

C16i...

Digital Load Cells

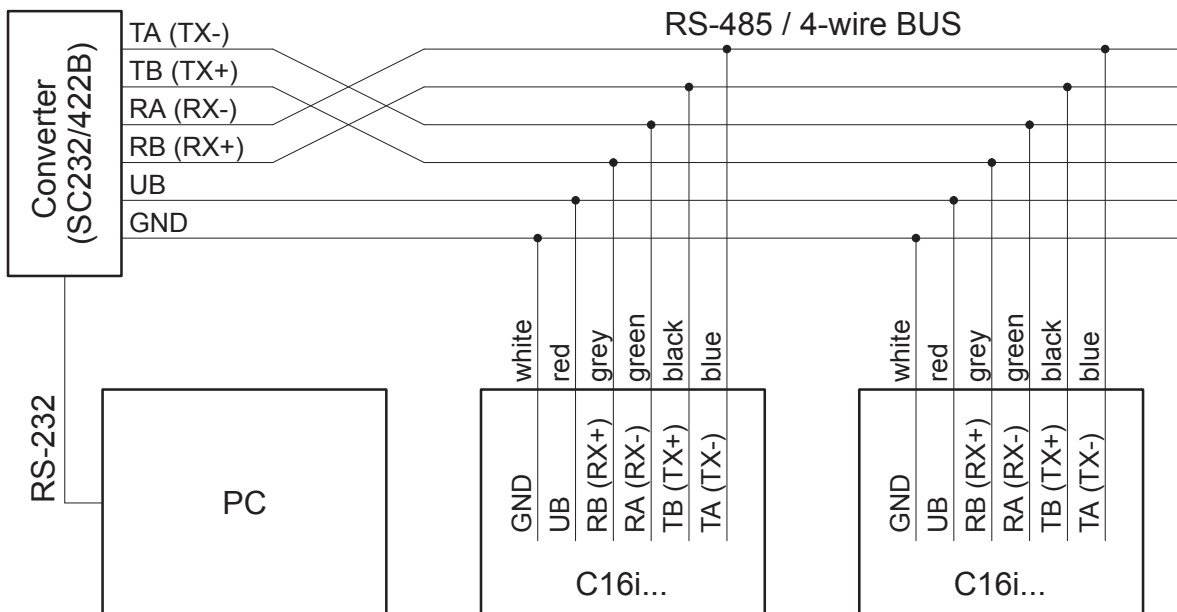
数字称重传感器



Special features 特点

- Digital output signal (RS-485 / 4-wire)
- Nominal (rated) loads: 20 t ... 60 t
- Self restoring rocker pin
- Simple to install
- Stainless steel material, laser welded, IP68
- Legal for trade verification according to OIML R60 up to 3000 d
- Legal for trade verification according to NTEP III LM up to 10,000d
- Meets EMC / ESD requirements according to EN 45 501
- Inbuild overvoltage protection
- 数字信号输出 (RS-485/4线)
- 额定负载:20t ... 60t
- 自复位柱式
- 安装方便
- 不锈钢, 紧致密封
- 贸易认证, OIML R60标准最大3000d
- 贸易认证, NTEP 最大10,000d
- EMC 认证
- 内置过电压保护

