



Bulletin MSG11-5715-745/CN

公告 MSG11-5715-745/CN

Brief Operation Manual

简要说明书

Series

D*FP / D*FE (design 设计号 > 50)



Proportional DC Valves

比例方向控制阀

Parker Hannifin

Control Division China

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Please notice 请注意:

Prior to commissioning, this brief operation manual must be read and understood. The safety instructions must be strictly observed. Parker disclaims any liability for damage resulting from non-compliance with the safety instructions listed here. The detailed and current operation manuals for the individual valve series can be found on the Parker homepage at www.parker.com/isde in the "Support" area. Or download the current manual by scanning the following QR code:

在调试之前，必须阅读并理解本简明操作手册，必须严格遵守安全说明。派克不对因不遵守此处列出的安全说明而造成的损害承担任何责任。各系列阀最新详细操作手册可以在 Parker 主页的 www.parker.com/isde 的“Support”区域找到，或通过扫描以下二维码下载最新手册：

D*FP,D*FE



The ProPxD parameterizing software can be downloaded free of charge at www.parker.com/isde in the "Support" area or directly at www.parker.com/propxd.

ProPxD 参数化软件可以在 www.parker.com/isde 的 "Support" 区域免费下载，也可以直接在 www.parker.com/propxd 免费下载。

Attention, safety instruction, please note and implement!

注意，安全说明，请注意并执行!

General 通用 (A)

A1. Delivery 交货 - Please check the delivery immediately after receiving the product if the content is matching with the specified scope of supply and for apparent damages due to shipping.

请在收到产品后立即检查货物内容，确保产品与指定供货范围一致，以及检查是否有因运输造成的明显损坏。

A2. Information obligation 信息义务 - Information regarding safety and health in product documentations must be read and understood before the customer-specific application (e.g. commissioning and maintenance) and before general use (e.g. storage, transport).

在客户特定应用（例如调试和维护）和一般使用（例如储存、运输）之前，必须阅读和理解产品文档中有关安全和健康的信息。

A3. Intended use 预期用途 - If our product is not used for the intended purpose, or structurally modified, improperly used, or there is a failure caused by external impact or force majeure, danger may occur which were not considered by the manufacturer. Damages resulting from this are not the responsibility of Parker.

如果我们的产品未按预期用途使用，或进行结构改造、使用不当，或因外部撞击或不可抗力而发生故障，则可能会发生制造商未考虑的危险，由此造成的损失与派克公司无关。

A4. Marking, name plates 标记、铭牌 - Instructions applied on the electronics, i.e. wiring diagrams and name plates, must be observed and maintained legibly.

电子设备的说明，如接线图和铭牌，必须清晰可辨并予以维护。

A5. Work at the electronics and hydraulics 电子元件和液压系统调试 - Installation and commissioning of the electronics may only be allowed by qualified personnel.

All prescribed requirements for the protection of users must be implemented and complied with before commissioning/installation/dismantling of the hydraulic components. It should be noted that national schemes for safety must be observed.

电子设备的安装和调试只能由专业人员进行。在调试/安装/拆卸液压元件之前，必须执行和遵守所有保护用户的规定要求。应该注意的是，必须遵守各国的相关安全法规。

Product specific 产品说明 (P)

P1. Earth ground 接地 - The earth ground wire as well as the cable shields have to be tied to the protective earth terminal within the control unit. It is necessary to use a low ohmic potential connection between control unit and machine frame to prevent earth loops (cross section min. AWG 6 / $>10 \text{ mm}^2$).

接地线和电缆屏蔽层必须连接到控制单元内的保护接地端子。必须在控制单元和机架之间使用低欧姆电阻电位连接，以防止接地回路（最小横截面 AWG 6 / $>10 \text{ mm}^2$ ）。

P2. Operating voltage 工作电压 - The operating voltage for the electronics must be free of inductive surges. Do not exceed the max. value of 30 V! Non-observance of this rule may result in permanent damaging of the electronics resp. the connected valve!

