K-DRIVE

KD600 SERIES

General Pupose Seires

ISO 9001 — CE

QUALIFICATION HONOR

(ISO9001 quality management system certification & CE certificate)

CERTIFICATE — CERTIFICATE

BIGGER SIZE, BIGGER POWER

Do whatever you want | Give you what you want

OUTSTANDING QUALITY

01 100% — Start Torque@0.5Hz

02 200% — Overload Capability

03 ±0.5% — Speed accuracy

04 40 ℃ — Ambient Temp

05 1:100 — Speed Regulation

06 16 — Multi-step speed max.

FULL FUNCTIONING

485 communication interface + 16 speed adjustable

DIGITAL PANEL 50.00
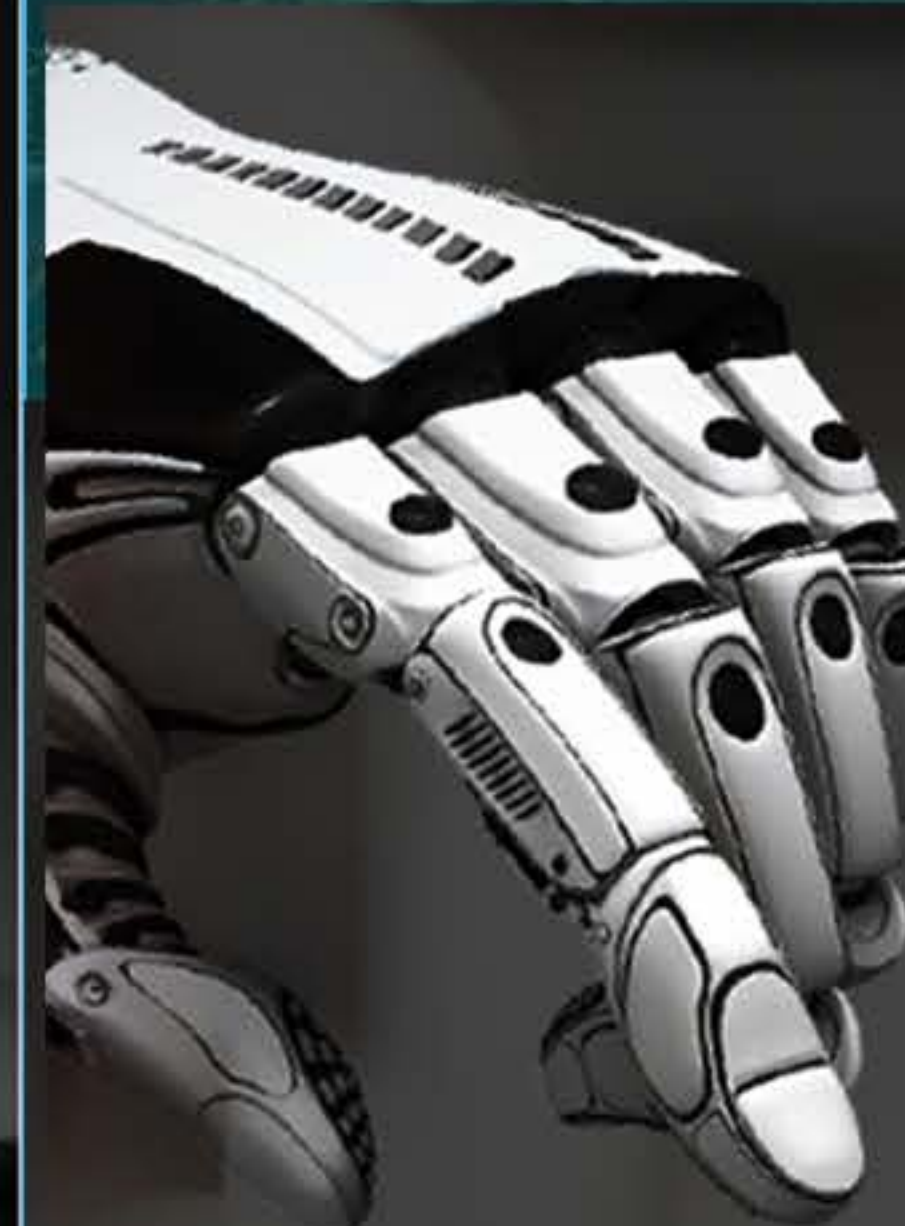
USE MORE VARIETY

Control panel can be extended externally

DIGITAL PANEL 50.00

OUTSTANDING ABILITY

EMC Filter — C3 Level Filter Build-In Standardly Better EMC Performance

IGBT — Selection Of Large Margin Current>2 Times of VFD Current

200% — 120% long time running without trip. 150% for 60 seconds 180% for 10 seconds

±15% — Compatible with ±15% input voltage fluctuation, output voltage s

S Curve — S Curve Acceleration/Deceleration Better Start /Stop Performance

Flying Start — Restart The Running Motor Smoothly No Current Surge

Protection — Overcurrent、Overvoltage、PID feedback failure、Overheat、Undervoltage、The main contactor is abnormal、Motor overload、Fast protection、Unbala-nced output、Frequency conversion overload、System abnormal、Motor detection abnormalOutput phase loss、Input phase loss、Short circuit protection

RELIABLE DEVICE

Adopt world-class brand devices

AVAGO TECHNOLOGIES

TEXAS INSTRUMENTS
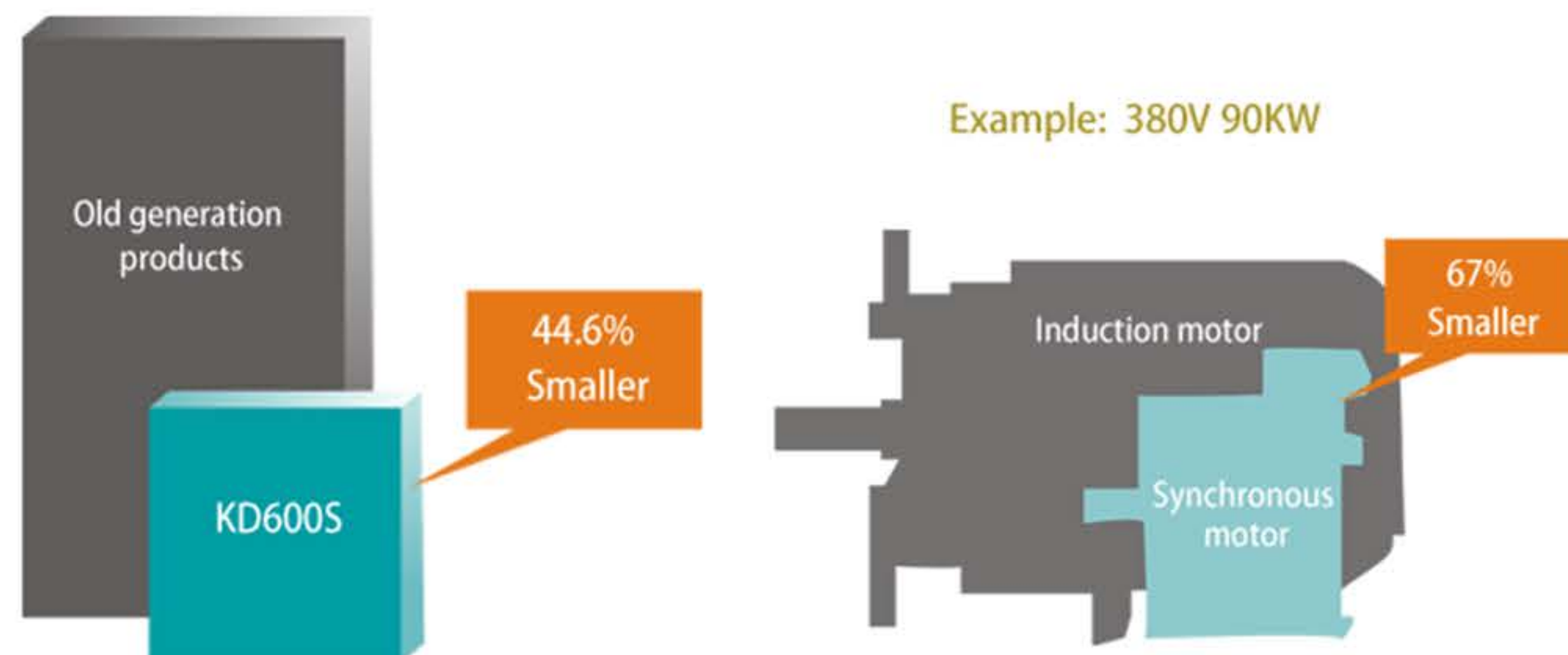
Infineon

TDK

Fe

VISHAY

METICULOUS JUST TO SURPASS

MORE COMPACT STRUCTURE

K-DRIVE continues to make applications even smaller by combining the compact designed drive with the light, efficient design of a synchronous motor.

