

A23系列带刹车数显调速器 使用说明书

A23 Series Brake-type Digital Speed Control Instruction

感谢您购买并使用本产品,为保证安全及正确操作,在使用前请务必仔细阅读此说明书。

Thanks to purchase and use the product, in order to ensure safe and correct operation, please read this instruction before usage.



使用须知 Usage Instructions



- 使用前请先检查包装是否完好,铭牌和购买的型号是否一致,配件是否完整。
Check if the package is ok, nameplate is consistent with purchased model, and if you received all the accessories.

配件:使用说明书(本书)——1本; M4*10螺钉——2个。

Accessories: 1 Operation instruction; 2 bolts (M4*10).

- 安装、连接、检查等作业须由专业技术人员进行。
Installation, connection and inspection should be done by professional engineers.

- 第一次使用时,请进行空转试运行,确认功能是否正常,并调整需要使用的参数。
Before first-time usage, do run without load first to check if everything is working normally and adjust the using specification.

- 请按照本说明书或后盖标识正确接线,否则可能会造成故障及危险。
Correctly wiring according to this operation instruction or label at the back cover to avoid error or danger.

- 请勿在通电状态下拆卸设备或更改接线,否则可能会造成触电。
Do not disassemble the device or change the wiring when power is on, it may cause electric shock.

- 请勿在爆炸性环境、易燃性气体环境、腐蚀性环境以及容易沾上水的场所或可燃物周围使用。
Do not use in explosive environments, flammable gas, corrosive environments and anywhere easy to get wet or around combustibles.



- 避免连续振动、过度冲击,否则可能对设备造成损伤。
Avoid continuous vibration, over impact, or it may cause damage to the device.

- 需要接地的设备,请务必将接地端子接地。
Do earthing.

- 电机在正常运转状态下,有时电机外壳表面的温度可能会超过70°C。因此在可能触及电机的使用环境下请用户自行加贴左图所示的(小心高温)警告标志!
Under normal operation of the motor, sometimes the surface temperature of the motor case will exceed 70°C, therefore, please paste a warning notice (refer to the right drawing) in case people may touch the motor!

功能及特点 Functions & Features

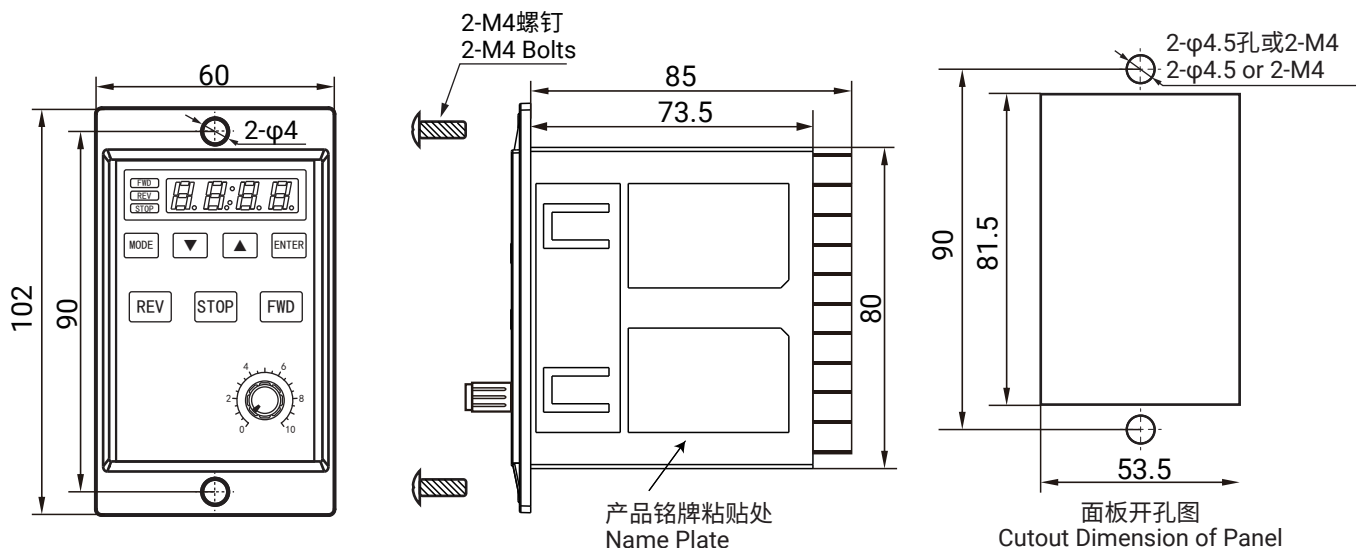
- ☐ 采用MCU数字控制技术,功能丰富,性能优异;
Multi-function and high performance of MCU digital control technology;
- ☐ 采用数显菜单式选项,修改设定方便快捷;
Easy setting with digital display of menu;
- ☐ 可根据用户显示需要设定显示倍率,自动换算显示目标值;
Shown target value can be adjusted through magnification setting;
- ☐ 可实现缓慢加速、缓慢减速、失电电磁制动;
Slow acceleration & deceleration and power-off electromagnetic braking;
- ☐ 可面板操作、外接开关控制;
External keyboard and switch are available;
- ☐ 面板旋钮自动匹配最高转速,调速控制方便、安全;
Easy and safe speed controlling and function of adjusting motor speed deviation;
- ☐ 内置运行电容;
Built-in run capacitor;
- ☐ 自动识别输入电源频率;
Automatically recognize input power frequency;
- ☐ 堵转功能保护,防止电机、调速器因堵转烧坏。
(此功能可保护堵转过载,但无法保护非堵转过载)
Locked rotor protection to protect motor or speed controller to be burned due to locked rotor.

