



压力传感器



## 压力范围

0 ... 2.5 – 1000 bar

# Huba Control

## 压力变送器

### 522船用系列

紧凑的522系列压力变送器专为造船行业设计，基于富巴公司的厚膜技术，且压力测量单元是全密封的。

压力测量单元与传感器外壳全焊接结构，可以满足多种防爆行业的要求。

522全系列都具有船级社认证。

- + 紧凑且坚固的结构
- + 无焊料的焊接工艺
- + 船级社认证
  - ABS 美国
  - BV 法国
  - DNV GL 挪威 德国
  - LR 英国

技术参数总览

压力范围

|      |                      |
|------|----------------------|
| 相对压力 | 0 ... 2.5 - 1000 bar |
|------|----------------------|

使用条件

|      |                 |                                          |
|------|-----------------|------------------------------------------|
| 介质   | 液体, 气体和制冷剂 (含氨) |                                          |
| 温度   | 介质温度            | - 40 ... + 135 °C (Ⓜ) - 30 ... + 120 °C) |
|      | 环境温度            | - 30 ... + 85 °C (Ⓜ) - 25 ... + 85 °C)   |
|      | 储存温度            | - 50 ... + 100 °C                        |
|      | ≤ 6 bar         | 5倍满量程                                    |
| 过载保护 | > 6 bar         | 3倍满量程 (最大1500 bar)                       |
|      | ≤ 6 bar         | 10倍满量程                                   |
| 破坏压力 | > 6 bar         | 6倍满量程 (最大2500 bar)                       |

材料

|          |                     |                     |
|----------|---------------------|---------------------|
| 壳体       | 不锈钢1.4404/AISI 316L |                     |
| 调节插头     | 聚芳酰胺50%GF UL 94 v-0 |                     |
| 与介质接触的材料 | 压力连接                | 不锈钢1.4404/AISI 316L |
|          | 传感器                 | 不锈钢                 |

电气概述

|         |               |               |                                                 |         |
|---------|---------------|---------------|-------------------------------------------------|---------|
| 2线      | 输出            | 供电            | 载荷                                              | 电流损耗    |
|         | 4 ... 20 mA   | 7 ... 33 VDC  | $< \frac{0.02 \text{ A}}{0.02 \text{ A}}$ [Ohm] | < 23 mA |
| 3线      | Ⓜ 4 ... 20 mA | 10 ... 30 VDC | $< \frac{0.02 \text{ A}}{0.02 \text{ A}}$ [Ohm] | < 23 mA |
|         | 0 ... 10 V    | 12 ... 33 VDC | >10 kOhm / < 100 nF                             | < 7 mA  |
| 正负极反接保护 |               |               | 短路保护和正负极保护。每个连接端均可承受最大供电电压。                     |         |
| 绝缘电压    |               |               | 标准                                              | 500 VDC |

动态响应

|        |                   |
|--------|-------------------|
| 响应时间   | < 2 ms, 1 ms typ. |
| 载荷周期频率 | < 100 Hz          |

电气连接

|                          |       |      |
|--------------------------|-------|------|
| 快速接头不带或带电缆线1.5 m (PVC规格) | 防护等级  | 防护级别 |
| 接头DIN EN 175301-803-A    | IP 67 | III  |
| 接头M12x1                  | IP 65 | III  |
|                          | IP 67 | III  |

压力连接

|     |               |                                                        |
|-----|---------------|--------------------------------------------------------|
| 内螺纹 | 7/16 - 20 UNF |                                                        |
|     | 1/2 - 14 NPT  | (≤ 6 bar)                                              |
|     | 7/16 - 20 UNF | 45°锥密封                                                 |
|     | 1/4 - 18 NPT  |                                                        |
| 外螺纹 | G 1/4         | 后端密封ISO 1179-2 (DIN 3852-E)带密封圈FPM (- 30 ... + 135 °C) |
|     | G 1/2         | 后端密封和压力计 (combi) 带密封圈FPM (- 30 ... + 135 °C)           |
|     | M20x1.5       | 前端密封和压力计 (combi)                                       |
|     | G 1/2         | 前端密封                                                   |