Example: 380V 90KW

Old generation products

KD600S

44.6% Smaller

Induction motor

67% Smaller

Synchronous motor
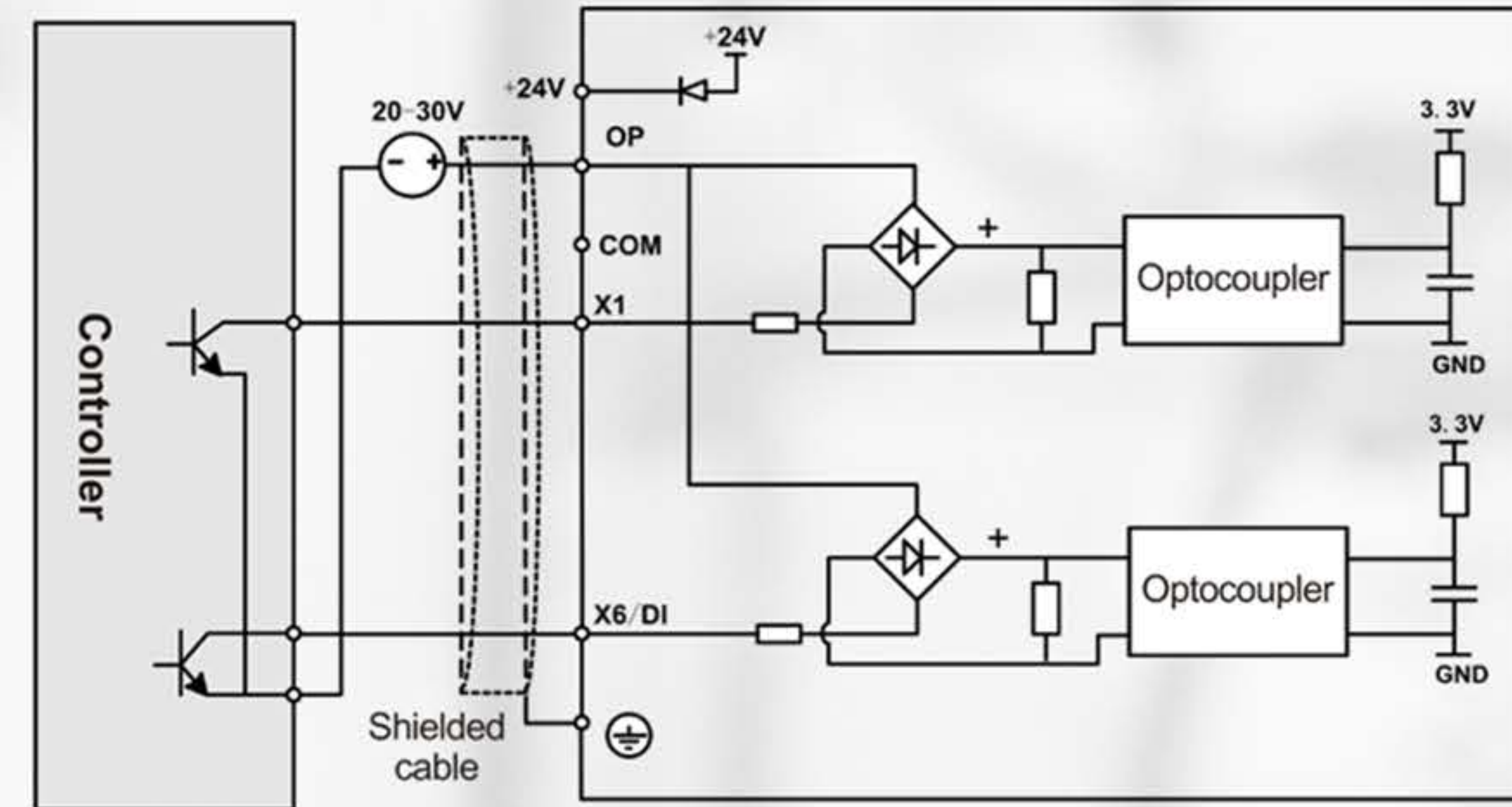
INDEPENDENT AIR DUCT DESIGN

Independent air duct design, effectively preventing dust entering inverter, causing short-circuit and other faults and improving reliability;

Use bigger air volume and long life cooling fan effectively reduces the internal temperature rise of the inverter and ensures reliable and stable operation of inverter.
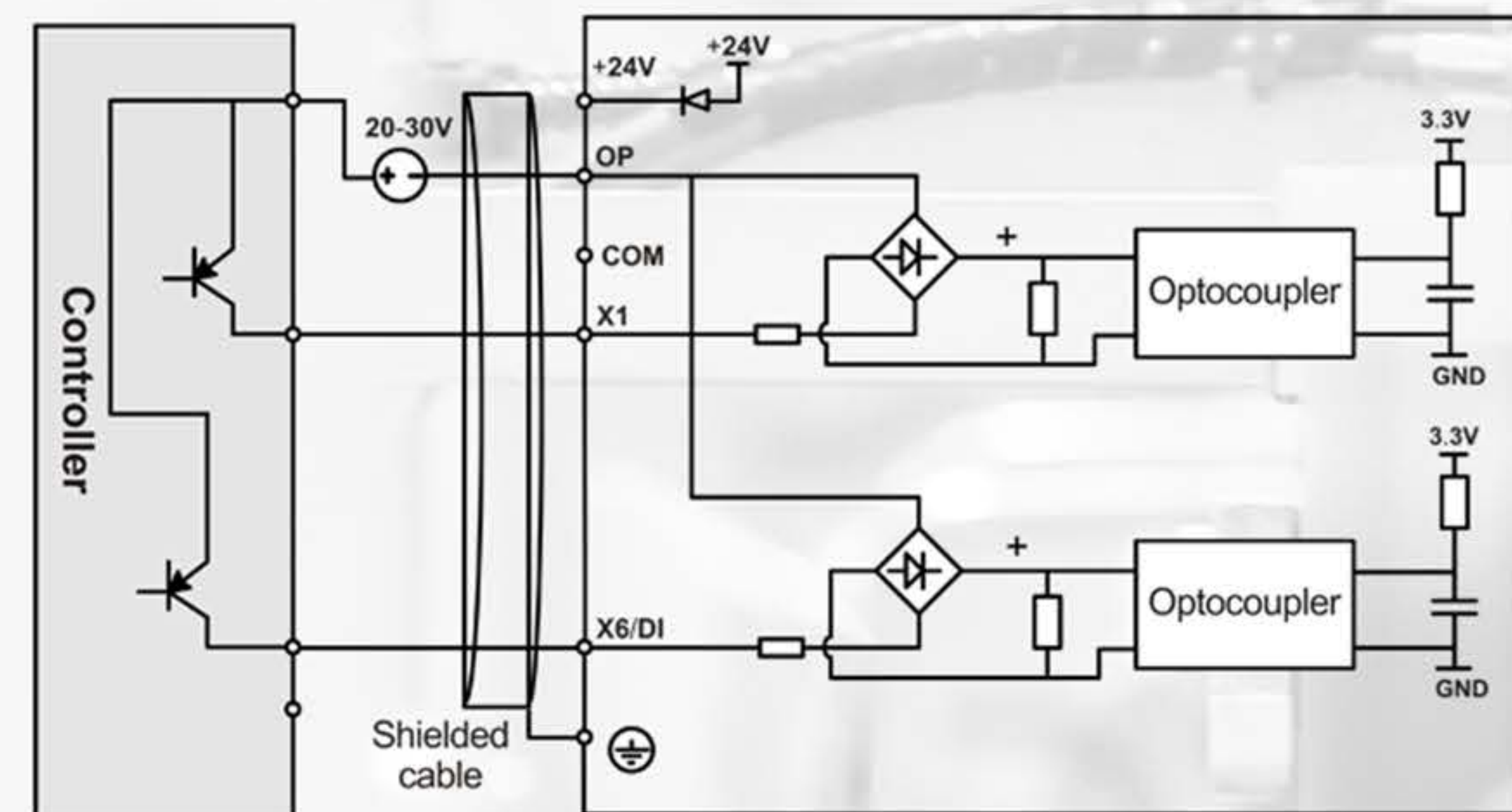
NPN AND PNP

(Two Outer 24V Power Supply Connect way)

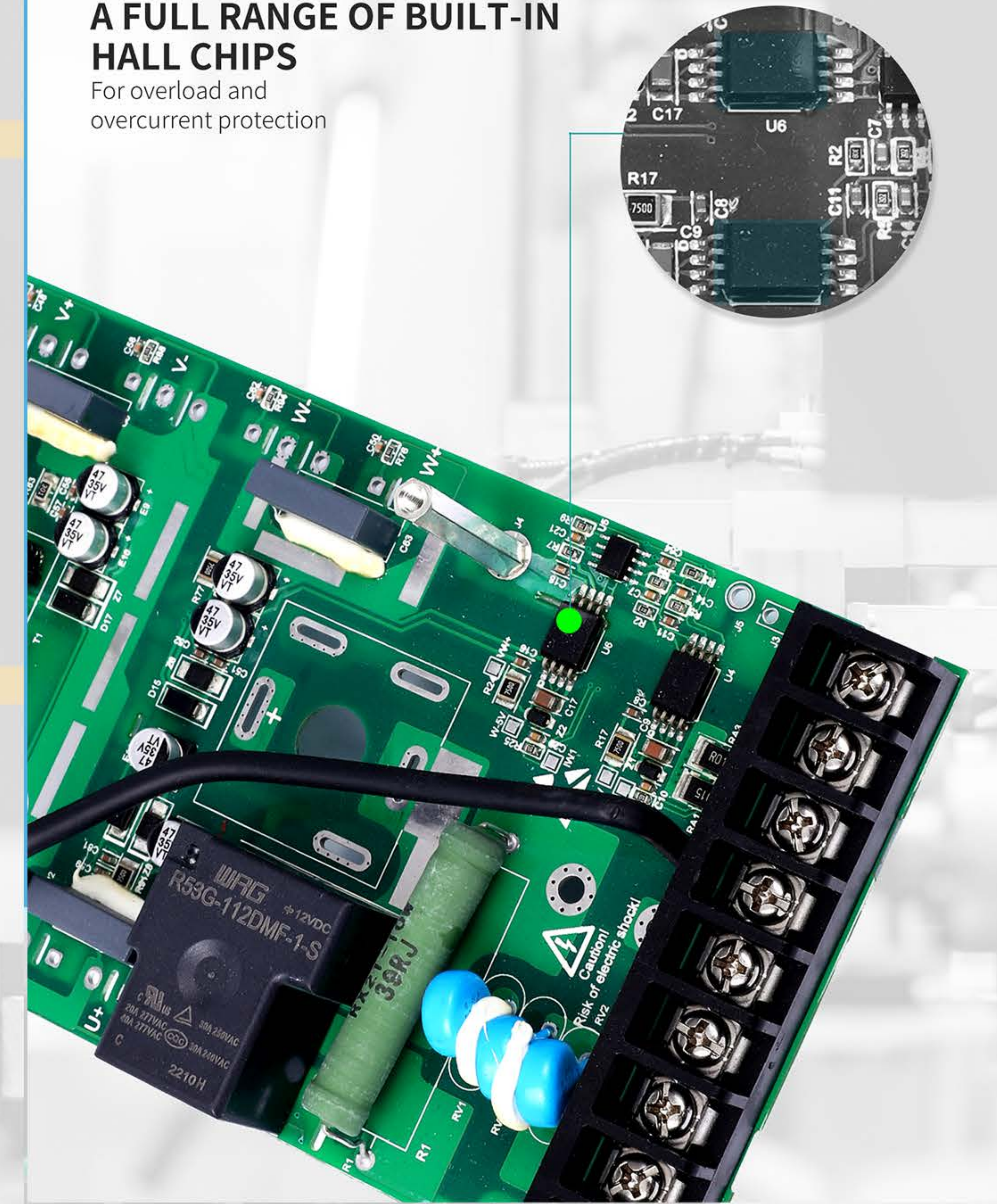Use external power supply open collector NPN wiring method

