

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

# 4





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
# Spare Parts, Accessories, Consumable Material for Older Design Recorders SIREC 2010, VARIOGRAPH, PIEZOGRAPH

## Summary

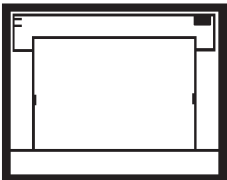

### Accessories for SIREC 2010 multipoint and line recorders

		Size 144 x 144 Multipoint recorder Recorder code 7ND3020 Chart width 120 mm Recording width 100 mm		Size 144 x 144 Line recorder Recorder code 7ND3120 Chart width 120 mm Recording width 100 mm
Ink paper	Page 4/6			
Recording head	Page 4/7			
Fiber pen assemblies			Page 4/7	
Take-up spool	Page 4/7			
Recording unit	Page 4/7			
Lithium battery	Page 4/7			
Scales	Page 4/8			
Ruler	Page 4/8			
Measuring point labels	Page 4/9			

### Accessories for VARIOGRAPH hybrid recorders

		Size 144 x 144 Hybrid recorder Recorder code 7ND3520 Chart width 120 mm Recording width 100 mm
Ink paper	Page 4/6	
Recording head	Page 4/7	
Take-up spool	Page 4/7	
Recording unit	Page 4/7	
Lithium battery	Page 4/7	
Signal module, 3-channel	Page 4/9	
Signal module, 6-channel	Page 4/9	
Measuring point labels	Page 4/9	

### Accessories for PIEZOGRAPH hybrid recorders

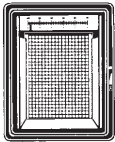
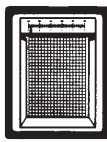








		Size 360 x 288 Hybrid recorder Recorder code 7ND2480 Chart width 270 mm Recording width 250 mm		Size 360 x 288 PIEZOGRAPH 2/3 hybrid recorder Recorder code 7ND2482 Chart width 270 mm Recording width 250 mm
Ink paper	Page 4/10		Page 4/6	
Ink reservoir	Page 4/12		Page 4/7	
Cleaning set	Page 4/12		Page 4/7	
Ink drip assembly			Page 4/7	
Take-up spool	Page 4/21		Page 4/7	
Lithium battery			Page 4/7	
Channel plug-in	Page 4/21			
Signal plug-in	Page 4/21			
Shunt	Page 4/21			
Limit monitor	Page 4/21		Page 4/9	
Interfaces			Page 4/9	
Memory modules	Page 4/21			
Memory unit			Page 4/21	

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## KOMPENSOGRAPH

### Summary













#### Accessories for KOMPENSOGRAPH servo recorders

		Size 392 x 474 Multipoint and line recorders Recorder code K42, K77 Chart width 270 mm Recording width 250 mm		Size 398 x 480 Multipoint and line recorders Recorder code K155 Chart width 270 mm Recording width 250 mm				
Ink rollers for multipoint recorders	Page 4/20							
Ink and recording capillaries for line recorders	Page 4/20							
Size								
Recorder code	M2, M73810, 7ND1160, M73812, 7ND1060	M4, K164, M73814, M73816, 7ND1040, 7ND1140	M73916, M73760, 7ND1141, 7ND1142	M73632, M73634	7ND2160 7ND2161 7ND2162 7ND2163	7ND2150 7ND2151 7ND2152 7ND2153	7ND2042 7ND2043 7ND2140 7ND2141 7ND2142 7ND2143	7ND2032 7ND2033 7ND2130 7ND2131 7ND2132 7ND2133
Chart width	288 x 288	192 x 288	192 x 288	192 x 240	288 x 288	288 x 240	192 x 288	192 x 240
Recording width	230 mm 210 mm	140 mm 120 mm	140 mm 120 mm	140 mm 120 mm	230 mm 210 mm	230 mm 210 mm	140 mm 120 mm	140 mm 120 mm
Ink paper	Page 4/19 C72452-A98-...	Page 4/19 C72452-A96-B9						
Ink roller drums for multipoint recorders	Page 4/20 C70301-A531-...			Page 4/12 (printing head)				
Ink for line recorders	Page 4/20							
Pens for line recorders	Page 4/21							
Fiber pen assemblies					Page 4/13			
Thermal styluses					Page 4/13			
Wipers: For potentiometers For limit contacts	Page 4/23 C70301-A531-B285 C70301-A531-B290		Page 4/23					
Scale cable	Page 4/22 C70301-A532- B42	Page 4/23		Page 4/14				
Ink hose			Page 4/23					
Take-up spool	Page 4/23		Pages 4/23		Page 4/14			
Signal plug-in	Page 4/23 7ND9111-Z				Page 4/17			
Amplifier, inverter	Page 4/23							
Shunt for current measurement	Page 4/21 7ND9132-8AA						Page 4/17	
Resistor $R_{CU}$	Page 4/23 C74005-A212-A1				Page 4/23 C74005-A212-A1			
Scale plate	Pages 4/22 and 4/23				Page 4/16			
Ruler	Page 4/22 7ND9260, 7ND9270-Z				Page 4/16			
Meas. point label					Page 4/18			
Mounting set for limit contacts	Page 4/22				Page 4/18			
Mounting set for marking system					Page 4/18			
Blowball			Page 4/23					

KOMPENSOGRAPH 144 x 144, 96 x 144 and 72 x 144: Page 4/4

# Spare Parts, Accessories, Consumable Material for Older Design Recorders KOMPENSOGRAPH

## Summary

								
Size	144 x 144	144 x 144	144 x 144	144 x 144	144 x 144	96 x 144	96 x 144	72 x 144
Recorder code	M73910	M73911 7ND2020 7ND2021	K203	M73950 7ND1123 7ND2121 7ND2123	M742 M936 7ND1122 M73938 7ND1120 M73940 7ND1121	M73948 7ND1010	M73949 7ND1110	M73950 7ND1100 7ND2100 7ND2101
Chart width	120 mm	120 mm	110 mm	110 mm	120 mm	120 mm	120 mm	110 mm
Recording width	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm	100 mm
Ink paper	Page 4/19	Page 4/10 C72452-A94- B8 to B12	Page 4/10 <sup>1)</sup>		Page 4/10 C72452-A94- B8 to B12			Page 4/19 and Page 4/10 <sup>1)</sup>
Printing head and ink pad carrier for multipoint recorders	Page 4/20	Page 4/12 C72453-A320- -B117 u. -B221				Page 4/20		
Ink for line recorders			Page 4/20 and Page 4/12 <sup>1)</sup>					Page 4/12 <sup>1)</sup>
Fiber pens			Page 4/13 <sup>1)</sup>			Page 4/21		P. 4/13 <sup>1)</sup>
Wiper for potentiometer	Page 4/22							
Scale cable			Page 4/14 <sup>1)</sup>					P. 4/14 <sup>1)</sup>
Measuring point selector	Page 4/14, C74315-A66-A4							
Take-up spool	Page 4/22		Page 4/14 <sup>1)</sup>					P. 4/14 <sup>1)</sup>
Signal plug-in								
Shunt for current measurement	Page 4/23 7ND9132-8AA							
Resistor $R_{CU}$	Page 4/23, C74005-A212-A1							
Scale plate			Page 4/16 <sup>1)</sup>					P. 4/16 <sup>1)</sup>
Ruler	Page 4/16: 7ND9262, 7ND9272-Z		Page 4/16: 7ND9262, 7ND9272-Z		Page 4/16: 7ND9262, 7ND9272-Z			Page 4/16 7ND9272-Z
Size								
Recorder code	144 x 144 Multipoint recorder		144 x 144 Line recorder		144 x 144		144 x 144	
Chart width	7ND2022 7ND2023		7ND2125		7ND2124		7ND2122	
Recording width	120 mm 100 mm		120 mm 100 mm		120 mm 100 mm		120 mm 100 mm	
Ink paper	Pages 4/10 and 11				Page 4/10			
Thermal paper					Page 4/11			
Printing head	Page 4/12							
Fiber pen					Page 4/13			
Thermal stylus					Page 4/13			
Scale cable	Page 4/14				Page 4/14			
Meas. point selector	Page 4/14							
Take-up spool	Page 4/14				Page 4/14			
Signal plug-in	Page 4/17 <sup>2)</sup>				Page 4/17			
Shunt for current measurement	Page 4/17							
Scale plate	Page 4/16							
Ruler	Page 4/16							
Thermal manifold					Page 4/17			
Measuring point label	Page 4/18							



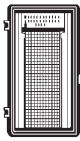














<sup>1)</sup> Only for 7ND21..

<sup>2)</sup> Only for 7ND2023.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders GALVANOGRAPH

## Summary

### Accessories for GALVANOGRAPH galvanometer recorders

										
Size	21 K	12 K	12 L, NUMO	SPV	288 x 240 288 x 288	192 x 240 192 x 288	192 x 240 192 x 288			
Recorder code	T22, T25	T20, T24, T26, T27	T3, T4, T21	F10 to F13	T7, T28, T35	F20 to F31 F32 to F43	T9, T23, T29			
Chart width	230 mm	140 mm	140 mm	140 mm	230 mm	140 mm	140 mm			
Recording width	210 mm	120 mm	120 mm	120 mm	210 mm	120 mm	120 mm			
Ink paper	Page 4/19									
Ribbons for multipoint recorders				Page 4/20		Page 4/20				
Ink pens. Recording capillaries and recording electrodes for line recorders	Page 4/20				Page 4/20		Page 4/20			
										
Size	288 x 288	288 x 240	192 x 288	192 x 240	192 x 288	192 x 240	144 x 144	144 x 144	144 x 144	96 x 96
Recorder code	T43, M02194, 7ND1360	T42, M02190, 7ND1350	M734, 7ND1240, M73260 to M73266	M734, 7ND1230, M73250	T38, M02192, 7ND1340	T40, M02188, 7ND1330	T8, T39 M02186	7ND2320 7ND2321 7ND2322 7ND2323 7ND2324	7ND1220	7ND2270 7ND2271
Chart width	230 mm	230 mm	140 mm	140 mm	140 mm	110 mm	110 mm	120 mm	120 mm	70 mm
Recording width	210 mm	210 mm	120 mm	120 mm	120 mm	100 mm	100 mm	100 mm	100 mm	60 mm
Ink paper	Page 4/19					Page 4/19	Page 4/10 <sup>5)</sup>	Page 4/10 C72452- -A94-B8 to - B12 + -B262 to -B266 Page 4/11	Page 4/10	Page 4/10
Thermal paper							Page 4/11 <sup>3)</sup>			
Ribbons for multipoint recorders			Page 4/20					Page 4/20	Page 4/12	
Ink for line recorders	Page 4/20					Page 4/20	Page 4/12			
Thermal stylus							Page 4/13 <sup>2)</sup>			
Take-up spool							Page 4/14			
Scale plate							Page 4/16			
Ruler									Page 4/16	
Signal plug-in							Page 4/17 <sup>4)</sup>			
Oil damping insert							Page 4/18 <sup>1)</sup>			
Measuring point label							Page 4/18			

1) Only for 7ND2320, 7ND2321 and 7ND2324. 2) Not for 7ND2323 and 7ND2324. 3) Not for 7ND2323 and 7ND2324. 4) Only for 7ND2320 and 7ND2321. 5) Only for 7ND2320 and 7ND2324.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Ink paper