电子设备的工作电压必须无电感浪涌。不要超过最大值 30 V! 不遵守此规则可能会导致电子设备和所连接比例阀的永久性损坏!

P3. Power supply 电源 - The increased inrush current of the valve should be considered when selecting the power supply. A stabilized power supply with overcurrent limiting feature should not be used. Due to the inrush current of the electronics the current limit circuit may respond prematurely and create problems during energizing of the supply voltage.

选择电源时应考虑阀的浪涌电流会增大。不应使用具有过电流限制功能的稳定电源。由于电子元件的浪涌电流，限流电路可能会过早响应，并在电源通电时产生问题。

P4. Hydraulic preferred / basic position 液压优先/基本位置 - For valves with zerolap spool, a distinction must be made between hydraulic defined and preferred position. The defined position is taken at a neutral setpoint and corresponds to the zero position of the hydraulic symbol. When the valve is switched off - no supply voltage, no release, current signal (code S) $<3.8 \text{ mA}$ - the zerolap valves assume the preferred position according to the ordering code. For valves with overlap pistons, the defined and preferred positions are the same (zero position).

对于零遮盖阀芯的阀，必须区分液压定义位置和优先位置，定义位置是源自零位设定点，相当于液压符号的零位。当阀门关闭时 - 无电源电压，使能信号关闭或电流信号（代码 S） $<3.8 \text{ mA}$ ，零遮盖阀根据订货代码处于优先位置。对于正遮盖阀芯的阀，定义位置和优先位置是一样的（零位）。

In the event of a power failure, the valve spool returns to the spring-centered preferred position. It must be checked whether hazards can arise in the application of the system / machine.

在断电的情况下，阀芯会返回到弹簧对中的优先位置，必须检查在使用系统/机器时是否会发生危险。

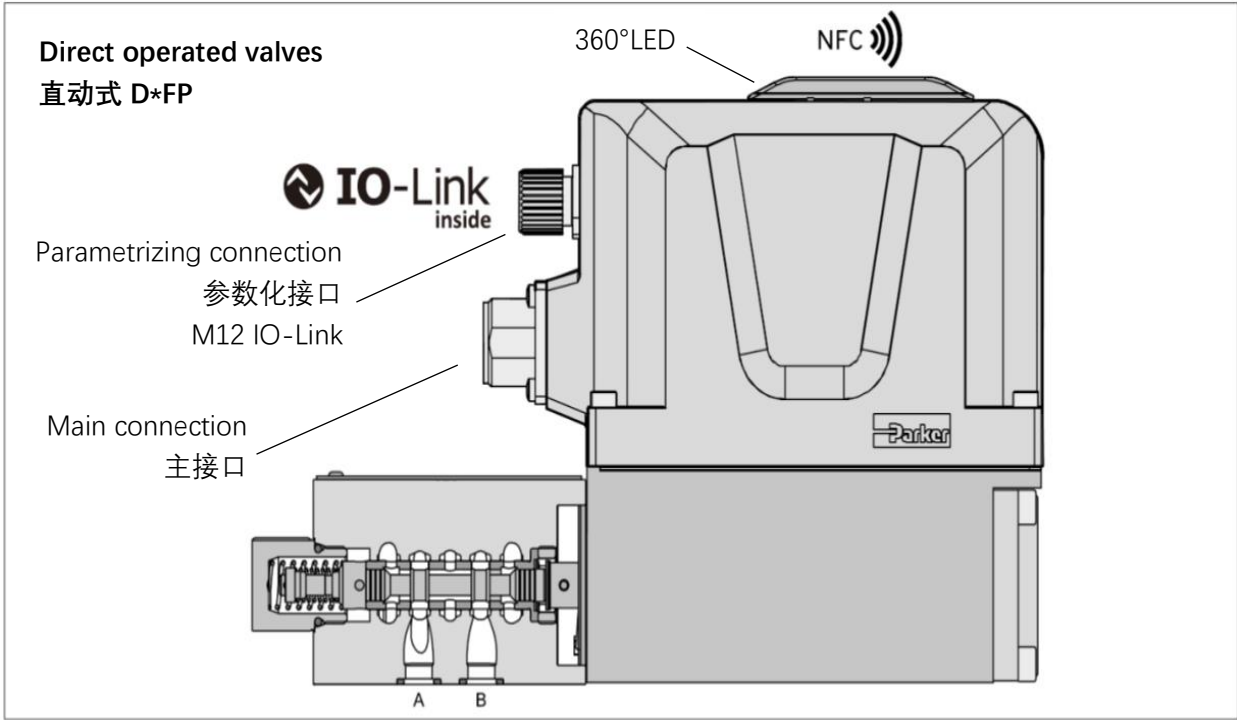
P5. Temperature 温度 - During application, the product may heat up at the surface and exceed the burn threshold. Even short-term contacts may lead to burns. Temperatures of more than 80°C may cause malfunctions of the onboard electronics.

