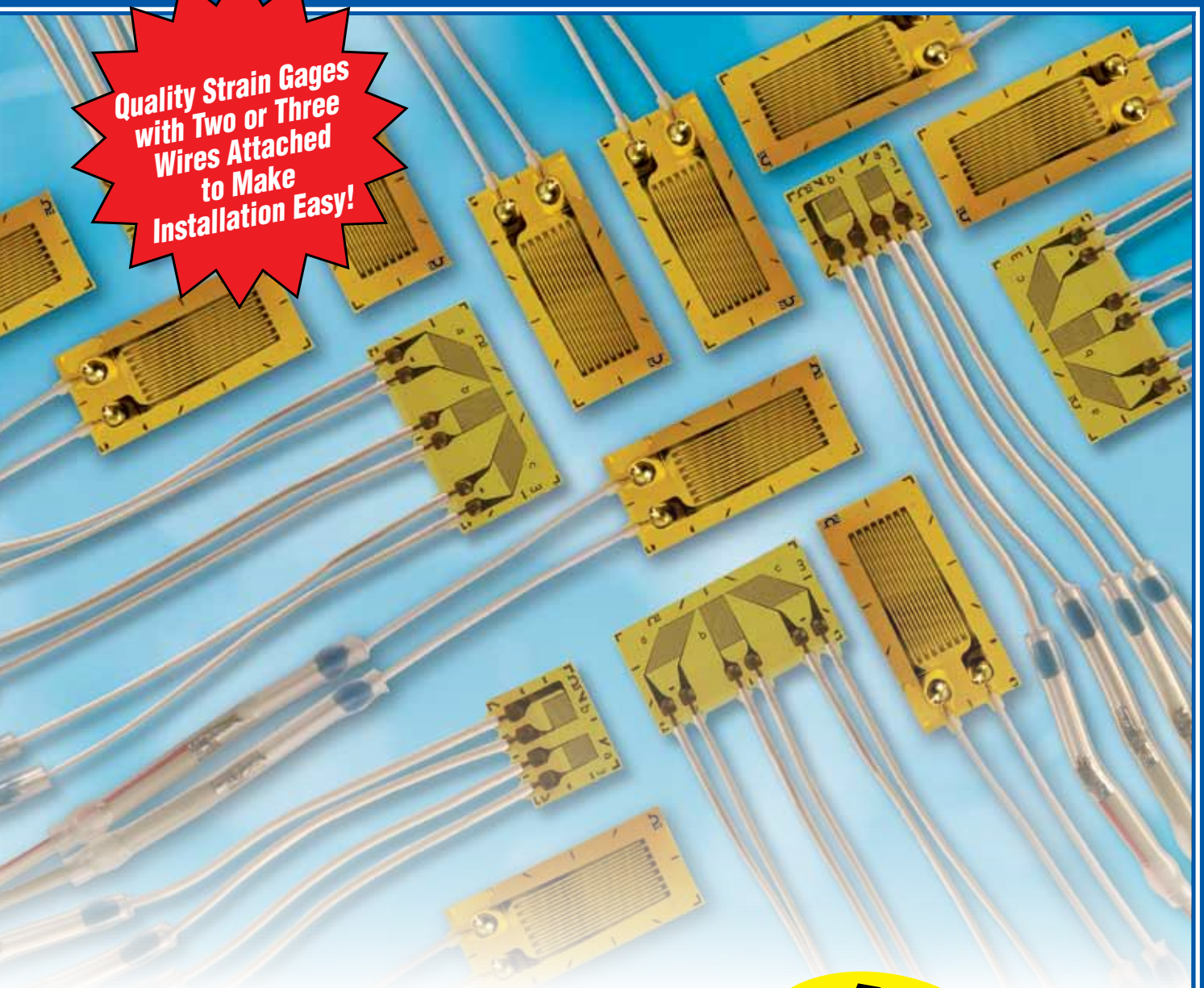


# TRODEX® KFH SERIES

## PRE-WIRED STRAIN GAGES

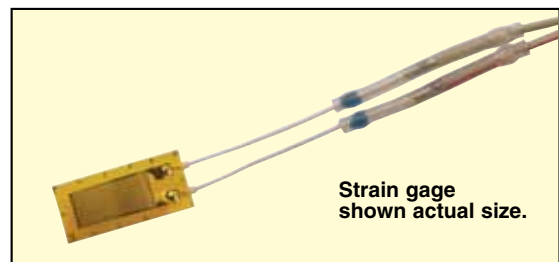
TRODEX®

Quality Strain Gages  
with Two or Three  
Wires Attached  
to Make  
Installation Easy!