型号/性能参数表 Model Number/Function Specifications Table

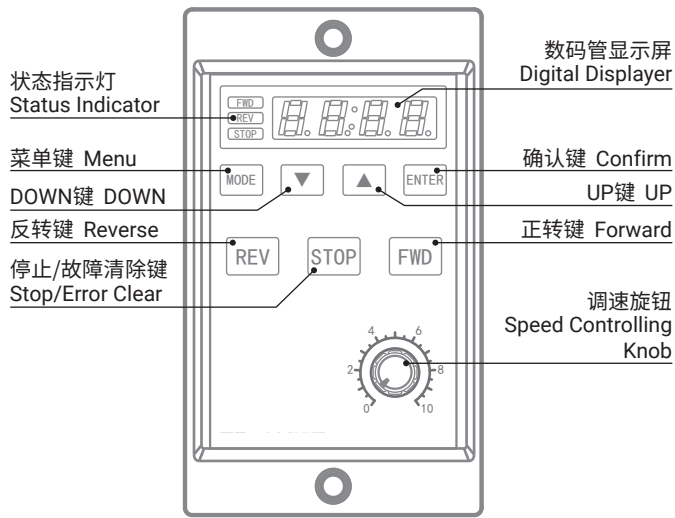
型号 Model Number		ZDRV.A23-□□S2-DB
型号定义 Model Definition	产品类型 Model Type	ZDRV
	产品系列 Model Series	A23
	适用电机功率 Applicable Motor Power	6W / 15W / 25W / 40W / 60W / 90W / 120W / 140W / 200W
	电源 Power Supply	S1单相110V±10%; S2单相220V±10% S1 Single phase 110V±10%; S2 single phase 220V±10%
	功能 Function	D带数显; B带刹车 D with digital display; B with brake
使用电机类型 Usable Motor Type		调速电磁制动电机 Speed Control and Electromagnetic Brake Motor
安装方式 Installation Method		面板式 Panel type
运动控制功能 Motion Control Function		面板或外接开关运转控制; 调速; 缓慢加速; 缓慢减速; 失电电磁制动 Controlled by panel or external switch; speed control; slow acceleration; slow deceleration; power-off electromagnetic braking
速度调整方式 Speed Control Methods		面板▲▼按键; 面板旋钮 ▲▼ Button on panel; knob on panel
速度调整范围 Speed Control Range		50Hz: 90-1400r/min; 60Hz: 90-1700r/min
运行电容 Run Capacitor		内置 Built-in type
输入电源 Input Power Supply		单相220V±10%; 50Hz-60Hz Single phase 220V±10%; 50Hz-60Hz
使用环境 Usage Environment		环境温度: -10℃~+40℃(无冻结); 环境湿度: 85%以下(无结露); 海拔1000M以下 Environment temperature: -10℃~+40℃ (no freezing); environment humidity: less than 85% (no condensation); elevation less than 1000m