安装布置

|        |
|--------|
| 没有严格要求 |
|--------|

测试/认证

|                      |                                                                           |
|----------------------|---------------------------------------------------------------------------|
| 电磁兼容性                | CE认证 根据EN 61326-2-3                                                       |
| 冲击测试 根据IEC 68-2-27   | 100 g, 11 ms半正弦波, 全部6个方向, 1 m高处自由落下到地面 (6x)                               |
| 连续冲击测试 根据IEC 68-2-29 | 40 g, 6 ms, 1000 x 全部3个方向                                                 |
| 振动测试 根据IEC 68-2-6    | 20 g, 15 ... 2000 Hz, 15 ... 25 Hz振幅± 15 mm, 1 Octave/min. 全部3个方向, 50恒定负载 |
| 船级社认证                | 美国 (ABS)                                                                  |
|                      | 法国 (BV)                                                                   |
|                      | 挪威 德国 (DNV GL)                                                            |
|                      | 英国 (LR)                                                                   |
| 饮用水认证                | WRAS                                                                      |
| EAC                  |                                                                           |

防爆 Ⓜ

|                                      |                                        |
|--------------------------------------|----------------------------------------|
| 本质安全«i» (仅对电流输出)                     | 4 ... 20 mA                            |
| EC 型式检验证书                            | Ex II 1/2 G Ex ia IIC T4 Ga/Gb         |
| 连接到认证过的本质安全的电阻电路最大值                  | Ex II 1/2 D Ex ia IIC T125°C Da/Db     |
| 插头版本的有效内部电容电感符合EN 175301-803-A或M12x1 | SEV 10 ATEX 0145                       |
| IECEX                                | Ui = 30 VDC; Ii = 100 mA = Pi = 0.75 W |
|                                      | Li = 0 nH; Ci = 0 nF                   |
|                                      | SEV 16.0007                            |

重量

|       |
|-------|
| ~90 g |
|-------|

包装 (请在订购时注明)

|               |      |
|---------------|------|
| 纸箱单个包装        | 包含附件 |
| 纸箱多个包装 (25 件) |      |

精度

| 参数                     | 单位   |                |
|------------------------|------|----------------|
| 特征曲线 <sup>1)</sup>     | % fs | ± 0.3          |
| 分辨率                    | % fs | 0.1            |
| 热特性 <sup>2)</sup>      | 最大   | % fs/10K ± 0.2 |
| 长期稳定性 根据IEC EN 60770-1 | 最大   | % fs ± 0.25    |

测试条件: 45%湿度 供电24 VDC

<sup>1)</sup>典型的: 最大0.5% fs (包含零点, 满量程, 线性, 滞后性和可重复性)