Ordering data	Recording width	Divisions (linear)	Hours print	For recorder Order No.	144 x 144			360 x 288	Price per roll/fanfold pack for following quantity			
					7ND3020	7ND3120	7ND3520	7ND2482	10	20	60	100

### Chart roll

Ink paper	Recording width	Divisions (linear)	Hours print	For recorder	7ND3020	7ND3120	7ND3520	7ND2482	10	20	60	100
<b>120 mm wide</b> Approx. 31 m long Approx. weight 0.15 kg	100 mm	50	For 10 mm/h 20 mm/h 60 mm/h 120 mm/h Without	C72452-A94-B208 C72452-A94-B209 C72452-A94-B210 C72452-A94-B211 C72452-A94-B212	- - - - ◆	◆ ◆ ◆ ◆ ◆	- - - - ◆	- - - - -	-	-	-	-
<b>270 mm wide</b> Brilliant Standard Approx. 33 m long Approx. weight 0.55 kg	250 mm	Without	Without	7ND2482-8UA 7ND2482-8UC	- -	- -	- -	◆ ◆	-	-	-	-

4

### Fanfold chart

Ink paper	Recording width	Divisions (linear)	Hours print	For recorder	7ND3020	7ND3120	7ND3520	7ND2482	10	20	60	100
<b>120 mm wide</b> Approx. 16 m long Approx. weight 0.1 kg	100 mm	50	For 10 mm/h 20 mm/h 60 mm/h 120 mm/h Without	C72452-A94-B262 C72452-A94-B263 C72452-A94-B264 C72452-A94-B265 C72452-A94-B266	- - - - ◆	◆ ◆ ◆ ◆ ◆	- - - - ◆	- - - - -	-	-	-	-
<b>270 mm wide</b> Fanfold "Standard" Approx. 33 m long Approx. weight 0.55 kg	250 mm	Without	Without	7ND2482-8UD	-	-	-	◆	-	-	-	-

Available ex stock.

Minimum ordering quantity 20 rolls/fanfold packs, or 10 rolls/fanfold packs for 7ND2482.

Price for larger quantities than those listed on request.

Other range divisions, additional text and numbers on request.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Pens and replacement parts



Fig. 4/1 Recording head with 6 fiber pens for SIREC 2010 multipoint recorder 7ND3020 and VARIOGRAPH hybrid recorder 7ND3520

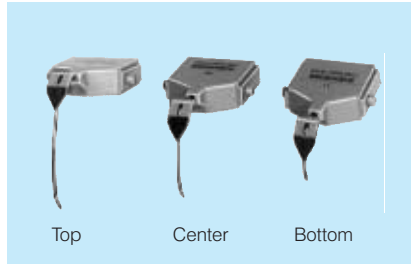


Fig. 4/2 Fiber pen assemblies for SIREC 2010 line recorder 7ND3120

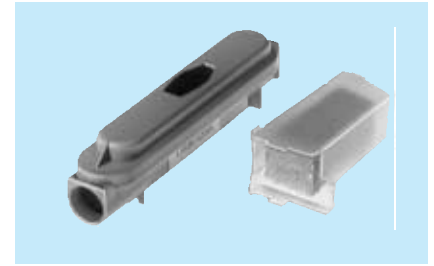


Fig. 4/3 Disposable ink reservoir for PIEZOGRAPH 7ND2482 with ink drip assembly

Ordering data	For recorder	144 x 144			360 x 288	Price
		7ND3020	7ND3120	7ND3520	7ND2482	
	Order No.					

### Pen assemblies

Recording head (6 colors) Violet, red, black, green, blue and brown	7ND9001-8FB	◆	-	◆	-	
<b>Fiber pen assembly</b> Recording width 100 mm per channel						
Channel assignment	Location	Color				
	Top	Green	7ND9001-8AG	-	◆	-
	Center	Blue	7ND9001-8AD	-	◆	-
	Center	Red	7ND9001-8AE	-	◆	-
	Bottom	Red	7ND9001-8AA	-	◆	-
	Bottom	Blue	7ND9001-8AB	-	◆	-
<b>Disposable ink reservoir</b> , contents 7 cm <sup>3</sup> (max. storage period 18 months) <sup>1)</sup> Minimum ordering quantity: 4 reservoirs (any combination of colors)	Magenta		7ND2482-8TA	-	-	◆
	Cyan		7ND2482-8TB	-	-	◆
	Yellow		7ND2482-8TC	-	-	◆
	Black		7ND2482-8TD	-	-	◆
<b>Disposable ink reservoir set</b> , content 7 cm <sup>3</sup> , magenta, cyan, yellow and 2 x black			7ND2482-8TE	-	-	◆
<b>Cleaning set</b> for the piezo recording head			7ND2482-8VD	-	-	◆
<b>Ink drip assembly</b> Minimum ordering quantity 5 assemblies			7ND2482-8WB	-	-	◆

### Replacement parts

<b>Take-up spool</b>	With rubber tongues (Fig. 4/4)	C72301-A20-B110	◆	◆	◆	-	
	With clamping sleeve (Fig. 4/5)	C79453-A3033-B203	-	-	-	◆	
<b>Recording unit</b>	For fanfold paper For chart roll or fanfold	C72301-A20-A6 C72301-A20-A7	-	-	◆	-	
	For fanfold paper For chart roll or fanfold	C72301-A20-A16 C72301-A20-A17	◆	◆	-	-	
<b>Lithium battery</b>	3 V	W79084-L1004-B1	-	-	◆	-	
	3 V	W79084-L1002-B1	◆	-	-	-	
	3.4 V	W79084-U1001-B2	-	-	-	◆	

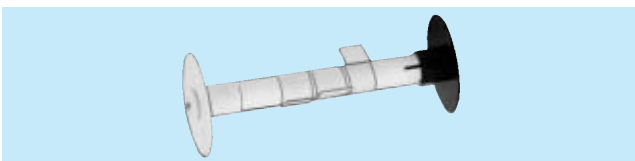


Fig. 4/4 Take-up spool with rubber tongues



Fig. 4/5 Take-up spool with clamping sleeve

<sup>1)</sup> Replacement of reservoir when in use: after max. 6 months.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Conversion parts for multipoint and line recorders

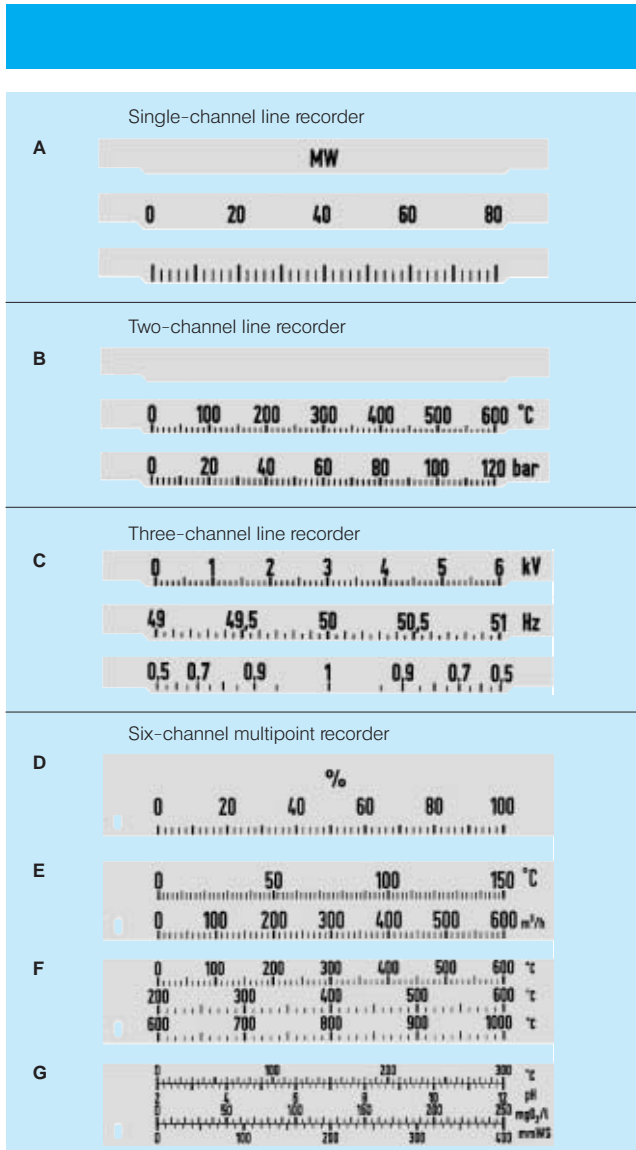


Fig. 4/6 Scale versions for line and multipoint recorders

Ordering data		For recorder		Price
		144 x 144	144 x 144	
		7ND3020	7ND3120	
		Order No.		
<b>Scales</b>				
Design and arrangement of scale plates	Number of scales			
-	Without 4)	<b>7ND9300-8RA</b> <b>7ND9300-8QA 1)</b>	- ♦	- ♦
A	One 2)	<b>7ND9300-8RB-Z</b>	-	♦
B or C 3)	One	<b>7ND9300-8RC-Z</b>	-	♦
D	One	<b>7ND9300-8QB-Z 1)</b>	♦	-
E	Two	<b>7ND9300-8QC-Z 1)</b>	♦	-
F	Three	<b>7ND9300-8QD-Z 1)</b>	♦	-
G	Four	<b>7ND9300-8QE-Z 1)</b>	♦	-
<b>Ruler</b>				
Without scale		<b>7ND9262</b>	♦	♦
With one scale		<b>7ND9272-Z</b>	♦	♦
Specify in addition for the Order Nos. identified by "-Z": Recording range(s) and scale(s) according to plain text		...		

- 1) A scale plate printed with two, three or four scales is required for each multipoint recorder (Fig. 4/6: D, E, F or G); sequence of scale plates from 1 at bottom to 4 at top according to sequence of Order codes 1 to 4.
- 2) One scale plate each for scale, measured variable and unit.
- 3) One scale plate required for each channel.
- 4) Start and end are marked.



# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Conversion parts

Ordering data	For recorder Order No.	144 x 144				288 x 144	288 x 288	360 x 288	Price
		7ND3020	7ND3120	7ND3520	7ND3521	7ND3590	7ND3560	7ND2482	
<b>Signal module, three-channel</b> (2 modules required per recorder)									
<b>DC U/I</b> DC voltage Direct current	Measuring limits ± 10 V ± 20 mA <sup>3)</sup>	<b>7ND9400-8AA</b>	-	-	♦	-	-	-	
DC voltage Direct current	± 30 V ± 50 mA <sup>4)</sup>	<b>7ND9400-8AB</b> <sup>1) 11)</sup>	-	-	-	♦	♦	-	
<b>DC U/TC</b> DC voltage Temperature via thermocouple	-10 mV, + 60 mV	<b>7ND9400-8AC</b> <sup>1) 11)</sup>	-	-	-	♦	♦	-	
<b>Signal module, six-channel</b> • Not intrinsically-safe <sup>3)</sup>	<b>DC U/I/TC/RTD/R</b>	<b>7ND9400-8AF</b> <sup>1)</sup>	-	-	♦	-	-	-	
<b>Measuring point label</b> without inscription For SIREC 2010 line recorder For SIREC 2010 multipoint recorder For VARIOGRAPH hybrid recorder		<b>C79165-A3029-B11</b> <b>C79165-A3029-B12</b> <b>C79165-A3029-B10</b>	-	♦	-	-	-	-	
<b>Measuring point label</b> with inscription For SIREC 2010 line recorder For SIREC 2010 multipoint recorder For VARIOGRAPH hybrid recorder		<b>C79165-A3029-B11-Z</b> <b>C79165-A3029-B12-Z</b> <b>C79165-A3029-B10-Z</b>	-	♦	-	-	-	-	
Order code Specify in plain text: <b>Desired text: . . . <sup>7)</sup></b>		<b>Y01</b>	♦	♦	♦	-	-	-	
<b>Limit monitor</b> 2 alarm outputs per channel, selectable as maximum or minimum limits	<b>32 outputs</b> <b>64 outputs</b>	<b>7ND2482-8PA</b> <b>7ND2482-8PB</b>	-	-	-	-	-	♦	
<b>Interface</b> , basic basic Always required 1 x, in addition:		<b>7ND2482-8NY</b> <sup>8)</sup> <b>7ND2482-8NX</b> <sup>9)</sup>	-	-	-	-	-	♦	
<b>Interface</b> , IEC or/and <b>Interface</b> , serial		<b>7ND2482-8NC</b> <b>7ND2482-8NB</b>	-	-	-	-	-	♦	

Available ex stock.

<sup>1)</sup> Can be used with firmware version 04 and later of VARIOGRAPH hybrid recorder. Upgrading of firmware on request. The firmware version can be called in the STATUS menu of the recorder.  
<sup>2)</sup> Can be used with firmware version 06 and later of VARIOGRAPH hybrid recorder. Upgrading of firmware on request. The firmware version can be called in the STATUS menu of the recorder.  
<sup>3)</sup> Basic setting on delivery: all channels 20 mA.  
<sup>4)</sup> Basic setting on delivery: all channels 50 mA.  
<sup>5)</sup> With resistance measurement in potentiometer circuit: max. 180 Ω can be set.

<sup>6)</sup> Basic setting on delivery: all channels 100 V.  
<sup>7)</sup> Max. number of places for inscription: see Ordering data of associated recorder.  
<sup>8)</sup> Can be used up to firmware version < 10 of PIEZOGRAPH hybrid recorder.  
<sup>9)</sup> Can be used with firmware version ≥ 10/10/10 of PIEZOGRAPH hybrid recorder.  
<sup>10)</sup> With intrinsically-safe: -4 mA, +20 mA.  
<sup>11)</sup> Only available as spare part. Without CE-symbol.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Ink paper for hybrid, multipoint and line recorders

### Chart rolls

Ordering data	Recording width	Divisions (linear)	Hours print	For recorder	96 x 96	72 x 144	144 x 144						360 x 288				Price per roll for following quantity			
					7ND2270, 7ND2271	7ND2100, 7ND2101	7ND2022, 7ND2023	7ND2122	7ND2121, 7ND2123	7ND2124	7ND2125	7ND2320 (M73152)	7ND2324	7ND2480	10	20	60	100		
Ink paper				Order No.																
<b>110 mm wide</b> Approx. 16 m long Approx. weight 0.07 kg	100 mm	50	For 20 mm/h 60 mm/h Without	<b>C72452-A92-B62</b> <b>C72452-A92-B63</b> <b>C72452-A92-B61</b>	-	◆	-	-	◆	-	-	-	-	-	-	-	-	-	-	
<b>120 mm wide</b> Approx. 16 m long Approx. weight 0.1 kg	100 mm	50	For 10 mm/h 20 mm/h 60 mm/h 120 mm/h Without	<b>C72452-A94-B8</b> <b>C72452-A94-B9</b> <b>C72452-A94-B10</b> <b>C72452-A94-B11</b> <b>C72452-A94-B12</b>	-	-	◆	◆	-	◆	◆	◆	◆	-	-	-	-	-	-	
Approx. 31 m long Approx. weight 0.15 kg	100 mm	50	For 10 mm/h 20 mm/h 60 mm/h 120 mm/h Without	<b>C72452-A94-B208</b> <b>C72452-A94-B209</b> <b>C72452-A94-B210</b> <b>C72452-A94-B211</b> <b>C72452-A94-B212</b>	-	-	◆	-	-	◆	-	-	-	-	-	-	-	-		
<b>270 mm wide</b> Approx. 33 m long Approx. weight 0.55 kg	250 mm	Without	Without	<b>C72452-A110-B1</b>	-	-	-	-	-	-	-	-	-	◆	-	-	-	-		

4

Minimum ordering quantity 20 rolls, or 10 rolls for 7ND2480. Price for larger quantities than those listed on request. Other range divisions, additional text and numbers on request.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Ink paper for multipoint and line recorders, thermal papers for line recorders

### Ink paper for multipoint and line recorders

#### Fanfold paper

Ordering data	Recording width	Divisions (linear)	Hours print	For recorder		Price per fanfold pack for following quantity		
				Order No.	144 x 144	20	60	100
<b>Ink paper</b>					7ND2022 7ND2023 7ND2125			
<b>120 mm wide</b> Approx. 16 m long Approx. weight 0.1 kg	100 mm	50	For 10 mm/h 20 mm/h 60 mm/h 120 mm/h Without	C72452-A94-B262 C72452-A94-B263 C72452-A94-B264 C72452-A94-B265 C72452-A94-B266	◆ ◆ ◆ ◆ ◆			

### Thermal paper for line recorders

#### Chart rolls

Ordering data	Recording width	Divisions (linear)	Hours print	For recorder			Price per roll for following quantity		
				Order No.	144 x 144	7ND2125 7ND2320/21 (M73152) 7ND2322 (M73172)	20	60	100
<b>Thermal paper</b>									
<b>120 mm wide</b> Approx. 16 m long Approx. weight 0.1 kg	100 mm	50	For 20 mm/h Without	C72452-A94-B159 C72452-A94-B162	◆ ◆ - ◆ ◆ -				
		12	Without	C72452-A94-B181	- - ◆				

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Pen assemblies for hybrid, multipoint and line recorders



Fig. 4/7 Ribbon for multipoint recorder



Fig. 4/8 Printing head with six fiber pens

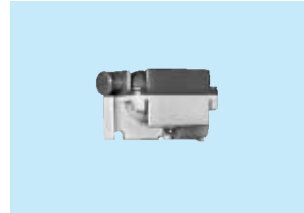


Fig. 4/9 Ink reservoir for hybrid recorder



Fig. 4/10 Ink, 50 cm<sup>3</sup> bottle

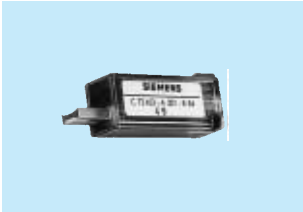


Fig. 4/11 Disposable ink reservoir 4 cm<sup>3</sup>

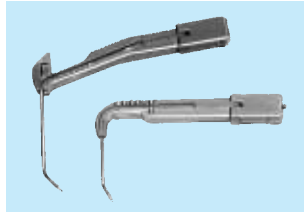


Fig. 4/12 Upper and lower channel pens

4

Ordering data			For recorder		72 x 144	96 x 96	144 x 144		192 x 240	192 x 288	360 x 288	Price
			Order No.	7ND2100 7ND2101	7ND2270 7ND2271	7ND2022 7ND2023	7ND2121/23 7ND2320 (M73152) 7ND2324	7ND2032 7ND2033	7ND2042 7ND2043	7ND2480		
<b>Ribbons</b>												
For single-channel recorders	6, blue					♦						
For two-channel recorders	3, blue and red (2 colors each)					♦						
For six-channel recorders	3, black, red, green, blue, brown and violet (6 colors each)					♦						
<b>Printing head (6 colors)</b> DIN 16 235-A-h-6 violet, red, black, green, blue and brown									♦	♦		
<b>Ink reservoir set</b> (stock life max. <b>18 months</b> ), consisting of ink reservoirs in magenta, cyan, yellow and black as well as a tampon with holder (replacement of reservoir in recorder: max. 6 mon.)												♦
<b>Cleaning set</b> for piezo recording head, not for "A ink", comprising 1 bottle of cleaning liquid (40 cm <sup>3</sup> ) and 1 brush												♦
<b>Cleaning set</b> as above, but for recording heads identified "A ink"												♦
<b>Ink</b>												
Bottle 50 cm <sup>3</sup>	Blue					♦						
	Red					♦						
	Green					♦						
	Blue <sup>1)</sup>											
	Red <sup>1)</sup>											
	Grn. <sup>1)</sup>											
Bottle 500 cm <sup>3</sup>	Blue <sup>1)</sup>											
	Red <sup>1)</sup>											
	Grn. <sup>1)</sup>											
Disposable ink reservoir <sup>2)</sup> 4 cm <sup>3</sup>	Red											
	Blue											
2 ink bags <sup>1)</sup>	Red											
	Blue											

1) Before ordering, check whether the recorder 7ND2320 has an ink bag, refillable reservoir or disposable reservoir.

2) Applies to recorder 7ND2320 only from serial No. M 10-785 onwards.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Pen assemblies for line recorders

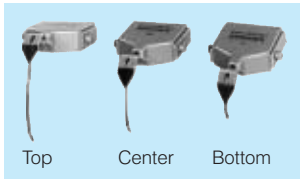


Fig. 4/13  
Fiber pens 7ND9001-8AG, -8AD/AE, -8AA/AB and thermal styluses 7ND9001-8CA