- ✓ No Soldering at the Measuring Point
- ✓ Each Gage has 50 mm of PTFE Cable before Transitioning to AWG 28 Leads to Prevent Leads from Adhering During Installation
- ✓ Short, Medium and Long Grid Linear Gages
- ✓ Short and Medium Grid XY Gages (T-Rosettes)
- ✓ Short and Medium Grid 0°/45°/90° Planar Rosettes
- ✓ Rugged Polyimide Carrier
- ✓ Fully Encapsulated Gages for Protection from the Environment

**Fast  
Delivery!**



Strain gage  
shown actual size.

STRAIN GAGES 

# PRE-WIRED STRAIN GAGES

## PRECISION LINEAR PATTERN

### KFH Series

2- or 3-Wire Models

120 or 350  $\Omega$

0.6 to 20 mm Grid Lengths

- ✓ Pre-Wired for Fast Installation
- ✓ No Soldering at Measurement End
- ✓ Broad Temperature Range
- ✓ 2- or 3-Wire Models
- ✓ Clear Alignment Marks

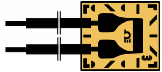

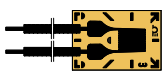




- ✓ Bonds with Hot or Cold Cure Adhesives
- ✓ PTFE Wire at Attachment End Prevents Sticking During Installation

Linear pattern precision gages with miniature and medium length grids are for general purpose and stress analysis applications. Available with either two 1-meter leads or three 3-meter leads and 120 or 350  $\Omega$  resistance. All models are compensated for steel.



Strain gage shown larger than actual size.

### To Order

GAGE PATTERN Leads not shown	MODEL NO. Pkg of 10	NOM. RESIS- TANCE (Ω)	DIMENSIONS mm (inch)				MAX V* (Vrms)	TEMP COMP	TERMINATION AND LEAD LENGTH
			GRID		CARRIER				
			A	B	C	D			
 Shown larger than actual size, 0.3 mm	<b>0.3 mm GRID</b>								
	KFH-03-120-C1-11L1M2R	120	0.3	1.96	4.5	3.9	1.5	ST	Two 1 m leads
	KFH-03-120-C1-11L3M2R	120	(0.012)	(0.077)	(0.18)	(0.15)	1.5	ST	Three 3 m leads
 Shown larger than actual size, 0.6 mm	<b>0.6 mm GRID</b>								
	KFH-06-120-C1-11L1M2R	120	0.6	1.1	4.8	3.9	1.5	ST	Two 1 m leads
	KFH-06-120-C1-11L3M3R	120	(0.024)	(0.043)	(0.19)	(0.15)	1.5	ST	Three 3 m leads
 Shown larger than actual size, 1.5 mm	<b>1.5 mm GRID</b>								
	KFH-1.5-120-C1-11L1M2R	120	1.5	1.5	5.8	3.9	2.5	ST	Two 1 m leads
	KFH-1.5-120-C1-11L3M3R	120	(0.059)	(0.059)	(0.23)	(0.15)	2.5	ST	Three 3 m leads
Shown actual size, 3 mm 	<b>3 mm GRID</b>								
	KFH-3-120-C1-11L1M2R	120	3.0 (0.118)	2.0 (0.079)	7.4 (0.29)	3.9 (0.15)	4	ST	Two 1 m leads
	KFH-3-120-C1-11L3M3R	120					4	ST	Three 3 m leads
	KFH-3-350-C1-11L1M2R	350					9	ST	Two 1 m leads
	KFH-3-350-C1-11L3M3R	350					9	ST	Three 3 m leads
Shown actual size, 6 mm 	<b>6 mm GRID</b>								
	KFH-6-120-C1-11L1M2R	120	6.0 (0.24)	2.0 (0.079)	10.5 (0.41)	3.9 (0.15)	8	ST	Two 1 m leads
	KFH-6-120-C1-11L3M3S	120					8	ST	Three 3 m leads
	KFH-6-350-C1-11L1M2R	350					15	ST	Two 1 m leads
	KFH-6-350-C1-11L3M3R	350					15	ST	Three 3 m leads
Shown actual size, 10 mm 	<b>10 mm GRID</b>								
	KFH-10-120-C1-11L1M2R	120	10 (0.39)	3.0 (0.12)	14.8 (0.58)	4.8 (0.19)	14	ST	Two 1 m leads
	KFH-10-120-C1-11L3M3R	120					14	ST	Three 3 m leads
Shown actual size, 20 mm 	<b>20 mm GRID</b>								
	KFH-20-120-C1-11L1M2R	120	20 (0.79)	3.0 (0.12)	25.2 (0.99)	4.8 (0.19)	7	ST	Two 1 m leads
	KFH-20-120-C1-11L3M3R	120					7	ST	Three 3 m leads

