



RADIO CONTROLS FOR INDUSTRIAL APPLICATIONS

CLESCRANE

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Clescrane retains the rights to change on product design and specs. at any time.
When purchase and delivery, subject to our actual products.

CLESCRANE[®]
• WWW.CLESCRANE.COM



Service Commitments of OHM

Productization of service
Standardization of products
Quality of standard



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ABOUT

With the target of "technology-driven, quality seize the market", Clecrane was established as a systems engineering company in the field of material handling in the year of 2012. Our services cover a wide range of industries, which includes manufacturing industry, processing industry, energy regeneration and so on.

We have been working with the international well-known Electrical companies in order to look for cooperation of intelligence hoisting machinery equipment. At the same time, our technical engineers are constantly providing customized designs for our customers' needs. Our equipment supervision team ensures the best quality of equipment for our customers. Our professional technical service team will provide zero-distance service to our customers. Clecrane is just on your side to help enhance your business and get sustainable development.

Technology is Clecrane survival principle, quality is the basic foundation of Clecrane survival. Depended on our own technology strength and supervision team, Clecrane has the professional sub-contractor who can provide us the good quality crane parts and control the whole cost in the competitive level. Clecrane intended to create an innovative lifting equipment export service companies and provide customers with the best solution and high-quality manufacturing products. With spirit of "customer first" business philosophy, Clecrane strategic objectives are not for the short-term interests instead of sacrifice the future. CLES people will wholeheartedly provide dedicated service for worldwide customers. When you choose Clecrane, you also increase security and efficiency for your business development at the same time.





TCS-B type products including latest German technology are perfect match for various cranes.

- ◆ Ergonomic design
- ◆ Push-Button patent technology, comfortable feel, and clear step
- ◆ Lift cycle for push-buttons: above 2,000,000 times
- ◆ High speed CPU, corresponding time $\leq 20\text{ms}$
- ◆ Secondary packing adhesive technology ensures shatter and falling-down resistance
- ◆ Automatically shutdown when being impacted and three-level safety guarantee
- ◆ Smart key for perfect replacement of spare system
- ◆ Special holder for transmitter for easy management

TCS-B08 □□



TCS-B12 □□



TCS-B16



TCS-B20



ITEMS	TCS-B08 <input type="checkbox"/> <input type="checkbox"/>	TCS-B12 <input type="checkbox"/> <input type="checkbox"/>	TCS-B16 <input type="checkbox"/> <input type="checkbox"/>	TCS-B20 <input type="checkbox"/> <input type="checkbox"/>
RADIO SPECIFICATION				
Frequency domain	400-470MHz			
Transfer rate	9600bit/s			
Transmitted power	≤10mW			
Frequency tolerance	4ppm			
Road restrain	>50dB			
Regulating methods	FSK/GFSK(gaussian frequency-shift keying)			
Channel spacing	50KHz			
Receiving sensitivity	-116dBm			
Verification mode	CRC-16(circulation and redundancy)+ Hamming code(≥4)			
Response time	≤20ms			
DATA SHEET				
The weight of the ejector	320g(not including battery)	360g(not including battery)	380g(not including battery)	
External dimesnion for ejector	193x62x50mm (length*width*height)	193x62x50mm (length*width*height)	226x62x50mm (length*width*height)	255x62x50mm (length*width*height)
Shell material of ejector	High strength engineering plastic(PA66+30%)			
Receiver weight	1250g	1400g		
External dimesnion for receiver	248x206x75mm (length*width*height)	298x206x75mm (length*width*height)		
Installation measurement of receiver	186x88mm			
Installation aperture of receiver	Φ6mm			
Shell material of receiver	High strength engineering plastic(PA66+30%)			
Temperature range	-25℃-70℃			
Humidity range	0-97%, anti-congealing			
STANDARD AND GRADE				
Safety standard	JB/T8437-1996			
	EN13849 D grade			
	Radio transmitting equipment certificate (National wireless commission)			
	Tequipment safety and qualification certificate for cranes(Liaoning safety bureau)			
Protection level	IP65			

ITEMS	TCS-B08 □□	TCS-B12 □□	TCS-B16 □□	TCS-B20 □□
PROCESSING UNITS				
Digital electronic	Single CPU real time control technology			
Frequency control	PLL phase-lock loop			
Special address code	32bit>4.2 billion			
Controlling distance	>100m			
Transmitter type	Touch tone 8single speed button	Touch Tone 8double speed button	Touch tone 10 double speed button	Touch tone 12 double speed buttons
Transmitter power	4.5VDC (three No.5 battery)			
Working current of transmitter	≤30mA(not including special system)			
Transmitter alarming under low voltage sound-light alarm	(3.3-3.5VDC)			
Failure warning of transmitter	Multiple combination sound-light warning			
Power saving protection	Shut-off automatically (can set up to 0-30mins)			
Transmitter antenna	Built inside			
Receiver power	42-250VAC 10-30VDC 380VAC(optional)			
Receiver's rated power	≤6W			
Receiver failure display	LED working/failure state display			
Output mode	Whole airtight relay output RS232, CANOPEN can be customized			
Relay electric shock capacity	4A/250VAC			
Output interface	Terminal output (including coupling) Heavy duty connector HAN16, 25 can be added in addition			
Receiver antenna	External			
STANDARD ACCESSORY				
Transmitter carrier	One			
Receiver antenna	One			
Receiver crash pad	Four			
Receiver mounting screw	Four			
Operating manual	One (Chinese/English)			

TCS-B08FIX □□



TCS-B16FK □□



ITEMS	TCS-B08FIX □□	TCS-B16FK □□
RADIO SPECIFICATION		
Frequency domain	400-470MHz	
Transfer rate	9600bit/s	
Transmitted power	≤20mW	≤10mW
Frequency tolerance	4ppm	
Road restrain	>50dB	
Regulating methods	FSK/GFSK(Gaussian frequency-shift keying)	
Channel spacing	50KHz	
Receiving sensitivity	-116dBm	
Verification mode	CRC-16(circulation and redundancy)+ Hamming code(≥4)	
Response time	≤20ms	
DATA SHEET		
The weight of the transmitter	2kg	400g(not including battery)
External dimesnion for transmitter	298x206x75mm (length*width*height)	255x62x50mm (length*width*height)
Shell material of transmitter	high strength engineering plastic(PA66+30%)	
Receiver weight	2kg	
External dimesnion for receiver	298x206x75mm (length*width*height)	
Installation measurement of receiver	186x88mm	
Installation aperture of receiver	Φ6mm	
Shell material of receiver	high strength engineering plastic(PA66+30%)	
Temperature range	-25°C-70°C	
Humidity range	0-97%, anti-congealing	
STANDARD AND GRADE		
Safety standard	JB/T8437-1996	EN954-1 Category 3
	EN13849 D grade	
	Radio transmitting equipment certificate (National wireless commission)	
	Telequipment safety and qualification certificate for cranes(Liaoning safety bureau)	
Protection level	IP65	

ITEMS	TCS-B08FIX □□	TCS-B16FK □□
PROCESSING UNITS		
Digital electronic	Single CPU real time control technology	
Frequency control	PLL phase-lock loop	
Special address code	32bit>4.2 billion	
Controlling distance	>100m	>80m
Transmitter type	8 switching value and 2 analog quantity	Touch tone; 12 double speed buttons
Transmitter power	Direct current/alternative current option	4.5VDC (three No.5 battery)
Working current of transmitter	Depending on the power	50mA
Transmitter alarming under low voltage sound-light alarm	Warning when no voltage	Sound-light warning (3.3-3.5VDC)
Failure warning of transmitter	Multiple combination sound-light warning	
Power saving protection	No protection for power saving	Shut-off automatically (can set up to 0-30mins)
Transmitter antenna	Built inside	
Receiver power	42-250VAC 10-30VDC 380VAC(optional)	
Receiver's rated power	≤6W	
Receiver failure display	LED working/failure state display	
Output mode	Multiple options	Whole airtight relay output RS232, CANOPEN Can be customized
Relay electric shock capacity	4A/250VAC	
Output interface	Multiple options	Terminal output (including coupling) Heavy duty connector HAN16, 25 can be added in addition
Receiver antenna	70 antenna or sucker antenna	External
STANDARD ACCESSORY		
Ejector carrier	None	One
Receiver antenna	Two	One
Receiver crash pad	Eight	Four
Receiver mounting screw	Eight	Four
Operating manual	One (Chinese/English)	One (Chinese/English)



TCS-C type products including latest German technology are necessary choice for various cranes.

- ◆ Strong and durable, dustproof and waterproof, ergonomics design compliance
- ◆ Dual-core encoder and decoder to ensure reliable data communication
- ◆ Lift circle for joysticks may be up to 1,000,000 times
- ◆ Smart key for perfect replacement of spare system
- ◆ Real-time control, active, conforming to EU standards
- ◆ Standard 64-bit 10 data encoding, and 8-10 bits proportional input
- ◆ Auto frequency control, and the frequency modulated system may be customized to strengthen the ability of anti-jamming
- ◆ Optional bus interface, and the feedback system whose contents may be configured.

TCS-C18/26 □□



TCS-C32 □□



TCS-C64



ROCKER FEEDBACK SYSTEM



ITEMS	TCS-C18/26 <input type="checkbox"/> <input type="checkbox"/>	TCS-C32 <input type="checkbox"/> <input type="checkbox"/>	TCS-C64 <input type="checkbox"/> <input type="checkbox"/>	ROCKER FEEDBACK SYSTEM
RADIO SPECIFICATION				
Frequency domain	400-470MHz			
Transfer rate	9600bit/s			
Transmitted power	≤10mW (can be ordered)			
Frequency tolerance	<4ppm			
Road restrain	>50dB			
Regulating methods	4GFSK (gaussian frequency-shift keying)			
Channel spacing	25KHz			
Receiving sensitivity	-115dBm			
Verification mode	CRC-1TM			
DATA SHEET				
The weight of the transmitter	1.4kg (not including battery)	2kg (not including battery)	2kg (not including battery)	2.2kg (not including battery)
External dimesnion for transmitter	254x130x168mm (length×width×height)	317x162x181mm (length×width×height)	317x162x181mm (length×width×height)	317x162x181mm (length×width×height)
Shell material of transmitter	High strength engineering plastic (PA66 + 30%)			
Receiver weight	2kg			
External dimesnion for receiver	298×206×103mm (length×width×height)			
Installation measurement of receiver	186×88mm			
Installation aperture of receiver	Φ6mm			
Shell material of receiver	High strength engineering plastic (PA66 + 30%)			
Temperature range	-25℃-70℃			
Humidity range	0-97%, anti-congealing			
STANDARD AND GRADE				
Safety standard	EN954-1 Category 3			
	EN13849 D grade			
	Radio transmitting equipment certificate (National wireless commission)			
	Telequipment safety and qualification certificate for cranes (Liaoning safety bureau)			
Protection level	IP65			

ITEMS	TCS-C18/26	TCS-C32	TCS-C64	ROCKER FEEDBACK SYSTEM
PROCESSING UNITS				
Digital electronic	Double CPU real time control technology			
Frequency control	PLL phase-lock loop			
Special address code	32bit>4.2 billion			
Controlling distance	>100m			
Transmitter type	By rocker			
Transmitter power	1. 3.6VDC 2. 6.0VDC (2500mAh Lithium battery / 1500 ni-mh battery pack)			
Working current of transmitter	≤80mA (except for special system)			
Transmitter alarming under low voltage sound-light alarm	Warning when 5.8V for C series 6V product			
Failure warning of transmitter	Display or LED (multiple combination sound-light warning)			
Power saving protection	Shut-off automatically (can set up to 0-30mins)			
Transmitter antenna	Built inside			
Receiver power	42-250VAC 10-30VDC 380VAC (optional)			
Receiver's rated power	≤10W			
Receiver failure display	LED working / failure state display			
Output mode	Whole airtight relay output RS232, CANOPEN, RS485 can be customized			
Relay electric shock capacity	4A / 250VAC			
Output interface	Terminal output (including coupling) Heavy duty connector HAN32, 50 can be added in addition			
Receiver antenna	External			
STANDARD ACCESSORY				
Transmitter carrier	One			
Receiver antenna	One			
Receiver crash pad	Four			
Receiver mounting screw	Four			
Operating manual	One (Chinese/English)			

TCS-C6X



TCS-C8X



ITEMS	TCS-C6X □□	TCS-C8X □□
RADIO SPECIFICATION		
Frequency domain	400-470MHz	
Transfer rate	9600bit/s	
Transmitted power	≤10mW	
Frequency tolerance	< 4ppm	
Road restrain	> 50dB	
Regulating methods	4GFSK (gaussian frequency-shift keying)	
Channel spacing	16KHz/25KHz	
Receiving sensitivity	-115dBm	
Verification mode	CRC-1TM	
Response time	≤20ms	
DATA SHEET		
The weight of the transmitter	2.5kg	
External dimesnion for transmitter	418×216×194mm (length×width×height)	
Shell material of transmitter	high strength engineering plastic (PA66 + 30%)	
Receiver weight	2kg	
External dimesnion for receiver	298×206×103mm (length×width×height)	
Installation measurement of receiver	186×88mm	
Installation aperture of receiver	Φ6mm	
Shell material of receiver	High strength engineering plastic (PA66 + 30%)	
Temperature range	-25℃-70℃	
Humidity range	0-97%, anti-congealing	
STANDARD AND GRADE		
Safety standard	JB/T8437-1996	
	EN13849 D grade	
	Radio transmitting equipment certificate (National wireless commission)	
	Telequipment safety and qualification certificate for cranes (Liaoning safety bureau)	
Protection level	IP65	

ITEMS	TCS-C6X □□	TCS-C8X □□
PROCESSING UNITS		
Digital electronic	ATMEL-American brand and ST-Italian brand	
Frequency control	PLL phase-lock loop	
Special address code	32bit>4.2 billion	
Controlling distance	>100m	
Transmitter type	By rocker	
Transmitter power	1. 3.6VDC 2. 6.0VDC (2500mAh Lithium battery/1500 ni-mh bettery pack)	
Working current of transmitter	≤80mA (except for special system)	
Transmitter alarming under low voltage sound-light alarm	Warning when 5.8V for C series 6V product	
Failure warning of transmitter	Display or LED (multiple combination sound-light warning)	
Power saving protection	Shut-off automatically (can set up to 0-30mins)	
Transmitter antenna	External	
Receiver power	10-30VDC optional	
Receiver's rated power	≤10W	
Receiver failure display	LED working / failure state display	
Output mode	Whole airtight relay output RS232, CANOPEN, RS485 can be customized	
Relay electric shock capacity	4A / 250VAC	
Output interface	Terminal output (including coupling) Heavy duty connector HAN4, 6, 16, 25 can be added in addition	
Receiver antenna	External	
STANDARD ACCESSORY		
Transmitter carrier	One	
Receiver antenna	One	
Receiver crash pad	Four	
Receiver mounting screw	Four	
Operating manual	One (Chinese/English)	

TCS-C80 □□

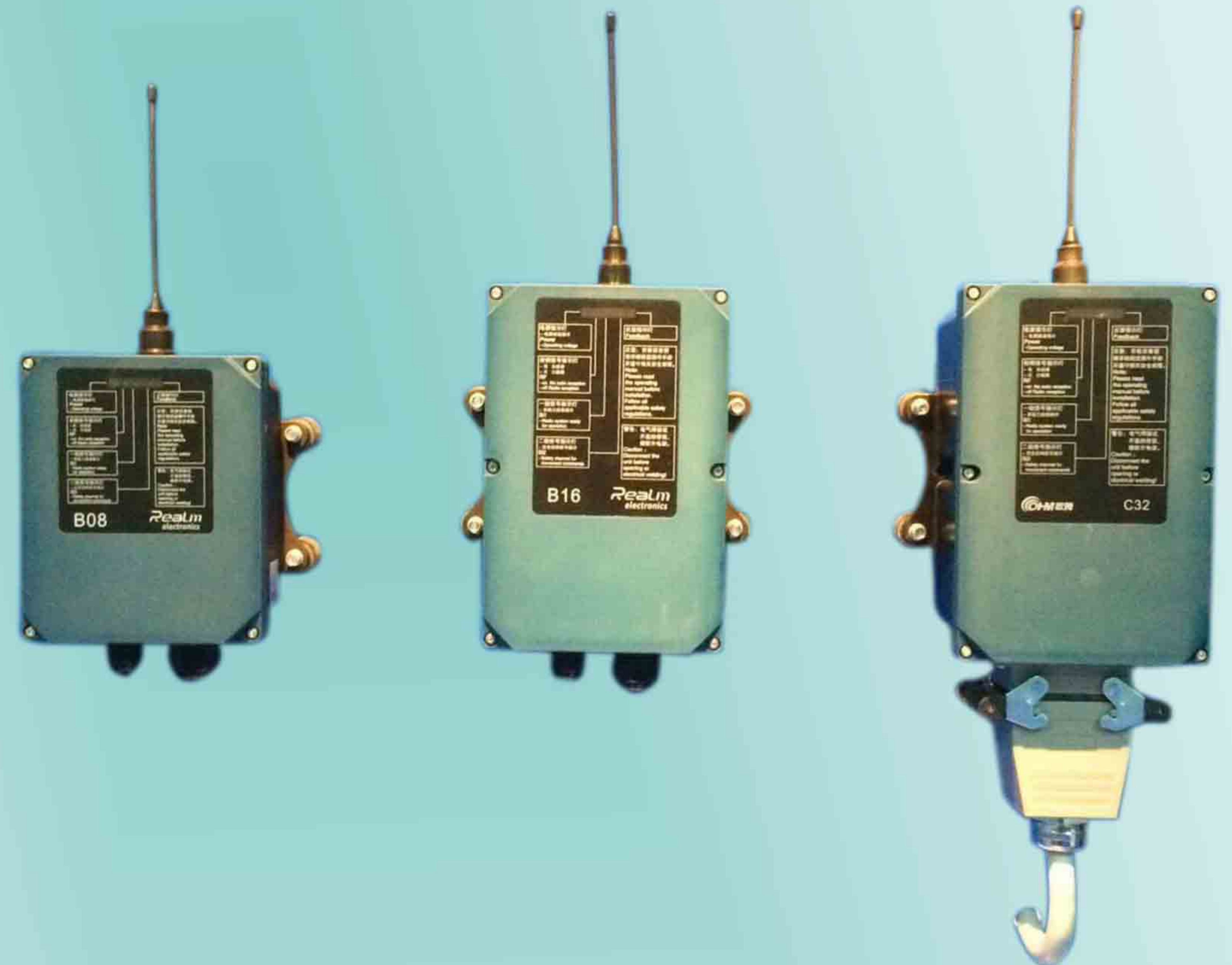


2 BATTERIES FOR CONTINUOUSLY SWITCHING WITHOUT OUTAGE

Dimension drawings for TCS series products including latest German technology

IDENTITY DATA RECORD

- ◆ The various data recording mode
- ◆ It is accurate to 0 seconds of data records
- ◆ The convenient data read and check function
- ◆ User identification
- ◆ Easy upgrade
- ◆ More optimized new features



FEATURE

Modes:

- Overall record
- Detailed record
- Fault record

VARIOUS MODES FOR DATA RECORDING

OHM data recorder is bale to record various data of operation, included general data, detailed data, data of faults.

00:00.1	03	K03	OFF
00:00.2	03	K02	OFF
00:01.8	03	K04	ON
00:02.3	03	K05	ON
00:02.8	03	K05	OFF
00:03.1	03	K04	OFF
00:03.9	03	K01	ON
16:05.31	16:		

PRECISE UP TO 0.1S FOR THE DATA RECORDING

Collecting the data is highly precise, The machine owner or user is able to inspect all data of operating commands in a definite period, included: operator information, operating time, operating commands.

DATA READING AND CHECKING AT HAND

Portable data reading tool with LCD display enables to acquire the data within the range of 80m. It is not necessary to climb on the crane.



COST-EFFICIENT RETROFITTING

It is cost-efficient that all actual running systems of OHM could add it on.

USER IDENTIFICATION(OPTIONAL)

Rely on the user identification feature it enables the individual data to be collected for each user. Analyzing the data of operation for each user is available.



USER IDENTIFICATION(OPTIONAL)

Rely on the user identification feature it enables the individual data to be collected for each user. Analyzing the data of operation for each user is available.