Wiring code 接线



Specifications 规格

Type 型号	C16i D1				C16i C3				
Nominal (rated) load (E_{max}) 额定量程	20 t	30 t	40 t	60 t	20 t	30 t	40 t	60 t	
Accuracy class according to OIML R60 精度等级 Max. numbers of LC verification intervals (n_{LC})	D1 (0.0330 %) 1000				C3 (0.0180 %) 3000 (10 000 NTEP III LM)				
Min. load cell verification interval (v_{min}) 最小检定分度值	0.0200				0.0100 (0.006 NTEP III LM)		0.0083 (0.006 NTEP III LM)		
Min. scale verification interval (e_{min}) according to EN 45 501 最小秤检定分度值 [... LC = max. Number of load cells]	kg	-	-	-	-	5 [6 LC] 10 [10 LC]	10 [10 LC]	10 [6 LC] 20 [10 LC]	10 [4 LC] 20 [10 LC]
Sensitivity (C_n) 灵敏度	digit	1 000 000							
Sensitivity tolerance 灵敏度误差	%	±0.03							
Temperature effect on sensitivity (TK_C) ¹⁾ 温度对灵敏度影响	% of C_n / 10 K	±0.0250 ¹⁾				±0.0080 ¹⁾			
Temperature effect on zero signal (TK_0) 温度对零点的影响		±0.0285				±0.0140		±0.0116	
Hysteresis error (d_{hy}) ¹⁾ 滞后误差		±0.0330 ¹⁾				±0.0170 ¹⁾			
Non-Linearity (d_{lin}) ¹⁾ 线性误差		±0.0300 ¹⁾				±0.0180 ¹⁾			
Creep (d_{cr}), 30 min. 蠕变恢复	% of C_n	±0.0330				±0.0167			
Min. dead load output return (DR), 30 min.		±0.0330				±0.0167 (±0.0150 NTEP III LM)			
Reference excitation voltage (U_{ref}) 参考激励电压	V (DC)	12							
Nominal range of excitation voltage (B_U) 额定激励电压		8.5 ... 15 ²⁾							
Current consumption 电流消耗	mA	50 ²⁾							
Resolution 分度	Bit	20 (at 1 Hz)							
Measuring rate 测量速率	1 / sec	200 100 50 25 12 6 3 2 1							
Filter mode 0 滤波模式0		8 ... 0.05 (Low pass filter)							
Filter mode 1 滤波模式1	Hz	8 ... 3 (Low pass filter)							
Asynchrone Interface 异步连接		RS-485 / 4-wire (Cable length up to 500 m)							
Baudrate 波特率	Baud	1200 ... 115200							
Number of bus addresses 总线地址数量		max. 32							
Nominal temperature range (B_T) 额定温度		-10 ... +40 [14...104]							
Service temperature range (B_{tu}) 工作温度	°C [°F]	-20 ... +70 [-4...158]							
Storage temperature range (B_{st}) 存储温度		-50 ... +85 [-58...185]							
Limit load (E_L) 极限负载		150							
Breaking load (E_d) 破坏负载		> 350							
Permissible dynamic load (F_{srel}) 允许动态负载 (vibration amplitude acc. to DIN 50100)	% of E_{max}	70							
Nominal (rated) load (E_{max}) 额定负载		20 t	30 t	40 t	60 t	20 t	30 t	40 t	60 t
Deflection at E_{max} (s_{nom}), approx. 最大载荷下变形量	mm	0.65	0.75	0.85	1.22	0.65	0.75	0.85	1.22
Weight (G) with cable, approx. 重量	kg	2.2	2.4	3.0	3.8	2.2	2.4	3.0	3.8
Protection class according to EN60529 保护等级 (IEC529)		IP68 (test conditions 100 h at 1 m water column) IP69 K (water at high pressure, steam jet cleaning)							
Material: Meas. body + housing 材料: Cable fitting Sealing Cable-sheath		stainless steel stainless steel Viton thermoplastical elastomer							

¹⁾ The data for Non-Linearity (d_{lin}), Hysteresis error (d_{hy}) and Temperature effect on sensitivity (TK_C) are typical values. The sum of these data meets the requirements for $p_{LC} = 0.8$ according to OIML R60.