### ACCESSORIES

MODEL NO.	DESCRIPTION
TT300	Complete heat cure adhesive kit
SG496	1 oz methyl-based cyanoacrylate (approximately 750 gages)
SG401	0.1 oz ethyl-based cyanoacrylate (approximately 50 gages)

\* Maximum permitted bridge energizing voltage (Vrms)

Ordering Examples: KFH-1.5-120-C1-11L1M2S, a linear 1.5 mm grid, 120  $\Omega$ , with two 1 m (3.3') leads.

KFH-3-350-C1-11L3M3S, a linear 3 mm grid, 350  $\Omega$ , with three 3 m (9.8') leads.



# PRE-WIRED STRAIN GAGES

## PRECISION PLANAR X-Y PATTERN

### KFH Series

2- or 3-Wire Models

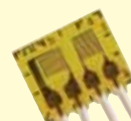
120 or 350  $\Omega$

0.6 to 6 mm Grid Lengths

- ✓ Pre-Wired for Fast Installation
- ✓ No Soldering at Measurement End
- ✓ Broad Temperature Range
- ✓ 2- or 3-Wire Models
- ✓ Clear Alignment Marks


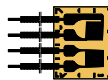


- ✓ Bonds with Hot or Cold Cure Adhesives
- ✓ PTFE Wire at Attachment End Prevents Sticking During Installation

The planar XY pattern allows precision strain measurement by eliminating the errors often associated with a stacked XY pattern. These gages are available with either two 1-meter leads or three 3-meter leads per grid and are compensated for steel.



Strain gage shown larger than actual size.

### To Order

GAGE PATTERN Leads not shown	MODEL NO. Pkg of 10	NOM. RESIS- TANCE (Ω)	DIMENSIONS mm (inch)				MAX V* (VRMS)	TEMP COMP	TERMINATION AND LEAD LENGTH PER GRID
			GRID		CARRIER				
			A	B	C	D			
 Shown larger than actual size, 0.6 mm	0.6 mm GRID								
	KFH-06-120-D16-11L1M2S	120	0.6	1.0	5.1	6.9	1.5	ST	Two 1 m leads
	KFH-06-120-D16-11L3M3S	120	(0.024)	(0.039)	(0.20)	(0.27)	1.5	ST	Three 3 m leads
 Shown larger than actual size, 1.5 mm	1.5 mm GRID								
	KFH-1.5-120-D16-11L1M2S	120	1.5	1.6	5.8	6.9	3	ST	Two 1 m leads
	KFH-1.5-120-D16-11L3M3S	120	(0.059)	(0.063)	(0.23)	(0.27)	3	ST	Three 3 m leads
Shown actual size, 3 mm 	3 mm GRID								
	KFH-3-120-D16-11L1M2S	120	3.0 (0.12)	3.2 (0.13)	7.5 (0.30)	9.4 (0.37)	5.5	ST	Two 1 m leads
	KFH-3-120-D16-11L3M3S	120					5.5	ST	Three 3 m leads
	KFH-3-350-D16-11L1M2S	350					10	ST	Two 1 m leads
	KFH-3-350-D16-11L3M3S	350					10	ST	Three 3 m leads
Shown actual size, 6 mm 	6 mm GRID								
	KFH-6-120-D16-11L1M2S	120	6.0 (0.24)	6.3 (0.25)	11 (0.43)	16 (0.63)	11	ST	Two 1 m leads
	KFH-6-120-D16-11L3M3S	120					11	ST	Three 3 m leads
	KFH-6-350-D16-11L1M2S	350					20	ST	Two 1 m leads
	KFH-6-350-D16-11L3M3S	350					20	ST	Three 3 m leads

### ACCESSORIES

MODEL NO.	DESCRIPTION
TT300	Complete heat cure adhesive kit
SG496	1 oz methyl-based cyanoacrylate (approximately 750 gages)
SG401	0.1 oz ethyl-based cyanoacrylate (approximately 50 gages)

\* Maximum permitted bridge energizing voltage (Vrms)

Ordering Examples: **KFH-1.5-120-D16-11L1M2S**, a linear 1.5 mm grid, 120  $\Omega$ , with two 1 m (3.3') leads per grid.