外形及安装 Outline & Installation

单位Unit:mm

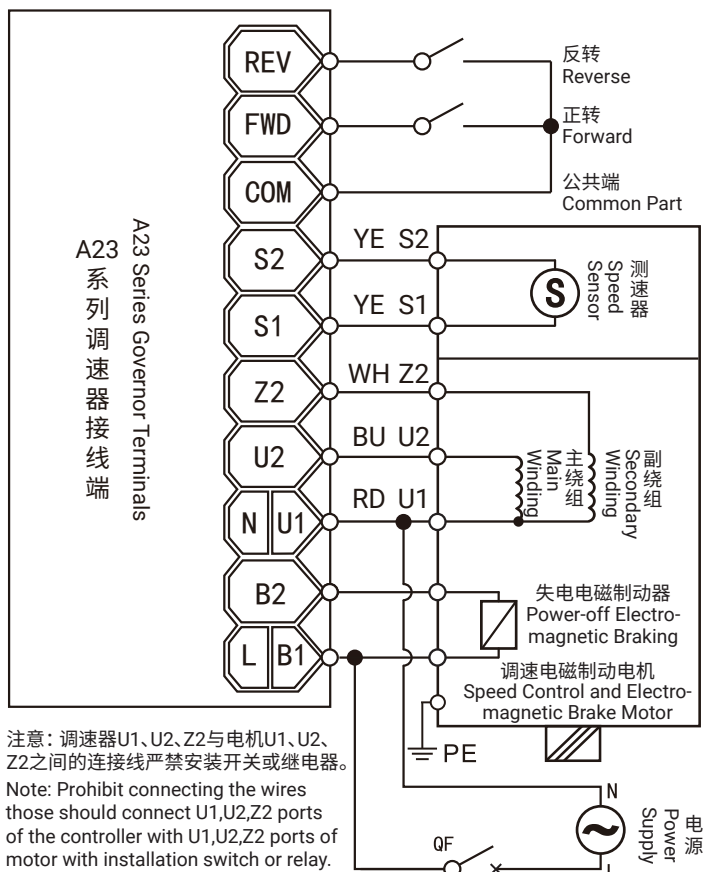


面板介绍 Panel Introduction



名称 Name	功能 Function
指示灯 Indicator Light	用于显示运行状态 For showing running status
数码管 Digital Tube	四位数码管用于显示参数值与设定值 4-digital tube is used to show parameter value and set value
MODE键 MODE	进入或退出菜单模式 Enter into or exist from MENU
ENTER键 ENTER	用于显示和确认设定值 Show and confirm set value
▲/▼键 ▲/▼	按键控制时调节参数;菜单模式下调节设定值 Adjust parameter when it is under the condition of button controlling; adjust set value under the mode of MENU
FWD/REV键 FWD/REV	面板控制时控制正/反转;菜单模式下修改数位 Forward or reverse when it is in the panel control mode; while change the digital when it is in the MENU mode
STOP键 STOP	停止运转;故障复位 Stop the running; error reset
旋钮 Knob	旋钮控制时调节参数 Change the specifications when it is in the knob control mode

驱动器接线图 How to Connect the Driver



● 旋转方向控制 Rotation Direction Control

- 菜单设置: 运转控制模式F-03改为“2”或“3”
外接开关控制。
Menu Setting: change the operation control mode F-03 into “2” or “3”
Controlled by external switch.

