

DATA SHEET

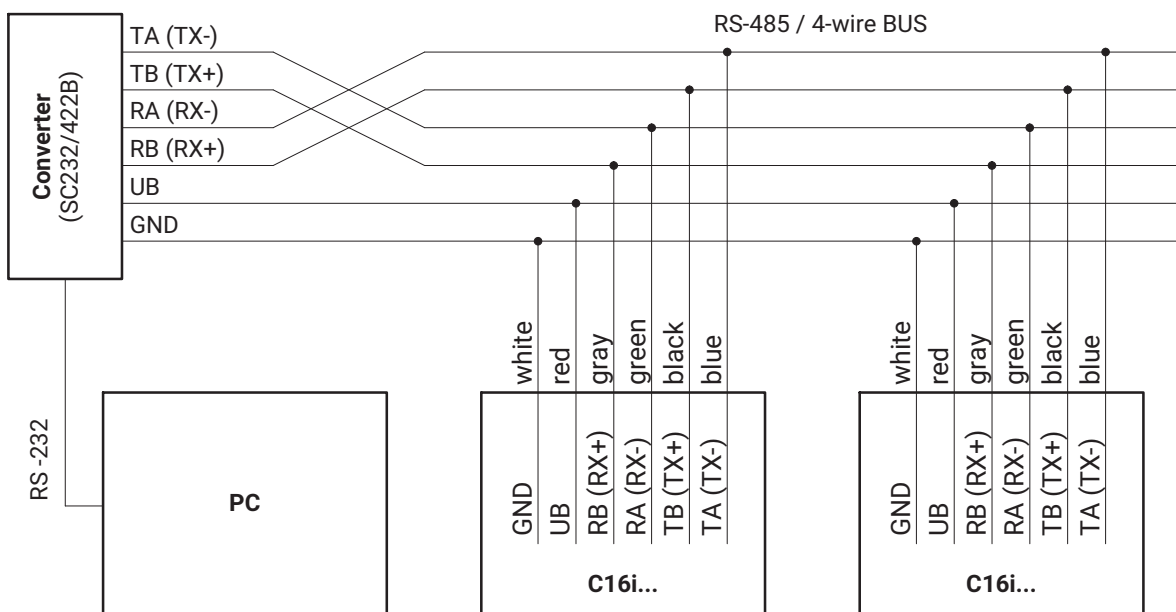
C16i... Digital load cells

SPECIAL FEATURES

- Digital signal (RS-485 / 4-wire)
- Nominal (rated) loads: 20 t ... 60 t
- Self-restoring function
- Simple installation
- Rust-resistant materials, laser-welded, IP68/IP69K
- Verifiable up to 4000 divisions, test report as per OIML R60
- Integrated overvoltage protection



CABLE ASSIGNMENT



SPECIFICATIONS C16i C3

Type		C16i C3			
Nominal (rated) load (E_{max})		20 t	30 t	40 t	60 t
Accuracy class per OIML R60		C3			
Number of load cell verification intervals (n_{LC})		3000			
Minimum load cell verification interval (v_{min})	% of E_{max}	0.0100			0.0083
Minimum load cell verification interval (e_{min}) per EN 45 501 [... 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]
Nominal (rated) sensitivity (C_n)	digit	1 000 000			
Sensitivity tolerance	%	±0.03			
Temperature coefficient of sensitivity (TK_C) ¹⁾	% of C_n / 10 K	±0.0080 ¹⁾			
Temperature coefficient of zero signal (TK_0)		±0.0140		±0.0116	
Relative reversibility error (d_{hy}) ¹⁾	% of C_n	±0.0170 ¹⁾			
Non-linearity (d_{lin}) ¹⁾		±0.0180 ¹⁾			
Creep upon loading (d_{cr}) over 30 min.		±0.0167			
Minimum dead load output return (DR), 30 min.		±0.0167			
Reference excitation voltage (U_{ref})	V (DC)	12			
Nominal (rated) supply voltage range (B_U)		8.5 ... 15 ²⁾			
Rated current consumption	mA	50 ²⁾			
Resolution	Bits	20 (at 1 Hz)			
Data rate	1 / sec	200 100 50 25 12 6 3 2 1			
Filter mode 0	Hz	8 ... 0.05 (low-pass)			
Filter mode 1		8 ... 3 (low-pass)			
Asynchronous interface		RS-485 / 4-wire (cable length up to 500 m)			
Baudrate	baud	1200 ... 115200			
Bus nodes		max. 32			
Nominal ambient temperature range (B_T)	°C	-10 ... +40			
Operating temperature range (B_{tu})		-20 ... +70			
Storage temperature range (B_{tl})		-50 ... +85			
Limit load (E_L)	% of E_{max}	150			
Breaking load (E_d)		> 350			
Relative perm. vibrational stress (F_{srel}) (oscillation width as per DIN 50100)		70			
Nominal (rated) load (E_{max})		20 t	30 t	40 t	60 t
Nominal (rated) displacement at E_{max} (s_{nom}), approx.	mm	0.65	0.75	0.85	1.22
Weight (G) with cable, approx.	kg	2.2	2.4	3.0	3.8
Degree of protection per EN60529 (IEC529)		IP68 (test conditions 1 m water column/100 h) IP69K (water at high pressure, steam cleaner)			
Material		Stainless steel 1.4404 / AISI 316L Stainless steel Viton Thermoplastic elastomer			
Measuring body					
Housing					
Cable entry					
Seal					
Cable sheath					