<sup>2)</sup> - 15 ... 85 °C

| 选型表 (bar)          |                                                    |                                                               | 522. |   |   |   |   |   |   |   |   |   |        | 1 | 2   | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--------------------|----------------------------------------------------|---------------------------------------------------------------|------|---|---|---|---|---|---|---|---|---|--------|---|-----|---|---|---|---|---|---|---|----|----|
|                    |                                                    |                                                               | X    | X | X | X | X | X | X | X | X | X | X      | X | X   | X | X | X | X | X | X | X |    |    |
| 压力范围 <sup>1)</sup> | 0 ... 2.5 bar                                      |                                                               | 9    | 1 | 4 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 4 bar                                        |                                                               | 9    | 1 | 5 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 6 bar                                        |                                                               | 9    | 1 | 7 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 10 bar                                       |                                                               | 9    | 3 | 0 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 16 bar                                       |                                                               | 9    | 3 | 1 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 25 bar                                       |                                                               | 9    | 3 | 2 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 40 bar                                       |                                                               | 9    | 3 | 3 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 60 bar                                       |                                                               | 9    | 4 | 0 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 100 bar                                      |                                                               | 9    | 4 | 1 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 160 bar                                      |                                                               | 9    | 4 | 2 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 250 bar                                      |                                                               | 9    | 4 | 3 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 400 bar                                      |                                                               | 9    | 5 | 4 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 600 bar                                      |                                                               | 9    | 5 | 5 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 1000 bar                                     |                                                               | 9    | 5 | 7 | S | 0 |   |   |   |   |   |        |   |     |   |   |   |   |   |   |   |    |    |
| 输出/供电              | 0 ... 10 V                                         | 12 ... 33 VDC                                                 |      |   |   |   |   |   |   |   |   |   | 2      |   |     |   |   |   |   |   |   |   |    |    |
|                    | 4 ... 20 mA                                        | 7 ... 33 VDC<br>10 ... 30 VDC 防爆保护                            |      |   |   |   |   |   |   |   |   |   | 3<br>4 |   | 1,3 |   |   |   |   |   |   |   |    |    |
| 电气连接               | 接头                                                 | DIN EN 175301-803-A <sup>2)</sup>                             |      |   |   |   |   |   |   |   |   |   |        |   | 1   |   |   |   |   |   |   |   |    |    |
|                    |                                                    | M12x1 <sup>2)</sup> 2w: IN=1 / OUT=3 3w: IN=1 / OUT=4 / GND=3 |      |   |   |   |   |   |   |   |   |   |        |   |     | 3 |   |   |   |   |   |   |    |    |
|                    |                                                    | M12x1 <sup>2)</sup> 2w: IN=1 / OUT=4 3w: IN=1 / OUT=3 / GND=4 |      |   |   |   |   |   |   |   |   |   |        |   |     |   | M |   |   |   |   |   |    |    |
|                    |                                                    | 快速接头带电缆线1.5 m                                                 |      |   |   |   |   |   |   |   |   |   |        |   |     |   | L |   |   |   |   |   |    |    |
| 压力连接               | 内螺纹                                                | 7/16 - 20 UNF                                                 |      |   |   |   |   |   |   |   |   |   |        |   |     |   | K | 0 | 1 |   |   |   |    |    |
|                    |                                                    | 1/2 - 14 NPT (≤ 60 bar)                                       |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   | D | 0 | 1 |   |   |    |    |
|                    | 外螺纹                                                | 7/16 - 20 UNF                                                 |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   | 2 | 0 | 1 |   |   |    |    |
|                    |                                                    | 1/4 - 18 NPT                                                  |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   | 3 | 0 | 1 |   |   |    |    |
|                    |                                                    | G 1/4后端密封ISO 1179-2 (DIN 3852-E)带密封圈FPM                       |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   | 4 | 0 | 1 |   |   |    |    |
|                    |                                                    | G 1/2后端密封和压力计带密封圈FPM                                          |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   | 8 | 0 | 1 |   |   |    |    |
|                    |                                                    | M20x1.5前端密封和压力计 (combi)                                       |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   | E | 0 | 1 |   |   |    |    |
|                    |                                                    | G 1/2前端密封                                                     |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   | 9 | 0 | 1 |   |   |    |    |
| 压力范围变化 (可选)        | 请标注W, 并在订单上注明范围 (例如: W0 ... 3 bar / Out 0 ... 5 V) |                                                               |      |   |   |   |   |   |   |   |   |   |        |   |     |   |   |   |   |   | W |   |    |    |