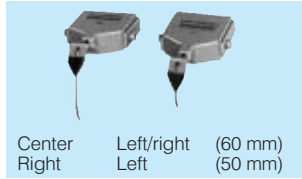


Fig. 4/14  
Fiber pens 7ND9001-8AK, -8AA and thermal styluses 7ND9001-8CA

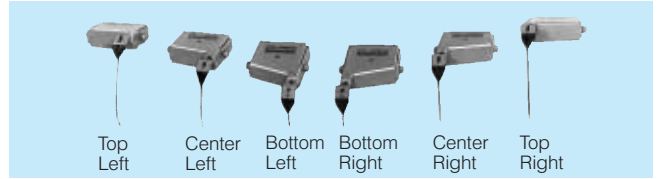


Fig. 4/15 Fiber pens 7ND9001-8AU, -8AN, -8AR, -8BA

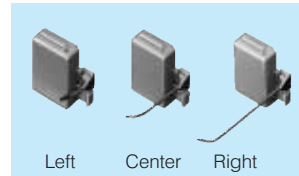


Fig. 4/16 Fiber pens 7ND9001-8BL/BK, -8BP/BN, -8BR



Fig. 4/17 Thermal styluses C72453-A321-B162, -B160

Ordering data			For recorder	72x 144							144 x 144				192 x 240				288 x 240				Price
Fiber pen assembly for recording on ink paper				7ND210001	7ND2121	7ND2122	7ND2123	7ND2124	7ND2125	7ND2125	7ND2130	7ND2131	7ND2132	7ND2133	7ND2150	7ND2151	7ND2152	7ND2153					
Channel assignment			Location	Color	Recording width in mm, per channel																		
Order No.			100	100	100	100	100	100	100	120	50	120	50	210	100	60	210	100	60				
			Left	Blue	7ND9001-8BL	◆	◆	-	◆	-	-	-	-	-	-	-	-	-	-	-			
			Center	Red	7ND9001-8BK	◆	◆	-	◆	-	-	-	-	-	-	-	-	-	-	-			
			Center	Red	7ND9001-8BP	◆	◆	-	◆	-	-	-	-	-	-	-	-	-	-	-			
			Center	Blue	7ND9001-8BN	◆	◆	-	◆	-	-	-	-	-	-	-	-	-	-	-			
			Right	Green	7ND9001-8BR	◆	◆	-	◆	-	-	-	-	-	-	-	-	-	-	-			
			Top	Green	7ND9001-8AG	-	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆			
			Center	Blue	7ND9001-8AD	-	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆			
			Center	Red	7ND9001-8AE	-	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆			
			Bottom	Red	7ND9001-8AA	-	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆			
			Bottom	Blue	7ND9001-8AB	-	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆	-	◆			
			Cent. left	Blue	7ND9001-8AU	-	-	-	-	-	-	-	-	-	◆	-	-	◆	-				
			right	Blue	7ND9001-8BA	-	-	-	-	-	-	-	-	-	◆	-	-	◆	-				
			Bot. left	Red	7ND9001-8AN	-	-	-	-	-	-	-	-	-	◆	-	-	◆	-				
			right	Red	7ND9001-8AR	-	-	-	-	-	-	-	-	-	◆	-	-	◆	-				
			Left	Red	7ND9001-8AA	-	-	-	-	-	◆	-	◆	-	-	-	-	-	-				
			Right	Red	7ND9001-8AK	-	-	-	-	-	◆	-	◆	-	-	-	-	-	-				
			Left/right	Red	7ND9001-8AA	-	-	-	-	-	-	-	-	-	-	◆	-	-	◆				
			Center	Red	7ND9001-8AK	-	-	-	-	-	-	-	-	-	-	◆	-	-	◆				
<b>Thermal stylus for recording on thermal paper</b> Channel assignment			Location	Indicat. color																			
			Bottom	Red	7ND9001-8CA	-	-	-	-	◆	-	◆	-	-	◆	-	-	-	-				
			Left	Red	7ND9001-8CA	-	-	-	-	-	-	◆	-	-	-	-	-	-	-				
			Right	Red	7ND9001-8CD	-	-	-	-	-	-	◆	-	-	-	-	-	-	-				
			Left/right	Red	7ND9001-8CA	-	-	-	-	-	-	-	-	-	◆	-	-	-	-				
			Top	Blue	C72453-A321-B162	-	-	-	-	-	◆	-	-	-	-	-	-	-	-				
			Bottom	Red	C72453-A321-B160	-	-	-	-	-	◆	-	-	-	-	-	-	-	-				

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Other consumable material for multipoint and line recorders

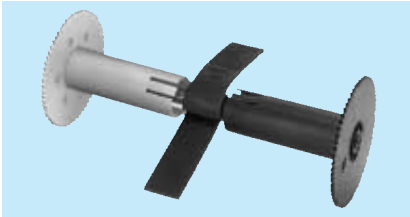


Fig. 4/18 Take-up spool with rubber tongues; for automatic chart take-up

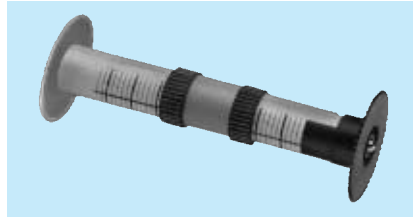


Fig. 4/19 Take-up spool with rubber rings; for automatic chart take-up

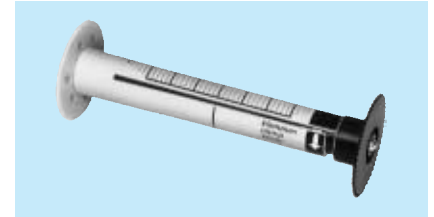


Fig. 4/20 Take-up spool with clamping sleeve

Ordering data	For recorder	72 x 144	144 x 144				192 x 240	192 x 288	288 x 240	288 x 288	Price			
		Order No.	7ND2100, 7ND2101	7ND2022	7ND2023	7ND2121, 7ND2123 7ND2122, 7ND2124 7ND2125	7ND2320 (M73152) 7ND2321, 7ND2322, 7ND2323 7ND2324	7ND2032	7ND2033	7ND2130, 7ND2131 7ND2132, 7ND2133		7ND2042	7ND2043	7ND2140, 7ND2141 7ND2142, 7ND2143
<b>Take-up spool</b> with rubber tongues	C72301-A20-B110 C72301-A20-B71 C72301-A20-B72	-	◆	◆	-	◆	-	◆	◆	◆	-	-	-	-
<b>Take-up spool</b> with rubber rings	C72301-A20-B53	-	-	-	◆	-	-	-	-	-	-	-	◆	◆
<b>Take-up spool</b> with clamping sleeve	C72301-A20-B13	-	-	-	-	◆	◆	◆	-	-	-	-	-	-
<b>Mandrel</b> (part pushed onto take-up spool)	C72301-A22-B8	◆	-	-	◆	-	-	-	-	-	-	-	-	-
<b>Scale cable</b> For channel 1 (white identification) For channel 2 (gray identification) For channel 3 (black identification)	C72453-A340-B6 C72453-A340-B7 C72453-A340-B8	◆	-	-	◆	-	-	-	-	-	-	-	-	-
For fiber pen recording For thermal stylus recording	C79453-A3011-B39 C79453-A3025-D83	-	-	-	-	◆	-	-	◆	◆	-	◆	◆	◆
	C79453-A3027-C72 C79453-A3027-C75	-	◆	◆	-	-	-	-	-	-	◆	◆	-	-
<b>Servo unit</b>	C72246-A144-A14 <sup>3)</sup> C72246-A144-A6 C72246-A144-A8 C72246-A144-A18	◆	-	-	◆	-	-	-	-	-	-	-	◆	◆
<b>Servo unit</b> , without motor	C72246-A144-A7 C72246-A144-A13	-	◆	-	-	-	-	-	◆	◆	-	-	-	-
<b>Recording unit</b> for chart roll	C72301-A22-A1 C72301-A22-A2 C72301-A20-A8 C72301-A20-A4	◆	-	-	◆	-	-	-	-	-	-	-	-	-
	C72301-A20-A10 C72301-A20-A12 C72301-A20-A11 C72301-A20-A13	-	-	-	-	-	-	-	◆	◆	◆	◆	-	-
<b>Recording unit</b> For fanfold paper For roll or fanfold paper	C72301-A20-A6 C72301-A20-A7	-	◆	◆	-	◆	-	-	-	-	-	-	-	-
<b>Measuring point selector</b> , Single-pole plug-in Two-pole	C74315-A66-A4 W79050-U1201-U106	-	◆	-	-	-	-	◆	-	-	◆	-	-	-
<b>Ink reservoir</b> , refillable	C72453-A315-B20 <sup>1)</sup>	-	-	-	-	◆	-	-	-	-	-	-	-	-
<b>Ink hose</b> for measuring system	C72246-A138-C73	-	-	-	-	◆	-	-	-	-	-	-	-	-
<b>Holder for ink reservoir</b>	C72453-A315-C24 <sup>1)</sup> C72453-A315-B86 <sup>2)</sup>	-	-	-	-	◆	-	◆	-	-	-	-	-	-
<b>Plug for ink reservoir</b> Channel 1 Channel 2	C72453-A315-B33 C72453-A315-B35	-	-	-	-	◆	-	◆	-	-	-	-	-	-
<b>Tube</b>	C72246-A138-C94	-	-	-	-	◆	-	◆	-	-	-	-	-	-
<b>Blowball</b>	C79453-A3028-B1	-	-	-	-	◆	-	◆	-	-	-	-	-	-
<b>Lubricating oil</b> Etsyntha Silber Bottle 1 cm <sup>3</sup>	C72453-A320-B22	◆	◆	◆	◆	-	-	-	-	-	-	-	-	-
<b>Flushing liquid</b> Bottle 5 cm <sup>3</sup> Tank 4 cm <sup>3</sup>	C72453-A315-B23 <sup>1)</sup> C72453-A321-B88 <sup>2)</sup>	-	-	-	-	◆	-	◆	-	-	-	-	-	-

1) Only applies to rec. 7ND2320 up to ser. No. M10-784. 2) Only applies to rec. 7ND2320 from ser. No. M10-785 onwards. 3) Not for 7ND2100 and 7ND2121.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Conversion parts for multipoint and line recorders

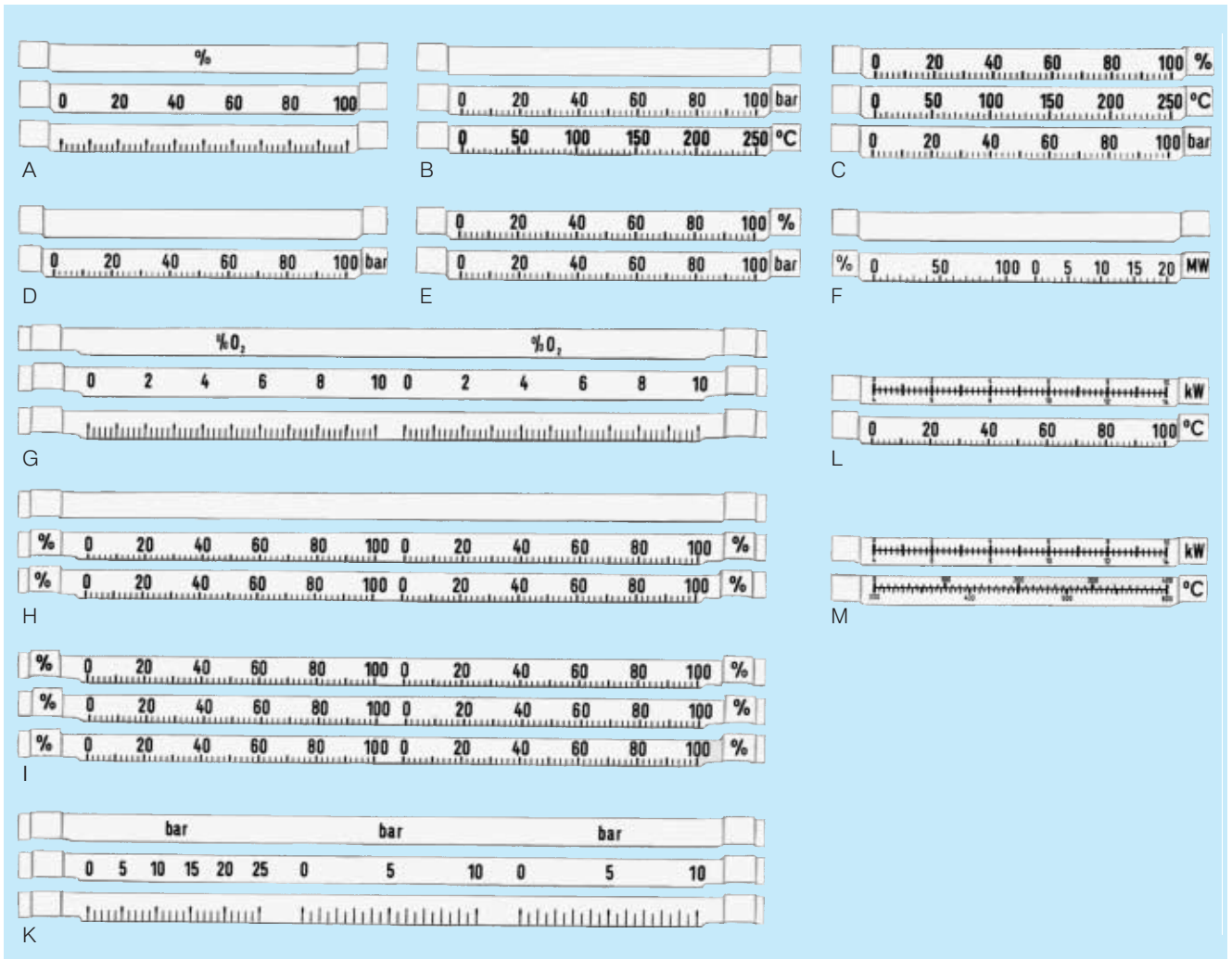


Fig. 4/21 Scale versions for flush-mounting recorders; design and arrangement of the scale plates (strips)