- 若需电机正转, 将“FWD”与“COM”连接;
若需电机反转, 将“REV”与“COM”连接。
If forward (motor), connect “FWD” and “COM”; If reverse (motor), connect “REV” and “COM”.

● 电机选型 Motor Selection

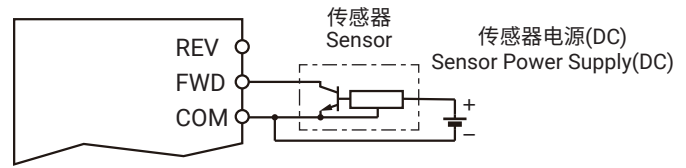
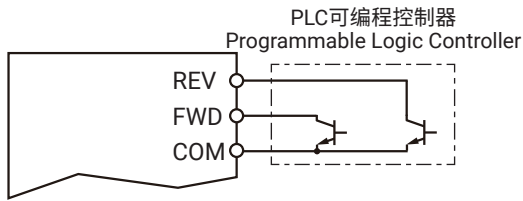
调速电机的功率必须与调速器适用电机功率一致, 请注意调速器型号标签功率是否与电机功率一致。
The power of a speed control motor should be the same with that of a speed controller.
Pay attention to the power on model No. of the speed controller and make sure that it is same with the power of a motor.

● 电源 Power Supply

电源电压必须与调速器电源电压规格一致。
The voltage of the power supply should be the same with that of a speed controller.

QF为断路器, 发生短路时保护调速器和调速电机。
QF is a circuit breaker, it can protect the speed controller and the motor in case of short-circuited.

电源电压 Power Supply	电机功率 Motor Power	QF电流规格 QF Current Specifications
220V	6-90W	1A
220V	120-200W	2A
110V	6-90W	2A
110V	120W	4A



- FWD、REV采用PLC可编程控制器控制
FWD, REV is controlled by PLC

PLC输出方式：NPN或漏型晶体管输出；
PLC Output Method: NPN or drain transistor output;

菜单设置：运转控制模式F-03改为“2”或“3”
外接开关控制。
Menu Setting: change the operation control mode F-03 into “2” or “3”
Controlled by external switch.

- FWD、REV采用传感器控制 (光电开关等)
FWD, REV is controlled by sensor (Photoelectric switch etc.)

开关输出方式：三线式NPN晶体管输出；
Switch Output Method: 3-wire type NPN transistor output;

菜单设置：运转控制模式F-03改为“2”或“3”
外接开关控制。
Menu Setting: change the operation control mode F-03 into “2” or “3”
Controlled by external switch.

驱动器菜单 Driver Menu

- 功能码列表 (R/W:可读/写; RO:只读)
Function Codes Table (R/W: Readable/Writable; RO: Read Only)