CONNECTION



Interface via CAN BUS

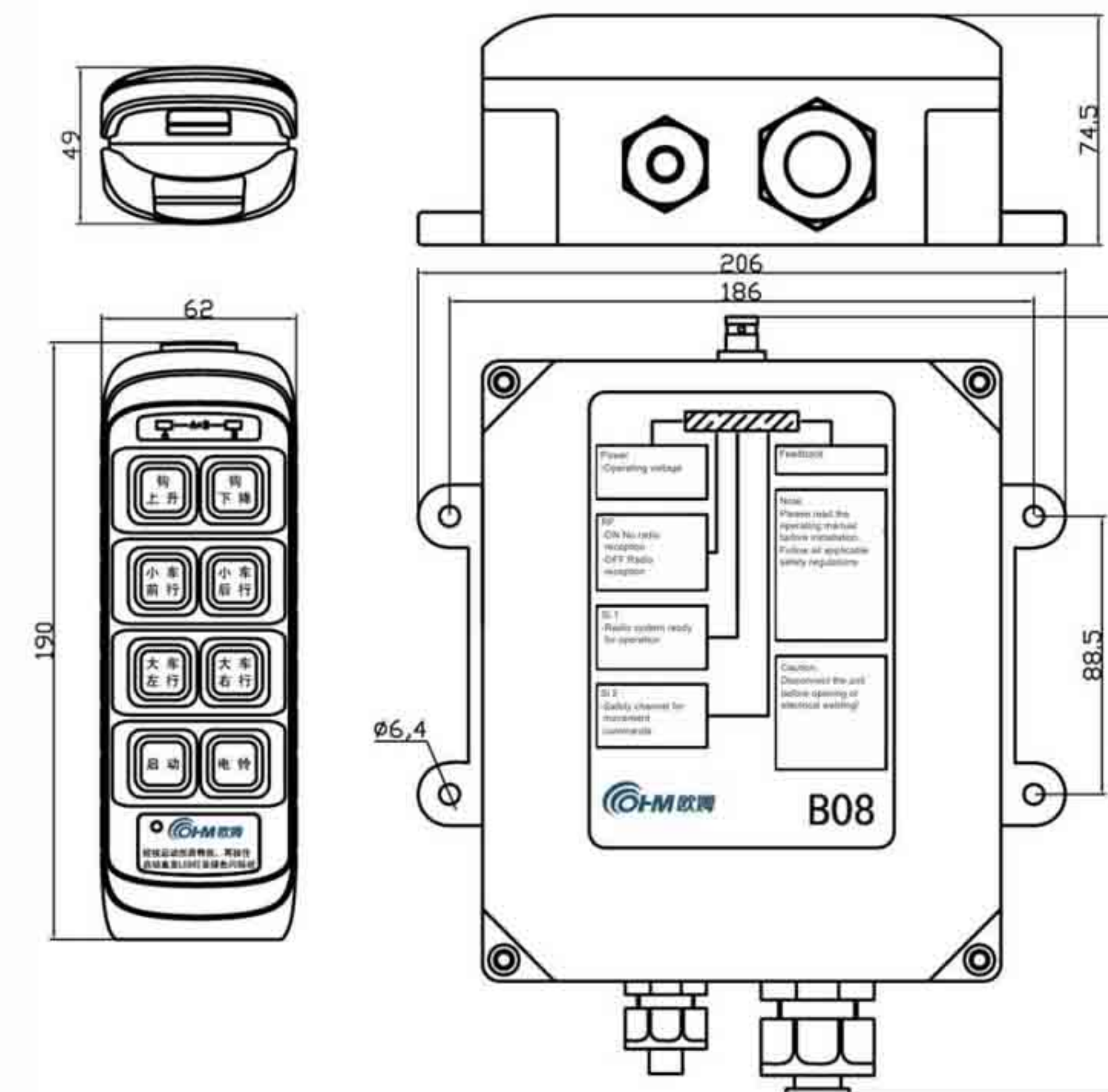
APPLICATION

For all crane equipped with OHM radio control systems. The ideal choice for machine rental company.

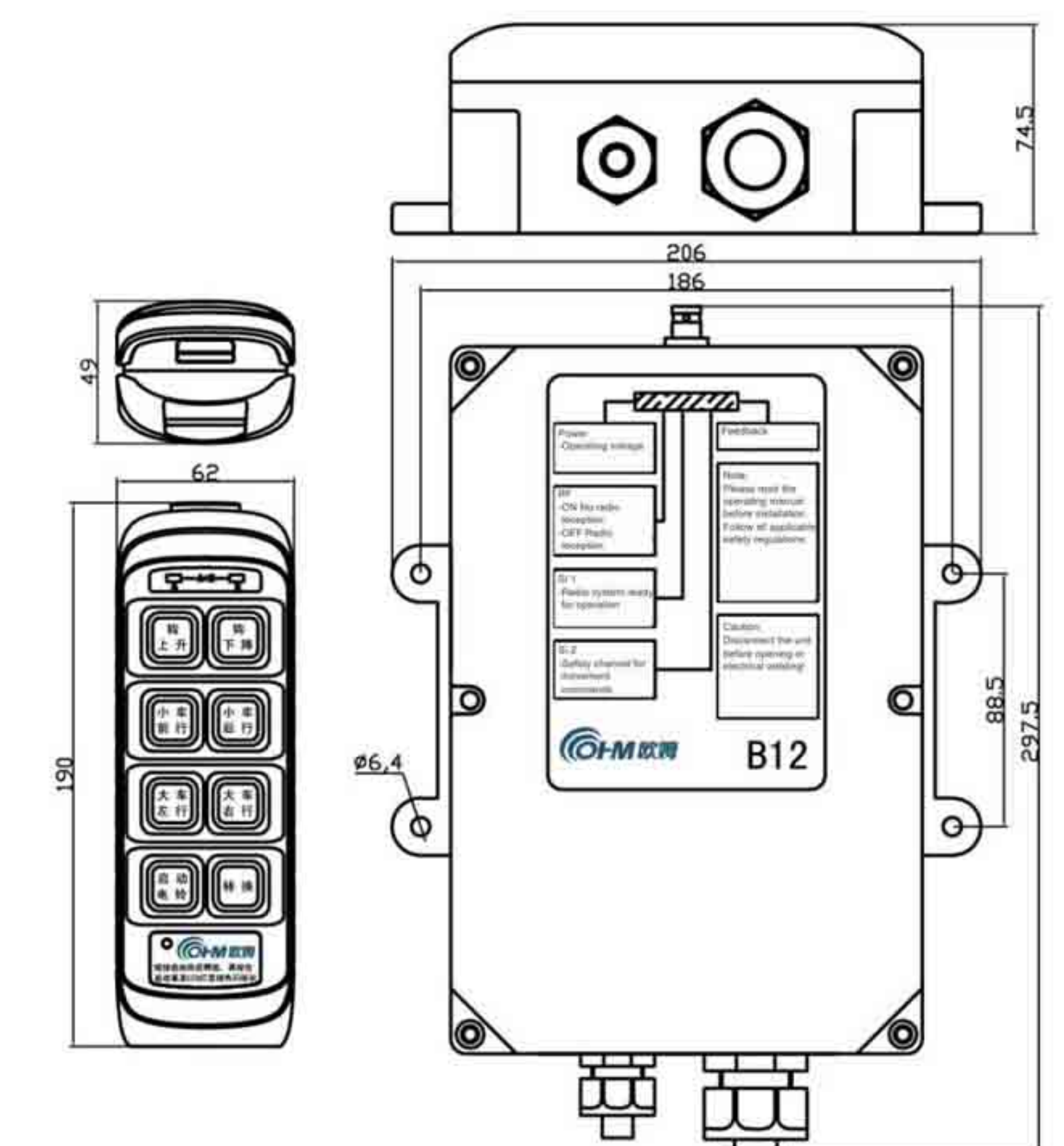
MORE INFORMATION

- * Various mode for data recording
- * Special data reading tool, data reading and checking at hand
- * Alarm for storage space, circular storage of data
- * Protection for storing the data before shut down
- * Lifetime data recording and reminding
- * Dimension:162*80*65mm
- * Robust plastic housing, IP65 protection class
- * Option: User identification feature(OHM smart card) to store individual data of operation for each user.