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Conversion parts for multipoint and line recorders



Ordering data		For recorder	96 x 96	72 x 144	144 x 144		192 x 240	192 x 288	288 x 240		288 x 288		Price
			Order No.	7ND2270, 7ND2271	7ND2100, 7ND2101	7ND2022, 7ND2023 7ND2122	7ND2121, 7ND2123 7ND2124, 7ND2125	7ND2320, 7ND2324	7ND2032, 7ND2033 7ND2130 to 7ND2133	7ND2042, 7ND2043 7ND2140 to 7ND2143	7ND2150 7ND2151, 7ND2153 7ND2152	7ND2160 7ND2161, 7ND2163 7ND2162	
<b>Scale plate</b>	Without scale	<b>7ND9300-8HA</b>	-	♦	-	♦	-	-	-	-	-	-	
	With one scale	<b>7ND9300-8HB-Z</b>	-	♦	-	♦	-	-	-	-	-	-	
Design and arrangement of scale plates (strips) Fig. 4/21	Number of scales												
-	Without	<b>7ND9300-8FA</b> <sup>1)</sup> <b>7ND9300-8PA</b> <sup>1)</sup> <b>7ND9300-8NA</b>	-	-	♦	♦	♦	♦	-	♦	♦	♦	-
A	One <sup>2)</sup>	<b>7ND9300-8FH-Z</b> <b>7ND9300-8PH-Z</b> <b>7ND9300-8NH-Z</b>	-	-	-	♦	-	♦	-	-	-	♦	-
B or C	One	<b>7ND9300-8FB-Z</b> <b>7ND9300-8PB-Z</b> <sup>1)</sup> <b>7ND9300-8NB-Z</b>	-	-	-	♦	-	♦	-	-	-	♦	-
D or E	One	<b>7ND9300-8FB-Z</b> <sup>1)</sup>	-	-	♦	-	-	-	-	-	-	-	-
G	Two adjacent <sup>2)</sup>	<b>7ND9300-8PJ-Z</b> <b>7ND9300-8NJ-Z</b>	-	-	-	-	-	♦	-	♦	-	♦	-
F	Two adjacent	<b>7ND9300-8FL-Z</b>	-	-	-	-	♦	-	-	-	-	-	-
H or I		<b>7ND9300-8NL-Z</b>	-	-	-	-	-	-	♦	-	♦	♦	-
K	Three adjacent <sup>2)</sup>	<b>7ND9300-8NK-Z</b>	-	-	-	-	-	-	-	♦	♦	♦	-
L or M	Two above each other	<b>7ND9300-8FC-Z</b> <sup>1)</sup> <b>7ND9300-8PC-Z</b> <sup>1)</sup>	-	-	♦	-	-	♦	-	-	-	-	-
Specify in addition for the Order Nos. identified by "-Z": Order code(s) for the desired measuring range(s) (pages 4/24 to 4/27)		...	-	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦
<b>Ruler without scale</b>		<b>7ND9262</b> <b>7ND9261</b> <b>7ND9260</b>	-	♦	♦	♦	♦	♦	-	-	-	-	-
<b>Ruler with one scale</b>		<b>7ND9281-8AB-Z</b> <b>7ND9272-Z</b> <b>7ND9271-Z</b> <b>7ND9270-Z</b>	♦	-	-	-	-	-	-	-	-	-	-
With two adjacent scales, recording width per channel	45 mm	<b>7ND9281-8AD-Z</b>	-	-	-	-	♦	-	-	-	-	-	-
	50 mm	<b>7ND9281-8AC-Z</b>	-	-	-	-	-	♦	-	-	-	-	-
	100 mm	<b>7ND9281-8AF-Z</b>	-	-	-	-	-	-	-	♦	♦	♦	-
With three adjacent scales, recording width per channel	60 mm	<b>7ND9281-8AE-Z</b>	-	-	-	-	-	-	-	♦	♦	♦	-
Specify in addition for the Order Nos. identified by "-Z": Order code(s) for the desired measuring range(s) (pages 4/24 to 4/27)		...	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦

1) Two scale plates (for one or two scales each) are required for multipoint recorders (Fig. 22; D, E, L, M).  
2) One scale plate (strip) each for scale, measured variable and unit.



# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Conversion parts for multipoint and line recorders

Ordering data	For recorder	144 x 144					192 x 240				192 x 288			288 x 240		288 x 288		Price
		7ND2022	7ND2023	7ND2122	7ND2124, 7ND2125	7ND2320, 7ND2321 (M73152)	7ND2032	7ND2033	7ND2130	7ND2131, 7ND2133	7ND2042	7ND2043	7ND2140	7ND2141, 7ND2143	7ND2150	7ND2151, 7ND2153	7ND2160	
<b>Amplifier</b> for signal ranges 0 to 20 mA, 4 to 20 mA	<b>C79453-A3011-B51</b>	-	-	◆	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Signal plug-in</b> (see example for ordering)	<b>7ND9118-8L-Z</b> <sup>1)</sup> <b>7ND9118-8K-Z</b> <b>7ND9121-Z</b> <b>7ND9118-8J-Z</b>	-	◆	-	-	-	-	◆	-	-	◆	-	-	-	-	-	-	
For current, voltage, thermoelectric voltage, resistance, power and frequency measurements		-	-	-	◆	-	-	-	-	-	-	-	-	-	-	-	-	-
For current measurements		<b>7ND9118-8G-Z</b>	-	-	-	-	-	-	◆	-	-	-	◆	-	◆	-	◆	-
For voltage measurements 500 mV ≤ ΔU ≤ 40 V		<b>7ND9118-8H-Z</b>	-	-	-	-	-	-	◆	-	-	-	◆	-	◆	-	◆	-
Specify in addition for the Order Nos. identified by "-Z": Order code for the desired <b>measuring range</b> (pages 4/24 to 4/27)	...	-	◆	-	◆	◆	-	◆	◆	◆	-	◆	◆	◆	◆	◆	◆	
<b>Measuring point selector</b> , plug-in Single-pole Two-pole	<b>C74315-A66-A4</b> <b>W79050-U1201-U106</b>	◆	-	-	-	-	◆	-	-	-	◆	-	-	-	-	-	-	
<b>Shunt</b> , $R_e = 25 \Omega \pm 0.1 \%$ A shunt is required for each measuring point if a signal plug-in is used for current measurements.	<b>7ND9132-8AB</b>	◆	◆	-	-	-	◆	◆	-	-	◆	◆	-	-	-	-	-	

### Example for ordering

Required:

Signal plug-in for voltage measurements;  
for KOMPENSOGRAF 7ND2131;  
signal range 0 to 500 mV,  
measuring range 0 to 100 % linear

Order No. 7ND9118-8J-Z  
Order code (page 4/26) H10

Complete Order No.: **7ND9118-8J-Z**  
**H10**

<sup>1)</sup> Only one shunt (25 Ω) is required per measuring point with signal ranges for current measurements (0/4 to 20 mA).

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Conversion parts for multipoint and line recorders

Ordering data	For recorder	72 x 144	144 x 144						192 x 240	192 x 288	192 x 240	288 x 288	Price								
		7ND2100, 7ND2101	7ND2022, 7ND2023	7ND2122	7ND2121, 7ND2123	7ND2124, 7ND2125	7ND2320/21 (M73152)	7ND2323	7ND2324	7ND2032, 7ND2033	7ND2130, 7ND2131	7ND2132, 7ND2133		7ND2042, 7ND2043	7ND2140, 7ND2141	7ND2142, 7ND2143	7ND2150, 7ND2151	7ND2152, 7ND2153	7ND2160, 7ND2161	7ND2162, 7ND2163	
<b>Measuring point label</b> without inscription For single-channel to three-channel recorders  For single-channel to six-channel recorders  For six-channel recorders  For twelve-channel recorders Specify in addition for the Order Nos. identified by "-Z": Order code: Plain text: <b>Number of channels: ...</b> <b>Recording width per channel: ... mm</b>	Order No.  C72453-A340-C123 C72453-A340-C124 C72165-A405-B43-Z C79165-A3010-B127-Z  C79165-A3010-B129-Z  C72165-A405-C299 C72165-A405-C320  C72165-A405-C310  Y02	◆	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		-	-	◆	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		-	-	-	-	-	-	-	-	-	◆	◆	-	-	◆	◆	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	◆	◆	-	◆	◆	-
<b>Measuring point label</b> with inscription For six-channel recorders  For twelve-channel recorders Order code: Specify in plain text: <b>Desired text: ...</b>	C72165-A405-C299-Z C72165-A405-C320-Z  C72165-A405-C310-Z  Y01	-	◆	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		-	-	-	-	-	-	-	-	◆	-	-	-	-	-	-	-	-	-	-	
For single-channel to three-channel recorders For single-channel to six-channel recorders Order code: Specify in plain text: <b>Desired text: ...</b> <b>Number of channels: ...</b> <b>Recording width per channel: ... mm</b>	C72165-A405-B43-Z C72165-A3010-B127-Z  C72165-A3010-B129-Z  Y01 Y03	-	-	◆	-	◆	◆	-	◆	-	-	-	-	-	-	-	-	-	-		
		-	-	-	-	-	-	-	-	◆	◆	-	◆	◆	-	-	-	◆	◆	-	
		-	-	-	-	-	-	-	-	-	◆	◆	-	◆	◆	-	-	◆	◆	-	
<b>Mounting set for two electronic limit contacts</b> Selectable as minimum or maximum contact	C79453-A3011-D67 C79453-A3025-D69	-	-	-	-	◆	-	-	-	-	-	-	-	-	-	-	-	-	-		
<b>Oil damping insert</b> 6 s 15 s 30 s 60 s	C72246-A138-B60 C72246-A138-B61 C72246-A138-B62 C72246-A138-B63	-	-	-	-	-	◆	-	◆	-	-	-	-	-	-	-	-	-	-		
<b>Mounting set for electronic marking system</b> For 1 channel <sup>1)</sup> For up to 3 channels <sup>2)</sup>	C79453-A3025-D70 C79453-A3025-D157	-	-	-	-	-	-	-	-	◆	-	-	◆	-	◆	-	◆	-	-		



