

C16i...

Digital load cells

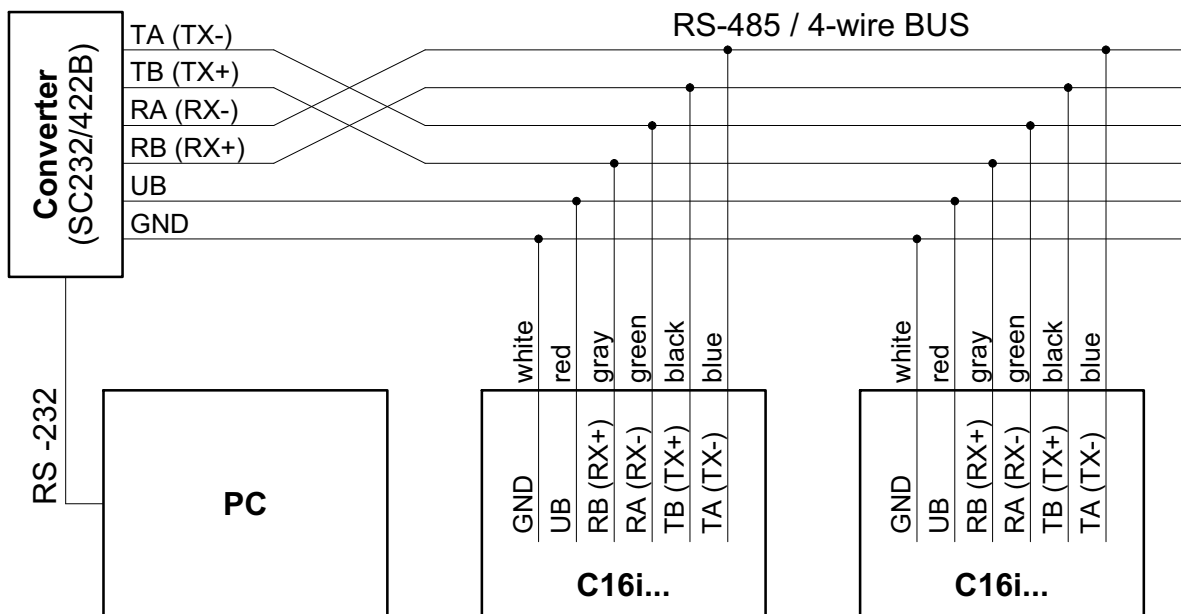
Special features

- 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
- Legal for trade up to 10 000 d (NTEP Class III LM)
- Meets EMC requirements in accordance with EN 45 501 and EN 55 011
- Integrated overvoltage protection



Data sheet

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 (0.0180 %)			
Number of load cell verification intervals (n_{LC})		3000 (10 000 NTEP III LM)			
Minimum load cell verification interval (v_{min})	% of E_{max}	0.0100 (0.006 NTEP III LM)			0.0083 (0.006 NTEP III LM)
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⁾		±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 (±0.0150 NTEP III LM)			
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		8 ... 0.05 (low-pass)			
Filter mode 1	Hz	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)		-10 ... +40			
Operating temperature range (B_{tu})	°C	-20 ... +70			
Storage temperature range (B_{tl})		-50 ... +85			
Limit load (E_L)		150			
Breaking load (E_d)		> 350			
Relative perm. vibrational stress (F_{srel}) (oscillation width as per DIN 50100)	% of E_{max}	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: Measuring body + housing Cable entry Seal Cable sheath		Stainless steel Stainless steel Viton Thermoplastic elastomer			

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 Number of load cell verification intervals (n_{LC})		C4 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})		12		
Nominal (rated) supply voltage range (B_U)	V (DC)	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: Measuring body + housing Cable entry Seal Cable sheath		Stainless steel Stainless steel Viton Thermoplastic elastomer		

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!

Options for C16i...

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

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°

View from above

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

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 Ø10 x 30 (rotation stop),
 Sealing sleeve and hose clamp
 included in load cell scope of supply

Ø 5,4 mm Standard
 Ø 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)	
		C16/ZOU44A ¹⁾								at S _{max}	at S = 1 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

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
	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

- **DIS2116** (see separate data sheet)

Serial converter

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



1)

- 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 unit ¹⁾ and PC connection cable

¹⁾ **Note:** 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!

C16i3 Load cells, optional versions

Order No.
K-C16i3

Code	Option 1: Mechanical version
N	Standard

Code	Option 2: Accuracy
C3	C3 (OIML)
C4	C4 (OIML)

Code	Option 3: Capacity	
20	20t	[only with Option 2 = C3]
30	30t	
40	40t	
60	60t	

Code	Option 4: NN
N	without

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 (Metallgeflecht)	

K-C16i3 - N - [] - [] - N - [] - []

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

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