Use external power supply open collector PNP wiring method

ADVANCED DRIVE TECHNOLOGY

KD600S

use parameters to switch between motor type

Induction motor

Synchronous motor (SPM)

Synchronous motor (IPM)

A FULL RANGE OF BUILT-IN HALL CHIPS

For overload and overcurrent protection
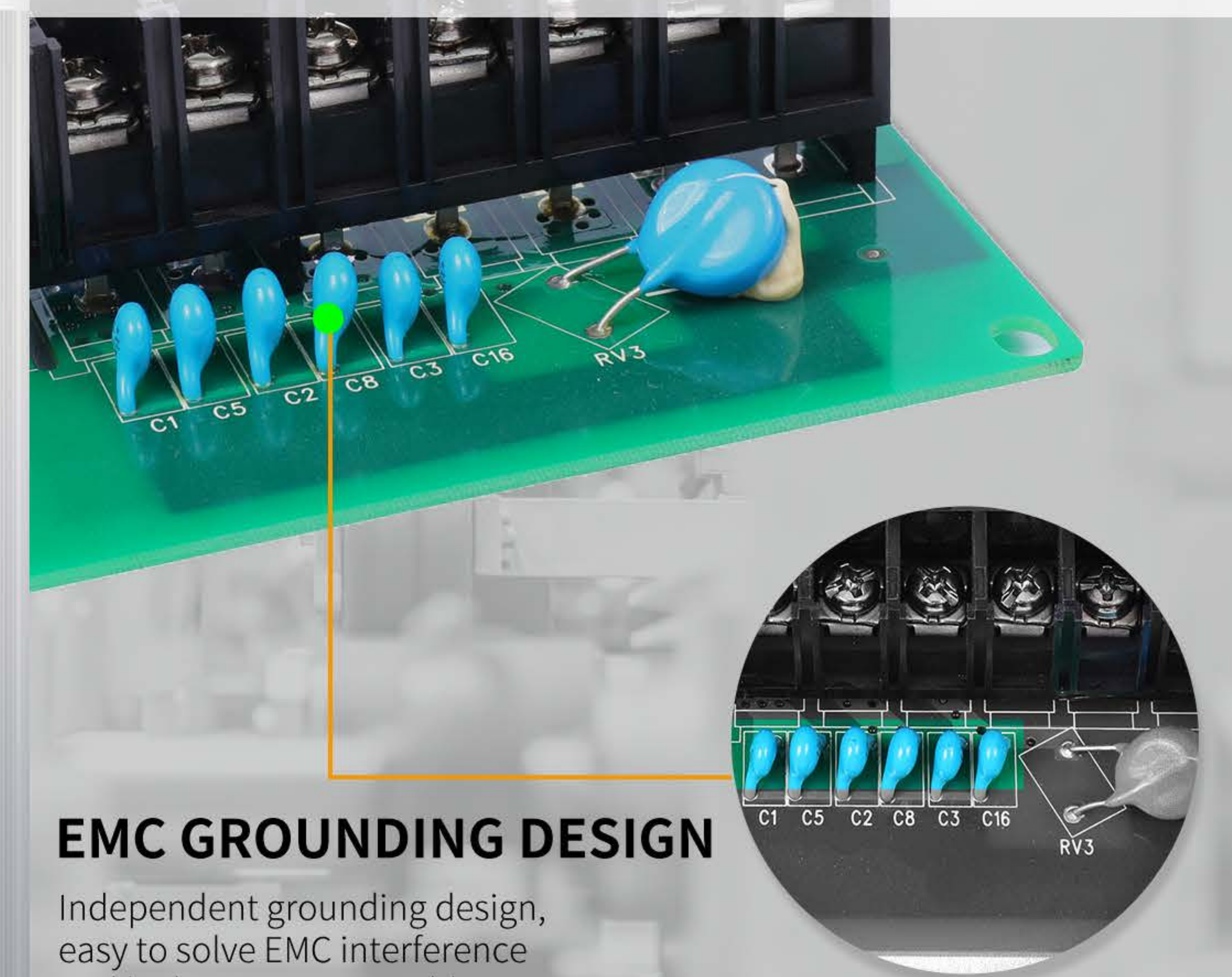

EMC GROUNDING DESIGN

Independent grounding design, easy to solve EMC interference and leakage current problems

NEW KEYBOARD

DIGITAL PANEL

RUN   Hz
FWD   A
REV   V

50.00

ESC   SET

MF.K   ∧   SHIFT

RUN   ∨   STOP

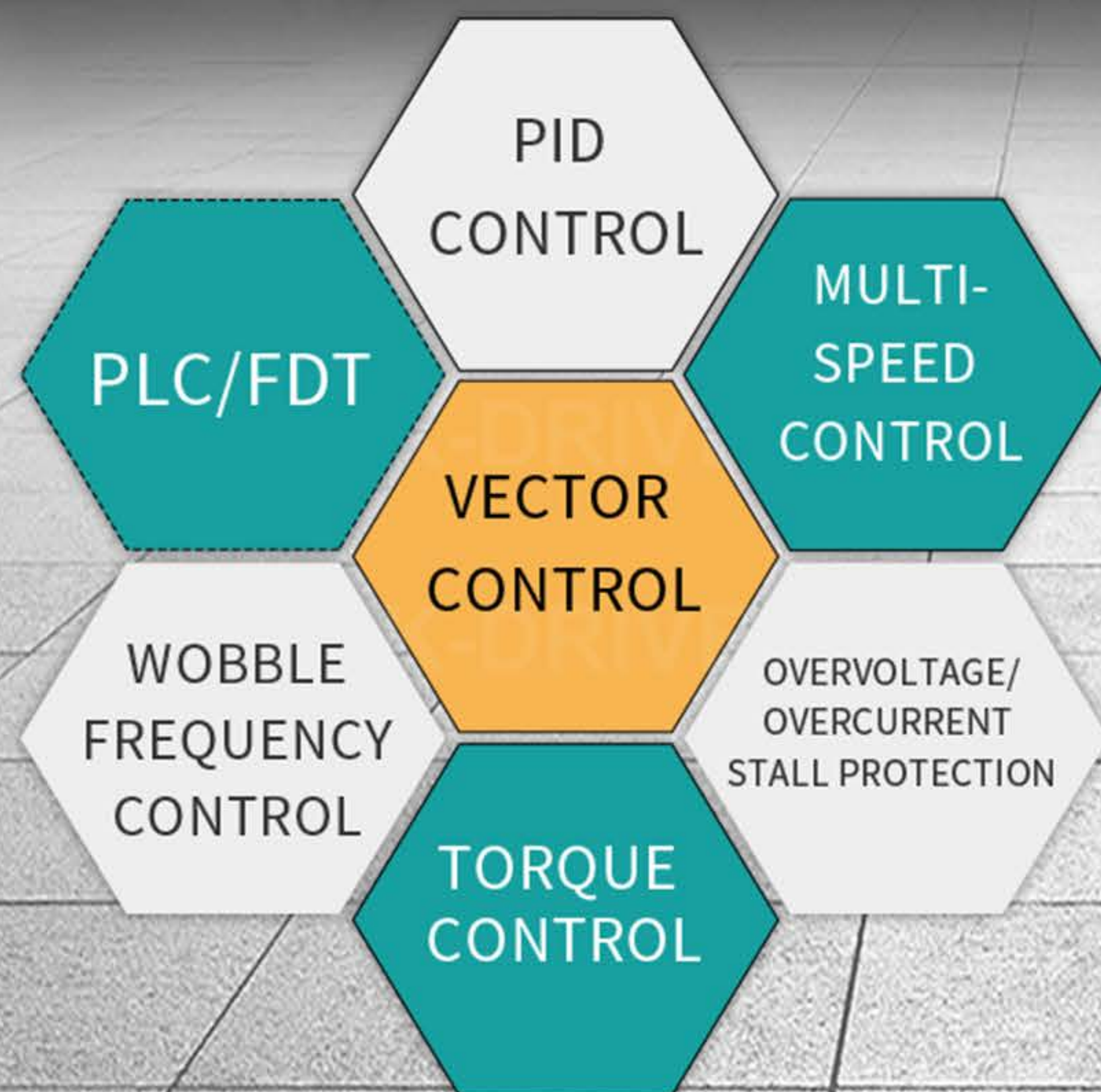## APPLICATION

Fans / Water Pumps / Injection Molding Machines / Extruders / Ball Mills / Screw Air Compressors / Winding Machines / Mixers / Conveyors / CNC Machine Tools / Hoists, etc.

