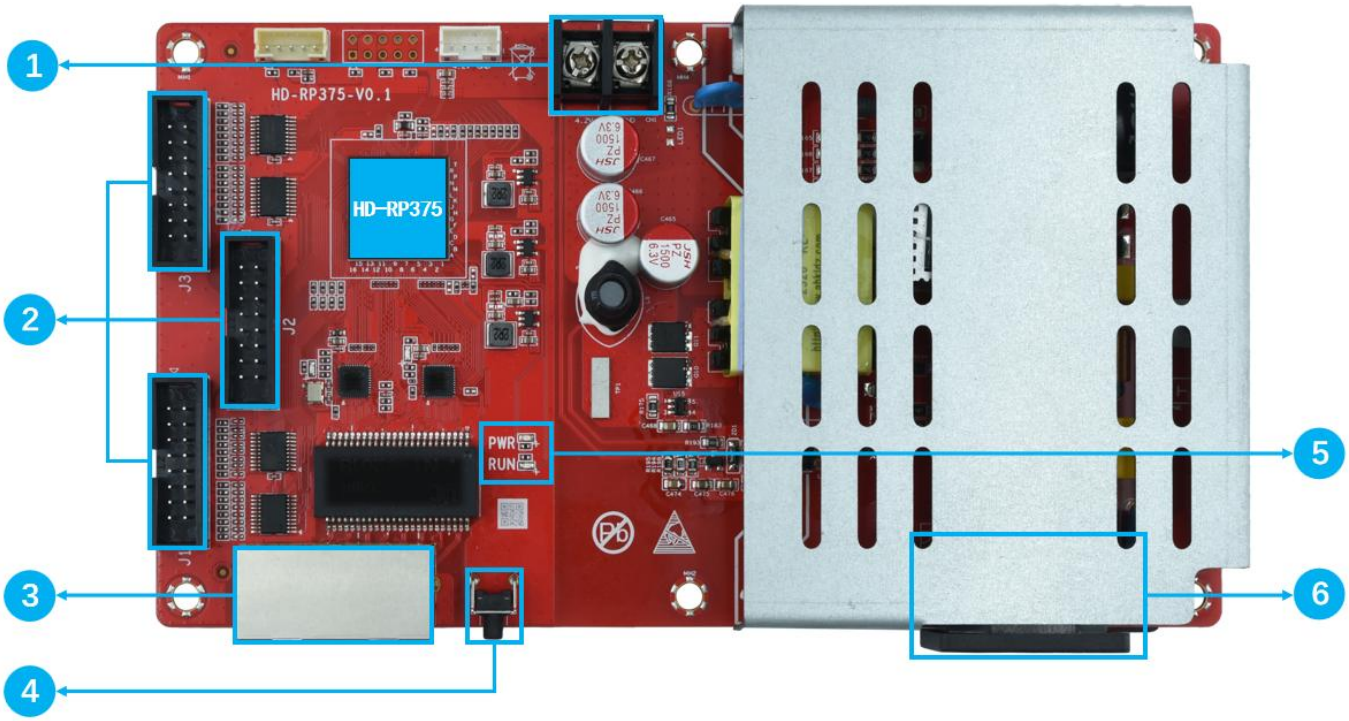
Playback Box to Control Board Connection Diagram:



4. Dimensions

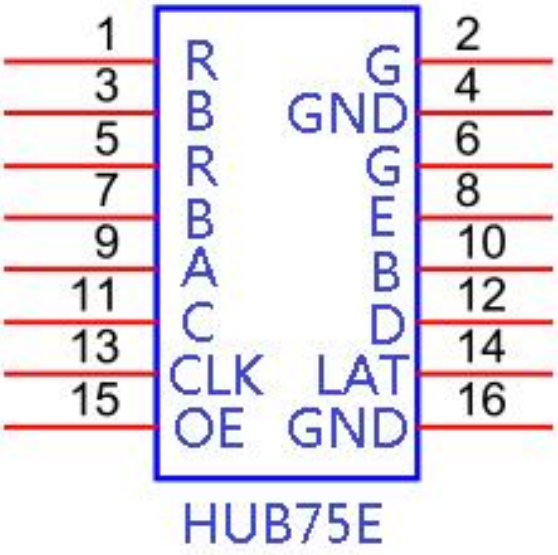


5. Interface Description



Serial number	Name	Description
1	**Power output interface**	can capable of outputting 4.2V DC.
2	**Flat cable interface**	3 HUB75E interface, connect to the LED modules by flat cable.
3	**Gigabit Ethernet Port**	Used to connect the sending card or receiving card, the same two network ports are interchangeable.
4	**Test button**	Used to test display brightness uniformity and display module flatness.
5	**Work indicator**	The red light is always on, and the power input is normal The RUN light is green, flashing slowly, indicating a network connection problem or no video signal;The Run-line flash, indicating the receiver card is working properly, and the video signal is normal.
6	**AC power input interface**	Connect a standard 3-pin IEC C13 power cord to the 100-240V AC input.

6. Interface Definition



7. Technical Parameters

Basic parameters:	
Working Temperature (℃)	-20℃~+50℃
Working Environment Humidity (RH)	0~95%RH
Storage Environment Humidity (RH)	-25℃~+85℃
Net weight (g)	≈252g

Power Input Characteristics	
Input Voltage Range	90Vac~264Vac
Rated Input Voltage Range	100Vac~240Vac
Input Voltage Frequency	47Hz~63Hz
Minimum Input Startup Voltage	90Vac
Maximum Input Current	≤1.3A
Standby Power Consumption	PSU<0.8W With Card＜1.8W
Inrush Current@25℃	<60A @220Vac cold start

Power Output Characteristics	
Rated Output Current	13A Note:Derating is required under low input voltage and high ambient temperature. Please refer to the derating curve.

Rated Output Voltage	4.2V
Output Voltage Accuracy	≤±2%
Line Regulation	≤±2%
Load Regulation	≤±2%
Peak Output Power	≤65w(Duration: 10 minutes / Input: 220 Vac) Note:When used with LED loads, the peak output current can reach 15 A.
Output Ripple	<100mV
Efficiency	ac110V≥83%，ac220V≥86%
Dynamic Load Response	10%-50% <±300mV 25%-75%<±400mV 10%-100%<±500mV
Startup Time	≤ 3 s (Input: 220 Vac, Output: 13 A Load)
Output Hold-up Time	≥ 10 ms (Input: 220 Vac, Output: 13 A Load)
Output Voltage Overshoot	< 5.0% (i.e., Overshoot Voltage < 4.41 V)

Electrical Protection	
Output Over-Current Protection (OCP)	1.3IO<OCP<1.5IO(Hiccup protection mode.)
Output Over-Power Protection (OPP)	65W~81.9W(Hiccup protection mode.)
Output Short-Circuit Protection (SCP)	The power supply output can withstand a continuous short-circuit condition. Automatic recovery after the short-circuit is eliminated.

Safety Specifications	
Insulation Resistance	Input - Output:10M ohms；Input - Chassis:10M ohms；Output - Chassis:10M ohms
Insulation withstand voltage	Input - Output:3kVac/10mA；Input - Chassis:1.5kVac/10mA；Output - Chassis:0.5kVdc/10mA The time allotted for each test is:1min
Touch Current	<0.75mA 230Vac
Grounding Resistance	Grounding Resistance<0.1Ω
Safety Markings	Primary circuits and components should have prominent hazard warning labels.
Leakage Current	The casing and any potentially accessible parts must not pose a risk of electric shock, and input/output terminals should be clearly and conspicuously marked.

EMC	
Conducted Emission	CISPR32/EN55032 CLASS A
adiated Emission	CISPR32/EN55032 CLASS A
Harmonic Current Emission	/
Voltage Fluctuations & Flicker	/
Radiated Immunity	IEC/EN61000-4-3 LEVEL2 Criterion A
Conducted Immunity	IEC/EN61000-4-6 LEVEL2 Criterion A

Surge Immunity	IEC/EN61000-4-5 LEVEL3 Criterion B
Electrical Fast Transient (EFT) Immunity	IEC/EN61000-4-4 LEVEL3 Criterion B
Electrostatic Discharge (ESD) Immunity	IEC/EN 61000-4-2 LEVEL3 Criterion B
Voltage Dips & Interruptions	IEC/EN61000-4-11 0%,70%perf.Criterion C

Precautions:

1) Ensure the system long-term stable running, please use the standard power supply.
2) Please do not operate with electricity
3) Due to the production batch and other reasons, there may be a slight error between the photo and the real thing. If in doubt, please confirm with us.