1) The values for non-linearity (d_{lin}), relative reversibility error (d_{hy}) and temperature coefficient of sensitivity (TC_S) are recommended values. The sum of these values is within the cumulative error limit for $p_{LC} = 0.8$ according to OIML R60.

2) Refer to table for power supply in the mounting instructions!

SPECIFICATIONS C16i C4

Type		C16i C4		
Nominal (rated) load (E_{max})		30 t	40 t	60 t
Accuracy class per OIML R60		C4		
Number of load cell verification intervals (n_{LC})		4000		
Minimum load cell verification interval (v_{min})	% of E_{max}	0.0100		0.0083
Minimum load cell verification interval (e_{min}) per EN 45 501 [... LC = max. number of load cells]	kg	10 [10 LC]	10 [6 LC] 20 [10 LC]	10 [4 LC] 20 [10 LC]
Nominal (rated) sensitivity (C_n)	digit	1 000 000		
Sensitivity tolerance	%	±0.03		
Temperature coefficient of sensitivity (TK_C) ¹⁾	% of C_n / 10 K	±0.0070 ¹⁾		
Temperature coefficient of zero signal (TK_0)		±0.0140	±0.0116	
Relative reversibility error (d_{hy}) ¹⁾	% of C_n	±0.0140		
Non-linearity (d_{lin}) ¹⁾		±0.0120		
Creep upon loading (d_{cr}) over 30 min.		±0.0125		
Minimum dead load output return (DR), 30 min.		±0.0125		
Reference excitation voltage (U_{ref})	V (DC)	12		
Nominal (rated) supply voltage range (B_U)		8.5 ... 15 ²⁾		
Rated current consumption	mA	50 ²⁾		
Resolution	Bits	20 (at 1 Hz)		
Data rate	1 / sec	200 100 50 25 12 6 3 2 1		
Filter mode 0	Hz	8 ... 0.05 (low-pass)		
Filter mode 1		8 ... 3 (low-pass)		
Asynchronous interface		RS-485 / 4-wire (cable length up to 500 m)		
Baudrate	baud	1200 ... 115200		
Bus nodes		max. 32		
Nominal ambient temperature range (B_T)	°C	-10 ... +40		
Operating temperature range (B_{tu})		-20 ... +70		
Storage temperature range (B_{tl})		-50 ... +85		
Limit load (E_L)	% of E_{max}	150		
Breaking load (E_d)		> 350		
Relative perm. vibrational stress (F_{srel}) (oscillation width as per DIN 50100)		70		
Nominal (rated) load (E_{max})		30 t	40 t	60 t
Nominal (rated) displacement at E_{max} (s_{nom}), approx.	mm	0.75	0.85	1.22
Weight (G) with cable, approx.	kg	2.4	3.0	3.8
Degree of protection per EN60529 (IEC529)		IP68 (test conditions 1 m water column/100 h) IP69K (water at high pressure, steam cleaner)		
Material		Stainless steel 1.4404 / AISI 316L Stainless steel Viton Thermoplastic elastomer		
Measuring body				
Housing				
Cable entry				
Seal				
Cable sheath				

1) The values for non-linearity (d_{lin}), relative reversibility error (d_{hy}) and temperature coefficient of sensitivity (TK_S) are recommended values. The sum of these values is within the cumulative error limit for $p_{LC} = 0.8$ according to OIML R60.