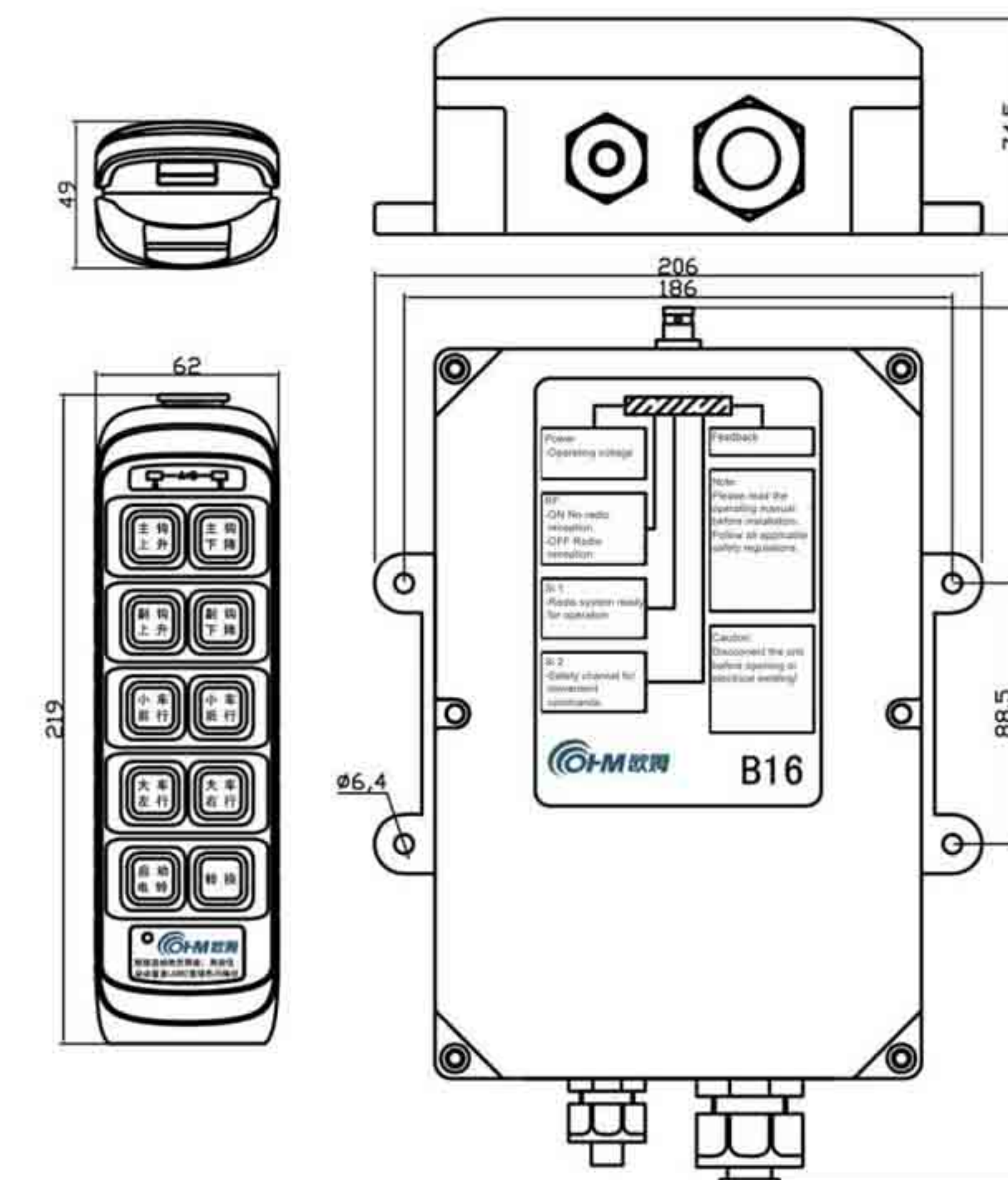
DIMENSION DRAWINGS



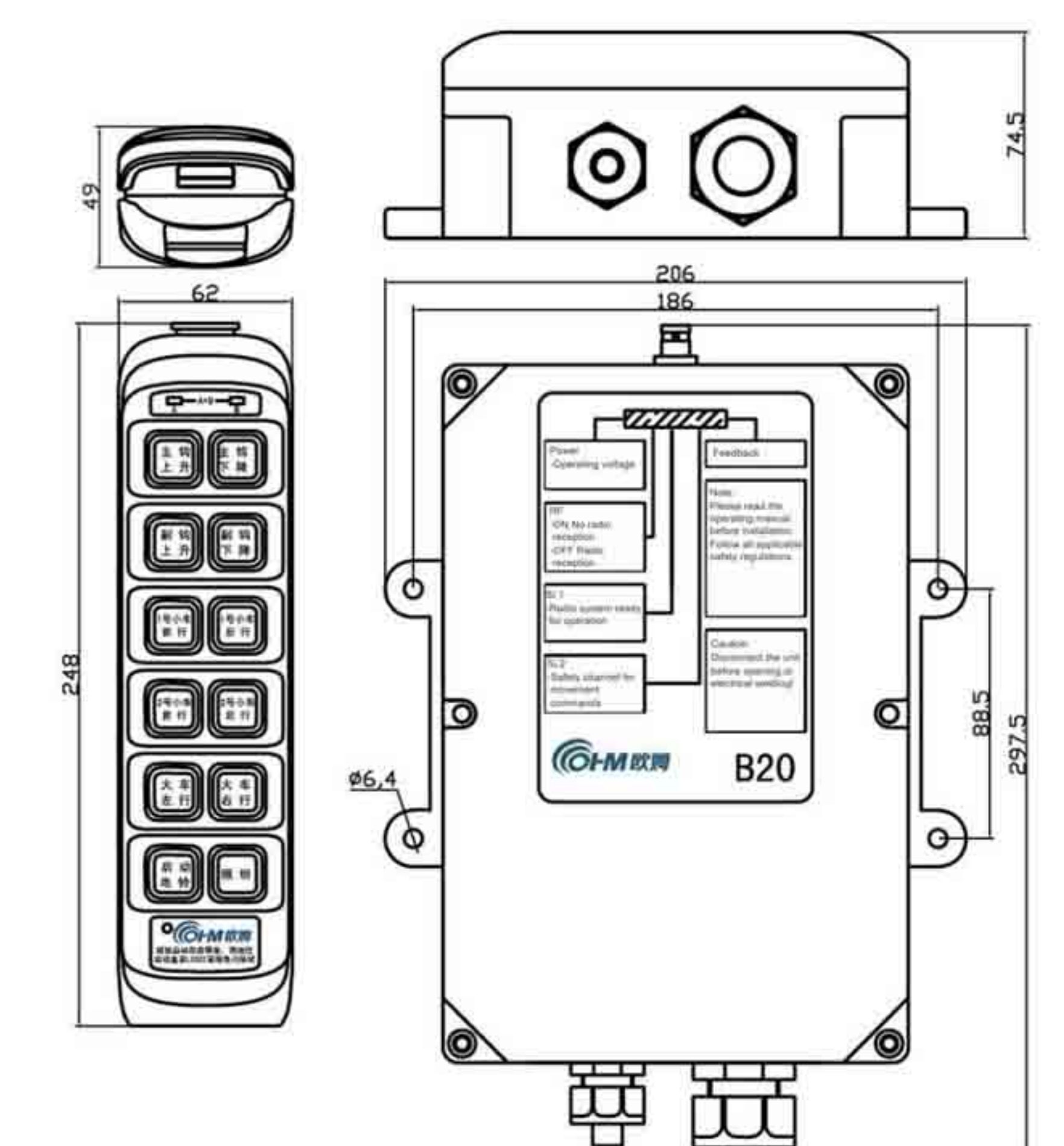
TCS-B08



TCS-B12

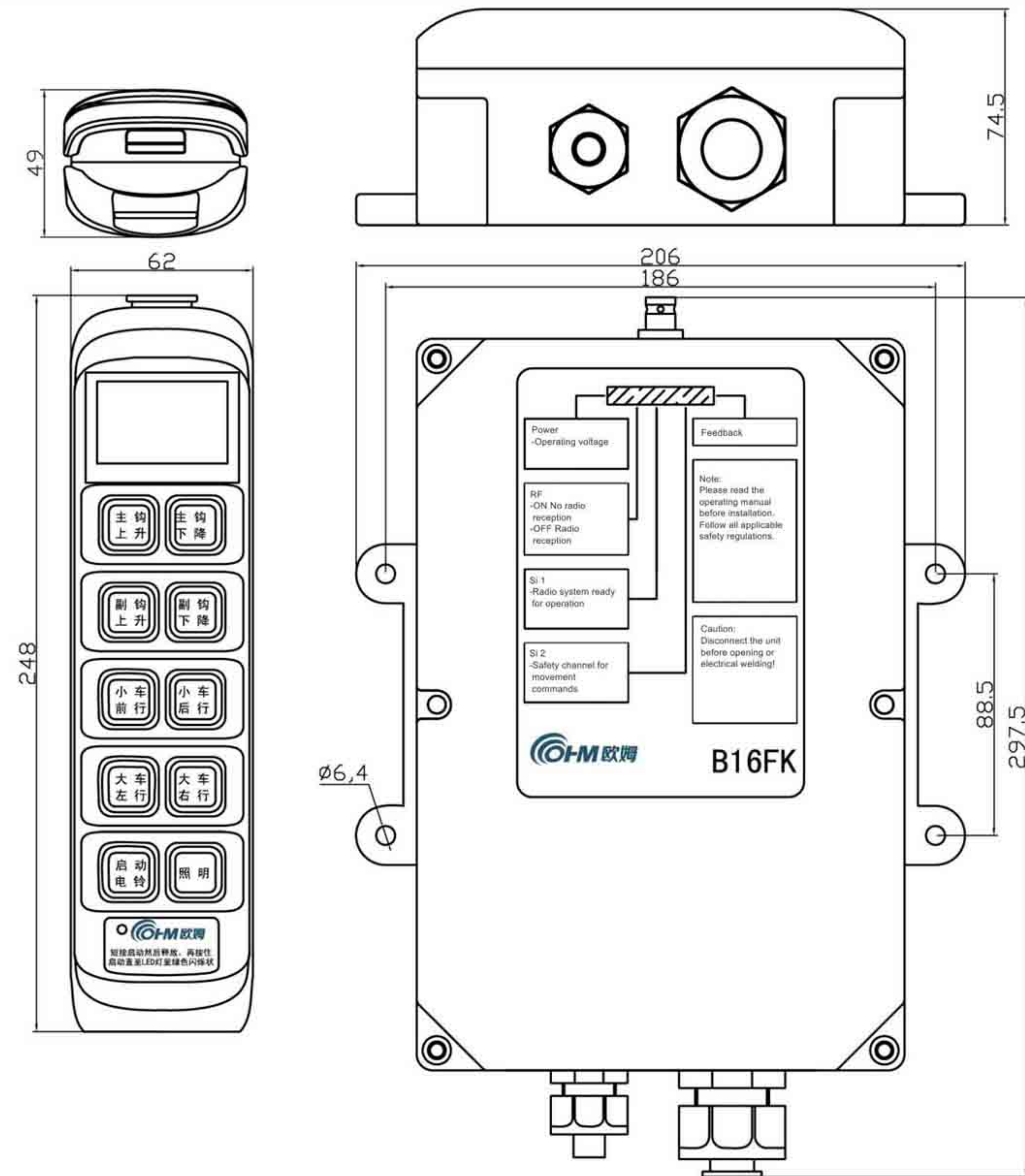


TCS-B16

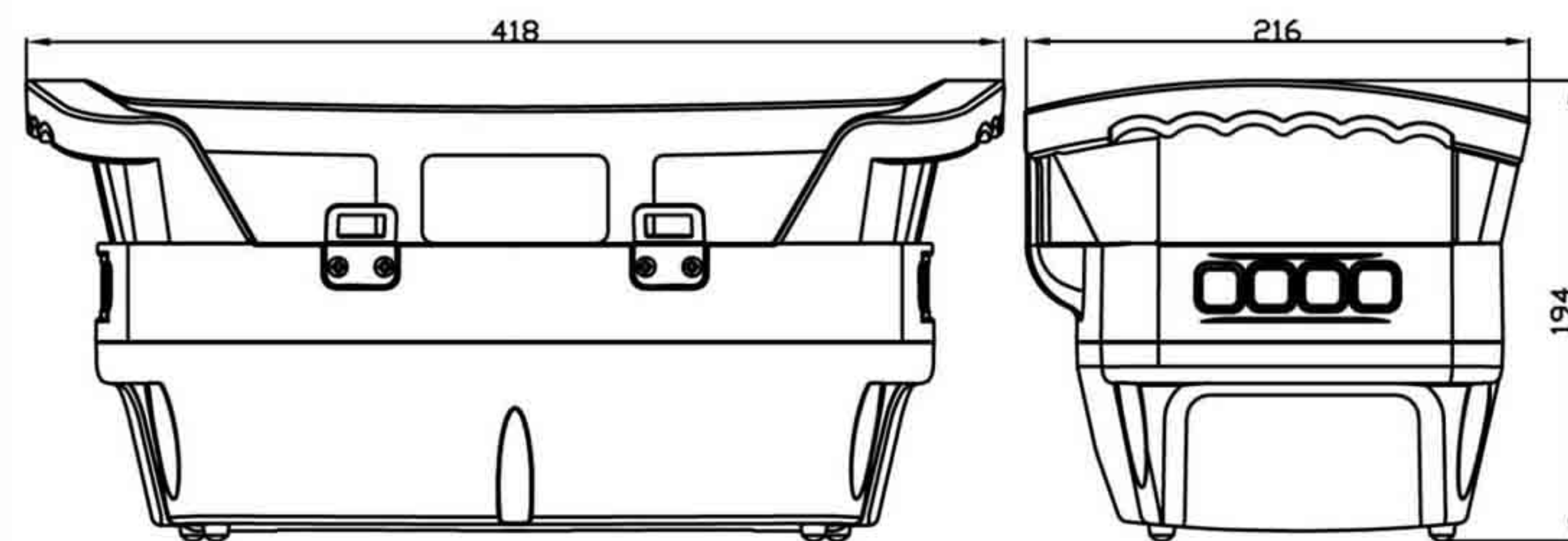


TCS-B20

DIMENSION DRAWINGS

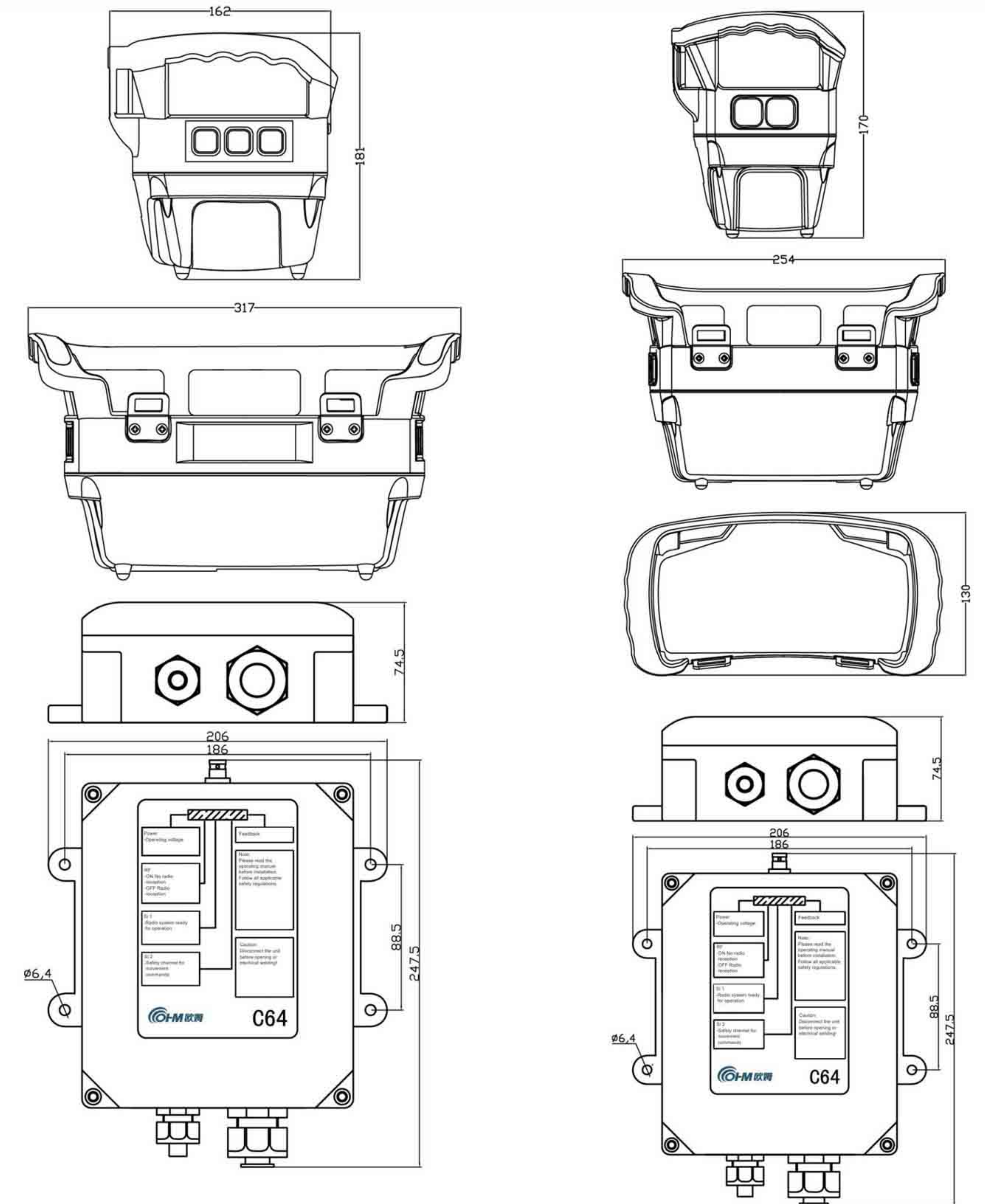


TCS-B16KF



TCS-C80


DIMENSION DRAWINGS



Large-size shell(C32)

Small-size shell(C18/26)

TCS-BO8 Transmitter Panel Diagram



(E.M.STOP Swich)

Description of functions of TCS-BO8 Transmitter:
 1 step control for 3 drives:
 Buttons in Line 1: 2 buttons for controlling hoist operation
 Buttons in Line 2: 2 buttons for controlling trolley forward or backward
 Buttons in Line 3: 2 buttons for controlling crane moving the left or right
 Buttons in Line 4: 2 buttons for controlling starting operation and horn
 There are 8 control commands in total.

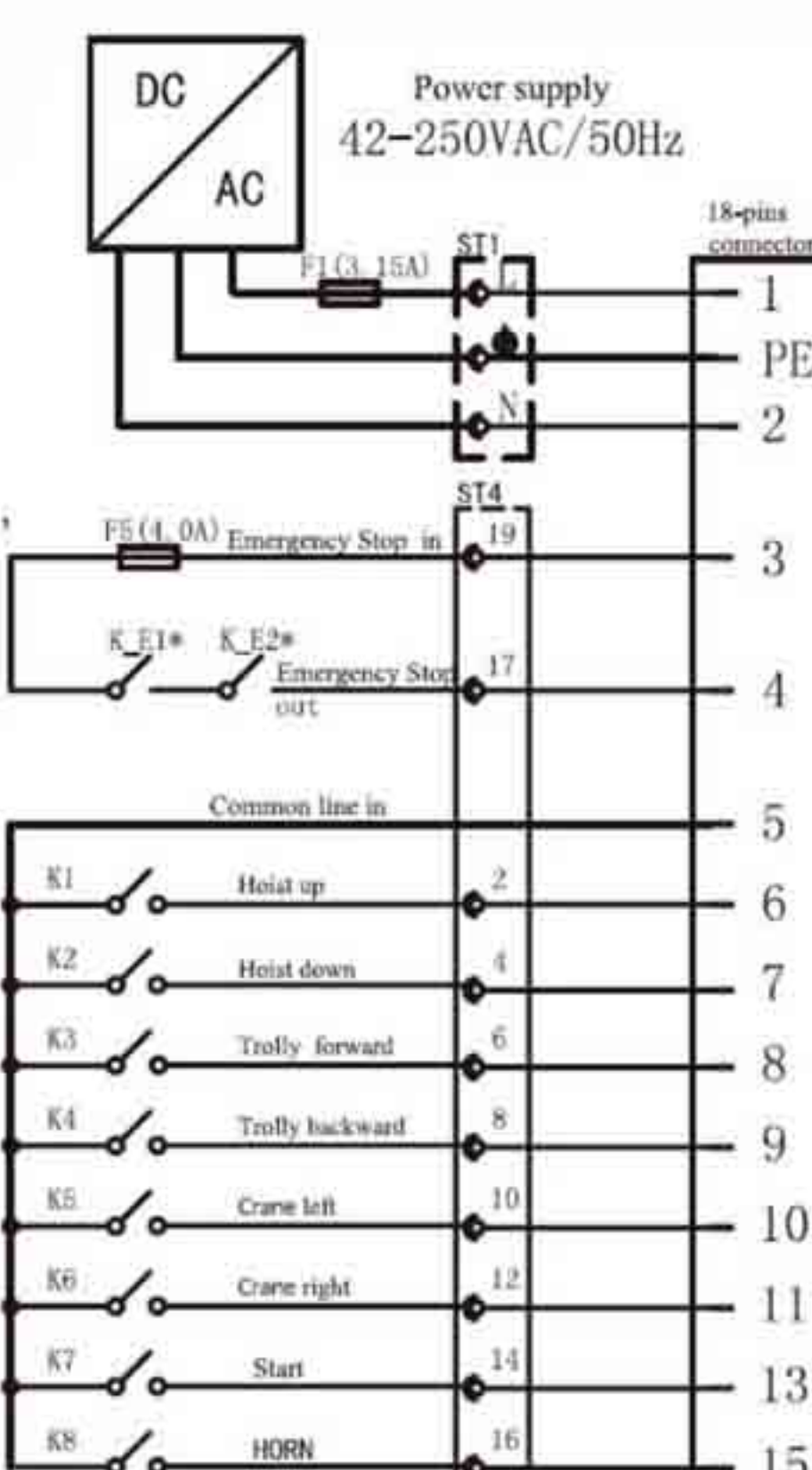
Notes:
 1.Buttons man be assigned according to users' demand.
 2.Function interlock K1/K2, L3/K4 and K5/K6.
 3.Please refer to the receiver output diagram.

Smart card(KEY)

Project:	SN:
Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Designed by: OHM001 Checked by: OHM002 Date:2015.04.07

transmitter panel diagram

TCS-BO8 Receiver Output Diagram

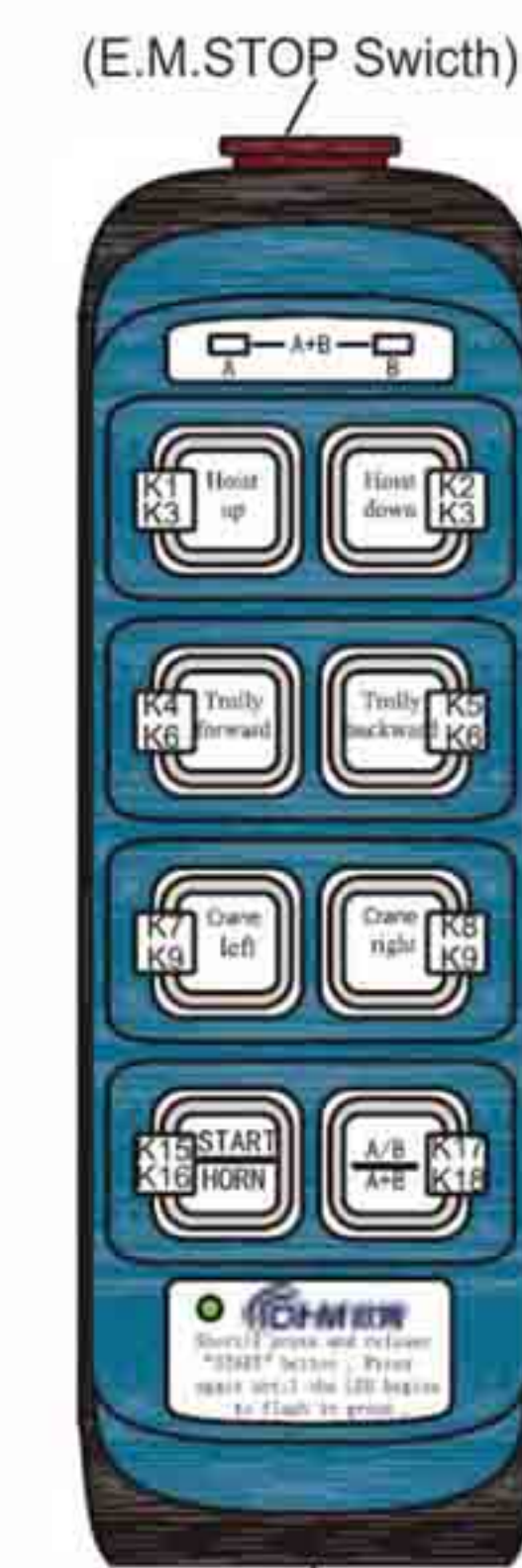


1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz

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machine output diagram

TCS-B12 Transmitter Panel Diagram



(E.M.STOP Swich)

Description of functions of TCS-B12 Transmitter:
 2 step control for 3 drives:
 Buttons in Line 1: 3 buttons for controlling hoist operation
 Buttons in Line 2: 3 buttons for controlling trolley forward or backward
 Buttons in Line 3: 3 buttons for controlling crane moving the left or right
 Buttons in Line 4: 4 buttons for controlling starting operation, horn and switching
 There are 13 control commands in total.

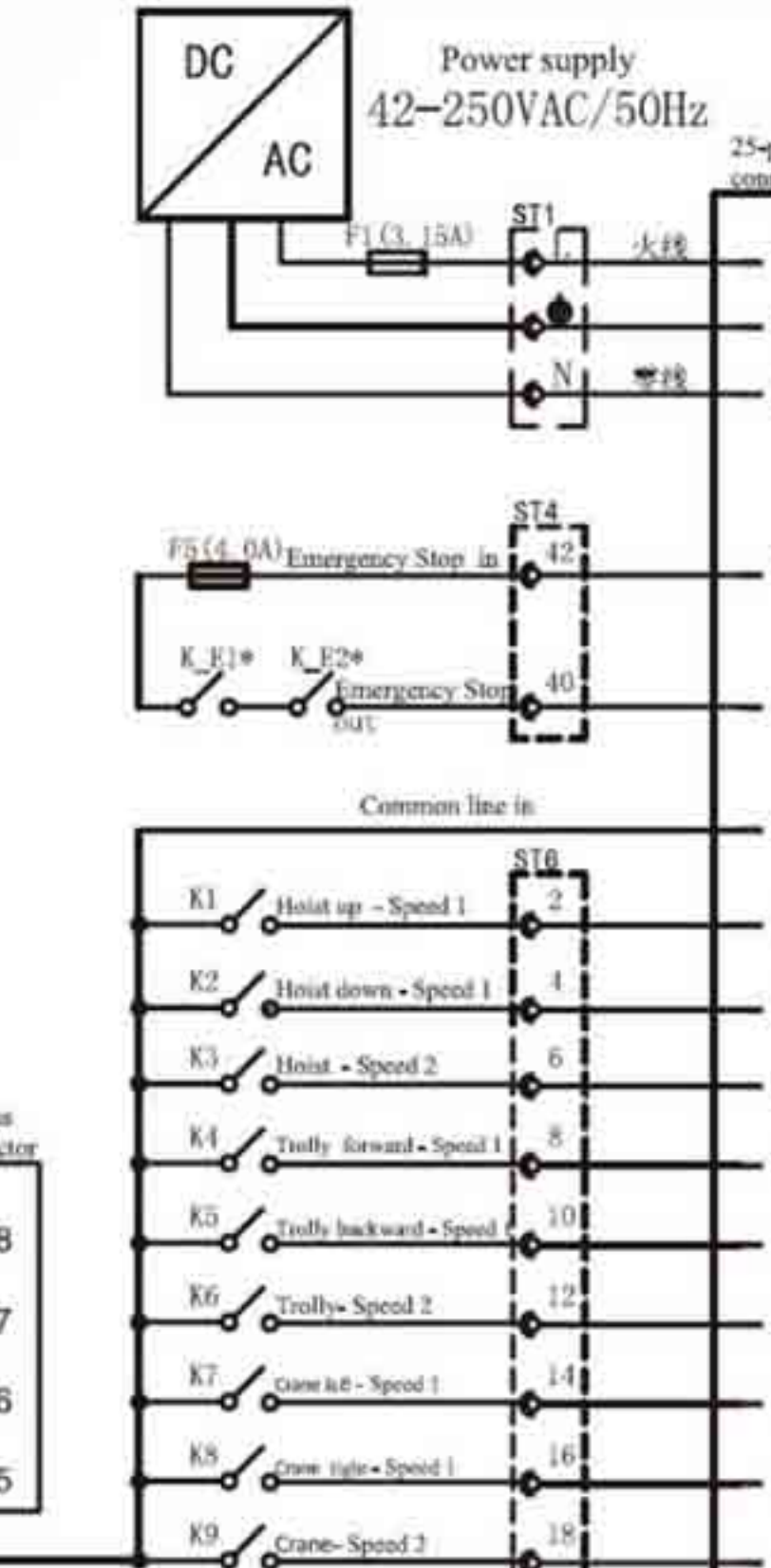
Notes:
 1.Buttons man be assigned according to users' demand.
 2.Function interlock K1/K2, L3/K4, K5/K6 and K7/K8.
 3.Please refer to the TCS-B12receiver output diagram.