功能码 Function Code	名称 Name	参数详细说明 Detailed Parameter Description	设定范围 Setting Range	缺省值 Default Value	更改 Change
F-01	显示内容 Shown Content	1: 电机转速设定值 1: Motor speed setting value 2: 倍率转速设定值 2: Magnification speed setting value	1~2	1	R/W
F-02	倍率设定 Magnification Setting	倍率值1.0~999.9 Magnification value 1.0~999.9 倍率转速设定值=电机转速设定值/倍率 Magnification speed setting value=motor speed setting value / magnification value	1.0~999.9	1.0	R/W
F-03	运转控制模式 Magnification Setting	1: 操作面板控制 1: By operation panel 2: 外接开关控制, 面板STOP键无效 2: By external switch, STOP button on panel is invalid 3: 外接开关控制, 面板STOP键有效 3: By external switch, STOP button on panel is valid	1~3	1	R/W
F-04	旋转方式 Rotation Mode	1: 允许正反转 1: Allow to forward and reverse 2: 允许正转, 禁止反转 2: Allow to forward, disallow to reverse 3: 允许反转, 禁止正转 3: Allow to reverse, disallow to forward	1~3	1	R/W
F-05	旋转方向 Rotation Direction	1: 不取反 1: No converse 2: 取反 2: Converse	1~2	1	R/W
F-06	调速方式 Speed Control Mode	1: 面板UP/DOWN按键调速 1: UP/DOWN button speed control on panel 2: 面板旋钮调速 2: Knob speed control on panel	1~2	1	R/W
F-07	最高转速 Max. Speed	F-08 (最低转速)~1700 F-08(Min. speed)~1700 限制最高转速, 防止超速, 发生损坏 Limit Max. speed (exceed the limitation) to protect it from damage	F-08~1700	1400	R/W
F-08	最低转速 Min. Speed	90~F-07 (最高转速) 90~F-07(Max. speed) 限制最低转速, 防止过低转速运行导致电机不稳定 Limit Min. speed to protect it from unstable motor running	90~F-07	120	R/W
F-09	正转启动时,解除失电电磁制动器后,电机启动延时时间 During the start-up of forwarding and after releasing the electromagnetic brake, the latency time for motor starting	0.0~2.0秒: 若电机启动时加速度过冲,可微调加大至0.1秒 0.0~2.0s: If the acceleration is too fast, it could increase it into 0.1s	0.0~2.0	0.0	R/W

功能码 Function Code	名称 Name	参数详细说明 Detailed Parameter Description	设定范围 Setting Range	缺省值 Default Value	更改 Change
F-10	正转起动加速时间 Acceleration time when start-up of forwarding	0.1~10.0秒：时间长，电机起动平缓，起动时间长；时间短，电机起动快猛，起动时间短。 0.1~10.0s: The longer, the more stable of motor start-up and vice versa; the shorter, the less stable of motor start-up and vice versa.	0.1~10.0	1.0	R/W
F-11	正转停止方式 Stop Method when Forwarding	1: 失电电磁制动停止 1: Power-off electromagnetic braking 2: 自由停止 2: Free stop 3: 减速停止 3: Decelerate to stop 当选择失电电磁制动停止时，电机将迅速停止并制动；当选择自由减速停止时，若电机停止太快，可选择缓慢减速停止。 When select power-off electromagnetic braking, the motor will stop at once and brake; when select to automatically decrease and stop, if the motor stops fast, a decreasing and stopping mode can be selected.	1~3	1	R/W
F-12	正转停止时，失电电磁制动器制动延时时间 During the stopping of forwarding, the latency time for power-off the electromagnetic brake	0.0~5.0秒：(F-11=1时有效) 电机停止时，在此设定时间内，先以自由减速方式减速后再制动 0.0~5.0s: (F-11=1 is valid) When motor stops, during the set time, it will decrease automatically first and then stop.	0.0~5.0	0.0	R/W
F-13	正转停止减速时间 Stop Deceleration Time for Forward Rotation	0.1~10.0秒：(F-11=3时有效) 0.1~10.0s: (F-11=3 is valid)	0.1~10.0	1.0	R/W
F-14	反转起动时，解除失电电磁制动器后，电机起动延时时间 During the start-up of reversing and after releasing the electromagnetic brake, the latency time for motor starting	0.0~2.0秒：若电机启动时加速度过冲，可微调大至0.1秒 0.0~2.0s: If the acceleration is too fast, it could increase it into 0.1s	0.0~2.0	0.0	R/W
F-15	反转启动加速时间 Start-up Acceleration Time for Reverse Rotation	0.1~10.0秒 0.1~10.0s	0.1~10.0	1.0	R/W
F-16	反转停止方式 Stop Method for Reverse Rotation	1: 失电电磁制动停止 1: Power-off electromagnetic braking 2: 自由停止 2: Free stop 3: 减速停止 3: Decelerate to stop 当选择失电电磁制动停止时，电机将迅速停止并制动；当选择自由减速停止时，若电机停止太快，可选择缓慢减速停止。 When select power-off electromagnetic braking, the motor will stop at once and brake; when select to automatically decrease and stop, if the motor stops fast, a decreasing and stopping mode can be selected.	1~3	1	R/W
F-17	反转停止时，失电电磁制动器制动延时时间 During the stopping of reversing, the latency time for power-off the electromagnetic brake	0.0~5.0秒：(F-16=1时有效) 电机停止时，在此设定时间内，先以自由减速方式减速后再制动 0.0~5.0s: (F-16=1 is valid) When motor stops, during the set time, it will decrease automatically first and then stop	0.0~5.0	0.0	R/W
F-18	反转停止减速时间 Stop Deceleration Time for Reverse Rotation	0.1~10.0秒：(F-16=3时有效) 0.1~10.0s: (F-16=3 is valid)	0.1~10.0	1.0	R/W
F-19	电源频率设定 Power Supply Frequency Setting	1: 驱动器自动检测 1: Driver self-detection 2: 电源频率50Hz 2: Supply power frequency 50Hz 3: 电源频率60Hz 3: Supply power frequency 60Hz	1~3	1	R/W
F-20	恢复出厂设置 Reset	1: 不恢复 1: Do not recover 2: 恢复 2: Recover	1~2	1	R/W
F-21	当前适配电源频率 Current Adaptive Power Frequency	50: 适配50Hz交流电源 50: Adapt to 50Hz AC power supply 60: 适配60Hz交流电源 60: Adapt to 60Hz AC power supply	50,60	**	RO
F-22	程序版本 Program Version			*.**	RO

