



HEIDENHAIN



Product Information

APE 371

Interpolation and
Digitizing Electronics

July 2006

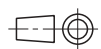
APE 371

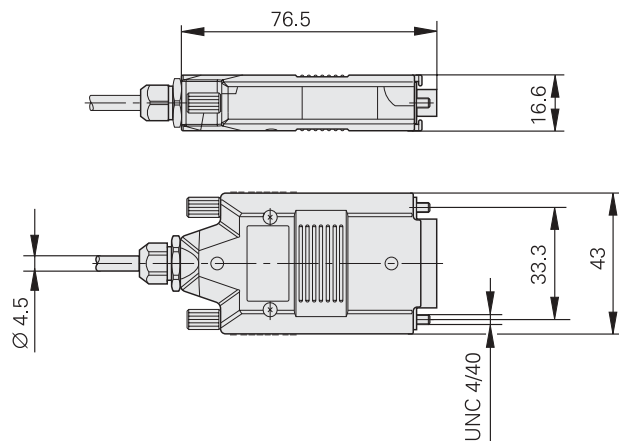
- Interpolation and Digitizing Electronics
- Interpolation up to 100-fold
- Adapter cable design with electronics in D-sub connector

Specifications		APE 371						
Input		Incremental signals \sim 1 V _{PP}						
Electrical connection*		<ul style="list-style-type: none"> • 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 \square 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		<i>5/10-fold interpolation: ≤ 120 mA</i> <i>20/25/50/100-fold interpolation: ≤ 130 mA</i>						
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


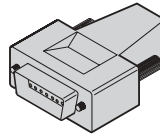
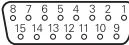

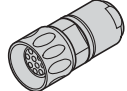
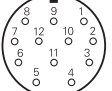



¹⁾ Tolerance: ± 5 %


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

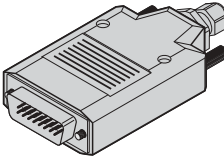
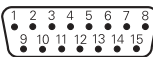




Electrical Connection

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	0V	Sensor 0V	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 5V	0V	Sensor 0V	U _{a1}	\bar{U}_{a1}	U _{a2}	\bar{U}_{a2}	U _{a0}	\bar{U}_{a0}	\bar{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


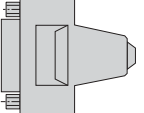
¹⁾ Only for LIF 481

²⁾ Only for LIDA 4xx


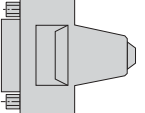
³⁾ TTL/11 μA_{PP} conversion for PWT






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	315650-14
Ø 8 mm Ø 6 mm	

Encoders with limit position detection

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

PUR connecting cable Ø 8 mm [4(2 x 0.14 mm ²) + (4 x 0.5 mm ²)] Shield on housing		
PUR connecting cable Ø 6 mm [6(2 x 0.19 mm ²)]	Ø 8 mm	Ø 6 mm ¹⁾
Complete with D-sub connectors (female/male)	331 693-xx	355 215-xx
		
With one D-sub connector (female)	332 433-xx	355 209-xx
		
Complete with D-sub connectors (female/male)	335 074-xx	355 186-xx
		
Complete with D-sub connectors (female/female) Pin layout for IK 220	335 077-xx	349 687-xx
		
Cable only	244 957-01	291 639-01
		

PUR connecting cable Ø 8 mm [4(2 x 0.14 mm ²) + (4 x 0.5 mm ²) + 2 x (2 x 0.14 mm ²)] Shield on housing		
PUR connecting cable Ø 6 mm [6(2 x AWG28) + (4 x 0.14 mm ²)]	Ø 8 mm	Ø 6 mm ¹⁾
Complete with D-sub connectors (female/male)	354 379-xx	355 397-xx
		
With one D-sub connector (female)	354 411-xx	355 398-xx
		
Cable only	354 341-01	355 241-01
		

¹⁾ Cable length for Ø 6 mm max. 9 m

HEIDENHAIN

DR. JOHANNES HEIDENHAIN GmbH
Dr.-Johannes-Heidenhain-Straße 5
83301 Traunreut, Germany

☎ +49 (86 69) 31-0
FAX +49 (86 69) 50 61
E-Mail: info@heidenhain.de

www.heidenhain.de

For more information

- Brochure: *Exposed Linear Encoders*