Fig. 4/22 Oil damping insert for GALVANOGRAPH line recorders 7ND2320, 7ND2321 and 7ND2324

1) One marking system can be used per channel.  
 2) One marking system can be used per channel, only for 7ND2152.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Ink paper for KOMPENSOGRAPH and GALVANOGRAPH


Ordering data		Order No.	Price per roll for following quantity		
			20	60	100
For recorder	Designation				
Servo multipoint recorder: KOMPENSOGRAPH 288 x 288	<b>Ink paper 230 mm wide</b> Length        Approx. 24 m Weight        Approx. 0.25 kg  <b>Recording width 210 mm</b> 100 linear divisions Hours print for                20 mm/h Without hours print 105 linear divisions Hours print for                20 mm/h	<b>C72452-A98-B9</b> <b>C72452-A98-B12</b>  <b>C72452-A98-B15</b>			
Galvanometer line recorders: 288 x 240, 288 x 288 GALVANOGRAPH 7ND1350 (M02190) 7ND1360 (M02194) T7, T22, T25, T28, T35, T42, T43	<b>Ink paper 230 mm wide</b> Length        Approx. 24 m Weight        Approx. 0.25 kg  <b>Recording width 2 x 100 mm</b> 50 linear divisions each Hours print for                20 mm/h  <b>Recording width 3 x 60 mm</b> 20 linear divisions each Hours print for                20 mm/h	<b>C72452-A98-B22</b>  <b>C72452-A98-B32</b>			
Galvanometer line recorders: 192 x 240, 192 x 288 GALVANOGRAPH 7ND1330 (M02188) 7ND1340 (M02192)  T3, T4, T9, T20, T21, T23, T24, T26, T27, T29, T38, T40  Galvanometer multipoint recorders: 192 x 240, 192 x 288 F10 to F13 F20 to F43 M734  Multipoint and line recorders: KOMPENSOGRAPH 192 x 240, 192 x 288 M4, K164 M73632, M73634, M73760, M73814, M73816, M73916 7ND1040, 7ND1140 to 7ND1142	<b>Ink paper 140 mm wide</b> Length        Approx. 24 m Weight        Approx. 0.15 kg  <b>Recording width 120 mm</b> 50 linear divisions Hours print for                20 mm/h	<b>C72452-A96-B9</b>			
Multipoint recorders: KOMPENSOGRAPH 144 x 144 M73910	<b>Ink paper 120 mm wide</b> Length        Approx. 16 m Weight        Approx. 0.1 kg  <b>Recording width 100 mm</b> 50 linear divisions Hours print for                20 mm/h	<b>C72452-A94-B109</b>			
Line recorders: KOMPENSOGRAPH 144 x 144 K203  GALVANOGRAPH 144 x 144 T8, T39 and M02186	<b>Ink paper 110 mm wide</b> Length        Approx. 16 m Weight        Approx. 0.08 kg  <b>Recording width 100 mm</b> 50 linear divisions Hours print for                10 mm/h 20 mm/h  Without hours print	<b>C72452-A92-B8</b> <b>C72452-A92-B9</b> <b>C72452-A92-B12</b>			

Minimum ordering quantity 20 rolls.  
Price for larger quantities than those listed on request.  
Other range divisions, additional text and numbers on request.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Pen assemblies for multipoint recorders, ink

### Pen assemblies for multipoint recorders

Ordering data	Designation	Order No.	Price
For recorders KOMPENSOGRAPH 288 x 288 7ND1060 (M73812)	 <b>Ink roller drum</b> For six-channel and twelve-channel recorders Violet, red, black, brown, blue and green ink rollers, 1 each	<b>C70301-A531-B302</b>	
KOMPENSOGRAPH 144 x 144 M73910	<b>Ink pad carrier</b> Violet, red, black, green, blue and brown	<b>C74453-A172-B29</b>	
KOMPENSOGRAPH 96 x 144 M73948, 7ND1010	<b>Six-color printing head</b> Violet, red, black, green, blue and brown	<b>M73948-X-A1</b>	
GALVANOGRAPH 192 x 240, 192 x 288 M734 7ND1230 (M73250 to M73256) 7ND1240 (M73260 to M73266) F10 to F13, F20 to F43	<b>Ribbons</b> For single-channel recorders Violet, 6 off For two-channel recorders Violet and red, 3 each For three-channel recorders Violet, red and black, 2 each For six-channel recorders Violet, red, black, brown, blue and green, 1 each	<b>C74301-A8-B53</b> <b>C74301-A8-B54</b> <b>C74301-A8-B55</b> <b>C74301-A8-B56</b>	
GALVANOGRAPH 144 x 144 7ND1220	<b>Ribbons</b> For single-channel recorders Violet, 6 off For six-channel recorders Violet, red, black, green, blue and brown, 3 each	<b>7ND9058-0AB</b> <b>7ND9058-0DB</b>	

### Ink

4



Ordering data	Designation	Order No.	Price
For recorders Line recorders: KOMPENSOGRAPH 192 x 288 M73760, M73916, 7ND1141 and 7ND1142 KOMPENSOGRAPH 192 x 240 M73632 and M73634 KOMPENSOGRAPH 144 x 144 K203, M742, M936, 7ND1120 to 7ND1122, M73938, M73940	<b>Recording ink</b> Plastic bottle 8 cm <sup>3</sup> Violet Red Green	<b>C71452-A64-B1</b> <b>C71452-A64-B2</b> <b>C71452-A64-B3</b>	
Multipoint and line recorders: KOMPENSOGRAPH 288 x 288 M2  KOMPENSOGRAPH 288 x 288 7ND1060 (M73812) <sup>1)</sup>  KOMPENSOGRAPH 192 x 288 M4, K164  Line recorders: KOMPENSOGRAPH 192 x 288 7ND1141 (M73916) 7ND1142 (M73760)  KOMPENSOGRAPH 192 x 240 M73632 and M73634  KOMPENSOGRAPH 144 x 144 K203, M742, M936, M73938, M73940 and M73950, 7ND1120 to 7ND1123  KOMPENSOGRAPH 72 x 144 M73950, 7ND1100  GALVANOGRAPH 144 x 144 192 x 240, 192 x 288, 288 x 240, 288 x 288 7ND1330 (M02188), 7ND1340 (M02192), 7ND1350 (M02190), 7ND1360 (M02194) and M02186	<b>Recording ink</b> Bottle 50 cm <sup>3</sup> Violet Red Green  Bottle 500 cm <sup>3</sup> Violet Red Green	<b>C70429-A63-A8</b> <b>C70429-A63-A7</b> <b>C70429-A63-A9</b>  <b>C70429-A959-A8</b> <b>C70429-A959-A7</b> <b>C70429-A959-A9</b>	

<sup>1)</sup> Only applies to marking system with recording capillary (older version).

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Further consumable material and conversion parts for servo multipoint recorders

### Pens, recording electrodes and fiber pen assemblies

Ordering data	Designation	Order No.	Price
For recorders			
Line recorders: GALVANOGRAPH 144 x 144, 192 x 240, 192 x 228, 288 x 240, 288 x 288 7ND1330 (M02188), 7ND1340 (M02192), 7ND1350 (M02190), 7ND1360 (M02194) and M02186	 <b>Fiber pen</b> Red Blue Violet  Green Brown Black  <b>Holder for fiber pen</b>	<b>7ND9001-8DA</b> <b>7ND9001-8DB</b> <b>7ND9001-8DC</b>  <b>7ND9001-8DS</b> <b>7ND9001-8DE</b> <b>7ND9001-8DF</b>  <b>7ND9001-8DG</b>	
Line recorders: KOMPENSOGRAPH 192 x 288, 288 x 288 M2, M4, M73810, M73814, 7ND1140 and 7ND1160	 <b>Pen for measuring system</b>	<b>C70301-A531-B495</b>	
Line recorders: KOMPENSOGRAPH 192 x 288, 288 x 288 M2, M4, M73810, M73814, 7ND1140 and 7ND1160  Multipoint recorders: KOMPENSOGRAPH 192 x 288 M4, M73816 and 7ND1040	<b>Fiber pen assembly</b> for marking system (only version with fiber pen assembly)	<b>7ND9001-8FA</b>	
Line recorders: KOMPENSOGRAPH 96 x 144 M73949, 7ND1110	<b>Fiber pen assembly</b> 6 pens, violet 6 pens, red  Channel 1 Channel 2	<b>M73949-X-A1</b> <b>M73949-X-A2</b>	

### Further consumable material and conversion parts for hybrid recorders

Ordering data	Designation	Order No.	Price
For recorders			
Hybrid recorders: PIEZOGRAPH 360 x 288 7ND2480	<b>Take-up spool</b>  <b>Channel plug-in</b> for 8 channels  <b>Signal plug-in</b> For current measurements 1) For voltage measurements For voltage and thermoelectric voltage measurements $5 \text{ mV} \leq \Delta U \leq 200 \text{ mV}$ For Pt 100 resistance thermometer measurements Specify in plain text in addition to Order No.: <b>Signal range: ...</b>  <b>Shunt,</b> $R_e = 25 \Omega \pm 0.1 \%$ $R_e = 10 \Omega \pm 0.1 \%$  <b>Limit monitor</b> for 32 limits with 16 channels; 2 alarm outputs per channel, selectable as maximum or minimum alarms; for channels 1 to 16 or 17 to 32  <b>Memory chip (EPROM)</b> Programmed for 1 scale 2 scales 3 scales 4 scales 5 scales 6 scales 7 scales 8 scales  Order code(s) for the desired <b>measuring range(s)</b> : (pages 4/24 to 4/27) Specify in plain text: <b>Serial No. of PIEZOGRAPH: ...</b>  <b>Memory chip (EPROM)</b> , programmed for linearization of scales, with 1 linearization 2 linearizations 3 linearizations 4 linearizations  Order code(s) for the desired <b>measuring range(s)</b> : (pages 4/24 to 4/27) Specify in plain text: <b>Serial No. of PIEZOGRAPH: ...</b> Associated <b>signal and range values</b> if necessary (table or function curve)	<b>C79453-A3031-B57</b> <b>C79453-A3031-B513</b>  <b>C79453-A3031-B535-Z</b> <b>C79453-A3031-B534-Z</b> <b>C79453-A3031-B537-Z</b> <b>C79453-A3031-B536-Z</b>  ... <b>7ND9132-8AB</b> <b>7ND9132-8AA</b>  <b>C79453-A3031-B346</b>   <b>C79453-A3031-D311-Z</b> <b>C79453-A3031-D312-Z</b> <b>C79453-A3031-D313-Z</b> <b>C79453-A3031-D314-Z</b> <b>C79453-A3031-D315-Z</b> <b>C79453-A3031-D316-Z</b> <b>C79453-A3031-D317-Z</b> <b>C79453-A3031-D318-Z</b>  ... <b>C79453-A3031-D321-Z</b> <b>C79453-A3031-D322-Z</b> <b>C79453-A3031-D323-Z</b> <b>C79453-A3031-D324-Z</b> ...	
Hybrid recorders: PIEZOGRAPH 3 7ND2482	<b>Memory unit</b> for sheet-steel panel for panel with basicgrid 72 x 72	<b>7ND2482-8AD</b> <b>7ND2482-8AN</b>	

1) A shunt is required for each current measuring point:  $R_e = \frac{200 \text{ mV}}{\Delta I \text{ (mA)}}$