非线性误差，滞后误差和温度对灵敏度影响的数据是平均值，这些值的总和达到OIML R60

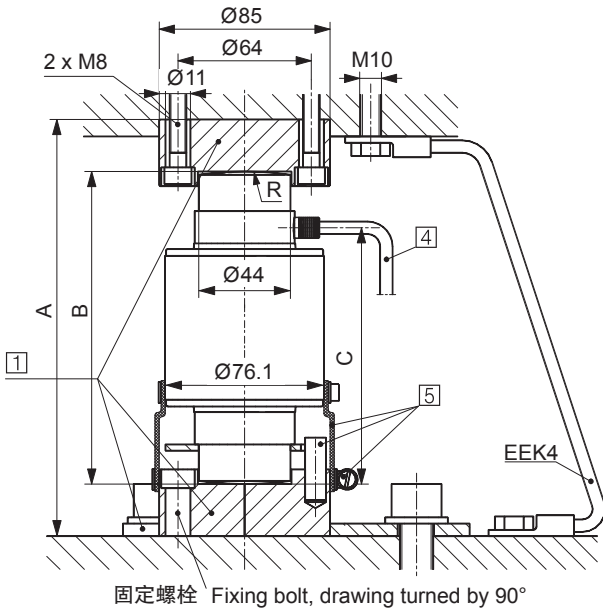
²⁾ Please refer to the power supply table in the Installation instructions! 请参考安装指导中的电源表

Options for C16i...

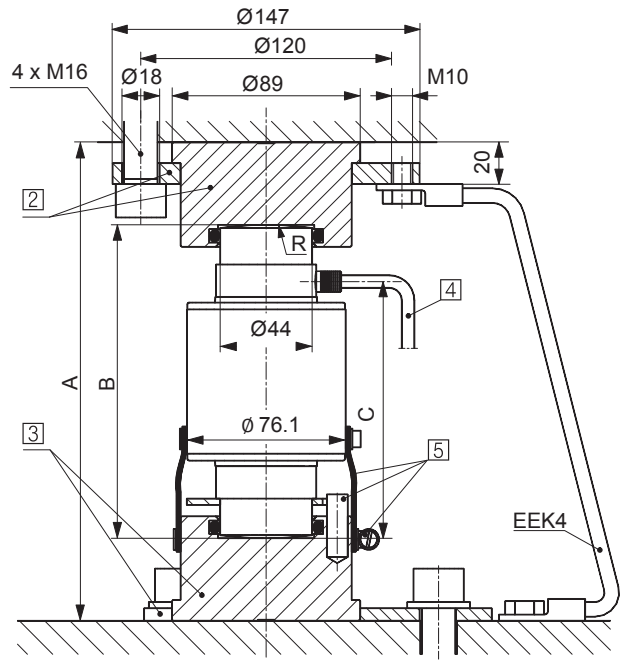
- Cable length 20 m ($E_{max} = 20 t + 30 t$)
- Cable length 40 m ($E_{max} = 20 t ... 60 t$)
- Metal braided cable, 20 m long ($E_{max} = 20 t ... 60 t$)

Dimensions and Accessories (in mm; 1 mm = 0.03937 inches) 尺寸和附件

Mounting variation 1: 安装方式1
C16... + C16/ZOU44A (max. load per load cell = 40 t)

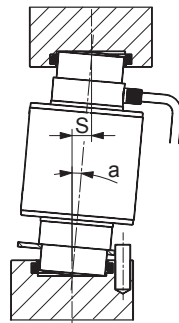
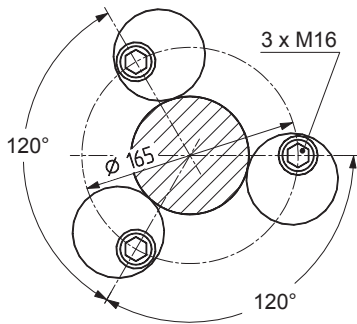


Mounting variation 2: 安装方式2
C16... + EPO3/50 t + C16/EPU44A



固定螺栓 Fixing bolt, drawing turned by 90°

Top view 顶视图



- 1 C16/ZOU44A
- 2 EPO3/50 t
- 3 C16/EPU44A
- 4 Cable length (standard):
20 t + 30 t = 12 m;
40 t + 60 t = 20 m
- 5 Dowel pin $\varnothing 10 \times 30$ (rotation stop),
flexible tube and tube clip enclosed
in the packing of the load cell