在应用过程中，产品表面可能会升温并超过灼伤阈值，即使是短期接触也可能导致烧伤。超过 80°C 的温度可能会导致机载电子设备发生故障。

Technical Data 技术参数

General 通用	
Design 设计	Direct operated servo proportional DC valve 直动式伺服比例方向阀
Actuation 驱动装置	VCD [®] actuator VCD [®] 驱动器
Size 规格	NG06 / CETOP 03 / NFPA D03
Mounting interface 安装界面	DIN 24340 / ISO 4401 / CETOP RP121 / NFPA
Mounting position 安装姿态	Unrestricted 任意
Ambient temperature 环境温度 [°C]	-20...+50
MTTF _D value ¹⁾ 平均无故障时间 [years]	150
Weight 重量 [kg]	D1FP: 3.4; D3FP: 5.7
Vibration resistance 抗振强度 [g]	10 Sinus 正弦 5...2000 Hz acc. IEC 68-2-6 10 (RMS) Random noise 随机 20...2000 Hz acc. IEC 68-2-36 15 Shock 冲击 acc. IEC 68-2-27
Hydraulic 液压参数	
Max. operating pressure 最高工作压力 [bar]	Ports P, A, B 350, port T 35 for internal drain, 350 for external drain, port Y 35 ²⁾ 油口P, A, B: 350; 油口T: 35(内泄), 350(外泄); 油口Y: 35 ²⁾
Fluid 液压油	Hydraulic oil according to DIN 51524 ... 535, other on request 符合 DIN 51524 ... 535 标准的液压油, 其他可根据要求提供
Fluid temperature 油液温度 [°C]	-20...+60 (NBR: -25...+60)
Viscosity 油液粘度	
permitted 容许 [cSt]/mm ² /s	20...400
recommended 推荐 [cSt]/mm ² /s	30...80
Filtration 过滤要求	ISO 4406: 18/16/13
Interfaces 接口	
IO-Link	IEC 61131-9
NFC	ISO/IEC 15693 • NFC Forum Type 5 tag certified by the NFC Forum Frequency 13.56 MHz 经 NFC 标准认证的 NFC Forum 5 类标签, 频率 13.56 MHz
Electrical characteristics 电气参数	
Duty ratio 负荷率 [%]	100
Protection class 防护等级	IP65 in accordance with EN 60529 (with correctly mounted plug-in connector) 符合 EN 60529 标准 IP65 (带正确安装插入式连接器)
Supply voltage/ripple 电源电压/波动 [V]	DC 22 ... 30, electric shut-off at < 19, ripple < 5% eff., surge free 直流 22 ... 30, <19 时控制器关断, 波动 < 5%有效值, 无浪涌
Current consumption max. 最大电流消耗 [A]	3.5
Pre-fusing 熔断器 [A]	4.0 medium lag 中等滞后