Smart card(KEY)

Project:	SN:
Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Designed by: OHM001 Checked by: OHM002 Date:2015.04.07

transmitter panel diagram

TCS-B12 Receiver Output Diagram

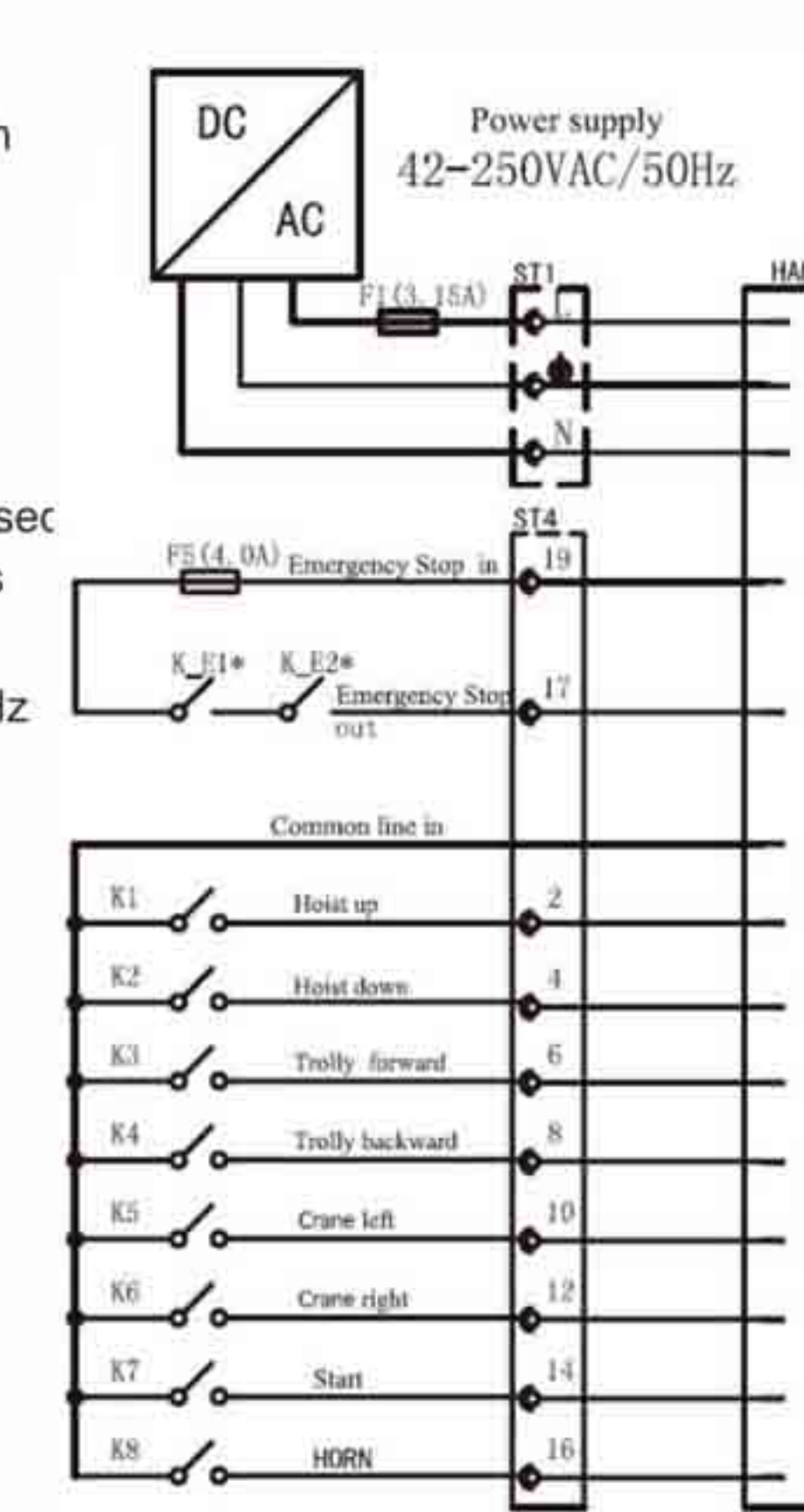


1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz

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machine output diagram

TCS-BO8 Receiver Output Diagram



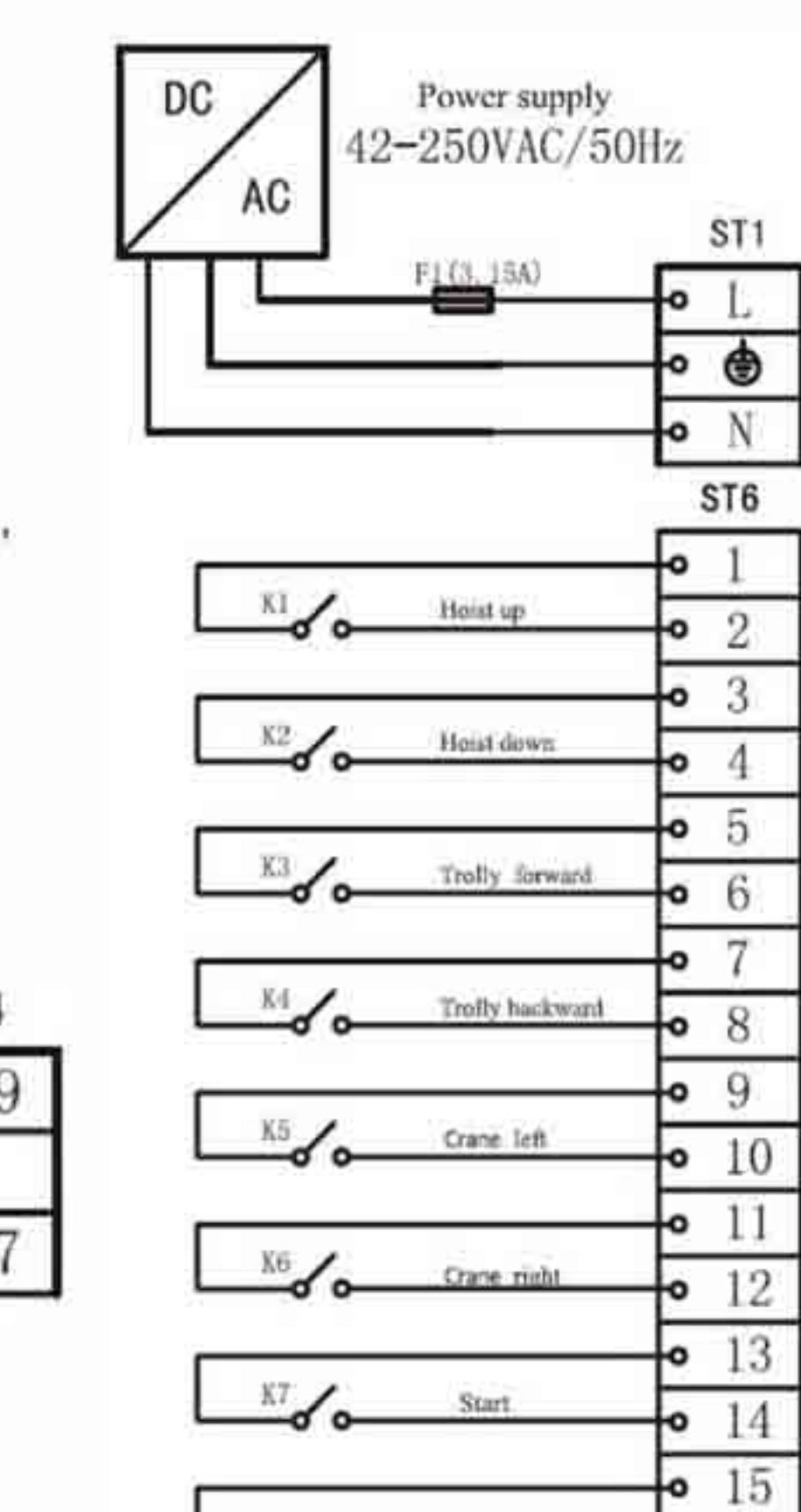
1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz

Industrial Connectors HAN16

Project:	SN:
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output with cable gland

TCS-BO8 Receiver Output Diagram

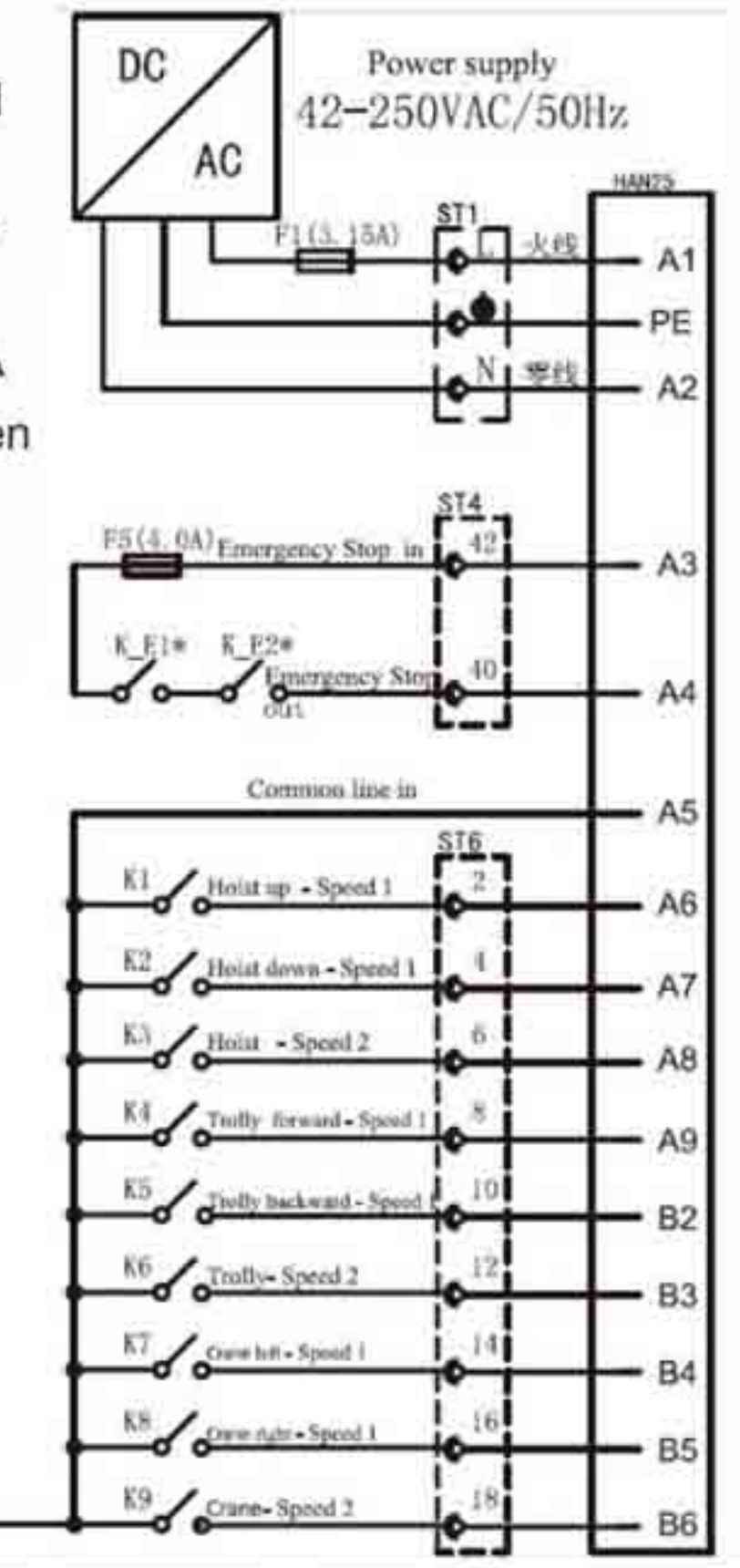


1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz

Project:	SN:
Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Designed by: OHM001 Checked by: OHM002 Date:2015.04.07

output with cable gland

TCS-B12 Receiver Output Diagram



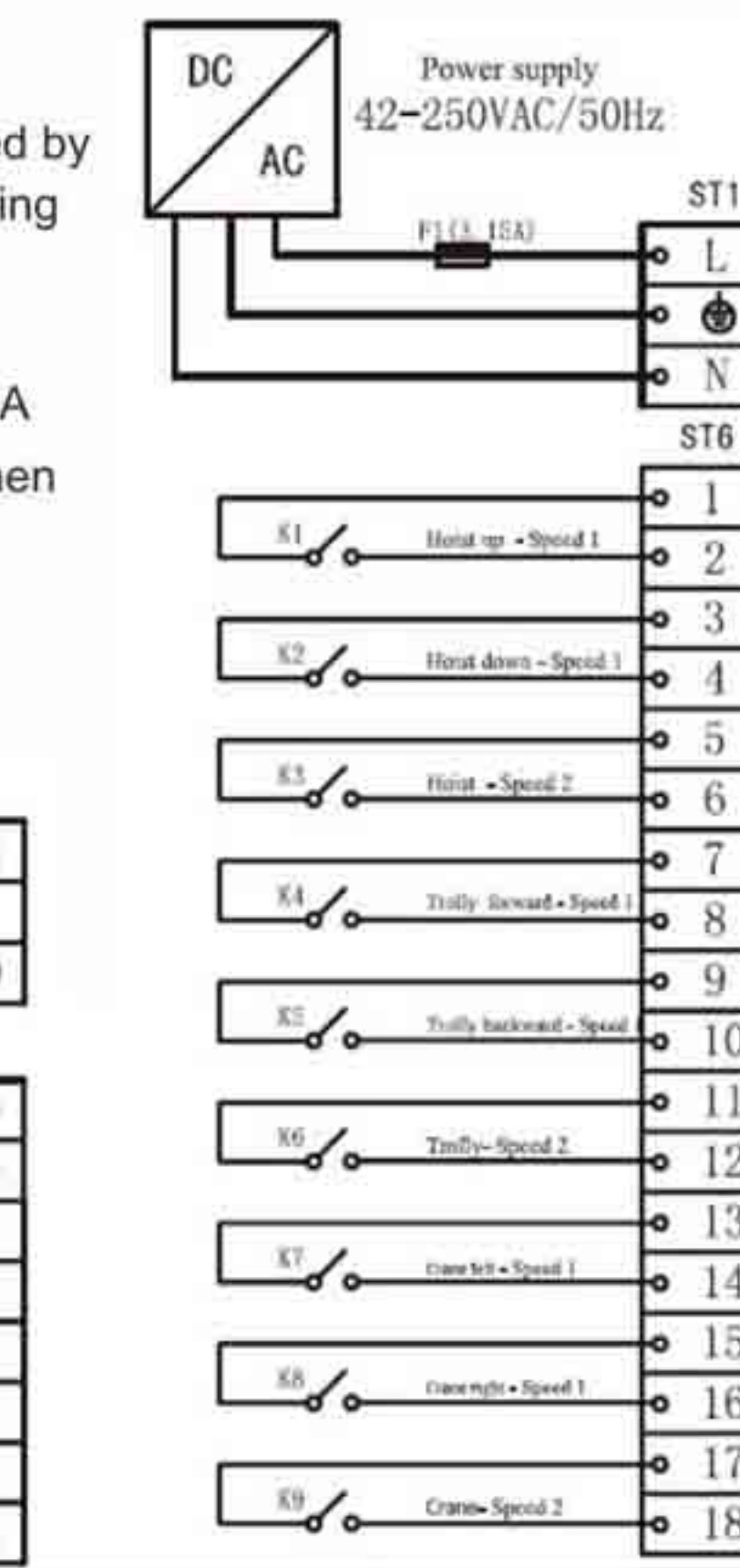
1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz

Industrial Connectors HAN25

Project:	SN:
Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Designed by: OHM001 Checked by: OHM002 Date:2015.04.07

output with cable gland

TCS-B12 Receiver Output Diagram




1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz

Project:	SN:
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output with cable gland

TCS-B16 Transmitter Panel Diagram



(E.M.STOP Swich)

Description of functions of TCS-B16 Transmitter:
Transmitter:
 2 step control for 4 drives:
 Buttons in Line 1: 3 buttons for controlling lifting operation of the primary hoist(double speed)
 Buttons in Line 2: 3 buttons for controlling lifting operation of the secondary hoist(double speed)
 Buttons in Line 3: 3 buttons for controlling trolly moving forward or backward(double speed)
 Buttons in Line 4: 3 buttons for controlling crane moving the left or right (double speed)
 Buttons in Line 5: 4 buttons for controlling starting operation, horn and switching
 There are 16 control points in total.

Notes:
 1.Buttons may be located according to users' demand.
 2.Function interlock K1/K2, L3/K4, K7/K8 and K10/K11.
 3.Please refer to the TCS-B16 receiver output diagram.

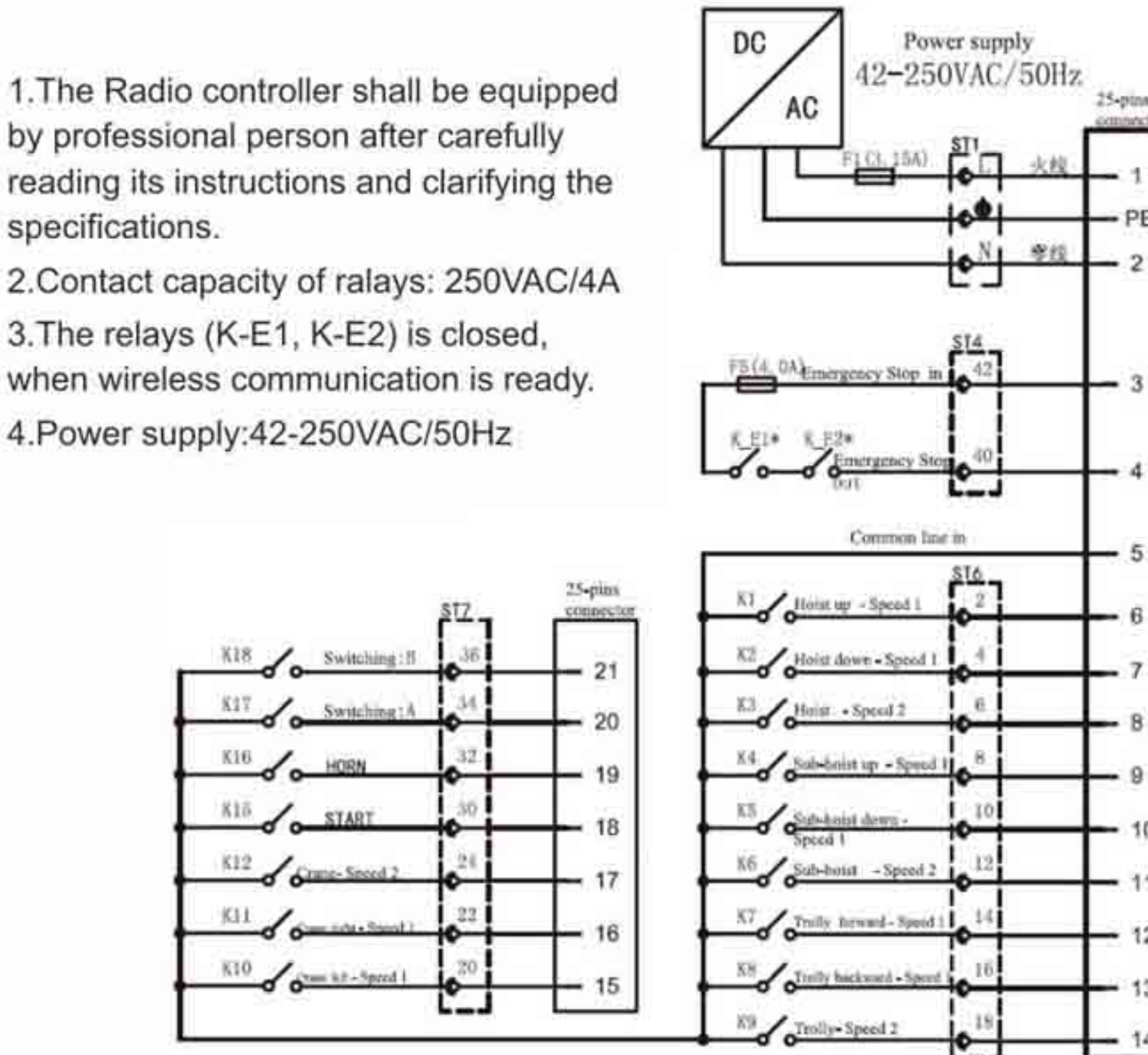
Smart card(KEY)


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transmitter panel diagram

TCS-B16 Receiver Output Diagram

1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz

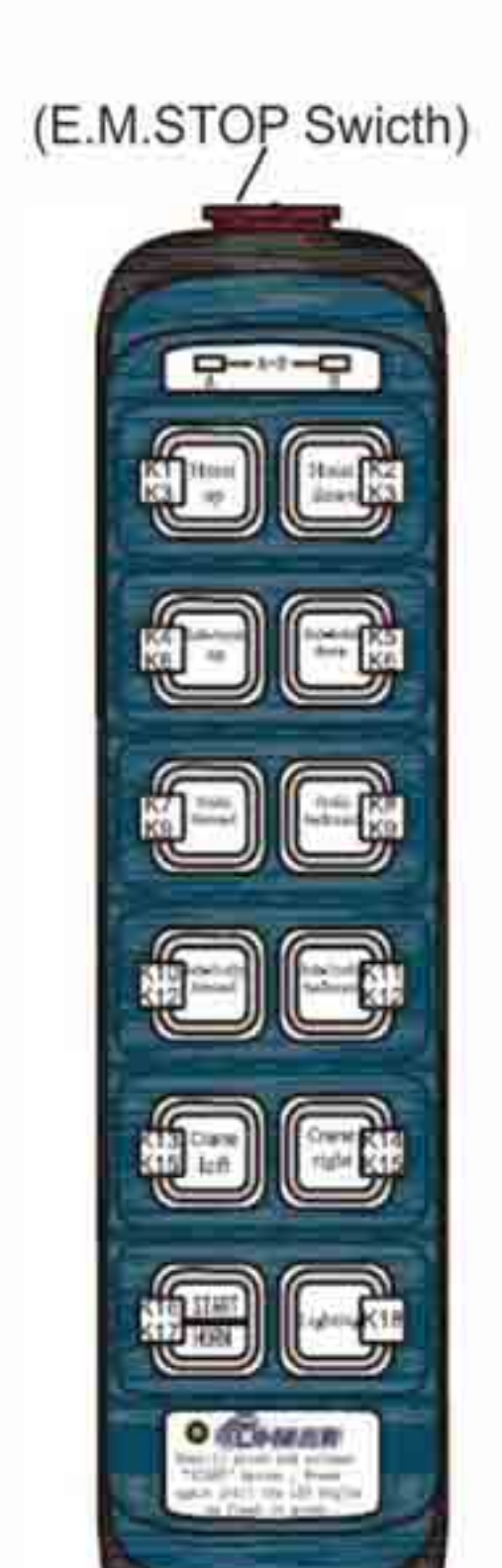


Switching: 

Project:	SN:
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machine output diagram

TCS-B20 Transmitter Panel Diagram



(E.M.STOP Swich)

Description of functions of TCS-B20 Transmitter:
 2 step control for 5 drives:
 Buttons in Line 1: 3 buttons for controlling lifting operation of the primary hoist(double speed)
 Buttons in Line 2: 3 buttons for controlling lifting operation of the secondary hoist(double speed)
 Buttons in Line 3: 3 buttons for controlling trolly 1 moving forward or backward(double speed)
 Buttons in Line 4: 3 buttons for controlling trolly 2 moving forward or backward(double speed)
 Buttons in Line 5: 3 buttons for controlling crane moving the left or right(double speed)
 Buttons in Line 6: 4 buttons for controlling starting operation, horn and switching
 There are 18 control points in total.