**KFH-3-350-D16-11L3M3S**, a linear 3 mm grid, 350  $\Omega$ , with three 3 m (9.8') leads per grid.

# PRE-WIRED STRAIN GAGES

## PLANAR 0°/45°/90° ROSETTE PATTERN

### KFH Series

2- or 3-Wire Models

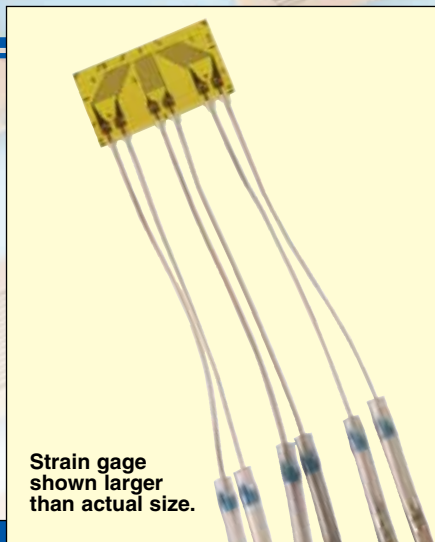
120 or 350  $\Omega$

0.6 to 6 mm Grid Lengths

- ✓ Pre-Wired for Fast Installation
- ✓ No Soldering at Measurement End
- ✓ Broad Temperature Range
- ✓ 2- or 3-Wire Models
- ✓ Clear Alignment Marks





- ✓ Bonds with Hot or Cold Cure Adhesives
- ✓ PTFE Wire at Attachment End Prevents Sticking During Installation

The planar rosette pattern allows precision strain measurement by eliminating the errors often associated with a stacked pattern. These gages are available with either two 1-meter leads or three 3-meter leads per grid and are compensated for steel.



Strain gage shown larger than actual size.

### To Order

GAGE PATTERN Leads not shown	MODEL NO. Pkg of 10	NOM. RESIS- TANCE (Ω)	DIMENSIONS mm (inch)				MAX V* (VRMS)	TEMP COMP	TERMINATION AND LEAD LENGTH PER GRID
			GRID		CARRIER				
			A	B	C	D			
 Shown larger than actual size, 0.6 mm	0.6 mm GRID								
KFH-06-120-D17-11L1M2S	120	0.6 (0.024)	1.1 (0.043)	4.8 (0.19)	9.9 (0.39)	1.6	ST	Two 1 m leads	
KFH-06-120-D17-11L3M3S	120					1.6	ST	Three 3 m leads	
 Shown larger than actual size, 1.5 mm	1.5 mm GRID								
KFH-1.5-120-D17-11L1M2S	120	1.5 (0.059)	1.5 (0.059)	5.8 (0.23)	10.2 (0.40)	2.5	ST	Two 1 m leads	
KFH-1.5-120-D17-11L3M3S	120					2.5	ST	Three 3 m leads	
Shown actual size, 3 mm 	3 mm GRID								
	KFH-3-120-D17-11L1M2S	120	3.0 (0.12)	2.0 (0.079)	7.4 (0.29)	13.9 (0.55)	3	ST	Two 1 m leads
	KFH-3-120-D17-11L3M3S	120					3	ST	Three 3 m leads
	KFH-3-350-D17-11L1M2S	350					5.5	ST	Two 1 m leads
	KFH-3-350-D17-11L3M3S	350					5.5	ST	Three 3 m leads
Shown actual size, 6 mm 	6 mm GRID								
	KFH-6-120-D17-11L1M2S	120	6.0 (0.24)	2.0 (0.079)	10.5 (0.41)	18.7 (0.74)	7.5	ST	Two 1 m leads
	KFH-6-120-D17-11L3M3S	120					7.5	ST	Three 3 m leads
	KFH-6-350-D17-11L1M2S	350					13	ST	Two 1 m leads
	KFH-6-350-D17-11L3M3S	350					13	ST	Three 3 m leads

### ACCESSORIES

MODEL NO.	DESCRIPTION
TT300	Complete heat cure adhesive kit
SG496	1 oz methyl-based cyanoacrylate (approximately 750 gages)
SG401	0.1 oz ethyl-based cyanoacrylate (approximately 50 gages)

\* Maximum permitted bridge energizing voltage (Vrms)

Ordering Examples: KFH-1.5-120-D17-11L1M2S, a linear 1.5 mm grid, 120  $\Omega$ , with two 1 m (3.3') leads per grid.