Construction site factory water plant / hotel community bath / central air conditioning water system / paper machinery factory / farm / sewage treatment plant / fire hospital traffic / machine tool equipment, etc.

FEATURES A LOT

POWER RANGE Single-phase input: 220V 0.4KW~7.5KW   Three-phase input: 380V 0.4KW~400KW

Hexagon diagram
- PID CONTROL
- MULTI-SPEED CONTROL
- PLC/FDT
- VECTOR CONTROL
- WOBBLE FREQUENCY CONTROL
- OVERVOLTAGE/OVERCURRENT STALL PROTECTION
- TORQUE CONTROL

Input & Output

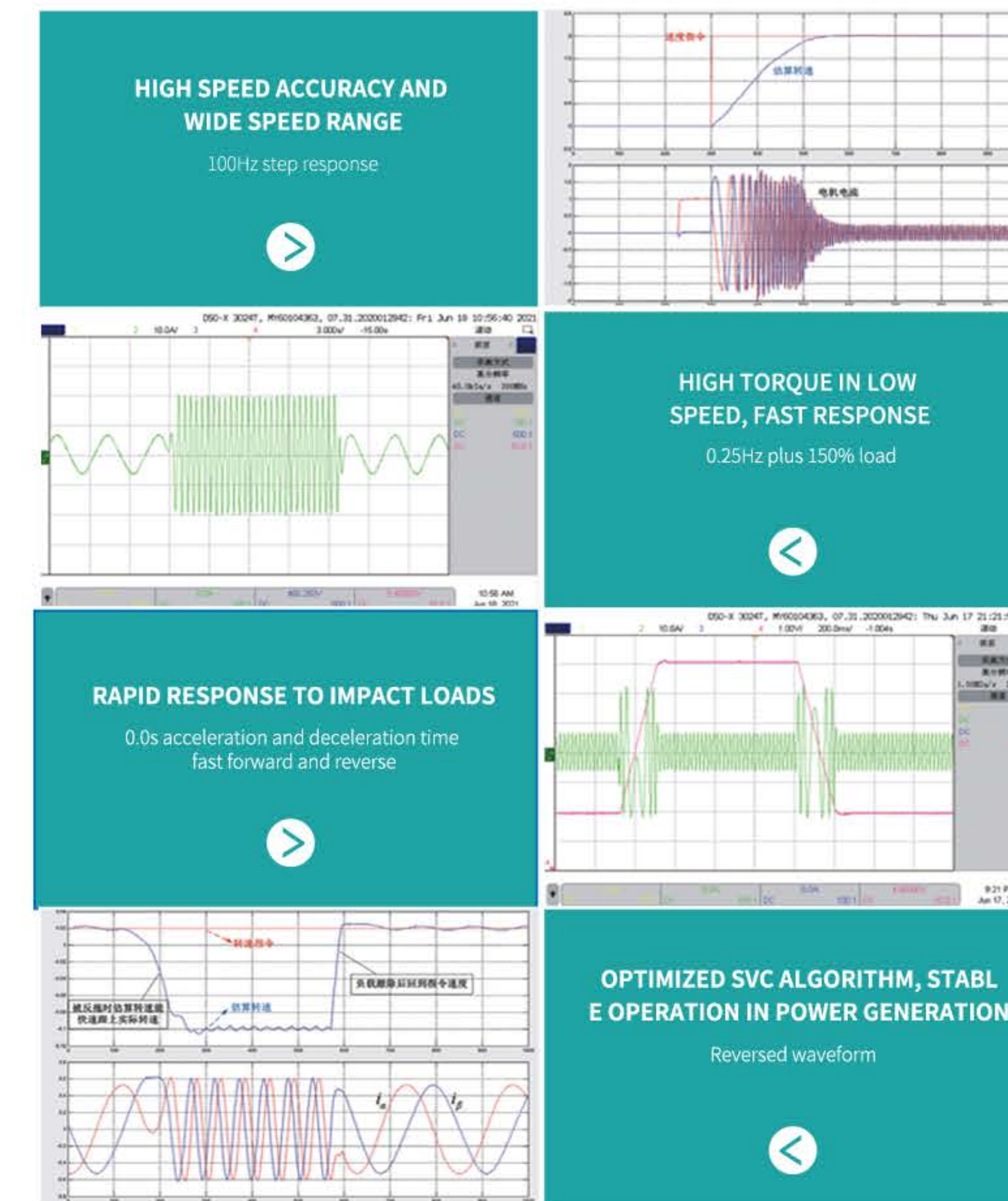| Input voltage	1AC 220~240V(± 15%) 3AC 220~240V(± 15%) 3AC 380~460V(± 15%)
Input frequency	50Hz/60Hz ±5%
Output voltage	0~input voltage, deviation <±3%
Output frequency	0~600Hz

Control Characteristics

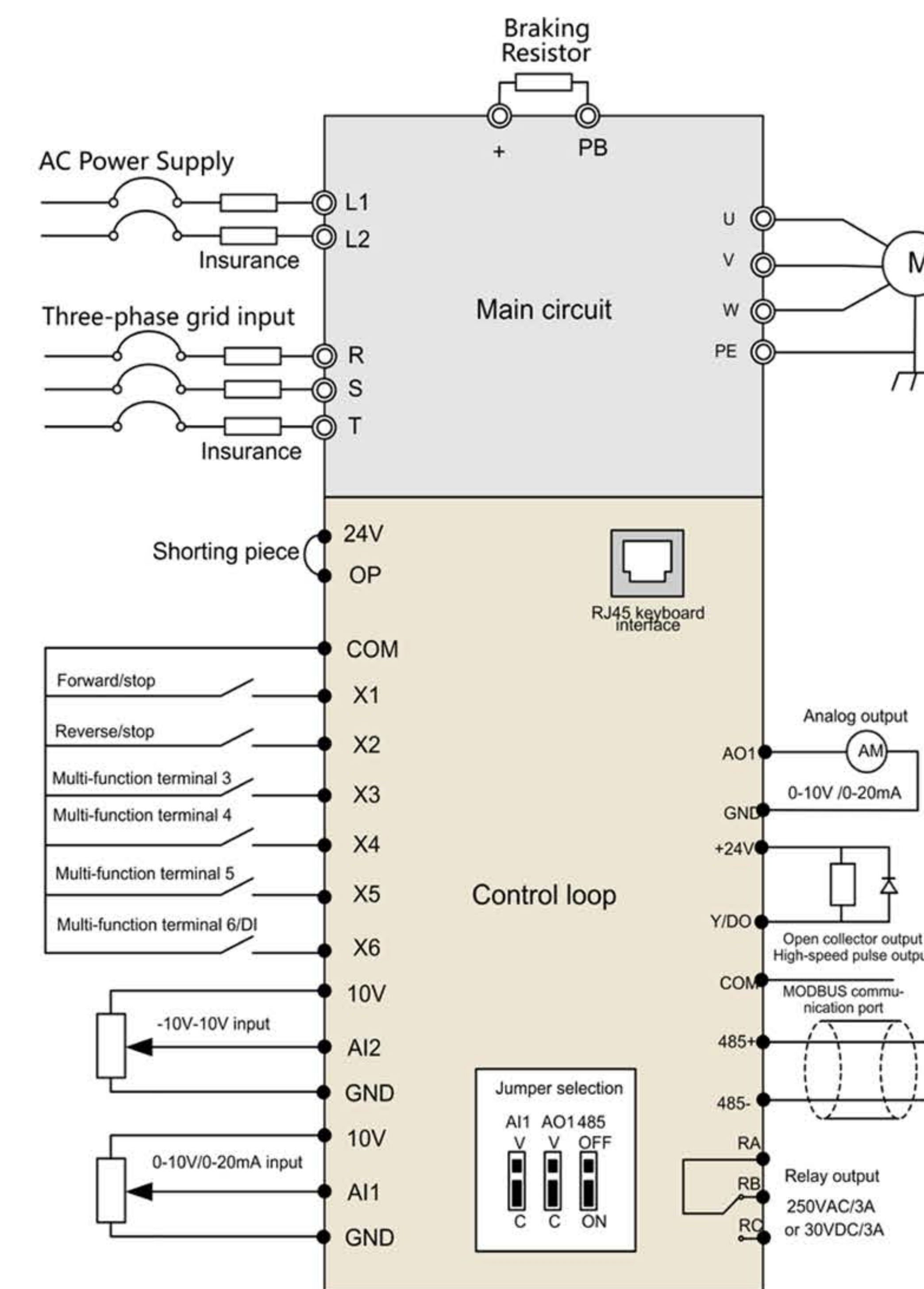| Control mode	v/f control Sensor-less vector control Torque control
Speed accuracy	±0,5% (V/f) ±0,2% (SVC)
Speed fluctuation	±0,3% (SVC)
torque response	< 10ms (SVC)
Starting torque	0,5Hz: 150% (V/f) 0,25Hz: 180% (SVC)
Overload capability	150% Rated current -60s 180% Rated current -10s 200% Rated current -1s
Simple PLC Multi-step speed	16 speed External digital signal control Internal clock
PID function	Standard build-in
Communication	Modbus