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Further consumable material and conversion parts for servo multipoint recorders

### For servo multipoint recorders

Order data	Designation	Order No.	Price
For recorders Multipoint recorders: KOMPENSOGRAPH 288 x 288 7ND1060 (M73812)	<b>Take-up spool</b> with rubber tongues  <b>Scale cable</b>  <b>Scale plate</b> <ul style="list-style-type: none"> <li>Without scale</li> <li>With one scale</li> <li>With two scales</li> <li>With three scales</li>   <li>With four scales</li> <li>With five scales</li> <li>With six scales</li> </ul> <b>Ruler</b> without scale <b>Ruler</b> with one scale  Specify in addition for the Order Nos. identified by "-Z": Order code(s) (pages 4/24 to 4/27) for the desired <b>measuring range(s)</b>	<b>C71452-A12-B44</b>  <b>C70301-A532-B42</b>  <b>7ND9300-8AA</b> <b>7ND9300-8AB-Z</b> <b>7ND9300-8AC-Z</b> <b>7ND9300-8AD-Z</b>  <b>7ND9300-8AE-Z</b> <b>7ND9300-8AF-Z</b> <b>7ND9300-8AG-Z</b>  <b>7ND9260</b>  <b>7ND9270-Z</b>  ...	
	<b>Measuring point label</b> without inscription For six-channel recorder For twelve-channel recorder  <b>Measuring point label</b> with inscription For six-channel recorder For twelve-channel recorder Order code: Specify in plain text: <b>Desired text: ...</b> (max. 23 positions per channel)	<b>C74453-A66-C28</b> <b>C74553-A66-C30</b>  <b>C74453-A66-C28-Z</b> <b>C74453-A66-C30-Z</b> <b>Y01</b>	
Multipoint recorders: KOMPENSOGRAPH 192 x 288 M4, M73816 and 7ND1040	<b>Take-up spool</b> with rubber tongues  <b>Scale cable</b>  <b>Scale plate</b> <ul style="list-style-type: none"> <li>Without scale</li> <li>With one scale</li> <li>With two scales</li> <li>With three scales</li>   <li>With four scales</li> <li>With five scales</li> <li>With six scales</li> </ul> Specify in addition for the Order Nos. identified by "-Z": Order code(s) (pages 4/24 to 4/27) for the desired <b>measuring range(s)</b>	<b>C71452-A12-B43</b>  <b>C70301-A531-B28</b>  <b>7ND9300-8CA</b> <b>7ND9300-8CB-Z</b> <b>7ND9300-8CC-Z</b> <b>7ND9300-8CD-Z</b>  <b>7ND9300-8CE-Z</b> <b>7ND9300-8CF-Z</b> <b>7ND9300-8CG-Z</b>  ...	
	<b>Measuring point label</b> without inscription	<b>C74453-A66-C38</b>	
Multipoint recorders: KOMPENSOGRAPH 144 x 144 7ND2020 (M73911)	<b>Take-up spool</b> with clamping sleeve  <b>Scale cable</b>  <b>Wiper</b> <ul style="list-style-type: none"> <li>For upper potentiometer</li> <li>For lower potentiometer</li> </ul>	<b>C72301-A20-B13</b>  <b>C72453-A320-B43</b>  <b>C74453-A56-B20</b> <b>C74453-A56-B21</b>	
	<b>Take-up spool</b> with clamping sleeve  <b>Scale cable</b>  <b>Signal plug-in</b> <ul style="list-style-type: none"> <li>For current measurements <sup>1)</sup></li> <li>For voltage measurements</li> <li>For thermoelectric voltage measurements <sup>2)</sup></li>   <li>For resistance measurements</li> <li>For resistance measurements, potentiometric</li> </ul> Specify in addition for the Order Nos. identified by "-Z": Order code (pages 4/24 to 4/27) for the desired <b>measuring range</b>	<b>C72301-A20-B13</b>  <b>C72453-A320-B206</b>  <b>C74250-A58-D26-Z</b> <b>C74250-A58-D27-Z</b> <b>C74250-A58-D30-Z</b>  <b>C74250-A58-D28-Z</b> <b>C74250-A58-D29-Z</b>  ...	

<sup>1)</sup> A shunt is required per measuring point with signal ranges for current measurements.

<sup>2)</sup> A cold junction correction resistor  $R_{Cu}$  is required per KOMPENSOGRAPH for temperature measurements with a directly connected thermocouple.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Further consumable material and conversion parts

### For servo line recorders

Ordering data	Designation	Order No.	Price
For recorders Line recorders: KOMPENSOGRAPH 288 x 288 M2, M73810 and 7ND1160	<b>Ink hose</b> for measuring system <b>Ink reservoir</b> , refillable <b>Scale plate</b> Without scale With one scale With two scales With three scales  With four scales With five scales With six scales  Specify in addition for the Order Nos. identified by "-Z": Order code(s) (pages 4/24 to 4/27) for the desired <b>measuring range(s)</b> <b>Measuring point label</b> without inscription <b>Limit contact mounting set</b> One minimum and one maximum contact <b>Marking system mounting set</b> New design with fiber pen assembly	<b>C70301-A532-C60</b> <b>C70429-A1532-A4</b> <b>7ND9300-8BA</b> <b>7ND9300-8BB-Z</b> <b>7ND9300-8BC-Z</b> <b>7ND9300-8BD-Z</b>  <b>7ND9300-8BE-Z</b> <b>7ND9300-8BF-Z</b> <b>7ND9300-8BG-Z</b>  ... <b>C74453-A66-C22</b> <b>C74453-A80-D30</b>  <b>C74453-A80-D121</b>	
Line recorders: KOMPENSOGRAPH 192 x 288 M4, K164, M73814 and 7ND1140	<b>Take-up spool</b> with rubber tongues <b>Scale cable</b> <b>Ink hose</b> for measuring system <b>Ink reservoir</b> , refillable <b>Scale plate</b> Without scale With one scale With two scales With three scales  With four scales With five scales With six scales  Specify in addition for the Order Nos. identified by "-Z": Order code(s) (pages 4/24 to 4/27) for the desired <b>measuring range(s)</b>	<b>C71452-A12-B43</b> <b>C70301-A531-B28</b> <b>C70301-A351-C292</b> <b>C70429-A1532-A4</b>  <b>7ND9300-8DA</b> <b>7ND9300-8DB-Z</b> <b>7ND9300-8DC-Z</b> <b>7ND9300-8DD-Z</b>  <b>7ND9300-8DE-Z</b> <b>7ND9300-8DF-Z</b> <b>7ND9300-8DG-Z</b>  ...	
Line recorders: KOMPENSOGRAPH 192 x 288 7ND1141, M73916 7ND1142, M73760	<b>Take-up spool</b> with rubber tongues <b>Scale cable</b> <b>Ink hose</b> Channel 1 Channel 2 <b>Wiper</b> For upper potentiometer For lower potentiometer <b>Blowball</b>	<b>C71452-A12-B43</b> <b>C72453-A56-B105</b> <b>C74453-A88-C13</b> <b>C74453-A88-C14</b>  <b>C74453-A56-B20</b> <b>C74453-A56-B21</b>  <b>C79453-A3028-B1</b>	

4

### For servo multipoint and line recorders

Ordering data	Designation	Order No.	Price
For recorders Multipoint and line recorders: KOMPENSOGRAPH 192 x 288, 288 x 288 7ND1040, 7ND1060, 7ND1140, 7ND1160, M73810 M73812 Year 1973 and later M73814 Serial No. C01-001 and later M73816	<b>Signal plug-in</b> For direct current, DC voltage and resistance measurements  Specify in addition to Order No.: Order code (pages 4/24 to 4/27) for the desired <b>measuring range</b>  <b>Wiper</b> For measuring and slave potentiometers, also for M2, M4 and K164 For limit contacts, not for K164 <b>Shunt</b> , $R_e = 10 \Omega \pm 0.1 \%$ <b>Cold junction correction resistor</b> $R_{Cu}$ for 20 °C <b>Measuring relay</b> One relay is required per measuring point and per signal range (only with multi-range recorders), also for M2 and M4	<b>7ND9111-Z<sup>1) 2)</sup></b>  ...  <b>C70301-A531-B285</b> <b>C70301-A531-B290</b>  <b>7ND9132-8AA</b>  <b>C74005-A212-A1</b>  <b>C70301-A532-C103</b>	

<sup>1)</sup> A shunt is required per measuring point with signal ranges for current measurements.

<sup>2)</sup> A cold junction correction resistor  $R_{Cu}$  is required per KOMPENSOGRAPH for temperature measurements with a directly connected thermocouple.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Measuring ranges for signal plug-ins, scales, rulers and memory chips (EPROM)

Measuring range (scale) <sup>2)</sup>	Order code for connection			1) DIN IEC 584 on request. 2) Programmed with the 7ND2480.						3) Connection via transmitter (page 4/26). 4) Pt 10 % Rh/Pt.					
	Via transmitter 0 to 20 mA, voltage-linear; temperature-linear on request	Via thermostat 50 °C	Direct With internal cold junction correction	7ND1040/1140 7ND1060/1160	7ND2021	7ND2022/32/42	7ND2023/33/43	7ND2100/01 7ND2122 7ND2121/23	7ND2124 7ND2125	7ND2130 7ND2140 7ND2150 7ND2160	7ND2131 7ND2141 7ND2151 7ND2161	7ND2132 7ND2142 7ND2152 7ND2162	7ND2270 7ND2271	7ND2320/21	7ND2324

Sensor:  
**Fe-CuNi thermocouple** to DIN 43 710 <sup>1)</sup>

Price group

0 to 250 °C	<b>A01</b>	A02	A03	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 400 °C	<b>A04</b>	A05	A06	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 600 °C	<b>A07</b>	A08	A09	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 900 °C	<b>A10</b>	A11	A12	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
300 to 600 °C	<b>A13</b>	A14	A15	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1

Sensor:  
**NiCr-Ni thermocouple** to DIN 43 710 <sup>1)</sup>

Price group

0 to 250 °C	<b>A16</b>	A17	A18	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 400 °C	<b>A19</b>	A20	A21	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 600 °C	<b>A22</b>	A23	A24	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 900 °C	<b>A25</b>	A26	A27	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 1000 °C	<b>A28</b>	A29	A30	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 1200 °C	<b>A31</b>	A32	A33	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
600 to 900 °C	<b>A34</b>	A35	A36	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
600 to 1000 °C	<b>A37</b>	A38	A39	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1

Sensor:  
**PtRh-Pt thermocouple** <sup>4)</sup> to DIN 43 710/DIN IEC 584

Price group

0 to 1000 °C	<b>A40</b>	A41	A42	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 1200 °C	<b>A43</b>	A44	A45	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 1400 °C	<b>A46</b>	A47	A48	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 1600 °C	<b>A49</b>	A50	A51	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1
0 to 1600 °C	<b>A52</b>	A53	A54	1	1	1	1	6	1	4	1	3	1	1	2	1	-
				1	1	-	6	6	-	7	-	8	-	1	9	-	1
				1	1	-	-	-	-	7	-	8	-	1	9	-	1



# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Measuring ranges for signal plug-ins, scales, rulers and memory chips (EPROM)