Notes:
 1.Buttons may be located according to users' demand.
 2.Function interlock K1/K2, L3/K4, K7/K8, K10/K11 and K13/K14.
 3.Please refer to the TCS-B20 receiver output diagram.

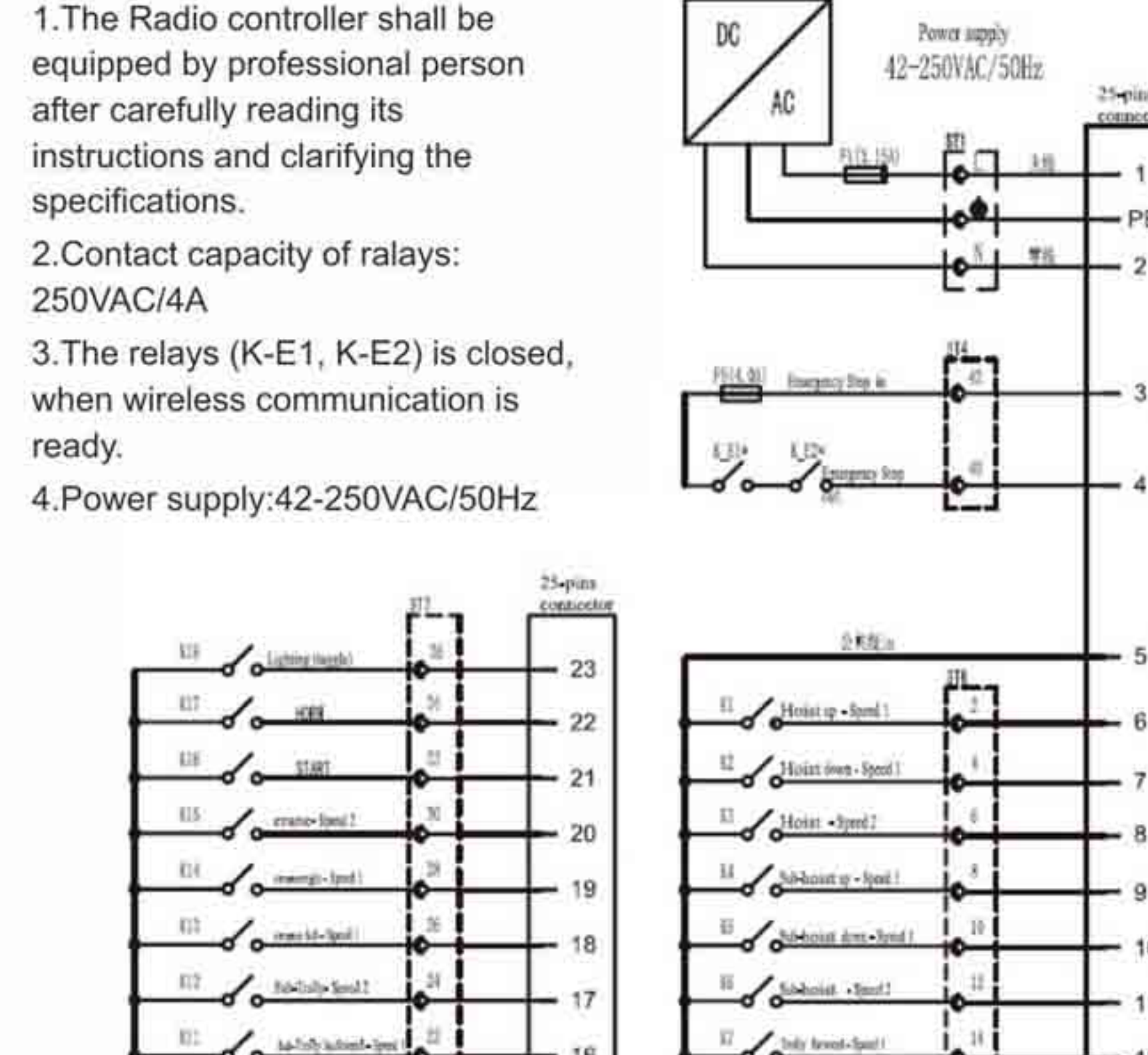
Smart card(KEY)

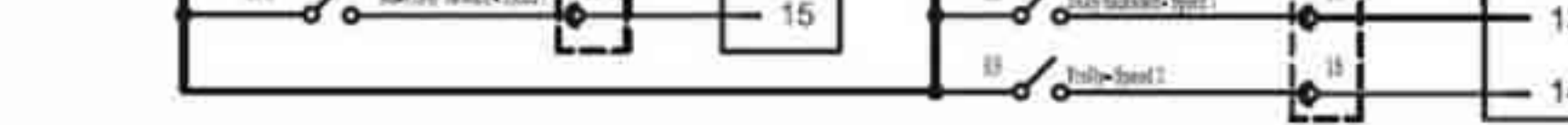
Project:	SN:
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transmitter panel diagram

TCS-B20 Receiver Output Diagram

1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz



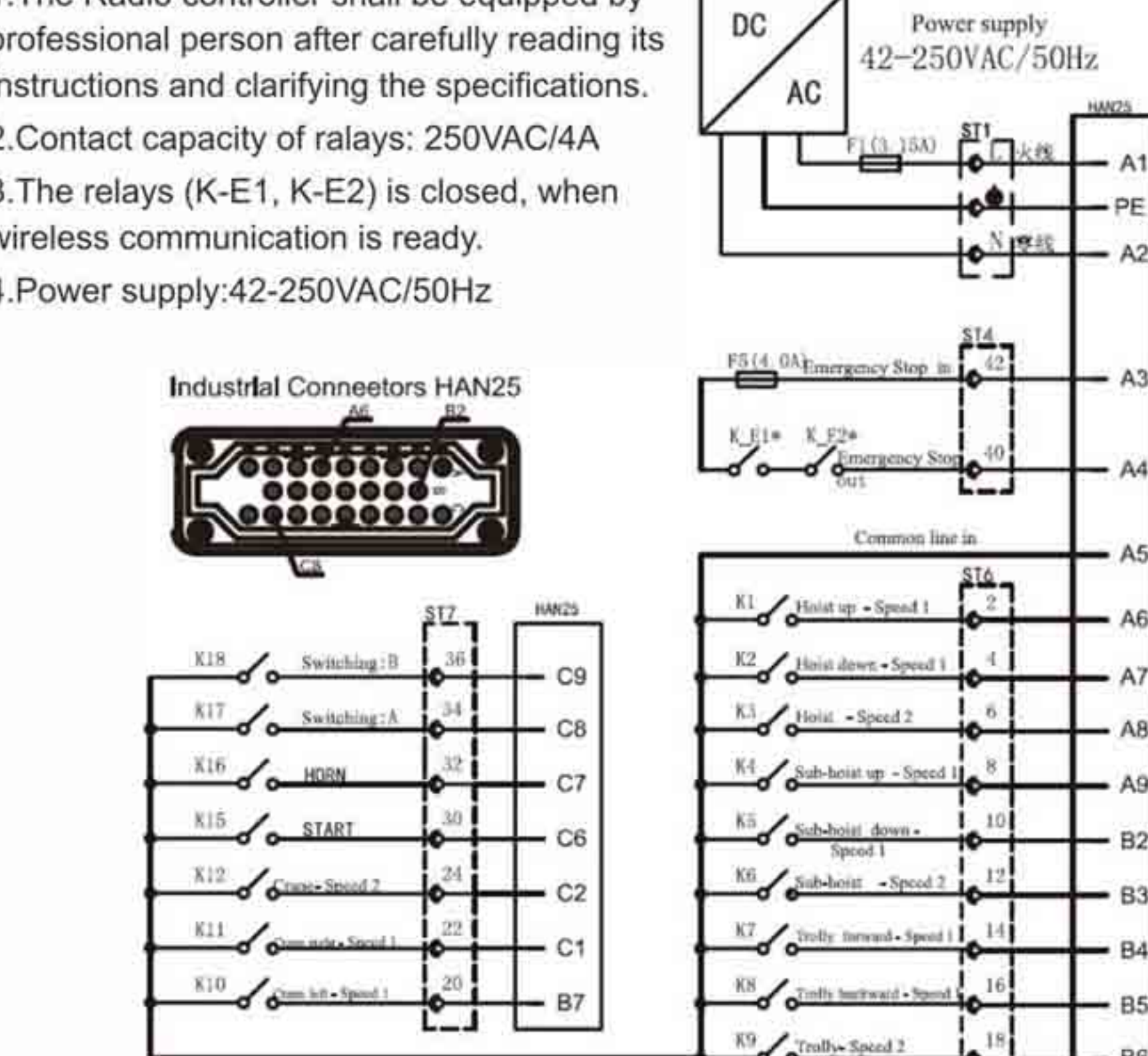
Switching: 

Project:	SN:
Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Designed by: OHM001 Checked by: OHM002 Date:2015.04.07

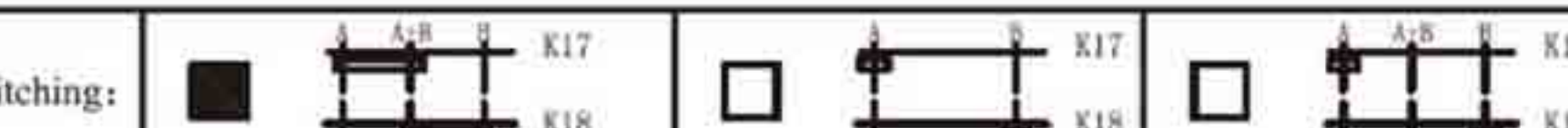
machine output diagram

TCS-B16 Receiver Output Diagram

1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz



Industrial Connectors HAN25

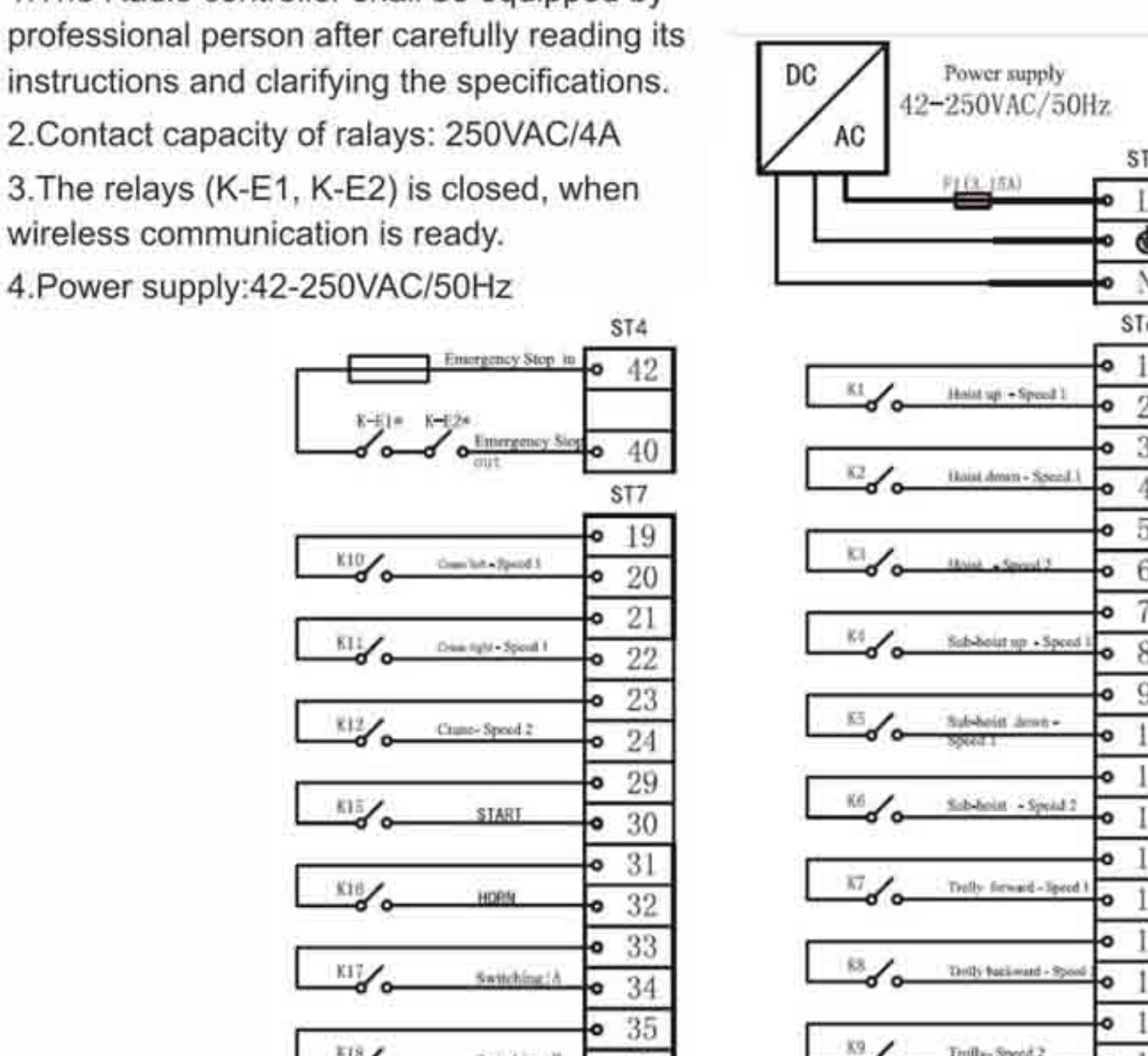
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output with cable gland

TCS-B16 Receiver Output Diagram

1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz



Industrial Connectors HAN25

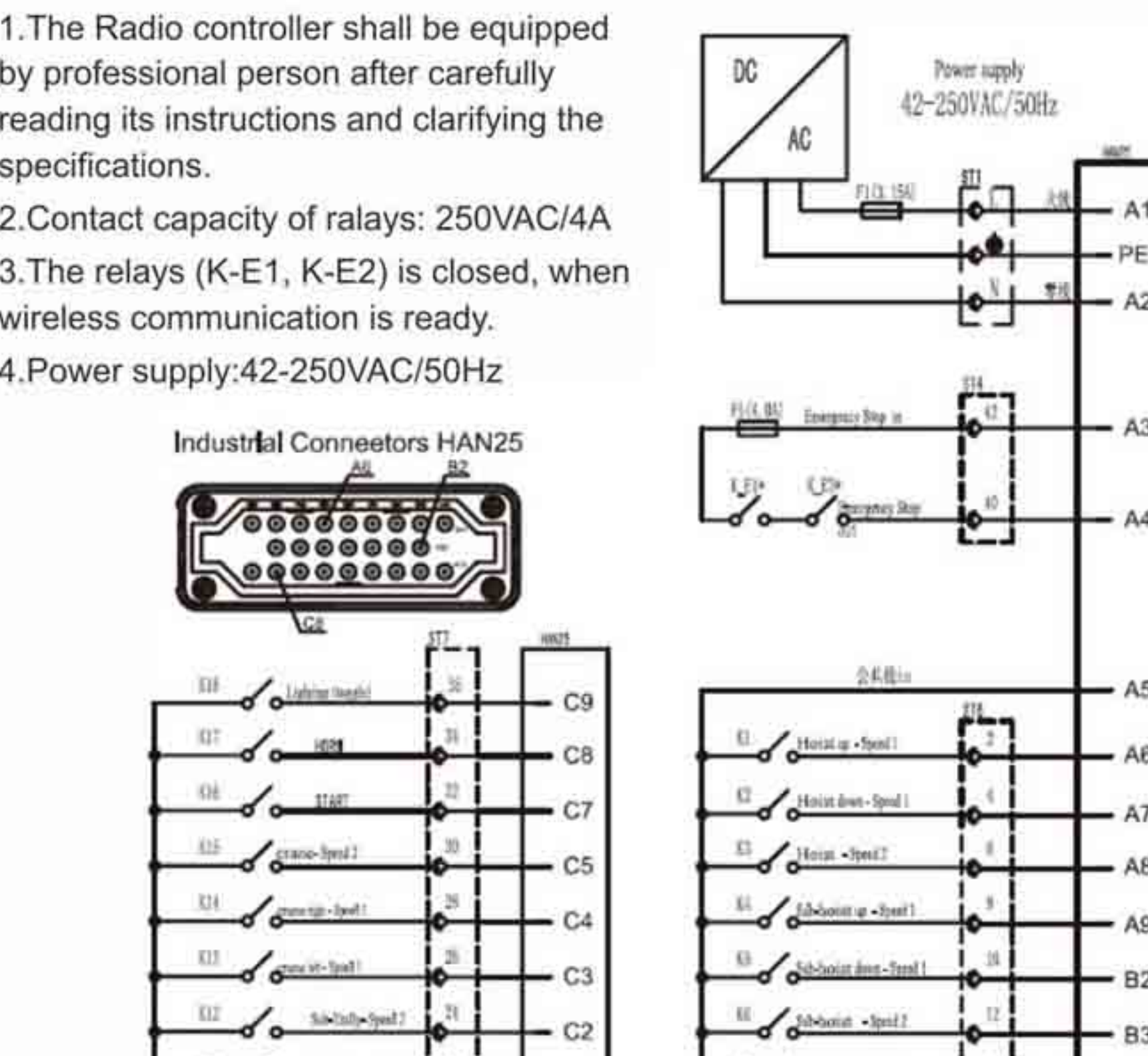
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Project:	SN:
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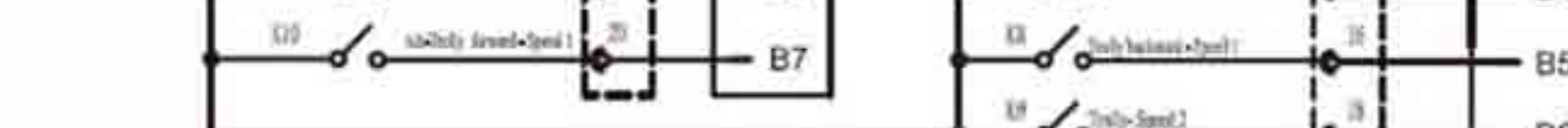
output with cable gland

