HEIDENHAIN

Product Information

APE 371

Interpolation and
Digitizing Electronics

July 2006

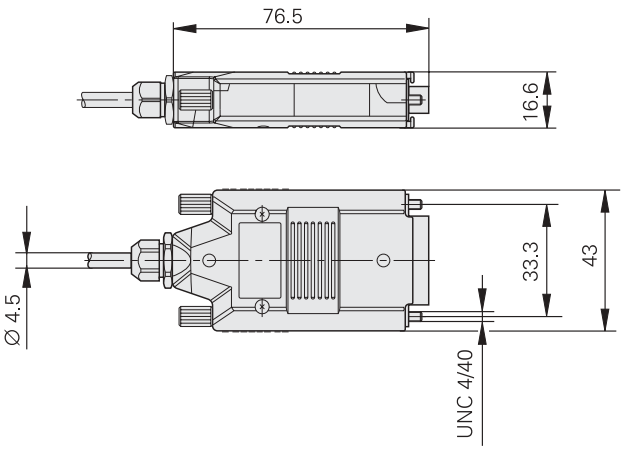
APE 371

- **Interpolation and Digitizing Electronics**
- **Interpolation up to 100-fold**
- **Adapter cable design with electronics in D-sub connector**

Specifications		**APE 371**						
Input		Incremental signals ∿ 1 V_{PP}						
Electrical connection*		• D-sub connector (female), 15-pin • M23 connector (female)12-pin						
Cable length		≤ 3 m						
Input frequency[1] for interpolation*	5-fold	200 kHz	200 kHz	133 kHz	100 kHz	80 kHz	50 kHz	25 kHz
	10-fold	200 kHz	100 kHz	66 kHz	50 kHz	40 kHz	25 kHz	12.5 kHz
	20-fold	100 kHz	50 kHz	33 kHz	25 kHz	20 kHz	12.5 kHz	6.25 kHz
	25-fold	80 kHz	40 kHz	26 kHz	20 kHz	16 kHz	10 kHz	5 kHz
	50-fold	40 kHz	20 kHz	13 kHz	10 kHz	8 kHz	5 kHz	2.5 kHz
	100-fold	20 kHz	10 kHz	6.6 kHz	5 kHz	4 kHz	2.5 kHz	1.25 kHz
Output		Incremental signals ⊓⊔ TTL						
Electrical connection		D-sub connector (male) 15-pin						
Cable length		≤ 100 m with HEIDENHAIN cable						
Edge separation a		≥ 0.100 µs	≥ 0.220 µs	≥ 0.345 µs	≥ 0.465 µs	≥ 0.585 µs	≥ 0.950 µs	≥ 1.925 µs
Power supply		5 V ± 5 % measured at APE						
Current consumption without load, without encoder		*5/10-fold interpolation:* ≤ 120 mA *20/25/50/100-fold interpolation:* ≤ 130 mA						
Operating temperature		0 to 70 °C						
Storage temperature		–30 to 70 °C						
Vibration 55 to 2000 Hz **Shock** 11 ms		100 m/s^2 (IEC 60068-2-6) 200 m/s^2 (IEC 60068-2-27)						
Protection		IP 40						
Weight		140 g (APE without cable, with electronics)						

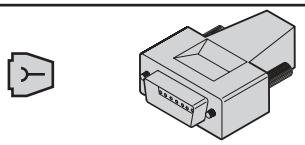
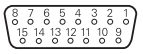
***** Please indicate when ordering
[1] Tolerance: ± 5 %

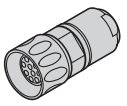
Tolerancing ISO 8015
ISO 2768 - m H
< 6 mm: ±0.2 mm



Electrical Connection

Pin layout of APE input

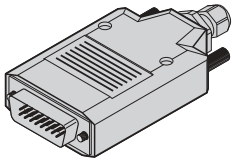
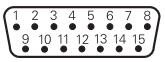






	Power supply				Incremental signals						Other signals		
	12	**2**	**10**	**11**	**5**	**6**	**8**	**1**	**3**	**4**	**/**	**7**	**9**
	4	**12**	**2**	**10**	**1**	**9**	**3**	**11**	**14**	**7**	**5/13/15**	**8**	**6**
	U_P	**Sensor** U_P	**0 V**	**Sensor** 0 V	**A+**	**A–**	**B+**	**B–**	**R+**	**R–**	**Vacant**	**H**[1] **L1**[2]	**L**[1] **L2**[2]
	Brown/ Green	Blue	White/ Green	White	Brown	Green	Gray	Pink	Red	Black	/	Violet	Yellow

Pin layout of APE output

15-pin D-sub connector with integrated interface electronics

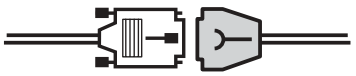
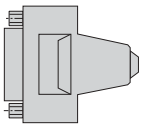




	Power supply				Incremental signals						Other signals			
	4	**12**	**2**	**10**	**1**	**9**	**3**	**11**	**14**	**7**	**13**	**8**	**6**	**15**
	U_P	**Sensor** 5 V	**0 V**	**Sensor** 0 V	**U_{a1}**	**$\overline{U_{a1}}$**	**U_{a2}**	**$\overline{U_{a2}}$**	**U_{a0}**	**$\overline{U_{a0}}$**	**$\overline{U_{aS}}$**	**H**[1] **L1**[2]	**L**[1] **L2**[2]	[3]

Shield on housing; **U_P** = power supply voltage
Sensor: The sensor line is connected internally with the corresponding power line
[1] Only for LIF 481
[2] Only for LIDA 4xx
[3] TTL/11 μA_{PP} conversion for PWT

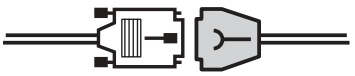
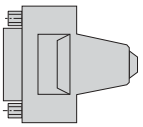
Connecting Elements and Cables

Encoders without limit position detection

Mating element on connecting cable to connector on encoder cable		**D-sub connector (female),** 15-pin
		
For connecting cable	Ø 8 mm Ø 6 mm	315650-14

PUR connecting cable Ø 8 mm [4(2 x 0.14 mm²) + (4 x 0.5 mm²)] Shield on housing		
PUR connecting cable Ø 6 mm [6(2 x 0.19 mm²)]	Ø 8 mm	Ø 6 mm[1)]
Complete with D-sub connectors (female/male) 	331693-xx	355215-xx
With one D-sub connector (female) 	332433-xx	355209-xx
Complete with D-sub connectors (female/male) 	335074-xx	355186-xx
Complete with D-sub connectors (female/female) **Pin layout for IK 220** 	335077-xx	349687-xx
Cable only 	244957-01	291639-01

Encoders with limit position detection

Mating element on connecting cable to connector on encoder cable		**D-sub connector (female),** 15-pin
		
For connecting cable	Ø 8 mm Ø 6 mm	315650-14

PUR connecting cable Ø 8 mm [4(2 x 0.14 mm²) + (4 x 0.5 mm²) + 2 x (2 x 0.14 mm²)] Shield on housing		
PUR connecting cable Ø 6 mm [6(2 x AWG28) + (4 x 0.14 mm²)]	Ø 8 mm	Ø 6 mm[1)]
Complete with D-sub connectors (female/male) 	354379-xx	355397-xx
With one D-sub connector (female) 	354411-xx	355398-xx
Cable only 	354341-01	355241-01

[1)] Cable length for Ø 6 mm max. 9 m

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