Featured functions

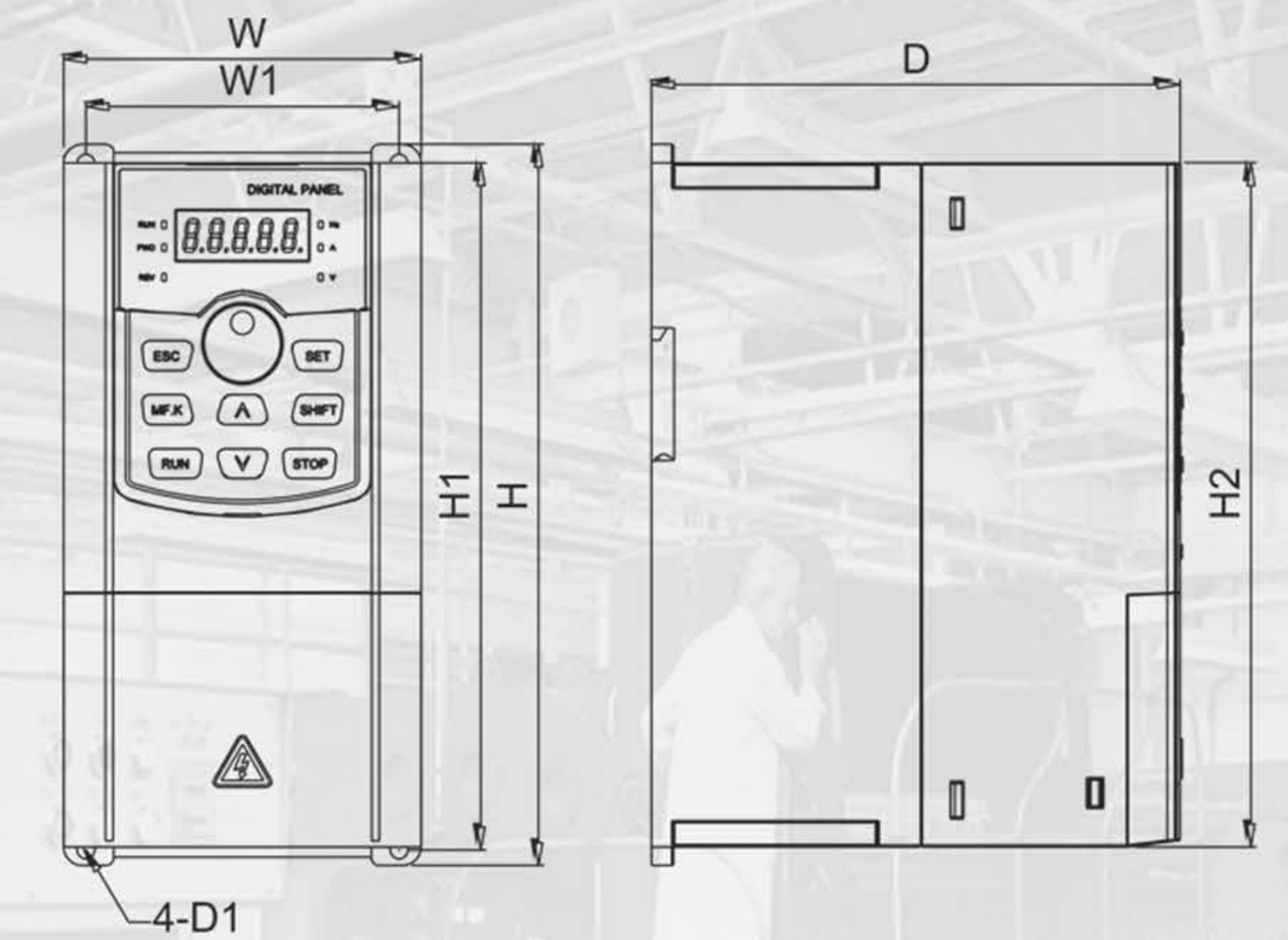| Featured functions	Input &Output delay Flexible parameters display AVR (Automatic Voltage Regulation) Timing control, fixed length control, etc. Simple PLC, 16-steps speed control Torque control build-in S curve acceleratior/deceleration Multi-functional programmable keypad V/f separated control

Environment Limitation

Installation location	Without direct sunlight,free from dust,corrosive gases, oil mist, flammable gases, water vapor, water drop and salt,etc.
Altitude	0~2000m Derated 1% for every 1000m when the altitude is above 1000meters
Ambient temperature	-10°C~50°C (Output derated while the temperature is higher than 40°C)
Storage temperature	-20°C~+70°C
Relative Humidity	5-95% no condensation

(Feature graphs)

HIGH SPEED ACCURACY AND WIDE SPEED RANGE 100Hz step response

HIGH TORQUE IN LOW SPEED, FAST RESPONSE 0.25Hz plus 150% load

RAPID RESPONSE TO IMPACT LOADS 0.0s acceleration and deceleration time fast forward and reverse

OPTIMIZED SVC ALGORITHM, STABLE OPERATION IN POWER GENERATION Reversed waveform

BASIC WIRING DIAGRAM

PRODUCT SIZE

Model	External and installation dimensions (mm)						Pore size	Weight (kg)
	W1	H1	H	H2	W	D		
2S-0.7G 2S-1.5G 4T-1.5G 4T-2.2G	67.5	160	170	----	84.5	129	Φ4.5	1.0
2S-2.2G 2S-4.0G 4T-4.0G 4T-5.5G	85	185	194	----	97	143.5	Φ5.5	1.4
2T-5.5G 4T-7.5G 4T-11G	106	233	245	----	124	171.2	Φ5.5	2.5
2T-7.5G 2T-11G 4T-15G 4T-18.5G 4T-22G	120	317	335	----	200	178.2	Φ8	8.4
2T-15G 2T-18.5G 4T-30G 4T-37G	150	387.5	405	----	255	195	Φ8	12.8
2T-22G 2T-30G 4T-45G 4T-55G	180	437	455	----	300	225	Φ10	17.8
4T-75G 4T-90G 4T-110G	260	750	785	----	395	291	Φ12	50
4T-132G 4T-160G 4T-185G 4T-200G	360	950	990	----	500	368	Φ14	88
4T-220G 4T-250G 4T-280G 4T-315G	400	1000	1040	----	650	406	Φ14	123
4T-355G 4T-400G	600	1250	1300	----	815	428	Φ14	165

EXTERNAL AND E XPANSION CARDS
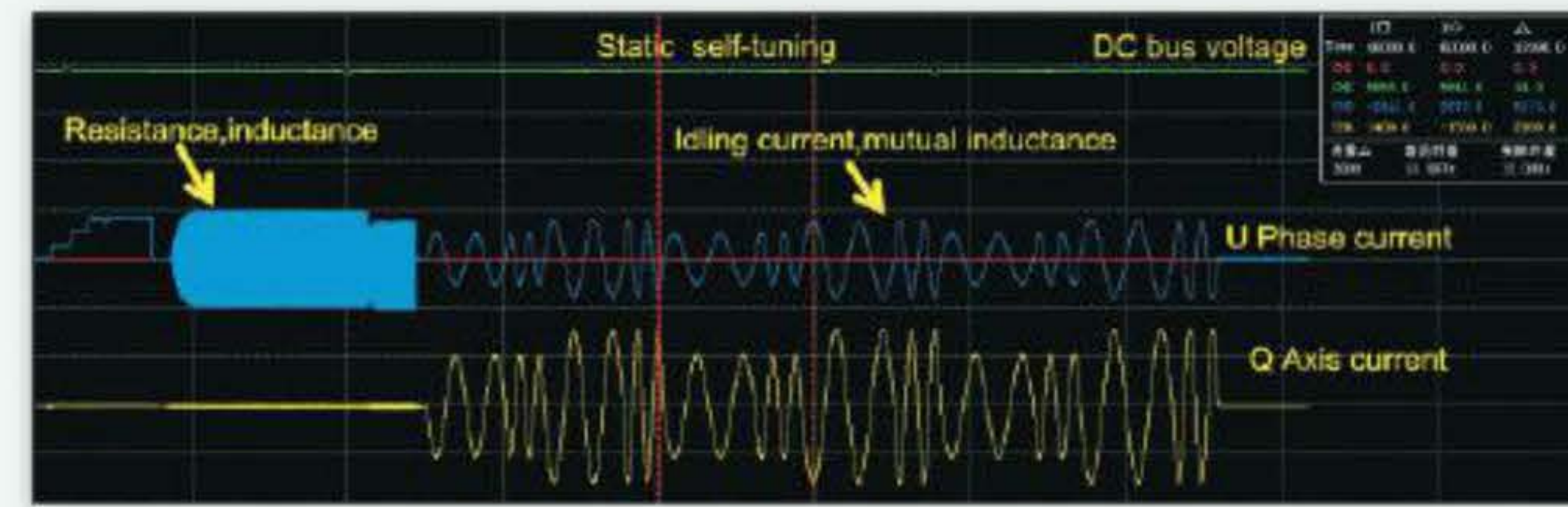

| Model	Name
KD600PG01	5V differential photoelectric encoder interface card
KD600CAN	CAN communication expansion card
KD600PG02	12V open collector photoelectric encoder interface card
KD600DP	DP communication expansion card
KD600RT	Rotary encoder interface card
KD600IO	IO expansion card