TCS-B20 Receiver Output Diagram

1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz



Industrial Connectors HAN25

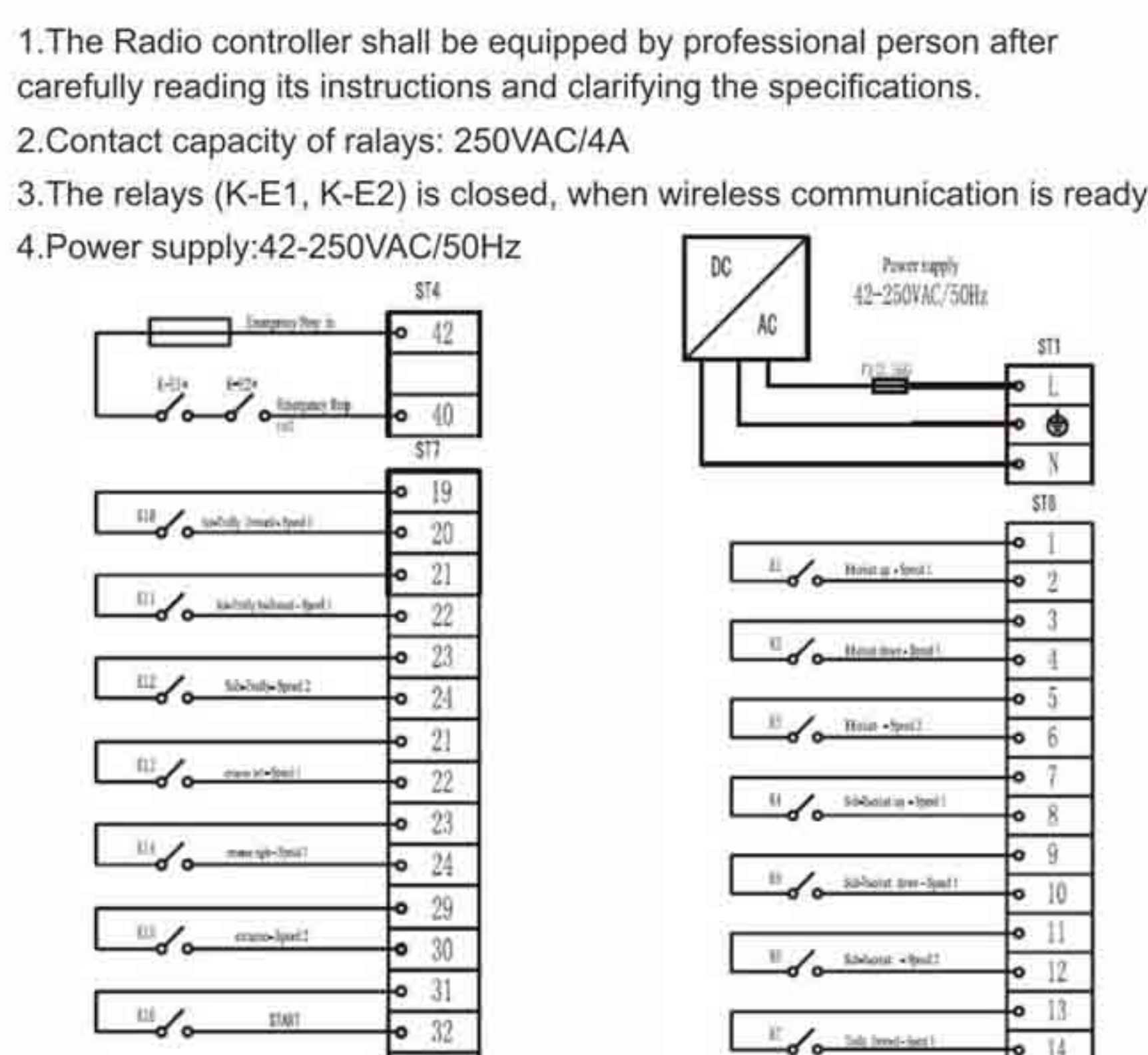
Switching: 

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output with cable gland

TCS-B20 Receiver Output Diagram

1.The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
 2.Contact capacity of relays: 250VAC/4A
 3.The relays (K-E1, K-E2) is closed, when wireless communication is ready.
 4.Power supply:42-250VAC/50Hz



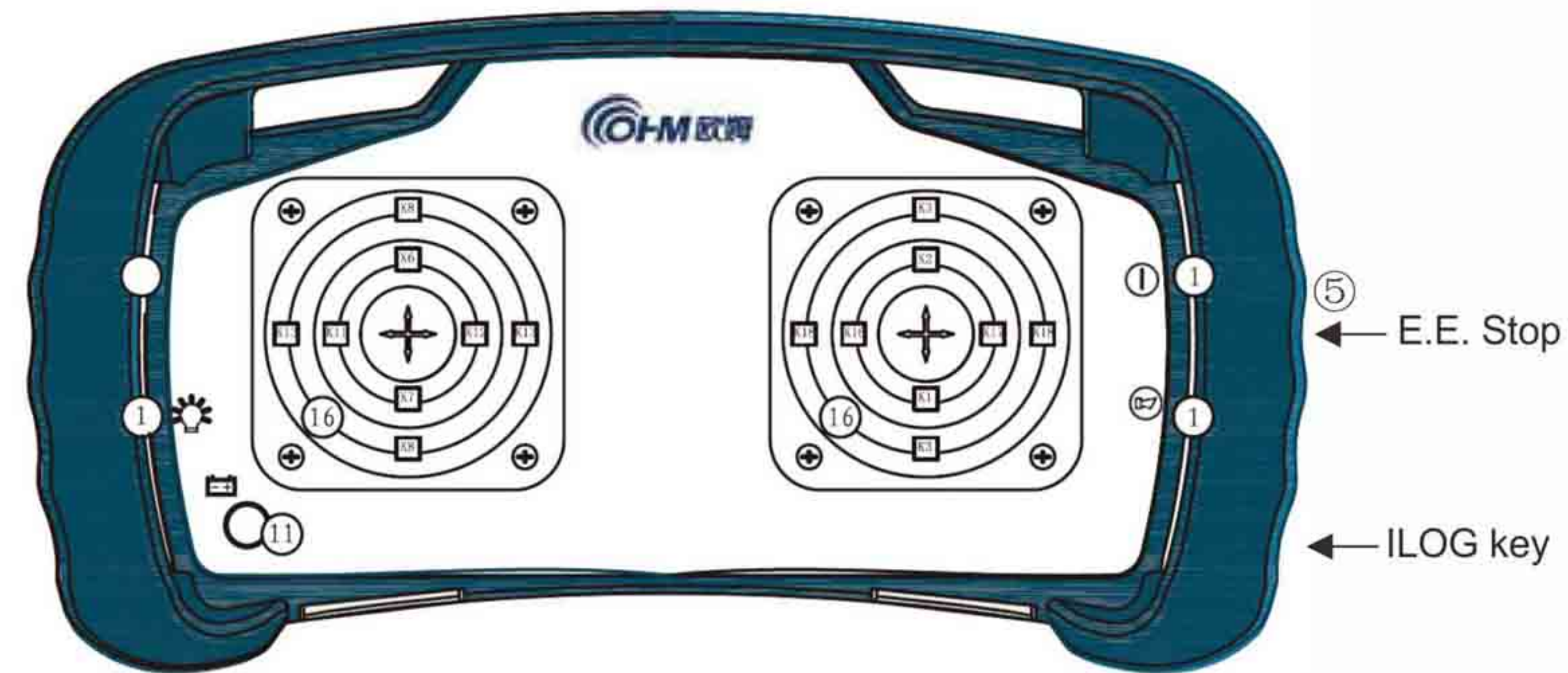
Industrial Connectors HAN25

Switching: 

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output with cable gland

TCS-C18-M Transmitter Panel Diagram

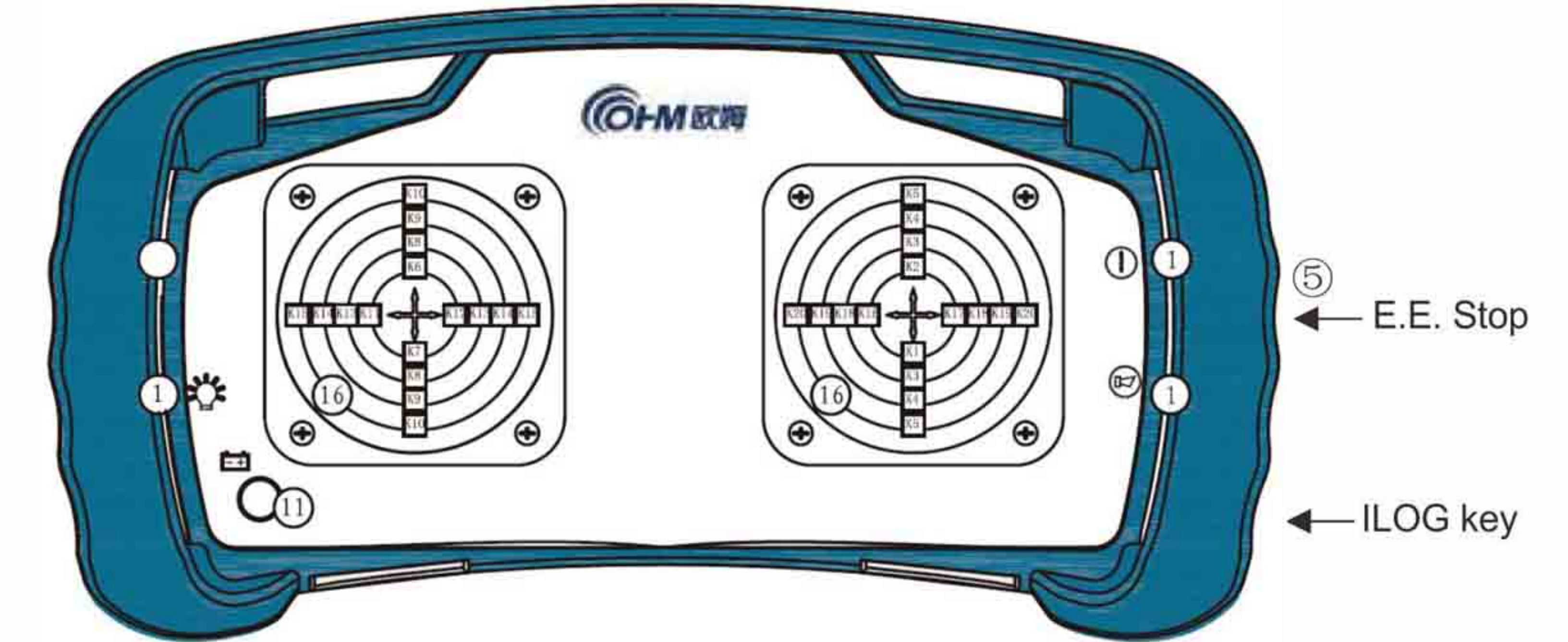


- | | | | |
|------------------------------------|---------------------------------|----------------------------|-----------------------------------|
| 1.push button | 6.latched toggle switch R-O-R | 11.LED with 'red' lens | 16.X-Y axis joystick with deadman |
| 2.DJET-pushbutton | 7.unlatched toggle switch O-T | 12.LED with 'green' lens | 17.linear lever |
| 3.rotary switch Max.12 positions | 8.unlatched toggle switch Y-O-T | 13.LCD screen for feedback | 18.Key switch |
| 4.E.M. Stop | 9.latched toggle switch R-O-T | 14.rotary potentiometer | 19.SMA antenna |
| 5.latched toggle switch O-R or R-R | 10.LED with 'red/green' lens | 15.X-Y axis joystick | 20.Z-axis joystick |

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		Date:2015.07.28	Approval:

transmitter panel

TCS-C32-M Transmitter Panel Diagram



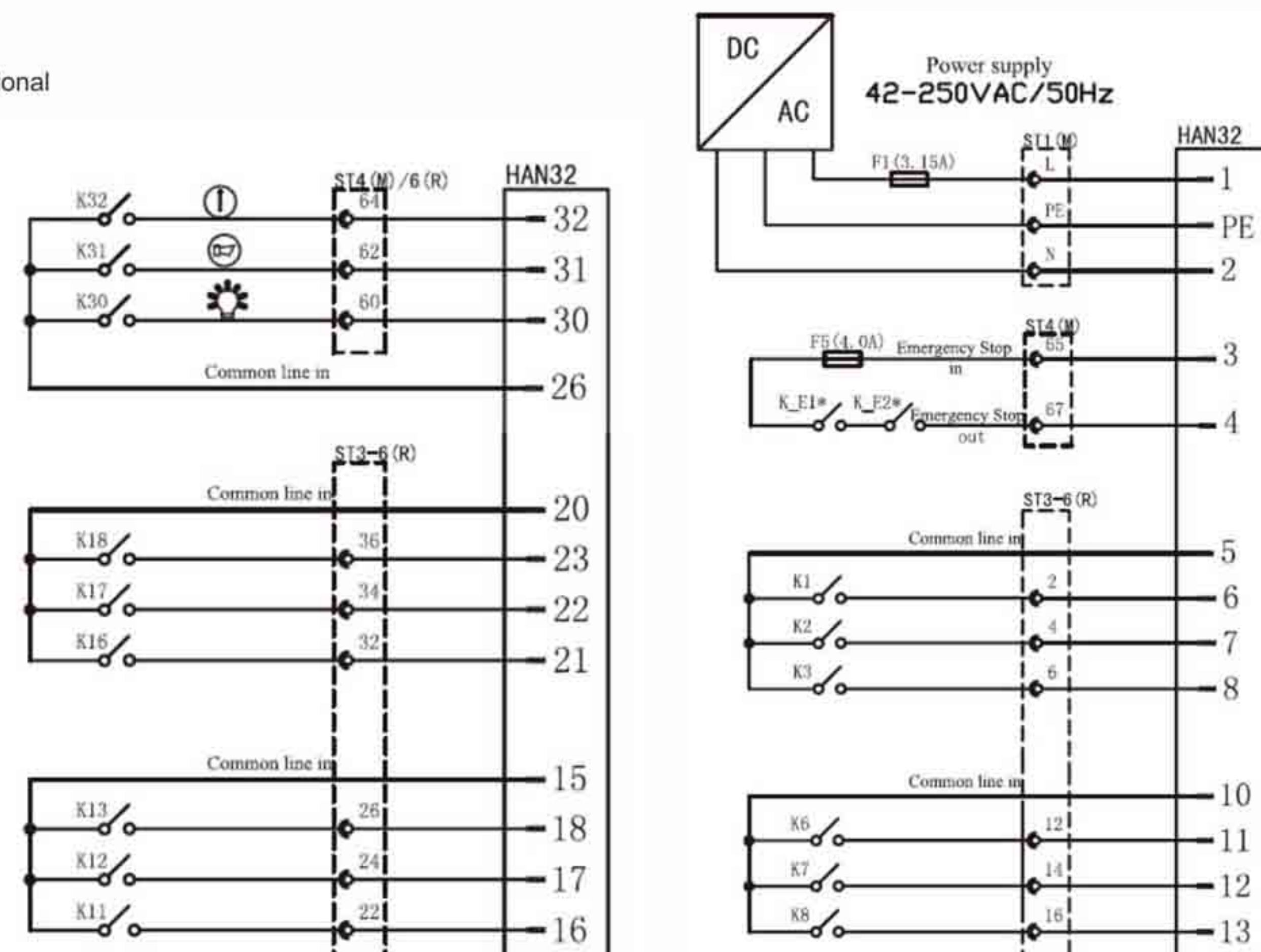
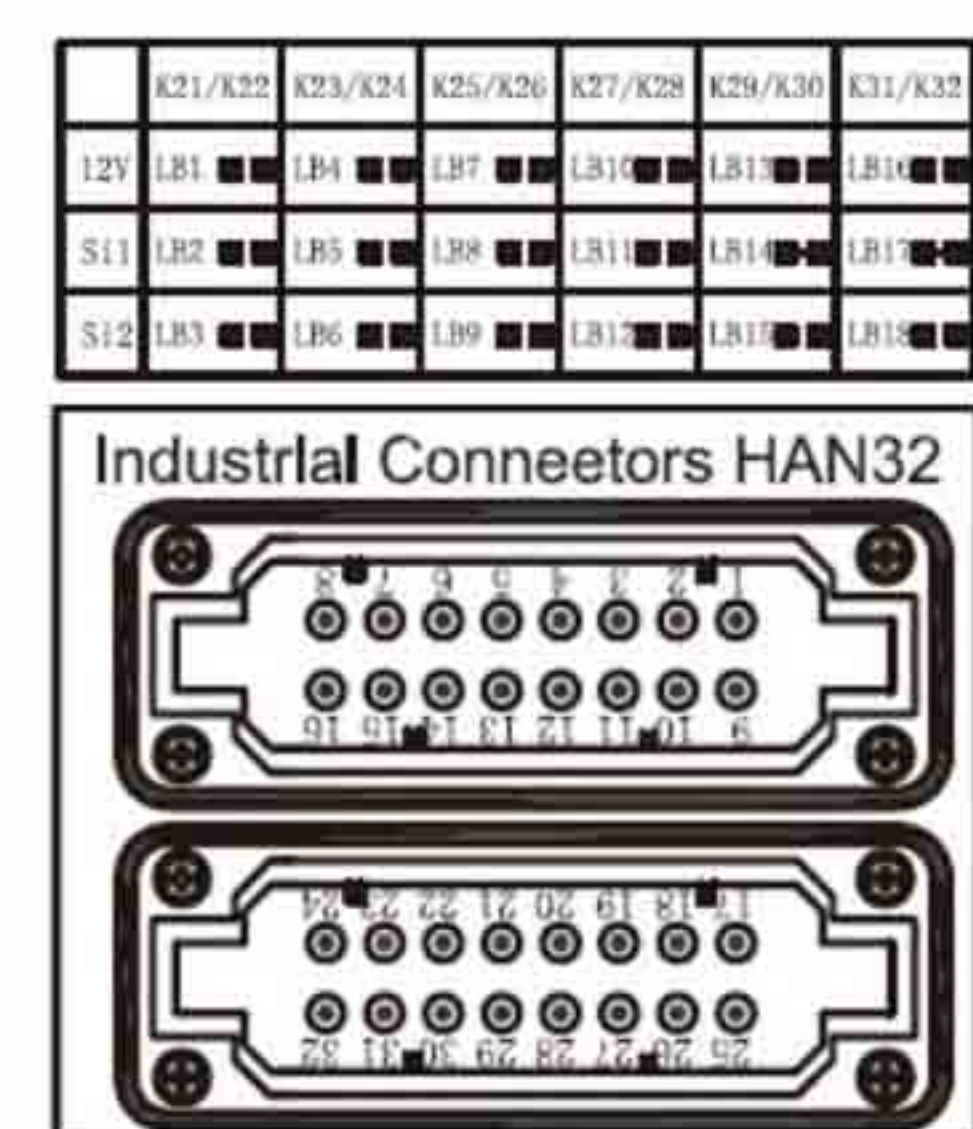
- | | | | |
|------------------------------------|---------------------------------|----------------------------|-----------------------------------|
| 1.push button | 6.latched toggle switch R-O-R | 11.LED with 'red' lens | 16.X-Y axis joystick with deadman |
| 2.DJET-pushbutton | 7.unlatched toggle switch O-T | 12.LED with 'green' lens | 17.linear lever |
| 3.rotary switch Max.12 positions | 8.unlatched toggle switch Y-O-T | 13.LCD screen for feedback | 18.Key switch |
| 4.E.M. Stop | 9.latched toggle switch R-O-T | 14.rotary potentiometer | 19.SMA antenna |
| 5.latched toggle switch O-R or R-R | 10.LED with 'red/green' lens | 15.X-Y axis joystick | 20.Z-axis joystick |

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		Date:2015.07.28	Approval:

transmitter panel

TCS-C18-M Receiver Output Diagram

- The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
- Contact capacity of relays: 250VAC/4A
- The relays (K-E1, K-E2) is closed, when wireless communication is ready.
- Power supply: 42-250VAC/50Hz