2) Refer to table for power supply in the mounting instructions!

OPTIONS FOR C16i...

- Cable length 20 m ($E_{max} = 20 t + 30 t$)
- Cable length 40 m ($E_{max} = 20 t \dots 60 t$)
- Cable with metal mesh, 20 m ($E_{max} = 20 t \dots 60 t$)

DIMENSIONS AND MOUNTING PARTS (IN MM; 1 MM = 0.03937 INCHES)

Built-in variant 1:
C16 ... + C16/ZOU44A (max. load per load cell = 40 t)

Fastening bolts shown rotated by 90°

Built-in variant 2:
C16... + EPO3/50 t + C16/EPU44A

View from above

- 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),
Sealing sleeve and hose clamp
included in load cell scope of supply

$\varnothing 5,4$ mm Standard
 $\varnothing 6,4$ mm With option metal mesh (20R)

Built-in variant 1	E_{max} C16...	Thrust pieces top + bottom (1 set = 2 pieces)	A	B	C	R ball	$a_{max}^{2)}$	$S_{max}^{3)}$	$F_R^{4)}$ (% of applied load)	
									at S_{max}	at $S = 1$ mm
	20 t	C16/ZOU44A ¹⁾	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

Built-in variant 2	E _{max} C16...	Thrust pieces		A	B	C	R ball	a _{max} ²⁾	S _{max} ³⁾	F _R ⁴⁾ (% of applied load)	
		top	bottom							at S _{max}	at S = 1 mm
Built-in variant 2	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. loading: 40 t
2) Max. perm. misalignment
3) Max. permissible lateral displacement of load application
4) Restoring force

ACCESSORIES (TO BE ORDERED SEPARATELY)

Thrust pieces

Built-in variant 1:

- **C16/ZOU44A** Thrust pieces (stainless) for top and bottom (1 set = 2 pieces), can be used with C16.../≤60 t up to a **max. load per load cell of 40 t**, incl. 3 eccentric discs

Built-in variant 2:

- **EPO3/50t** Thrust piece for top, incl. clamping ring
- **C16/EPU44A** Thrust piece for bottom, incl. 3 eccentric discs

Evaluation electronics

- **WTX110 (K-WTX110-D)** (see separate data sheet)

Serial converter

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



- Conversion of RS-232 into 4-wire RS-422/485 or into 2-wire RS-485 (switchable)
- Electrical isolation
- High EMC security (metal housing)
- Operating voltage range 8 ... 30 V DC
- Incl. power supply unit¹⁾ and PC connection cable

1) The power supply unit delivers 15 V DC / 530 mA and is therefore suitable for supplying voltage for up to 8x C16i.

Please refer to the table for power supply in the load cell mounting instructions!

C16i4 LOAD CELLS, OPTIONAL VERSIONS

Order no.		
K-C16I4		
1	Code	Option 1: Mechanical design
	S	Standard
2	Code	Option 2: Accuracy class
	C3	C3 (OIML)
	C4	C4 (OIML)
3	Code	Option 3: Maximum capacity
	20	20 t [only with option 2 = C3]
	30	30 t
	40	40 t
	60	60 t
4	Code	Option 4: NN
	N	Without
5	Code	Option 5: Cable length
	S12	12 m (standard) [only with option 3 = 20 / 30]
	S20	20 m (standard) [only with option 3 = 40 / 60]
	20	20 m [only with option 3 = 20 / 30]
	40	40 m
	20R	20 m (braided wire)

K-C16I4 - N - - - N - -

1 2 3 4 5

Hottinger Brüel & Kjaer GmbH

Im Tiefen See 45 · 64293 Darmstadt · Germany
 Tel. +49 6151 803-0 · Fax +49 6151 803-9100
 www.hbkworld.com · info@hbkworl.com

Subject to modifications. All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.