PERFORMANCE FEATURES
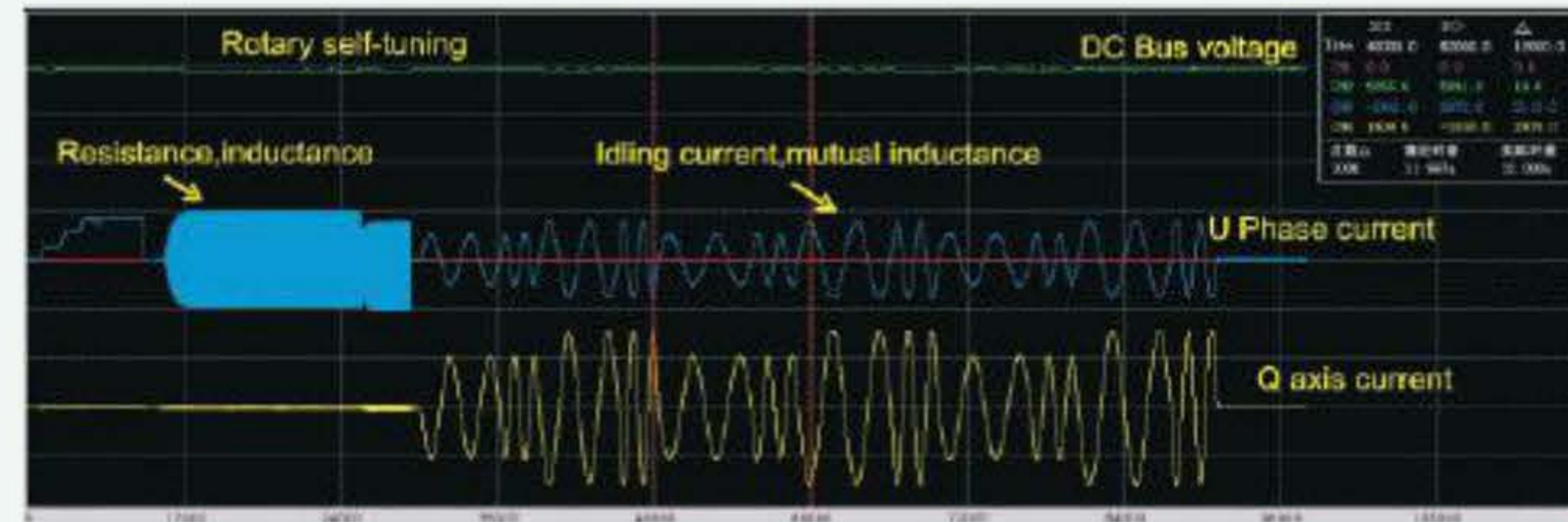
Rotary self-tuning

Fully static self-tuning
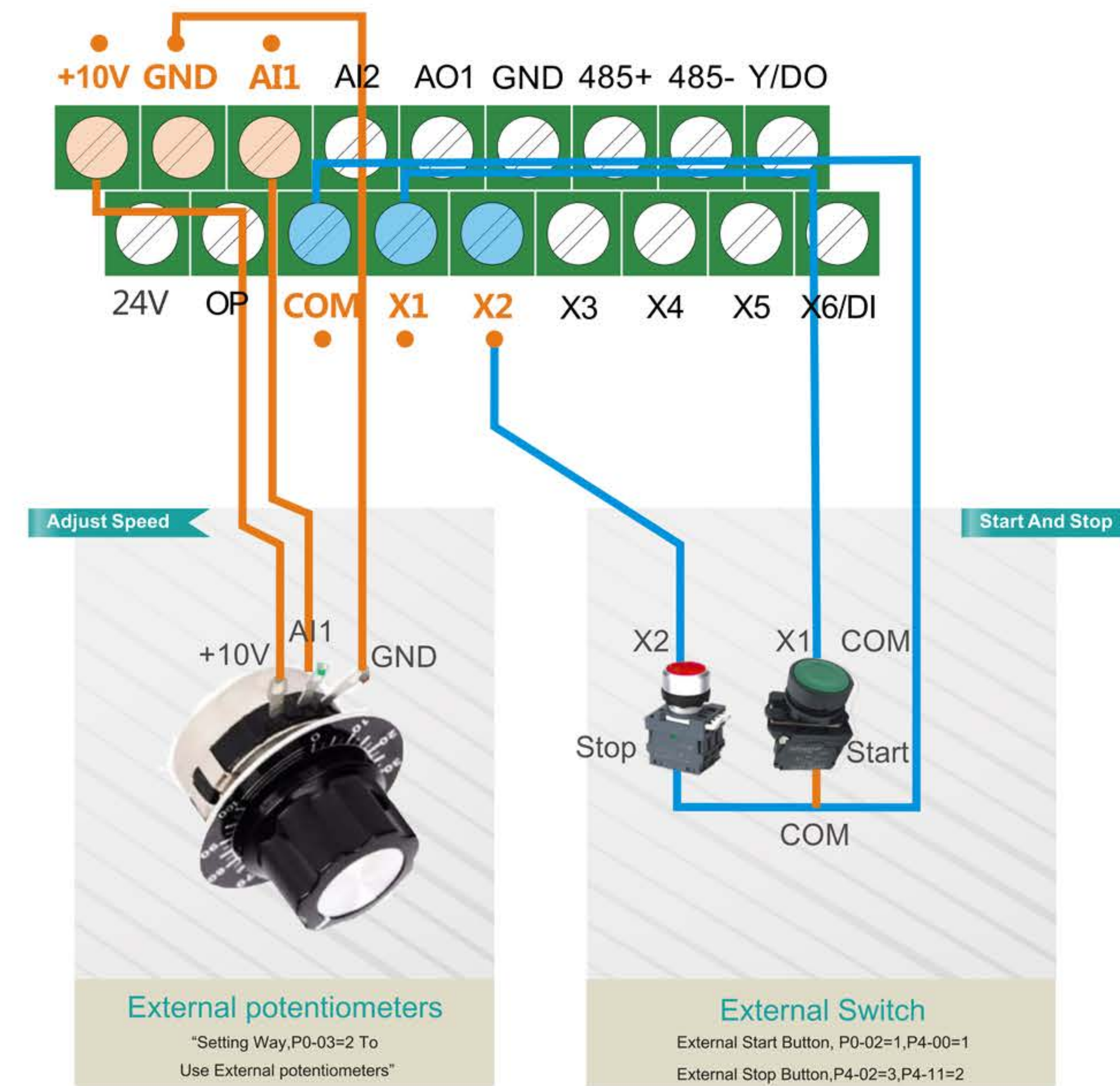
Self-tuning of motor parameters
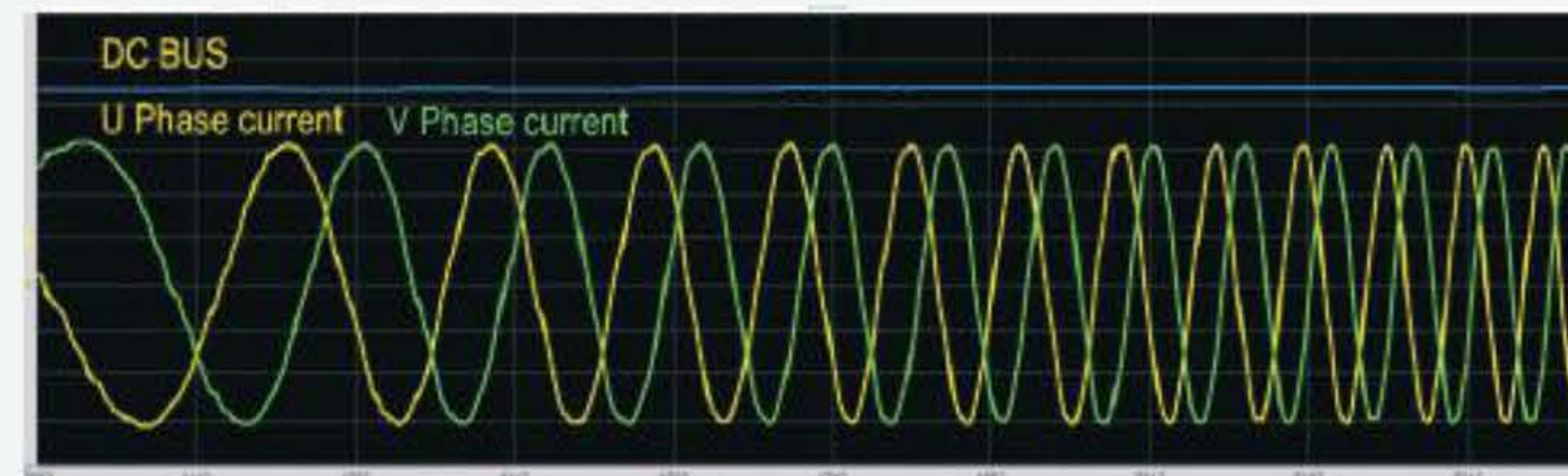
Over current suppression

Over voltage suppression

BELT CONVEYER
KD600S Wiring diagram

+10V GND AI1 AI2 AO1 GND 485+ 485- Y/DO

24V OP COM X1 X2 X3 X4 X5 X6/DI

Adjust Speed

Start And Stop

+10V   AI1   GND

X2   X1   COM
Stop   Start
        COM

External potentiometers
"Setting Way,P0-03=2 To
Use External potentiometers"

External Switch
External Start Button, P0-02=1,P4-00=1
External Stop Button,P4-02=3,P4-11=2