Measuring range (scale) <sup>2)</sup>	Order code for connection		7ND1040/7ND1140 7ND1060/7ND1160	7ND2021	7ND2022/7ND2032/7ND2042	7ND2023/7ND2033/7ND2043	7ND2100/7ND2101 7ND2122 7ND2121/23	7ND2124 7ND2125	7ND2130 7ND2140 7ND2150 7ND2160	7ND2131 7ND2141 7ND2151 7ND2161	7ND2132 7ND2142 7ND2152 7ND2162	7ND2270 <sup>4)</sup> 7ND2271 <sup>4)</sup>	7ND2320/7ND2321	7ND2324	7ND2480 <sup>3)</sup>
	Via transmitter 0 to 20 mA, temperature-linear; resistance-linear on request	Direct													

Sensor:  
**Pt 100 resistance thermometer**  
 to DIN IEC 751  
 Connection in two-wire system<sup>1)</sup>  
 or three-wire system;  
 four-wire system on request

Price group

Measuring range	Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
- 30 to + 60 °C	<b>C72</b> A55	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 40 °C	<b>C73</b> A57	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 60 °C	<b>C74</b> A59	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 80 °C	<b>C75</b> A61	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 100 °C	<b>C76</b> A63	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 120 °C	<b>C77</b> A65	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 150 °C	<b>C78</b> A67	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 200 °C	<b>C79</b> A69	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 250 °C	<b>C80</b> A71	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 300 °C	<b>C81</b> A73	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 400 °C	<b>C82</b> A75	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 500 °C	<b>C83</b> A77	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
0 to 600 °C	<b>C84</b> A79	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
200 to 400 °C	<b>C85</b> A81	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
200 to 600 °C	<b>C86</b> A83	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-
400 to 600 °C	<b>C87</b> A85	1	1	1	1	1	4	1	3	1	1	2	1	-	-	-

Price group <sup>5)</sup>	Price
1	
2	
3	
4	
5	
6	
7	
8	
9	

- 1) A line symmetry resistor is required for each channel.
- 2) Programmed with the 7ND2480.
- 3) Connection via transmitter (page 4/26).
- 4) GALVANOGRAPH 7ND2270 and 7ND2271: connection to resistance thermometer only in three-wire system; two-wire system on request.
- 5) Price groups 2 to 9 and the respective prices only apply in conjunction with the signal plug-ins 7ND9118-8L-Z, 7ND9118-8K-Z, 7ND9118-8J-Z and 7ND9121-Z (page 4/17); otherwise price group 1 always applies.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Measuring ranges for signal plug-ins, scales, rulers and memory chips (EPROM)

Measuring range (scale) <sup>1)</sup>	Order code for connect.		7ND1040/7ND1140 7ND1060/7ND1160	7ND2021	7ND2022/7ND2032/7ND2042	7ND2023/7ND2033/7ND2043	7ND2100/7ND2101	7ND2122	7ND2121/7ND2123	7ND2124 7ND2125	7ND2130 7ND2140 7ND2150 7ND2160	7ND2131 7ND2141 7ND2151 7ND2161	7ND2132 7ND2142 7ND2152 7ND2162	7ND2270 7ND2271	7ND2320/7ND2321	7ND2324	7ND2480
	Via shunt	Direct or via transmitter, adapter etc. <sup>2)</sup>															

### Direct current

Price group

Specify measuring range in plain text	Signal range																
... A/ 60 mV	0 to 1 mA	J32	1	1	-	6	-	-	-	7	-	8	-	1	8	-	-
... A/150 mV	0 to 10 mA	J33	1	1	-	6	-	-	-	7	-	8	-	1	8	-	-
... A/300 mV	0 to 20 mA	J34	1	1	-	6	-	-	-	7	-	8	-	1	8	-	-

### Direct current, DC voltage or any process variable with direct current or DC voltage as the input signal

Price group

Measuring range (scale)	Signal range																
0 to 100 % linear	0 to 1 mA	H06	1	1	1	1	-	1	-	4	1	3	-	1	5	-	-
	0 to 10 mA	H08	1	1	1	1	-	1	-	4	1	3	-	1	5	1	-
	0 to 20 mA	H07	1	1	1	1	-	1	-	4	1	3	-	1	5	1	-
	4 to 20 mA	H09	1	1	1	1	-	1	-	4	1	3	1	1	5	1	-
0 to 500 mV 0 to 10 V 2 to 10 V	0 to 500 mV	H10	1	1	1	1	-	-	-	4	1	3	-	1	5	-	-
	0 to 10 V	H11	-	1	1	1	1	1	1	4	1	3	-	1	5	-	-
	2 to 10 V	H12	-	1	1	1	1	1	1	4	1	3	-	1	5	-	-
Specify measuring range (scale) in plain text	0 to 1 mA	Y20	1	1	1	1	-	1	-	4	1	3	-	1	5	-	-
	0 to 10 mA	Y23	1	1	1	1	-	1	-	4	1	3	-	1	5	-	-
	0 to ±10 mA	Y65	1	1	-	-	-	-	-	4	1	3	-	1	5	2	1
	0 to 20 mA	Y24	1	1	1	1	1	1	1	4	1	3	1	1	5	2	1
	4 to 20 mA	Y25	1	1	1	1	1	1	1	4	1	3	1	1	5	1	1
0 to 500 mV 0 to 10 V 2 to 10 V 0 to 25 V	0 to 500 mV	Y31	1	1	1	1	-	1	-	4	1	3	-	1	5	-	1
	0 to 10 V	Y58	-	1	1	1	1	1	1	4	1	3	-	1	5	-	1
	2 to 10 V	Y59	-	1	1	1	1	1	1	4	1	3	-	1	5	-	1
	0 to 25 V	Y84	-	-	1	1	-	1	-	4	1	4	-	-	6	-	-
Signal span (ranges other than those above)																	
Specify measuring range (scale) and signal range in plain text	> 1 to <20 mA	Y61	1	1	1	1	-	1	-	4	1	3	-	-	5	1	1
	>20 to <60 mA	Y62	1	1	1	1	-	1	-	4	1	3	-	-	5	1	1
	60 to <90 mA	Y63	-	-	1	1	-	-	-	4	1	3	-	-	5	1	1
	90 to 500 mA	Y64	-	-	-	-	-	-	-	4	-	3	-	-	-	1	1
	5 to <200 mV	Y67	1	1	-	6	-	-	-	7	-	8	-	-	8	1	1
	0.2 to <1 V	Y68	-	-	-	-	-	-	-	-	-	-	-	-	5	1	1
	1 to <40 V	Y69	-	-	1	1	-	1	-	4	1	4	-	-	5	1	1
	40 to <60 V	Y70	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-
	60 to <110 V	Y71	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-
	110 to <210 V	Y72	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-
	210 to 310 V	Y73	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-

Price group <sup>3)</sup>	Price
1	
2	
3	
4	
5	
6	
7	
8	

- 1) Programmed with the 7ND2480.
- 2) With multipoint recorders, specify channel assignment in plain text for current and voltage signal ranges (full-scale value > 500 mV).
- 3) Price groups 2 to 8 and the respective prices only apply in conjunction with the signal plug-ins 7ND9118-8L-Z, 7ND9118-8K-Z, 7ND9118-8J-Z and 7ND9121-Z (page 4/17); otherwise price group 1 always applies.

# Spare Parts, Accessories, Consumable Material for Older Design Recorders

## Measuring ranges for signal plug-ins, scales, rulers and memory chips (EPROM)

	Ord. code for connection				
	RMS value, sinusoidal curve Direct	RMS value, any waveform			
	7ND2124 7ND2125				
	7ND2131, 7ND2133 7ND2141, 7ND2143 7ND2151, 7ND2153 7ND2161, 7ND2163				
	7ND2320, 7ND2321				

**Alternating current (50 Hz) or any process variable**  
with alternating current (50 Hz) as input signal <sup>1)</sup>

Price group

	Signal range				
Specify measuring range (scale) and rated transformer data in plain text	0 to 1 A	<b>Y42</b> <b>L01</b>	6 -	6 8	- 8
	0 to 5 A	<b>Y44</b> <b>L11</b>	- -	6 8	- 8

**AC voltage (50 Hz) or any process variable**  
with AC voltage (50 Hz) as input signal <sup>1)</sup>

	Signal span				
Specify measuring range (scale) and rated transformer data in plain text	57.5 to < 100 V	<b>Y75</b> <b>Y79</b>	6 -	6 9	6 9
	100 to < 200 V	<b>Y76</b> <b>Y80</b>	6 -	6 9	6 9
	200 to < 300 V	<b>Y77</b> <b>Y81</b>	- -	6 9	6 9
	300 to 500 V	<b>Y78</b> <b>Y82</b>	- -	6 9	- 9

**SPANNUNGSLUPE**  
AC voltage (50 Hz) <sup>1)</sup>

	Rated voltage	Order code for direct connection			
Specify rated voltage and measuring range (scale; $\pm 5$ to $\pm 20$ % of rated voltage) in plain text	57.5 to 380 V	<b>Y83</b>	-	7	7

Measuring equipment for **frequency 50 Hz** <sup>1)</sup>

Specify measuring range (scale) and voltage value in plain text	<b>N25</b>	-	8	8
---	------------	---	---	---

Measuring equipment for **power factor cos  $\varphi$**

Specify current and voltage values at 50 Hz <sup>1)</sup> as well as scale in plain text	<b>P37</b>	-	10	10
--	------------	---	----	----

	Ord. code for connection				
	Active power Direct	Reactive power			
	7ND2131, 7ND2133 7ND2141, 7ND2143 7ND2151, 7ND2153 7ND2161, 7ND2163				
	7ND2320, 7ND2321				

**Active or reactive power with single-phase current 50 Hz** <sup>1)</sup>

Price group

Specify measuring range (scale) and transformer ratio in plain text	... /1A, ... / ..V	<b>Q01</b>	<b>Q17</b>	10
	... /5 A, ... / .. V	<b>Q09</b>	<b>Q25</b>	

**Active or reactive power with three-wire three-phase current with balanced load 50 Hz** <sup>1)</sup>

Specify measuring range (scale) and transformer ratio in plain text	... /1A, ... / ..V	<b>R01</b>	<b>R17</b>	10
	... /5 A, ... / .. V	<b>R09</b>	<b>R25</b>	

**Active or reactive power with three-wire three-phase current with unbalanced load 50 Hz** <sup>1)</sup>

Specify measuring range (scale) and transformer ratio in plain text	... /1A, ... / ..V	<b>R33</b>	<b>R49</b>	11
	... /5 A, ... / .. V	<b>R41</b>	<b>R57</b>	

**Active or reactive power with four-wire three-phase current with unbalanced load 50 Hz** <sup>1)</sup>

Specify measuring range (scale) and transformer ratio in plain text	... /1A, ... / ..V	<b>S01</b>	<b>S17</b>	12
	... /5 A, ... / .. V	<b>S09</b>	<b>S25</b>	

Price group <sup>2)</sup>	Price
6	
7	
8	
9	
10	
11	
12	

<sup>1)</sup> For 60 Hz on request.

<sup>2)</sup> The price groups 6 to 12 and the respective prices only apply in conjunction with the signal plug-ins 7ND9118-8L-Z, 7ND9118-8K-Z, 7ND9118-8J-Z and 7ND9121-Z (page 4/17).