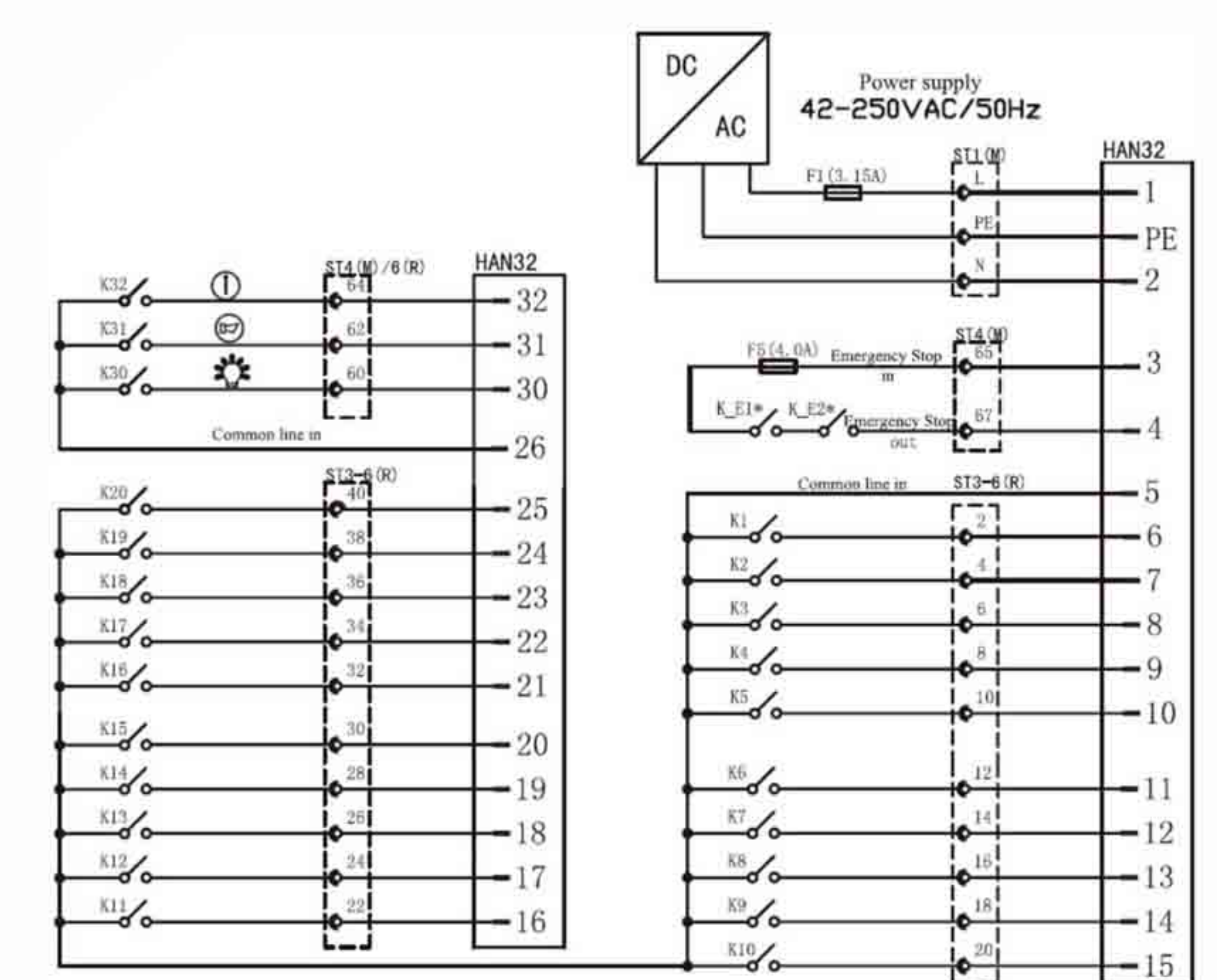
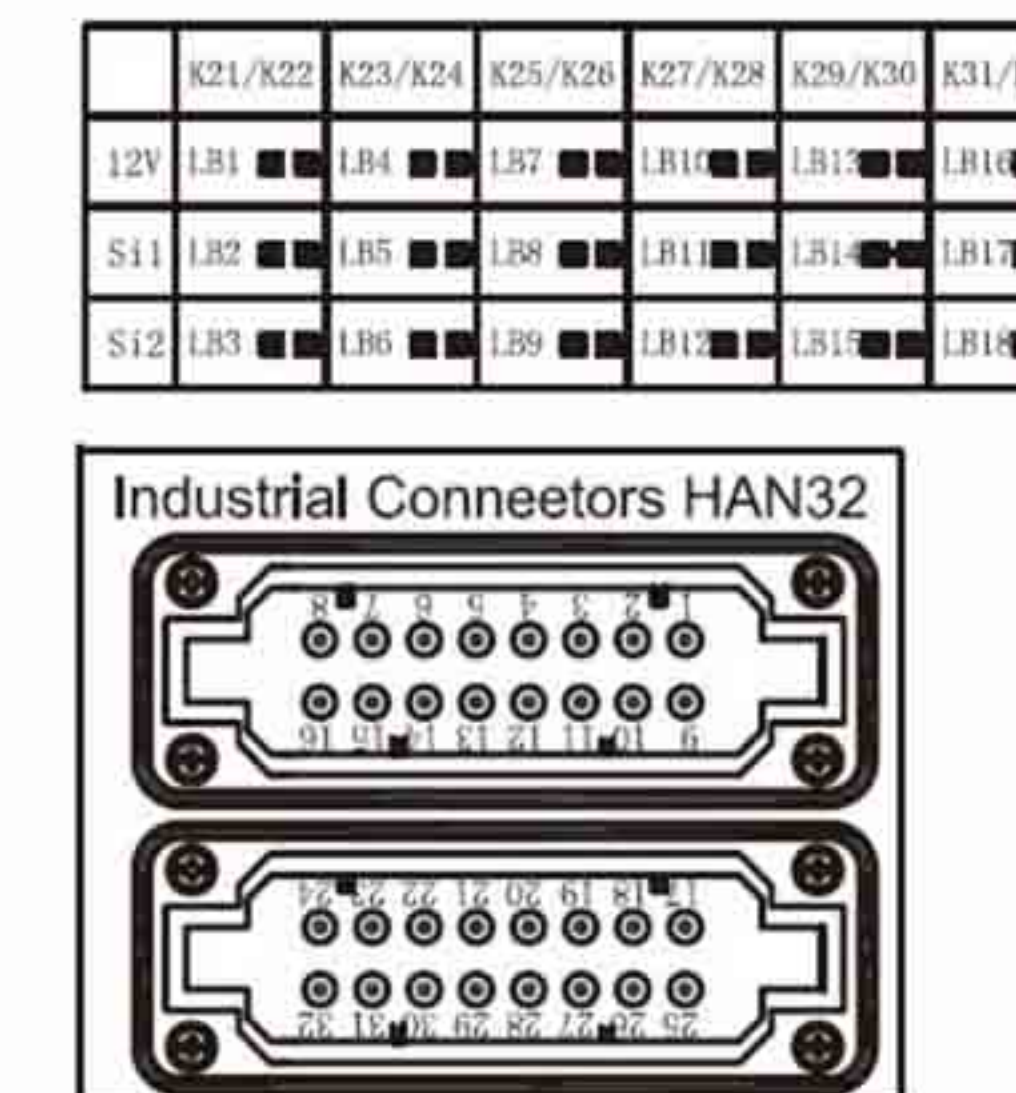


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output with connector

TCS-C32-M Receiver Output Diagram

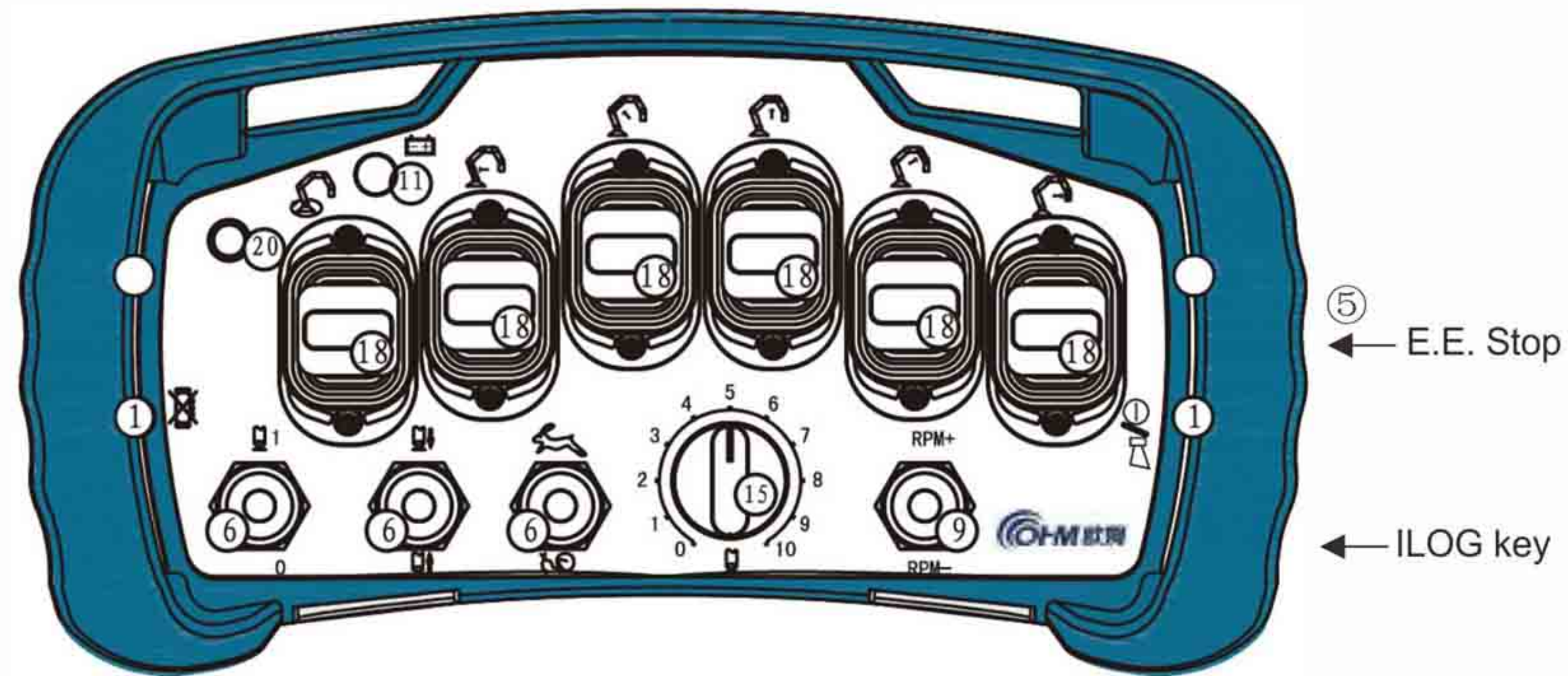
- The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
- Contact capacity of relays: 250VAC/4A
- The relays (K-E1, K-E2) is closed, when wireless communication is ready.
- Power supply: 42-250VAC/50Hz



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output with connector

TCS-C6X-MN Transmitter Panel Diagram

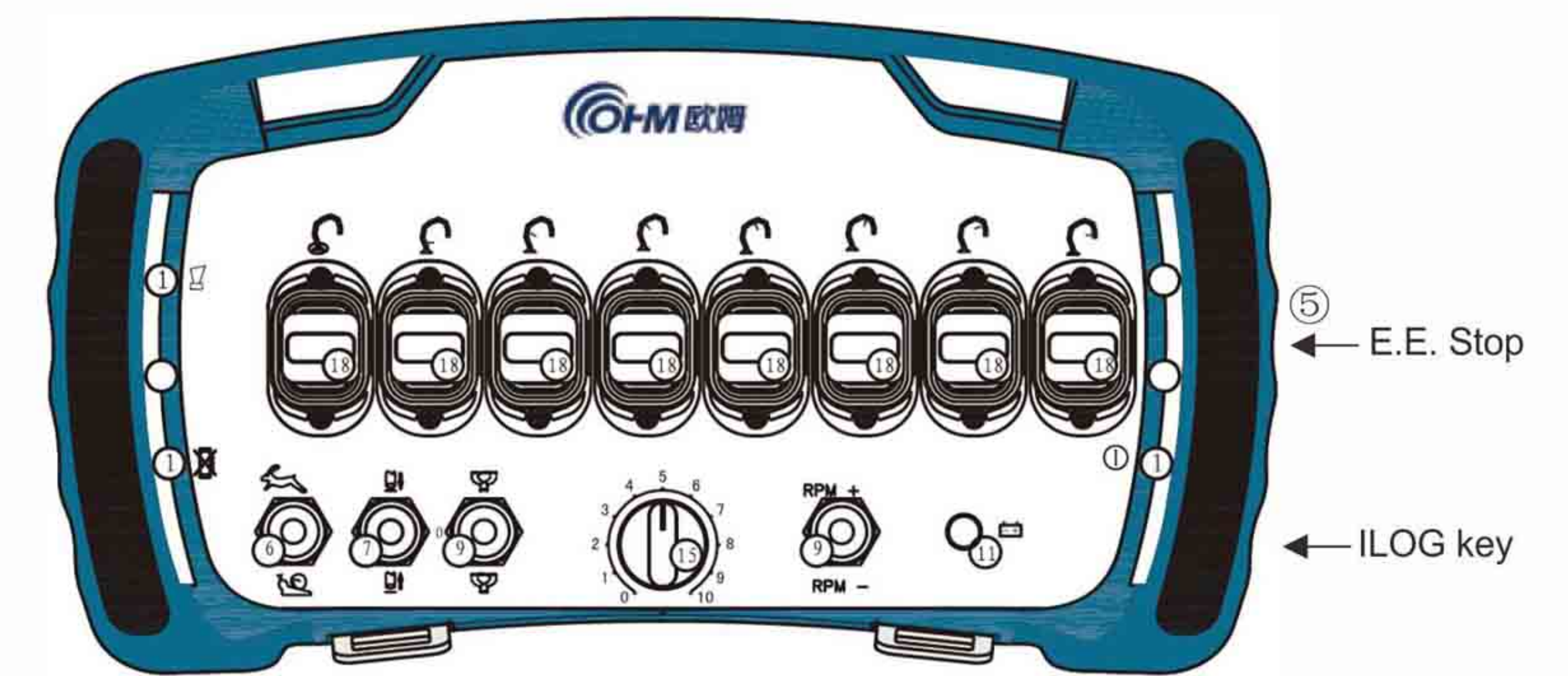


- | | | | |
|------------------------------------|---------------------------------|----------------------------|-----------------------------------|
| 1.push button | 6.latched toggle switch R-O-R | 11.LED with 'red' lens | 16.X-Y axis joystick with deadman |
| 2.DJET-pushbutton | 7.unlatched toggle switch O-T | 12.LED with 'green' lens | 17.linear lever |
| 3.rotary switch Max.12 positions | 8.unlatched toggle switch Y-O-T | 13.LCD screen for feedback | 18.Key switch |
| 4.E.M. Stop | 9.latched toggle switch R-O-T | 14.rotary potentiometer | 19.SMA antenna |
| 5.latched toggle switch O-R or R-R | 10.LED with 'red/green' lens | 15.X-Y axis joystick | 20.Z-axis joystick |

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		Date:2015.07.28	Approval:

transmitter panel

TCS-C8X-L Transmitter Panel Diagram



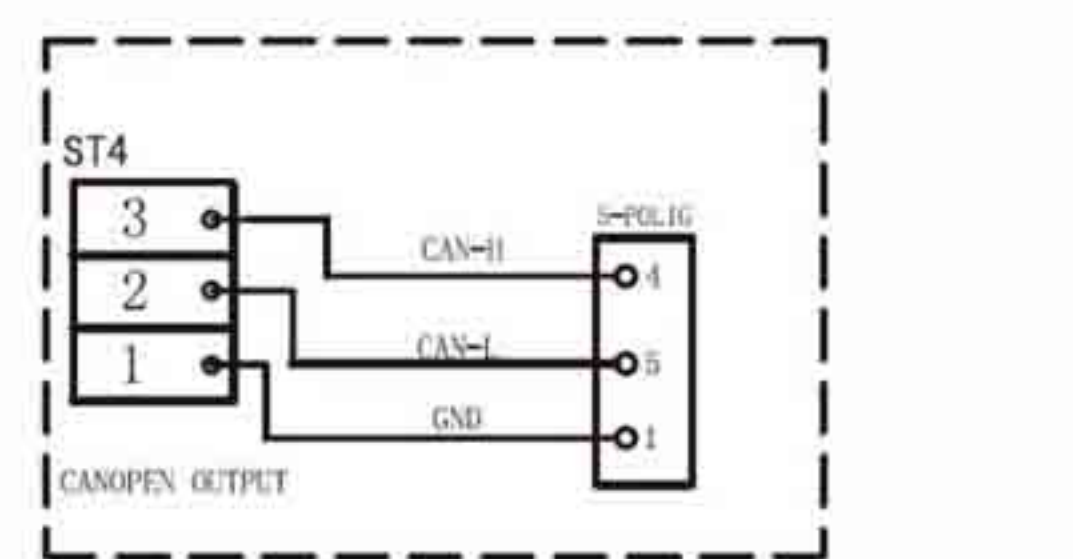
- | | | | |
|------------------------------------|---------------------------------|----------------------------|-----------------------------------|
| 1.push button | 6.latched toggle switch R-O-R | 11.LED with 'red' lens | 16.X-Y axis joystick with deadman |
| 2.DJET-pushbutton | 7.unlatched toggle switch O-T | 12.LED with 'green' lens | 17.linear lever |
| 3.rotary switch Max.12 positions | 8.unlatched toggle switch Y-O-T | 13.LCD screen for feedback | 18.Key switch |
| 4.E.M. Stop | 9.latched toggle switch R-O-T | 14.rotary potentiometer | 19.SMA antenna |
| 5.latched toggle switch O-R or R-R | 10.LED with 'red/green' lens | 15.X-Y axis joystick | 20.Z-axis joystick |

CLESCRANE	Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Project:	SN:
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		Date:2015.07.28	Approval:

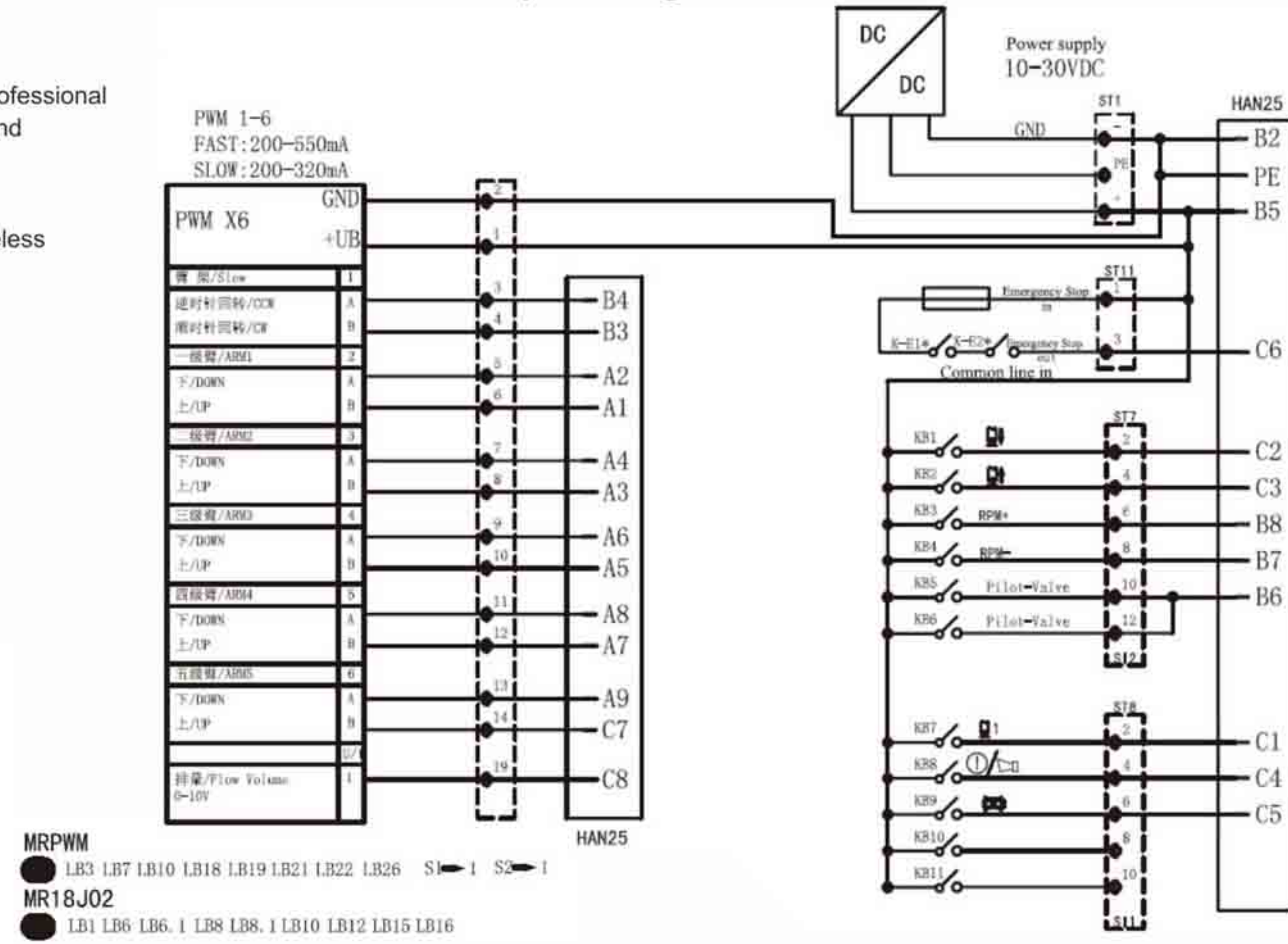
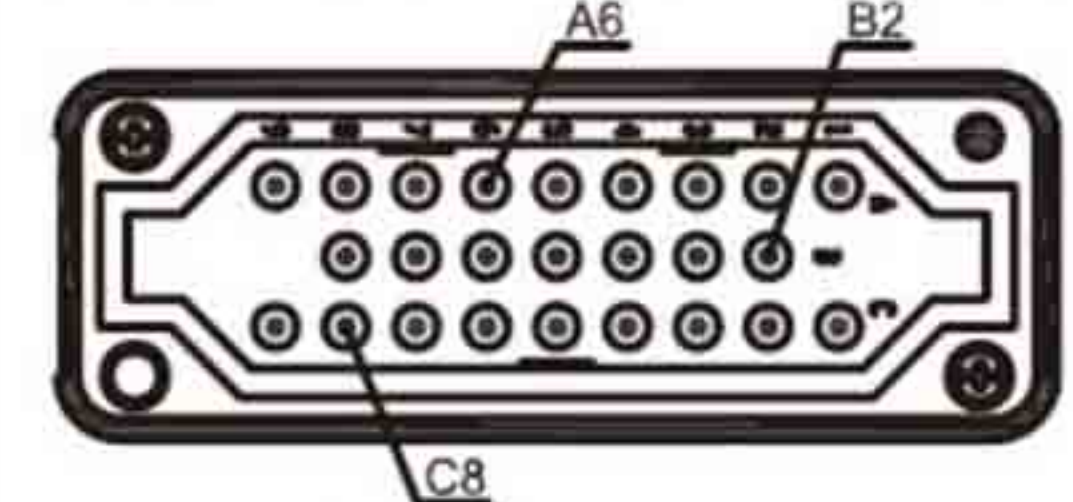
transmitter panel