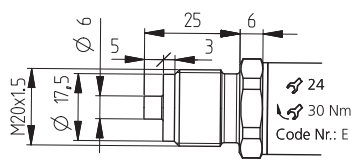
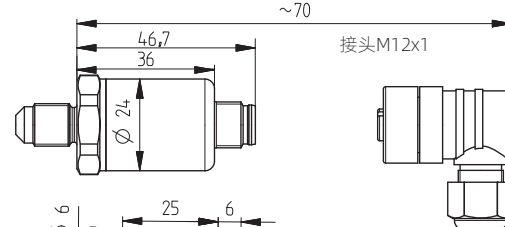
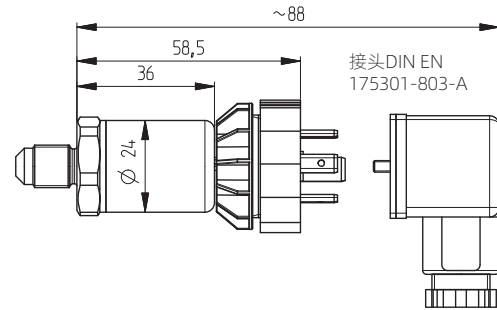
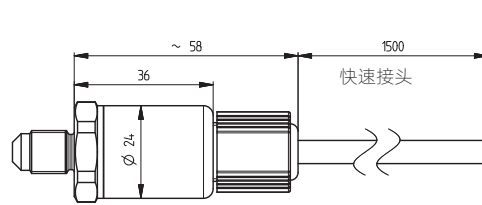
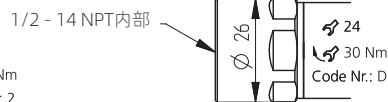
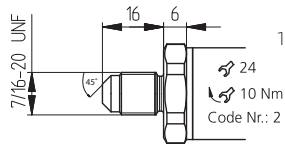
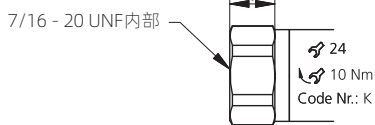
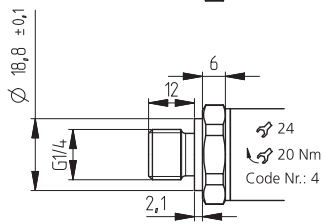
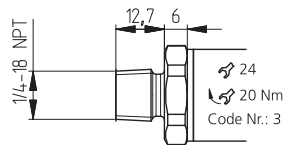
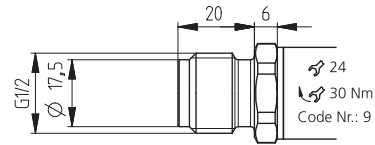
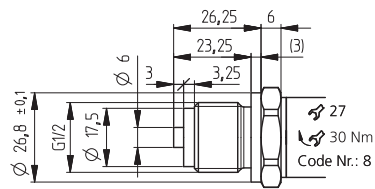
| 选型表 (psi)          |                                                         |                                                               | 522. |   |   |   |   |  |  |  |  |  |   | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--------------------|---------------------------------------------------------|---------------------------------------------------------------|------|---|---|---|---|--|--|--|--|--|---|-----|---|---|---|---|---|---|---|---|----|----|
| 压力范围 <sup>1)</sup> | 0 ... 30 psi                                            |                                                               | 9    | B | 4 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 60 psi                                            |                                                               | 9    | B | 5 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 100 psi                                           |                                                               | 9    | B | 7 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 200 psi                                           |                                                               | 9    | C | 1 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 300 psi                                           |                                                               | 9    | C | 2 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 500 psi                                           |                                                               | 9    | C | 3 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 750 psi                                           |                                                               | 9    | D | 0 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 1000 psi                                          |                                                               | 9    | D | 1 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 2000 psi                                          |                                                               | 9    | D | 2 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 3000 psi                                          |                                                               | 9    | D | 3 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 5000 psi                                          |                                                               | 9    | E | 4 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 7500 psi                                          |                                                               | 9    | E | 5 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
|                    | 0 ... 14500 psi                                         |                                                               | 9    | E | 7 | S | 0 |  |  |  |  |  |   |     |   |   |   |   |   |   |   |   |    |    |
| 输出/供电              | 0 ... 10 V                                              | 12 ... 33 VDC                                                 |      |   |   |   |   |  |  |  |  |  | 2 |     |   |   |   |   |   |   |   |   |    |    |
|                    | 4 ... 20 mA                                             | 7 ... 33 VDC                                                  |      |   |   |   |   |  |  |  |  |  | 3 |     |   |   |   |   |   |   |   |   |    |    |
| 电气连接               |                                                         | 10 ... 30 VDC 防爆保护                                            |      |   |   |   |   |  |  |  |  |  | 4 | 1,3 |   |   |   |   |   |   |   |   |    |    |
|                    | 接头                                                      | DIN EN 175301-803-A <sup>2)</sup>                             |      |   |   |   |   |  |  |  |  |  |   | 1   |   |   |   |   |   |   |   |   |    |    |
|                    |                                                         | M12x1 <sup>2)</sup> 2w: IN=1 / OUT=3 3w: IN=1 / OUT=4 / GND=3 |      |   |   |   |   |  |  |  |  |  |   |     | 3 |   |   |   |   |   |   |   |    |    |
|                    |                                                         | M12x1 <sup>2)</sup> 2w: IN=1 / OUT=4 3w: IN=1 / OUT=3 / GND=4 |      |   |   |   |   |  |  |  |  |  |   |     | M |   |   |   |   |   |   |   |    |    |
|                    |                                                         | 快速接头带电缆线1.5 m                                                 |      |   |   |   |   |  |  |  |  |  |   | L   |   |   |   |   |   |   |   |   |    |    |
| 压力连接               | 内螺纹                                                     | 7/16 - 20 UNF                                                 |      |   |   |   |   |  |  |  |  |  |   |     |   |   | K | 0 | 1 |   |   |   |    |    |
|                    |                                                         | 1/2 - 14 NPT (≤ 870 psi)                                      |      |   |   |   |   |  |  |  |  |  |   |     |   |   |   | D | 0 | 1 |   |   |    |    |
|                    | 外螺纹                                                     | 7/16 - 20 UNF                                                 |      |   |   |   |   |  |  |  |  |  |   |     |   |   |   | 2 | 0 | 1 |   |   |    |    |
|                    |                                                         | 1/4 - 18 NPT                                                  |      |   |   |   |   |  |  |  |  |  |   |     |   |   |   | 3 | 0 | 1 |   |   |    |    |
|                    |                                                         | G 1/4后端密封ISO 1179-2 (DIN 3852-E)带密封圈FPM                       |      |   |   |   |   |  |  |  |  |  |   |     |   |   |   | 4 | 0 | 1 |   |   |    |    |
|                    |                                                         | G 1/2后端密封和压力计带密封圈FPM                                          |      |   |   |   |   |  |  |  |  |  |   |     |   |   |   | 8 | 0 | 1 |   |   |    |    |
|                    |                                                         | M20x1.5前端密封和压力计 (combi)                                       |      |   |   |   |   |  |  |  |  |  |   |     |   |   |   | E | 0 | 1 |   |   |    |    |
|                    | G 1/2前端密封                                               |                                                               |      |   |   |   |   |  |  |  |  |  |   |     |   |   | 9 | 0 | 1 |   |   |   |    |    |
| 压力范围变化 (可选)        | 请标注W, 并在订单上注明范围 (例如: W 0 ... + 400 psi / Out 0 ... 5 V) |                                                               |      |   |   |   |   |  |  |  |  |  |   |     |   |   |   |   |   |   |   | W |    |    |