KFH-3-350-D17-11L3M3S, a linear 3 mm grid, 350  $\Omega$ , with three 3 m (9.8') leads per grid.

## SPECIFICATIONS

<b>Strain Gage Construction</b> <b>Measuring Grid</b> Material Thickness  <b>Carrier</b> Material Thickness  <b>Connections</b>		Foil strain gage with embedded measuring grid
	μm (microinch)	Constantan 3.8 or 5 (150 or 197), depending upon strain gage type
	μm (microinch)	Polyimide 45 ± 10 (1.772 ± 394)
		PTFE wire, Ø - 0.051 mm², approximately 50 mm long, connected to AWG 28 ribbon cables (PVC insulated) through solder sleeves in 2- or 3-wire configurations
<b>Nominal Resistance¹</b> <b>Resistance Tolerance¹</b> with 0.6 mm and 1.5 mm grid length <b>Gage Factor</b> <b>Gage Factor Tolerance</b> with 0.6 mm and 1.5 mm grid length Temperature coefficient of gage factor Nominal value of gage factor temperature coefficient	Ω % %  % % 1/K [1/°F]	120 or 350 depending upon gage ±0.35 ±1 approximately 2 (stated on package) ±1 ±1.5 (115 ± 10) x 10⁻⁶ [(64 ± 5.5) x 10⁻⁶] Specified on each package
<b>Reference Temperature</b> <b>Operating Temperature Range</b> for static measurement (zero point related) for dynamic measurement (not zero point related)	°C (°F)  °C (°F) °C (°F)	23 PTFE cable -10 to 155 (-14 to 320) -10 to 155 (-14 to 320)
<b>Transverse Sensitivity</b> for linear 3 mm 120Ω gage	%	±0.2
<b>Temperature Response</b> Temperature response as required, adapted to coefficient of thermal expansion α for aluminum α for plastic material α for austenitic steel α for titanium α for molybdenum α for quartz Tolerance of temperature response	  1/K [1/°F] 1/K [1/°F] 1/K [1/°F] 1/K [1/°F] 1/K [1/°F] 1/K [1/°F] 1/K [1/°F] °C (°F)	Specified on each package  10.8 x 10⁻⁶ (6.0 x 10⁻⁶) 23 x 10⁻⁶ (12.8 x 10⁻⁶) 65 x 10⁻⁶ (36.1 x 10⁻⁶) 16 x 10⁻⁶ (8.9 x 10⁻⁶) 9 x 10⁻⁶ (5.0 x 10⁻⁶) 5.4 x 10⁻⁶ (3.0 x 10⁻⁶) 0.05 x 10⁻⁶ (0.3 x 10⁻⁶) -10 to 120 (-14 to 248)
<b>Mechanical Hysteresis</b> <i>1) at reference temperature and strain <math>\epsilon = 1000 \mu\text{m/m}</math> (microstrain) on linear 3 mm 120Ω gage</i> at 1 <sup>st</sup> load cycle and adhesive SG496 at 3 <sup>rd</sup> load cycle and adhesive SG496	μm/m (microstrain) μm/m (microstrain)	1 0.5
<b>Maximum Elongation</b> at reference temperature on linear 3 mm 120Ω gage Absolute strain value for positive direction Absolute strain value for negative direction	μm/m (microstrain) μm/m (microstrain)	20,000 ± 2% 25,000 ± 2.5%
<b>Fatigue Life</b> at reference temperature on linear 3 mm 120Ω gage <b>Achievable Number of Load Cycles L<sub>w</sub> at Alternating Strain <math>\epsilon_w = \pm 1000 \mu\text{m/m}</math> and</b> zero point variation ≤ 300 zero point variation ≤ 30	μm/m (microstrain) μm/m (microstrain)	>1 x 10⁷ (test was stopped) 5 x 10⁶
<b>Minimum Radius of Curvature, Longitudinal and Transverse, at Reference Temperature</b> within measuring grid area within solder tab area  <b>Applicable Bonding Materials</b> <b>Cold Cure Adhesives</b> <b>Heat Cure Adhesives</b>	mm (inch) mm (inch)	0.3 (0.012) 10 (0.394)  SG496, SG401 TT300

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