TCS-C6X-MN Receiver Output Diagram

- The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
- Contact capacity of relays: 250VAC/4A
- The relays (K-E1, K-E2) is closed, when wireless communication is ready.
- Power supply: 10-30VDC



Industrial Connectors HAN25



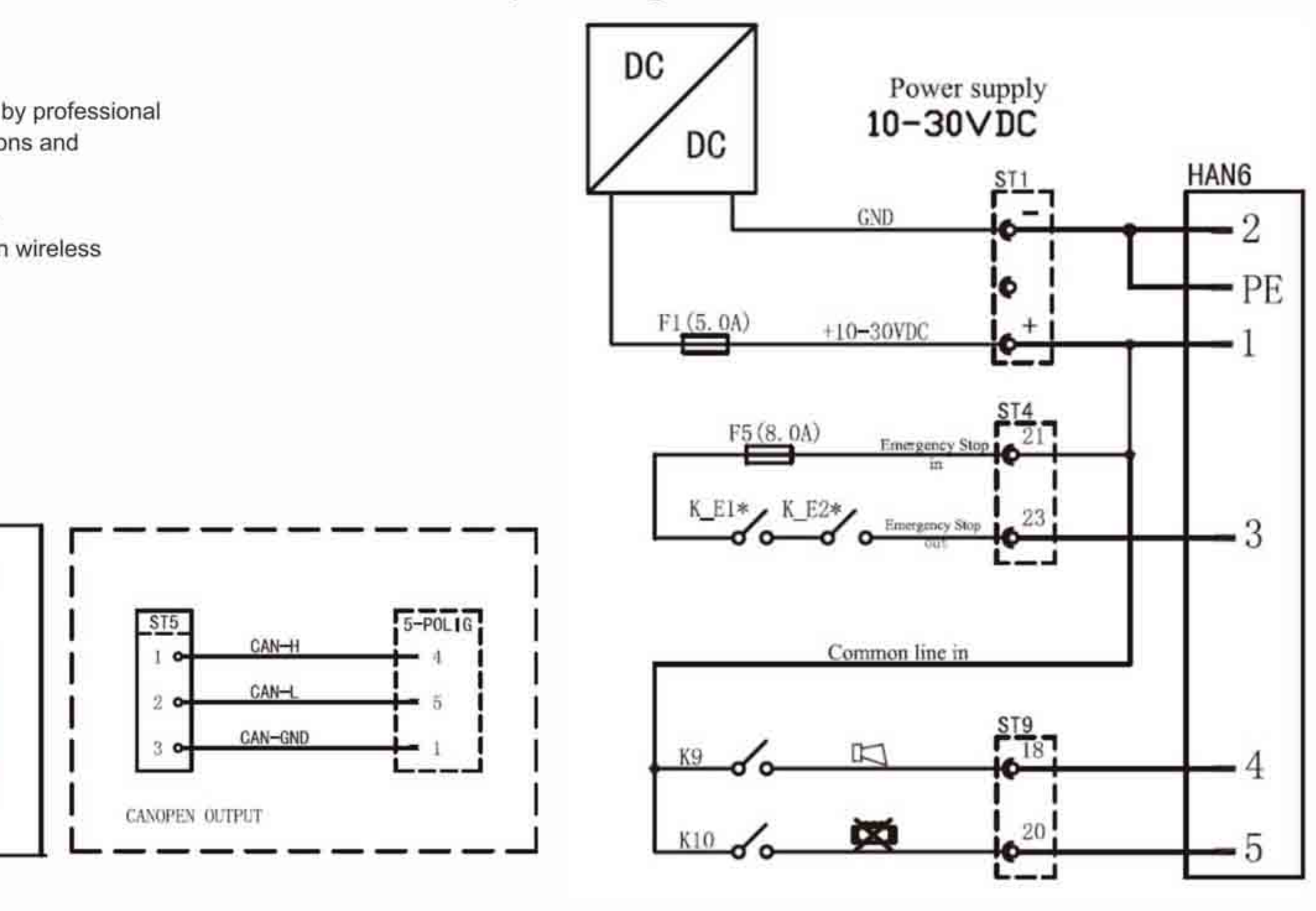
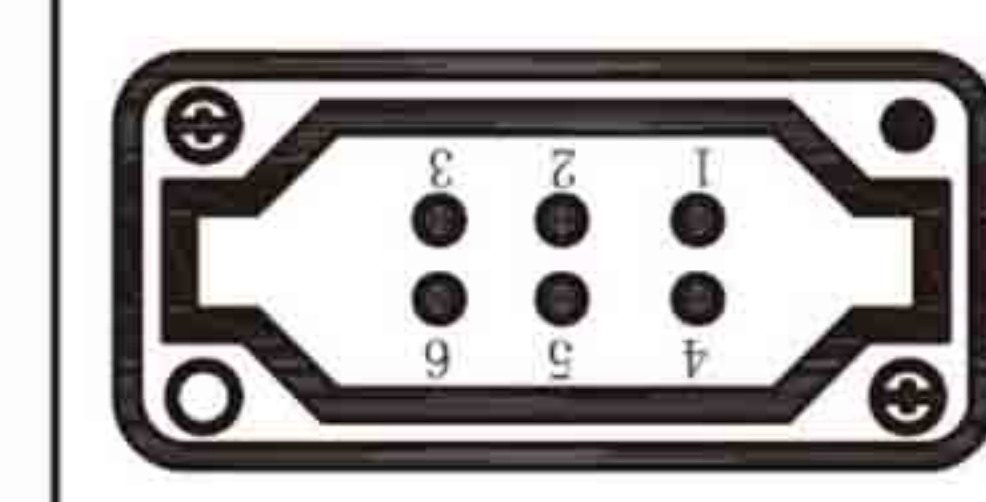
CLESCRANE	Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Project:	SN:
		Designed by: OHM001	Checked by: OHM002
		Date:2015.07.28	Approval:

output with connector

TCS-C8X-L Receiver Output Diagram

- The Radio controller shall be equipped by professional person after carefully reading its instructions and clarifying the specifications.
- Contact capacity of relays: 250VAC/4A
- The relays (K-E1, K-E2) is closed, when wireless communication is ready.
- Power supply:10-30VDC

Industrial Connectors HAN6



CLESCRANE	Address: Room 902, Building 6, No. 26 Dongqing Street, Zhengzhou, Henan, P.R.China; P.C.: 450000 Tel: +86-371-5532 8269	Project:	SN:
		Designed by: OHM001	Checked by: OHM002
		Date:2015.07.28	Approval:

output with connector

SAFE SHUTDOWN FUNCTION

The following may let the remote control transmitter system be shut down in some specific emergency cases so as to avoid any possible maloperation.

1. Impacting shutdown function

After a transmitter system is impacted externally (for example, it is knocked by a heavy thing), the transmitter system may be automatically shut down.

2. Rolling shutdown function

While rolling of a transmitter system is automatically detected, the transmitter system may be automatically shut down at once to prevent any possible maloperation due to rolling.

3. Dropping shutdown function

While it is automatically detected that a transmitter system is under the dropping situation, the transmitter system is automatically shut down at once; for example, while a transmitter system is falling accidentally or all operator throws a transmitter system to another operator, maloperation may possibly occur due to falling of the transmitter system.

The above safety features act as optional functions, which are only applicable to transmitter systems.

2. Press the "Takeover" button in the transmitter system 1;
3. After closing the transmitter system 1, restart it;
4. The transmitter 1 has the operation authorization for the crane.

Release operation authorization

1. Press the "release" button in the transmitter 1;
2. The transmitter 1 may be ready for operation (standby) or shut down;
3. The operation authorization of the transmitter 1 is called off based on the above procedures.

Takeover operation authorization

1. Press the "Takeover" button of the transmitter 2, the operation authorization from the transmitter 1 is taken over.
2. The transmitter 2 has the operation authorization till it sends a "release" order.

Notes:

1. A receiver being under the takeover status may be displayed through indicator light of a crane or machine;
2. The receiver is under weightlessness and restarted while it is taken over by any transmitter system; and the original takeover function is recovered. The takeover process must be carried out again;
3. If a transmitter is shut down or even lost while its "release" button is not pressed, the receiver may not be taken over by any other transmitter. The conditions for the receiver being normally taken over by any other transmitter are as follows: the

TAKEOVER-RELEASE FUNCTION

The "takeover-release" functions allows 2 or more crane operators having their own transmitters, they may independently operate a crane. Each crane being equipped with a receiver may receive and monitor all emission frequencies. After a receiving system is active, all transmitter systems have the same operation authorization.

Obtaining the operation authorization

1. Start the transmitter system 1;

TANDEM FUNCTION

A transmitter with tandem function may control 2 cranes (receivers) through an emission frequency point at the same time; and control of each crane may be selected through the rotary switch in the transmitter.

The positions of this selection switch are defined as:

- A Control crane A
- A+B Tandem mode of 2 cranes
- B Control crane B



TAKEOVER-RELEASE AND TANDEM FUNCTION

2 or more operators may interactively use a few cranes under the this mode. Each crane equipped with a receiver may receive and monitor all emission frequencies. After the receiving system has been active, all transmitter have the same operation authorization.

Release operation authorization

- 1.The "release" button in the transmitter 1 or transmitter system 2 is pressed, and other transmitter systems may possibly have the operation authorization of cranes;
2. For prevention of any wrong operation, the transmitter system 1 or transmitter system 2 is shut down; thus, the transmitter system 1 or transmitter system 2 releases operation authorization of cranes.

Takeover operation authorization

1. The rotary switch in the transmitter system 1 or transmitter system 2 is switched to the corresponding position ("A", "A+B" or "B");
2. The "takeover" button in the transmitter system is pressed to obtain the operation authorization of the crane. The operation authorization of the transmitter system 1 or transmitter system 2 may be obtained till it sends the "release" order.

Case

The transmitter system 2 has the operation authorization of cranes: and the transmitter system 1 is required to take over 1 crane or all cranes.

The operator must complete the following procedures:

1. Press the "release" button in the transmitter system 2;
2. For prevention of any operator's error, the transmitter system 2 is shut down;
3. Start the transmitter system 1;
4. The rotary switch in the transmitter system 1 is switched to "A", "A+B" or "B" (according to receive the operation authorization for some certain crane);
- 5 Press the 'takeover" button in the transmitter system 1.

Thus, the transmitter system 1 has the function for operation of all cranes.



Notes

1. Receiver may be displayed with the indicator light in a crane or machine, the system has been under the takeover status;
2. While the receiver is loss of power and restarted after its being taken over by any transmitter system, the original takeover function is recovered.

The takeover process must be carried out again;

3. If the transmitter system is shut down or even lost while its "release" button being not pressed, the receiver may not be taken over by any other transmitter system. The conditions for the system being normally taken over by any other transmitter system are as follows: a transmitter system with the operation authorization may be restarted; and the "release" button is pressed; or the receiver is started again after its being power off.

Special case (Master and Slave control functions)

The transmitter system 1 and the transmitter system 2 act as the Master and Slave control, respectively. The primary control transmitter system is equipped with a (A, A+B, B) transfer switch.

Under the normal mode, the transmitter system 1 independently controls Crane A, and the transmitter system 2 independently controls Crane B. If the primary control system is to obtain the operation authorization of Crane B, the following operation procedures must be performed:

1. Press the "release" button in the transmitter system 2;
2. For prevention of any operator's error, the transmitter system 2 is shut down;
3. Start the transmitter system 1;
4. The rotary switch in the transmitter system 1 is switched to "A+B" or "B";
5. Press the "takeover" button of the transmitter system 1.

Thus, the transmitter system 1 has the function for operation of 2 cranes.

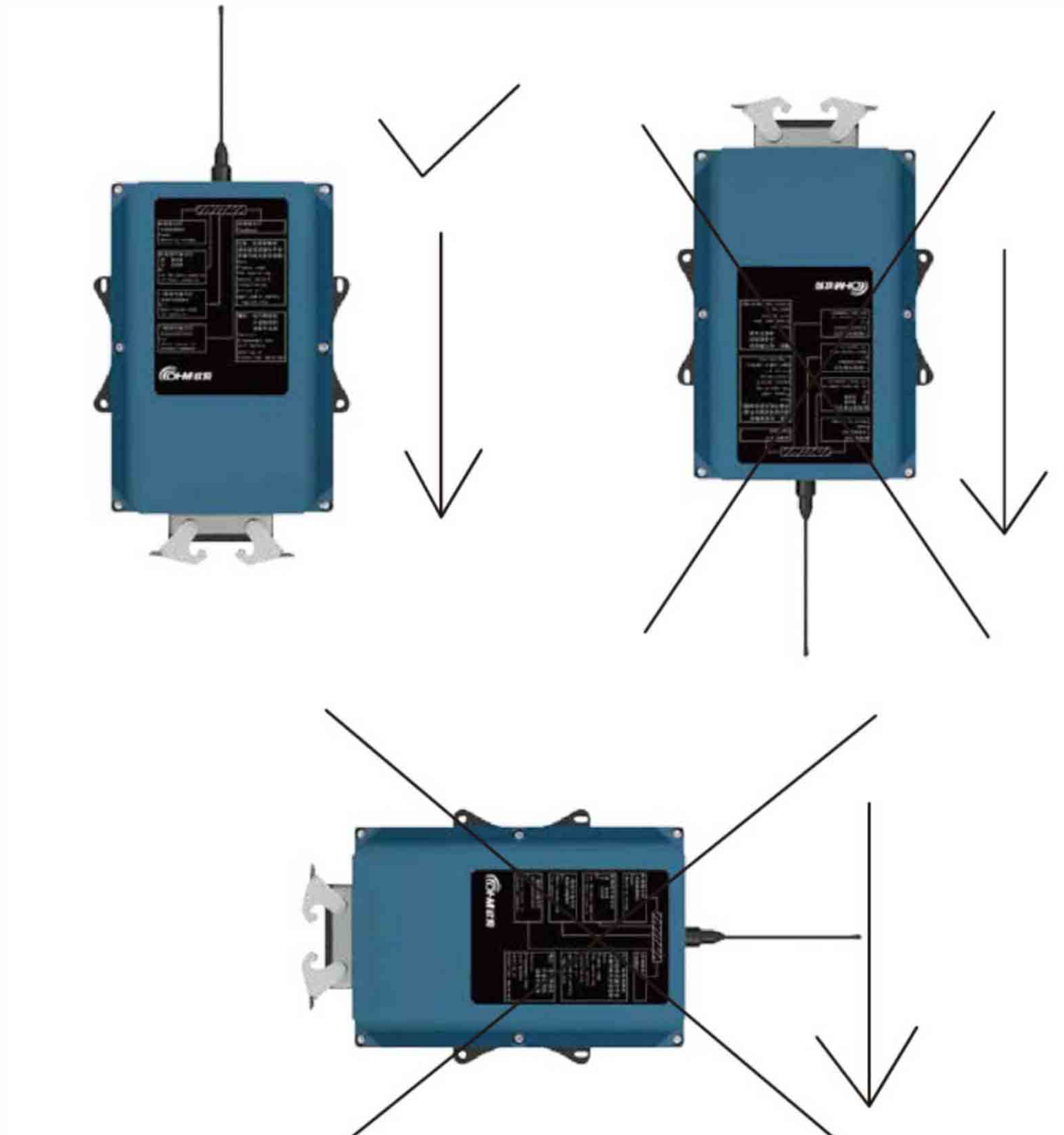
If the secondary control transmitter system 2 is to obtain the operation authorization of Crane B again, the following operation procedures must be performed:

1. The rotary switch in the transmitter system 1 is switched to "B" position;
2. Press the "release button in the transmitter system 1;
3. For prevention of any operator's error, the transmitter system 1 is shut clown;
4. Start the transmitter system 2;
5. Press the "takeover" button in the transmitter system 2.

Thus, the secondary control transmitter system 2 has the operation authorization of Crane B again.



INSTALLATION OF A RECEIVER



TROUBLE SHOOTING

Issue	Possible cause(s)	Solution
Start the transmitter and there is no response.	No power supply	Check the battery capacity; if the battery capacity is not sufficient, replace the battery or charge the battery; Check whether there is any damage or corrosion in contact points between battery and the remote control device.
The red indicator light of the transmitter flashes one time per second and there are buzz sounds.	Insufficient battery capacity	Check the battery capacity; if the battery capacity is not sufficient, replace the battery or charge the battery; Check whether there is any damage or corrosion in contact points between battery and the remote control device.
The red and green indicator lights of the transmitter flash alternately.	No identification of the intelligent chip ILOG	No identification of the intelligent chip ILOG
Start the transmitter and the green indicator light flashes rapidly (the rocker system)	The protection mechanism is not reset.	Check the protection mechanism and ensure its switch shall be reset.
The indicator lights of the transmitter are normal, but there is no output activity.	No power supply to the receiver. The transmitter and the receiver are not connected. The "START" order is not active.	Check cable to the receiver; Check indicator lights of the receiver;
There is no output for some certain activity.	The receiver is fault; The cable between the receiver and the controlled device are not connected.	Check all cable joints and ensure they shall be tightened.
After the receiver is connected to the machine, the status indicator light does not flash.	No power supply	Check the power supply to the machine. Check connection of the receiver and the machine. Check the internal fuse of the receiver.
Start the transmitter normally, and the receiver is energized normally; but connection may not be carried out.	Damage of the antenna of the receiver	Replace the antenna.



SERVICE

Our service solutions are specially made based on different requirements of individual clients.

Meeting their standards could remove any of their worries.

Including:

- Customized solutions
- Reliable, efficient and safe crane equipment
- High quality packaging
- Installation and Assembly & Test running
- Professional training
- Plenty of spare parts
- Maintenance
- Analysis and Suggestions
- Intelligent crane design software
- The experienced team of engineers

Clescrane's service pack is safe and costs less.

Clescrane's service pack also applies to cranes and hoists produced by other manufacturers.