● 故障维护和状态显示
Trouble-shooting & Status

	名称 Name	原因 Cause	处理方法 How to Solve
故障码 Error Code	E.LOC	电机堵转故障 Motor rotor locked error	检查调速器与电机的连接; 检查机械故障; 按STOP键复位 Check the connection of speed controller and motor; check mechanical error; press STOP button to reset
	E.EEP	参数存储故障 Data saving error	重新上电解除警报 Re-power to clear the alarm
提示码 Prompt Code	S.run	电机当前处于运行状态, 禁止修改功能码 Motor is running, any modification is prohibited.	按STOP键停机后修改 Press STOP button and then modify
	S.not.	该按键当前处于无效状态 Function of the button is currently invalid.	修改F-03、F-04或F-06功能码 Modify F-03, F-04 or F-06 function code
	S.Err	该按键当前处于故障状态 Driver is currently having an error.	清除故障后重试 Clear the error and re-start
	S.loc	按键当前处于上锁状态 The button is locked.	同时按下DOWN和ENTER键解锁 Press both DOWN and ENTER buttons at same time

菜单修改 MENU Change

● 为保证安全, 请在电机停止的状态下进行修改, 运行状态下不可修改。
For safety, please stop the motor and then modify. Modification is not allowed when the motor is running.

Random

电机停止状态
Motor is stopped.

→

F-01

按MODE键进入菜单
Press MODE button to enter the MENU.

→

F-03

按▲、▼键选择功能码
Press ▲, ▼ to choose function code.

→

1

按ENTER键显示当前设定值
Press ENTER button to show the current set value.

→

2

按▲、▼键修改数值, 按REV、FWD左右移动
Press ▲, ▼ to modify the value, press REV, FWD to move left and right.

End

输入后按ENTER键, 短暂显示End, 保存设定参数, 进入下一功能码
After input the value, press ENTER button, it will show End temporarily, save the setting value, and then enter into next step of function code

→

F-04

按▲、▼键选择下一功能码
Press ▲, ▼ to choose next function code.

→

1

按ENTER键显示当前设定值
Press ENTER button to show current set value.

.....→

2

重复以上步骤设定参数
Repeat the steps for value setting as shown above.

→

Random

完成设定, 按MODE键退出
Finish the setting and press MODE button to quit.