防旋转插销，伸缩管和管夹包括在传感器包装中

Mount. variation 1	E_{max} C16...	Thrust pieces above + below (1 set = 2 pcs.)		A	B	C	R Ball	$a_{max}^{2)}$	$S_{max}^{3)}$	$F_R^{4)}$ (% of applied load)	
		C16/ZOU44A ¹⁾								at S_{max}	at $S = 1 \text{ mm}$
	20 t			200	150	123	130	5°	13	6.4	0.49
	30 t			200	150	123	160	5°	13	9.9	0.76
	40 t			200	150	123	180	5°	13	12.2	0.94
	60 t			260	210	157	220	3°	11	5.7	0.52

Mount. variation 2	E_{max} C16...	Thrust pieces		A	B	C	R Ball	$a_{max}^{2)}$	$S_{max}^{3)}$	$F_R^{4)}$ (% of applied load)	
		above	below							at S_{max}	at $S = 1 \text{ mm}$
	20 t	EPO3/50 t	C16/EPU44A	229	150	123	130	5°	13	6.4	0.49
	30 t			229	150	123	160	5°	13	9.9	0.76
	40 t			229	150	123	180	5°	13	12.2	0.94
	60 t			289	210	157	220	3°	11	5.7	0.52

1) Max. load: 40 t 最大负荷

2) Max. permissible skewing 最大允许倾斜

3) Max. permissible lateral displacement of load introduction
最大允许侧性偏移

4) Restoring force 回复力

Accessories (to be ordered separately) 附件：需单独订购

Thrust pieces

Mounting Variation 1: 上压头和下压头共两片，用于≤60吨的传感器，最大承载40吨，包括3个非同心的垫圈

- C16/ZOU44A Thrust pieces (stainless steel) for above and below (1 Set = 2 pcs.), for use with C16.../≤60 t up to a maximum load per load cell of 40 tons, incl. 3 excentric washers

Mounting Variation 2:

- EPO3/50t Thrust piece for above, incl. spanner 上压头
- C16/EPU44A Thrust piece for below, incl. 3 excentric washers 下压头，包括3个非同心的垫圈

Serial-Converter 串口转换器

- Interface converter set SC232/422B (see separate data sheet)



- Conversion of RS-232 in 4-wire-RS-422/485 or in 2-wire-RS-485 (adjustable)
 - Galvanic separation
 - High EMC-security (metallic housing)
 - Power supply range 8 ... 30 V DC
 - Incl. plug-in power supply unit ¹⁾ and PC-connection cable
- RS232到RS-422/485 4线和RS-422/485 2线转换器
 - 电隔离
 - 高EMC保护 (金属外壳)
 - 电源 8...20V DC
 - 包括电源和PC连接线

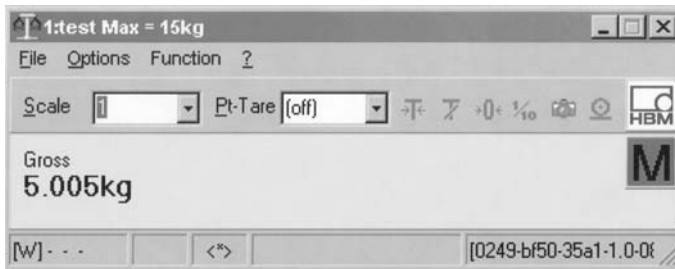
1) Note:

The plug-in power supply unit supplies 15 V DC / 530mA and can be used for operation with up to 8x C16i load cells. Please refer to the power supply table in the Installation instructions of the load cell!

注意：此电源可支持最大8个c16i 传感器，请参考传感器安装图表

Software 软件

- TRADE (see separate Data sheet)



- Display and storage of legal for trade weighing data
 - No special requirements on the PC
 - Substitutes indicator and alibi-printer
 - Handles up to 8 scales
 - PTB Test Certificate D09-00.34 and EU Scale Approval available
 - Diagnostic functions
 - Installation support as corner adjustment, calibration w/o weights, etc.
- 显示和存储数据
 - 在PC机上安装，无额外要求
 - 无需仪表
 - 最大可处理8台秤
 - PTB 测试认证
 - 自我诊断功能
 - 支持角差调整，标定

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