Input signal 输入信号		
Code 代码 B	Voltage 电压 [V]	10...0...-10, ripple 波动<0.01% eff., surge free 无浪涌, 0...+10 V P->A
	Impedance 阻抗 [kOhm]	100
Code 代码 E	Current 电流 [mA]	20...0...-20, ripple 波动<0.01% eff., surge free 无浪涌, 0...+20mA P->A
	Impedance 阻抗 [kOhm]	<250
Code 代码 S	Current 电流 [mA]	4...12...20, ripple 波动<0.01% eff., surge free 无浪涌, 12...20Ma P->A
		<3.6mA=disable 截止, >3.8 mA = enable 使能 according to NAMUR NE43
	Impedance 阻抗 [kOhm]	<250
Differential input max. Code 代码 0 [V]		30 for terminal D and E against PE (terminal G)
最大差分输入		端子 D 和 E 相对 PE (端子 G) 为 30
	Code 代码 5 [V]	30 for terminal 4 and 5 against PE (terminal $\perp$)
		针对 PE (接地端子) 的端子 4 和端子 5 为 30
	Code 代码 7 [V]	30 for terminal D and E against PE (terminal G)
		端子 D 和 E 对 PE (端子 G) 为 30
Enable signal (only code 5/7)		acc. EN 61131-2; Type 类型 3
使能信号 (仅代号 5/7)	[V]	Low 低-3...+5; High 高 11...30; input current 输入电流 3 mA
Diagnostic signal 诊断信号	[V]	+10...0...-10
EMC 电磁兼容性		EN 61000-6-2, EN 61000-6-4
Electrical connection Code 代码 0/7		6 + PE acc. EN 175201-804
电气连接	Code 代码 5	11 + PE acc. EN 175201-804
Wiring min. Code 代码 0/7 [mm ²]		7x1.0 (AWG 16) overall braid shield 全编织屏蔽
接线种类	Code 代码 5 [mm ²]	8x1.0 (AWG 16) overall braid shield 全编织屏蔽
Wiring length max. 最大接线长度	[m]	50



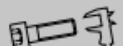
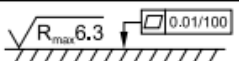
LED flashing signals of the valve electronics

比例阀电子装置的 LED 闪烁信号

The device status is indicated by an LED with two color fields. Different device states are indicated by the color combinations and the flashing frequency.

设备状态由带有两个颜色区域的 LED 指示，不同的设备状态通过颜色组合和闪烁频率来表示。

State 状态	LED 区域 1		LED 区域 2	
	颜色	闪光频率	颜色	闪光频率
正常				
Active 激活	Green 绿	Permanent 常亮	Green 绿	Permanent 常亮
Disabled 未激活	Green 绿	1 Hz	Green 绿	1 Hz
On Hold 暂停状态	Green 绿	0.5 Hz	Green 绿	0.5 Hz
警告				
Active 激活	Yellow 黄	Permanent 常亮	Yellow 黄	Permanent 常亮
Disabled 未激活	Yellow 黄	1 Hz	Yellow 黄	1 Hz
故障				
Active 激活	Red 红	Permanent 常亮	Red 红	Permanent 常亮
Disabled 未激活	Red 红	1 Hz	Red 红	1 Hz
正常 + IO-LINK 通讯				
Active 激活	Blue 蓝	Permanent 常亮	Green 绿	Permanent 常亮
Disabled 未激活	Blue 蓝	1 Hz	Green 绿	1 Hz
On Hold 暂停状态	Blue 蓝	0.5 Hz	Green 绿	0.5 Hz
警告 + IO-LINK 通讯				
Active 激活	Blue 蓝	Permanent 常亮	Yellow 黄	Permanent 常亮
Disabled 未激活	Blue 蓝	1 Hz	Yellow 黄	1 Hz