<sup>1)</sup> 其他压力范围可根据要求设置

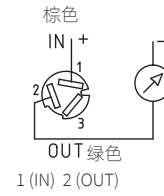
<sup>2)</sup> 发货不带母接头



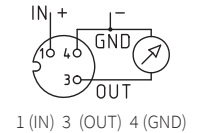
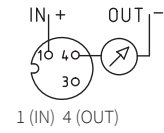
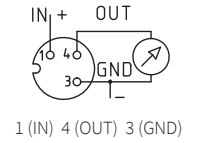
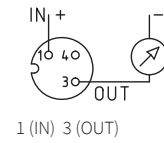
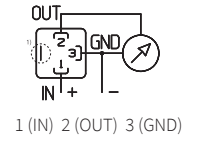
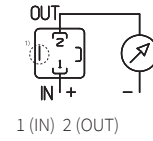
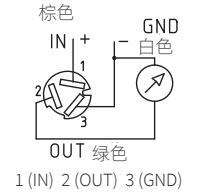
## 尺寸 (mm) / 电气连接



2线

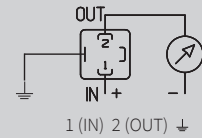


3线

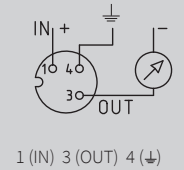


设备带防爆保护设计: 4 ... 20 mA  
接地连接与变送器壳体导通

接头 EN 175301-803-A



接头 M12x1



<sup>1)</sup> 不与变送器壳体连接

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