PARAMETER SETTING STEP

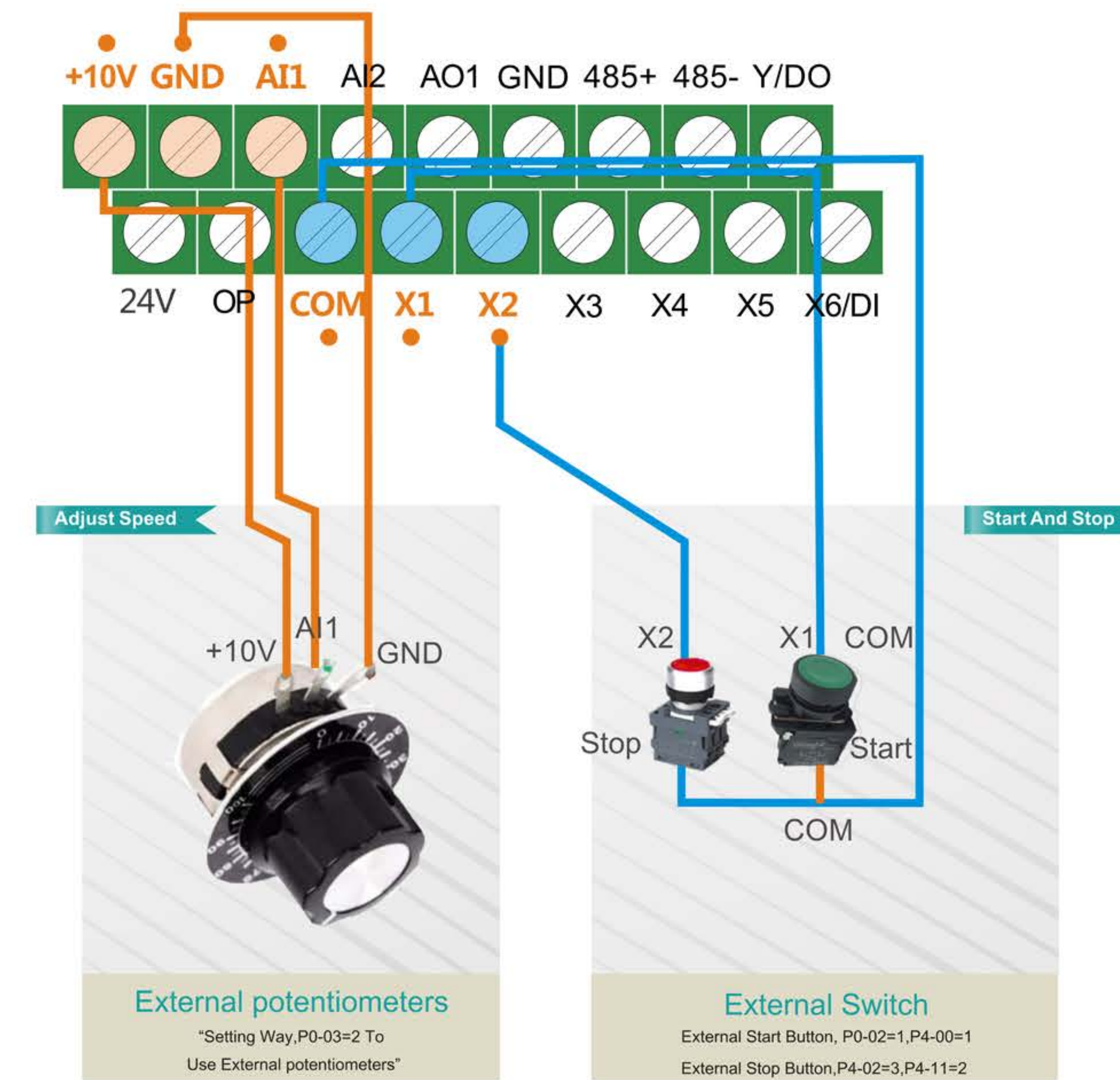| Step	Function Code	Set Value	Description
1	P0.02	1	Terminal control start and stop
2	P0.03	2	Frequency setting selection analog
3	P0.17	Set as need	Acceleration time
4	P0.18	Set as need	Deceleration time
5	P4.00	1	Forward running

FIELD APPLICATION

Load Feature:

◇ With big fluctuation ;

◇ Lots of dusts in the operation sites.

Requests For VFD:

◇ Soft start the motor, reduce the surge current, protect the motor and conveyer.

◇ Big output torque at low frequency, it should run smoothly during working.

◇ Motor speed can be adjusted by external potentiometer.

◇ Running current can be monitored timely.

◇ While the failures happen, the AC drive can output alarm or stop.

FAN & WATER PUMP
KD600S Wiring diagram

+10V GND AI1 AI2 AO1 GND 485+ 485- Y/DO

24V OP COM X1 X2 X3 X4 X5 X6/DI

Adjust Speed

Start And Stop

+10V   AI1   GND

X2   X1   COM
Stop   Start
        COM

External potentiometers
"Setting Way,P0-03=2 To
Use External potentiometers"

External Switch
External Start Button, P0-02=1,P4-00=1
External Stop Button,P4-02=3,P4-11=2

PARAMETER SETTING STEP

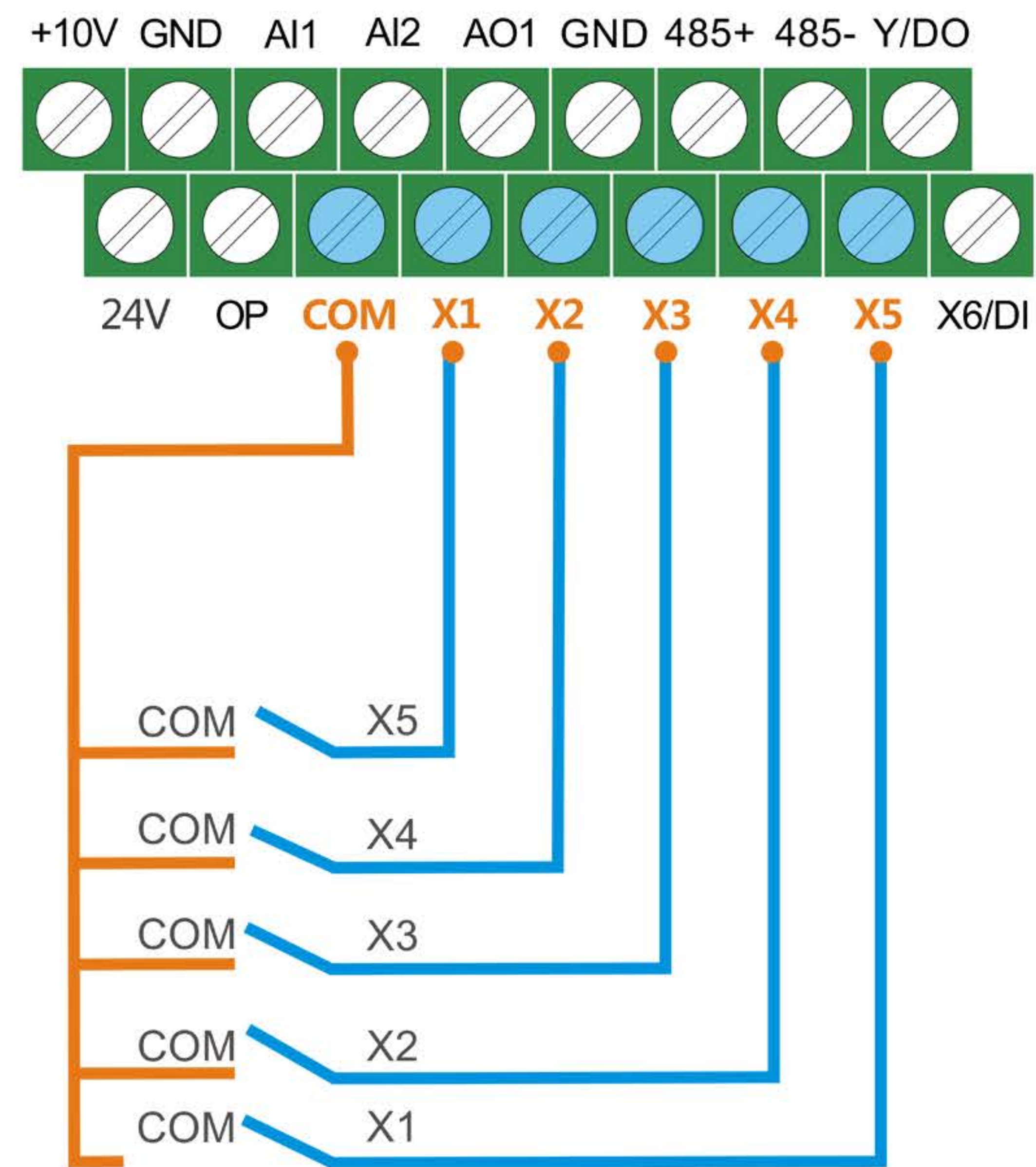| Step	Function Code	Set Value	Description
1	P0.02	1	Terminal control start and stop
2	P0.03	2	Frequency setting selection analog
3	P0.17	Set as need	Acceleration time
4	P0.18	Set as need	Deceleration time
5	P4.00	1	Forward running
6	P6.10	1	Free parking

FIELD APPLICATION

Load Feature:

◇ Both of them belong to fluid control;

◇ If without VFD, fluid is controlled by valve or baffles;

◇ For less fluid required system, there will be more energy saving;

◇ In theory, if the running frequency is H1, then Energy Saving = 1-(H1/50)3.

Requests For VFD:

◇ Soft start the motor, reduce the surge current;

◇ VFD should work continuously without fault;