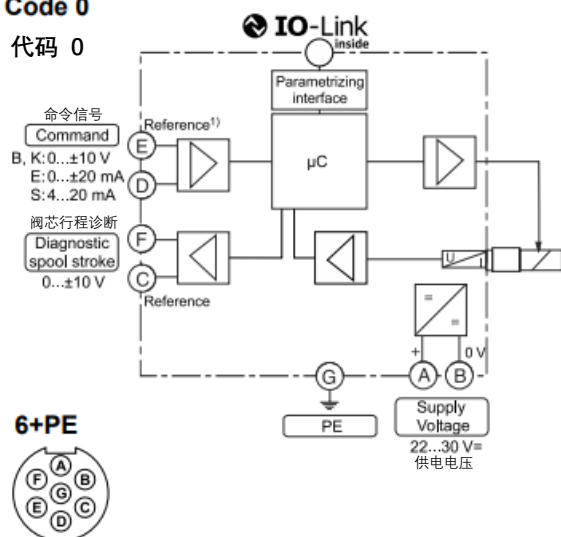
NG	 ISO 4762-12.9		Surface finish
D1*	4x M5x30	7.6 Nm $\pm 15\%$	
D3*	4x M6x40	13.2 Nm $\pm 15\%$	

Electrical interfacing, plug according to EN 175201-804

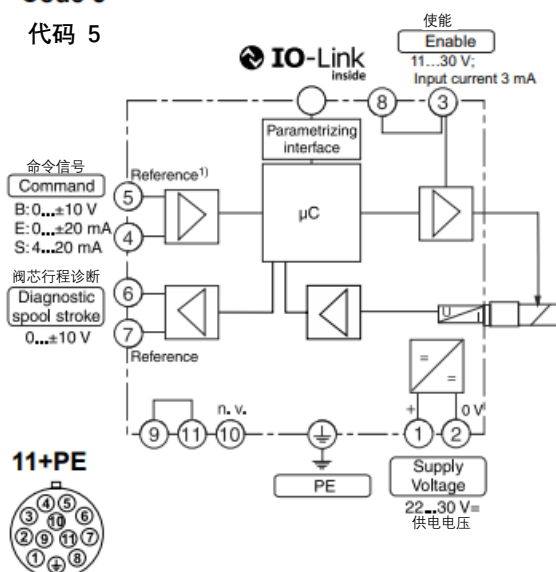
电气接口，插头符合 EN 175201-804 标准

Code 0

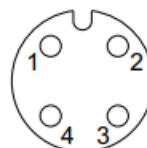
代码 0

**Code 5**

代码 5



IO-Link (参数化) 接口的引脚分配, M12 插座

Pin assignment IO-Link (parametrizing) interface, M12 socket

PIN assignment acc. IEC 60974-5-2

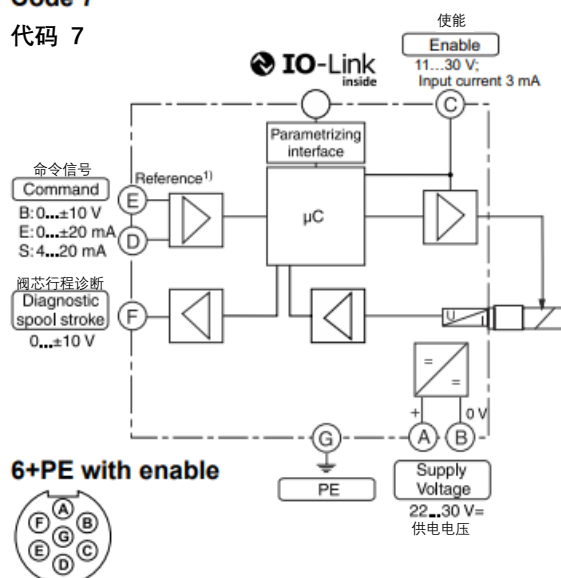
- Pin 1: 24 VDC
- Pin 3: GND
- Pin 4: IO-Link Communication (C/Q)

引脚分配根据标准: IEC 60974-5-2

- 引脚 1: 24 VDC
- 引脚 3: GND
- 引脚 4: IO-Link 通信 (C/Q)

Code 7

代码 7



1)请勿连接电源电压零点