◇ Speed tracking and start (flying start) function should be reliable;
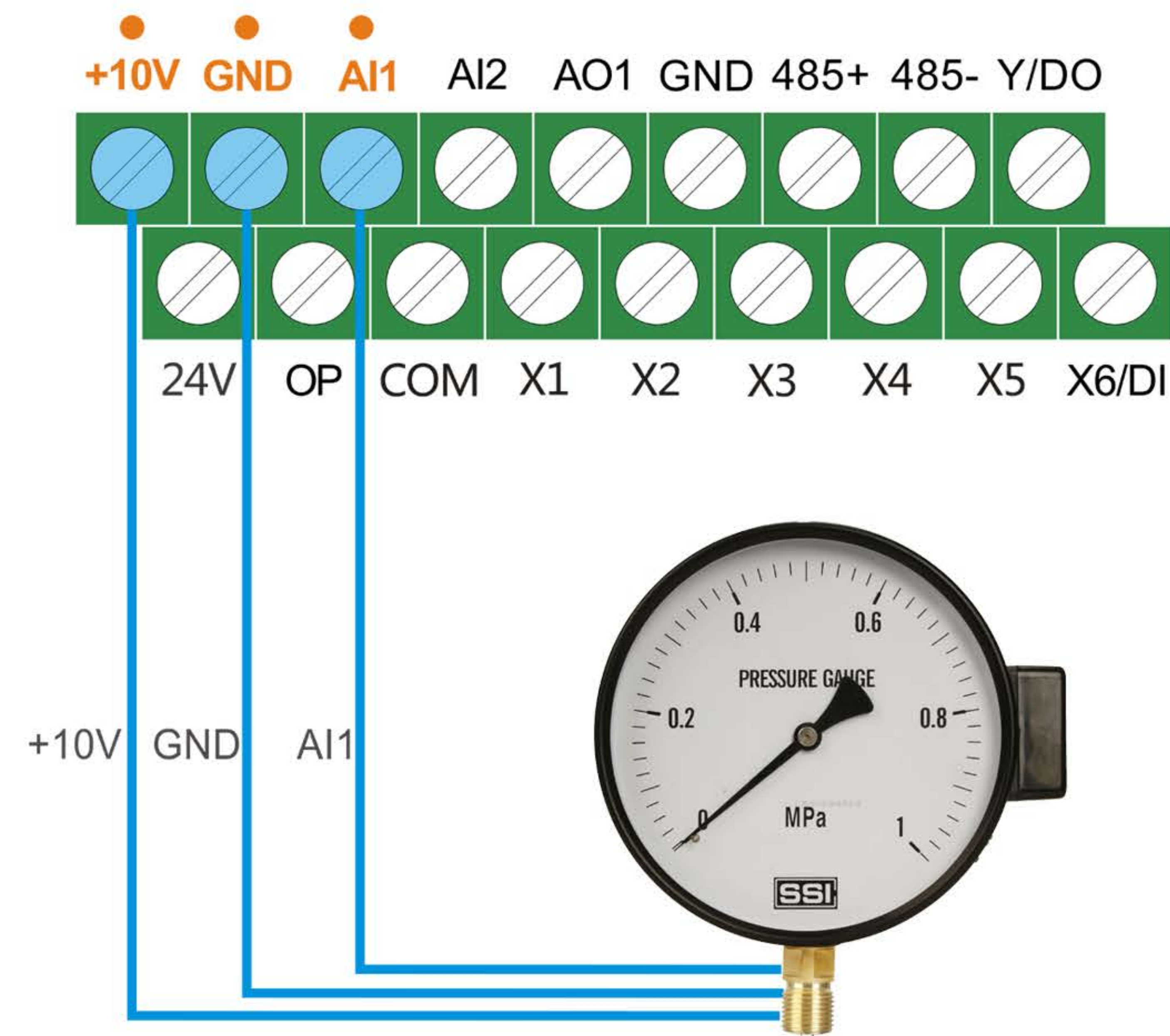
◇ In some systems, PID function is required.
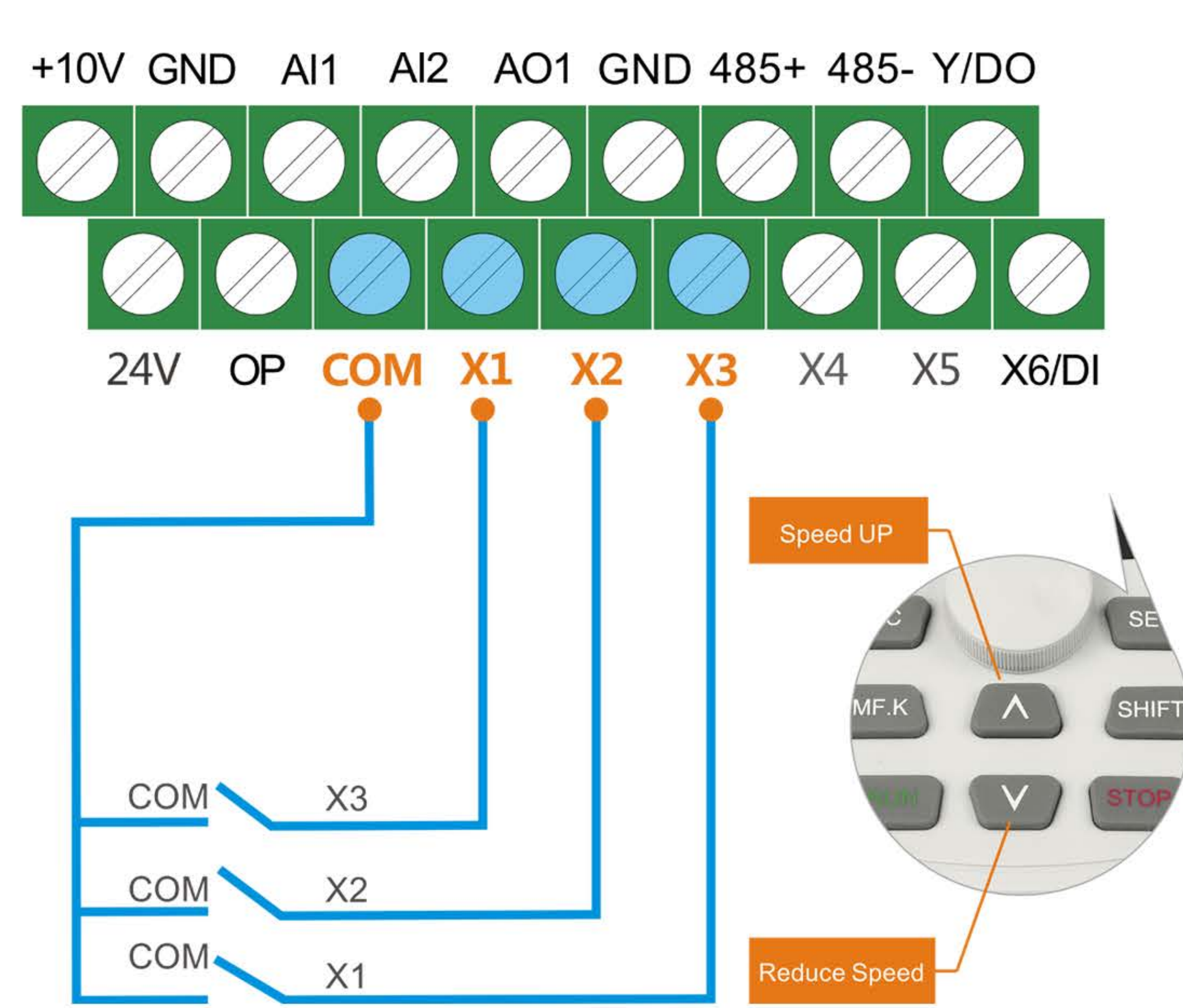
MULTISTAGE SPEED
KD600S Wiring diagram

Terminal row: +10V | GND | AI1 | AI2 | AO1 | GND | 485+ | 485- | Y/DO

Terminal row: 24V | OP | COM | X1 | X2 | X3 | X4 | X5 | X6/DI

COM — X5
COM — X4
COM — X3
COM — X2
COM — X1

PARAMETER SETTING STEP

Step	Function Code	Set Value	Description
1	P0.02	1	Terminal control start and stop
2	P0.03	6	Multi-speed command
3	P4.00	1	Forward running
4	P4.01	12	Multi-speed 1
5	P4.02	13	Multi-speed 2
6	P4.03	14	Multi-speed 3
7	P4.04	15	Multi-speed 4
8	PC.01	Set as need	Multi-speed 1 frequency percentage
9	PC.02	Set as need	Multi-speed 2 frequency percentage
10	PC.04	Set as need	Multi-speed 3 frequency percentage
11	PC.08	Set as need	Multi-speed 4 frequency percentage

FIELD APPLICATION

Load Feature:
- During washing processing, the running frequency is around 10Hz;
- Heavy load at low frequency;
- Forward/reverse running switched frequently;
- Big surge current;
- During spinning-dry processing, the running frequency is as high as 130Hz or higher than 130Hz;
- It always works at high humidity and high temperature conditions.

Requests For VFD:
- Soft start the motor, reduce the surge current;
- Should run stably at high speed.

PID CONSTANT PRESSURE WATER SUPPLY
KD600S Wiring diagram

Terminal row: +10V | GND | AI1 | AI2 | AO1 | GND | 485+ | 485- | Y/DO

Terminal row: 24V | OP | COM | X1 | X2 | X3 | X4 | X5 | X6/DI

+10V | GND | AI1

PARAMETER SETTING STEP

Step	Function Code	Set Value	Description
1	P0.02	1	Terminal control start and stop
2	P0.03	8	--
3	PA.01	Set as need	PID given value
4	PA.02	0	PID feedback value is set by analog AI1
5	PA.08	0	Reverse operation is prohibited
6	P8.49	Set as need	Wake-up frequency
7	P8.50	Set as need	Wake-up delay time
8	P8.51	Set as need	Sleep frequency
9	P8.52	Set as need	Sleep delay time

FIELD APPLICATION

Load Feature:
- PID function is required;
- need a pressure sensor in system;
- In theory, if the running frequency is H1, then Energy Saving = 1-(H1/50)3.

Requests For VFD:
- Soft start the motor, reduce the surge current;
- PID control should be stable.

Notice:
- select a suitable pressure sensor, the calculation of P6.04 as below if pressure sensor measure range is 16bar (1.6Mpa), and the target pressure is 5bar (0.5Mpa), then P6.04=5/16*100%=31.3%.

UP AND DOWN
KD600S Wiring diagram

Terminal row: +10V | GND | AI1 | AI2 | AO1 | GND | 485+ | 485- | Y/DO

Terminal row: 24V | OP | COM | X1 | X2 | X3 | X4 | X5 | X6/DI

COM — X3
COM — X2
COM — X1

Speed UP
Reduce Speed

PARAMETER SETTING STEP

Step	Function Code	Factory Default	Set Value	Description
1	P0.02	1	1	Terminal Control Start & Stop
2	P0.03	0	0	Hz Setting Given
3	P0.17	Change As Need	Set as need	Acc time
4	P0.18	Change As Need	Set as need	Dec time
5	P4.00	1	1	Forward Run
6	P4.01	6	6	Terinmal Up
7	P4.02	7	7	Terminal Down

FIELD APPLICATION

- This case is very convenient and easy for customer to operate, once build this system,customer only need to press "UP" to add machine speed, and "DOWN" to reduce motor speed, and it is almost suitable for all kinds of ending-machines

Load Feature:
- Soft start the motor, reduce the surge current；
- Should run stably at high speed.