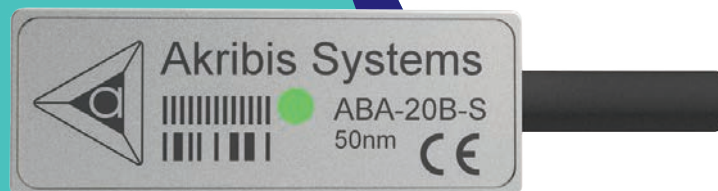
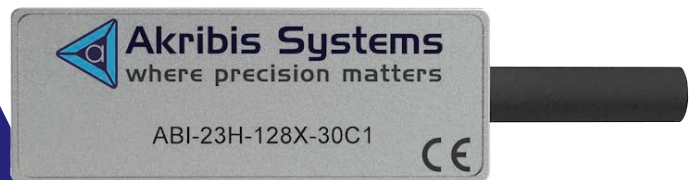


DIRECT DRIVE SENSORS



where precision matters



Akribis is a Latinized Greek word that means “Precision”. On the Akribis logo, the letter “a” is formed by a line and a circle, representing linear and rotary motions. These are supported by a tetrahedron structure, the same structure as the diamond crystal which has many exceptional physical properties.

The logo signifies that Akribis Systems’ sound engineering expertise is the basis of the company’s foundation, and this enables us to provide customers with precise, direct drive motion control solutions.

Akribis Systems Pte Ltd was founded in 2004. We design and manufacture direct drive motors, stages and precision systems that are used in equipment for manufacturing, inspection and testing. Akribis Systems supports a wide range of industries including semiconductor, solar, flat panel, hard disk, LED, printed circuit board, printing, photonics and biomedical manufacturing.

From the beginning, the company has been focusing on innovation and development of new technologies and solutions in motion control, with more than 85 patents applied. Backed by a very strong and committed engineering team, the company continues to develop custom motors and systems for the most demanding applications.

We have manufacturing facilities in Singapore and in Shanghai, Nantong and Dongguan, China and in Selangor, Malaysia and in Siheung, Korea. Our sales network includes our sales offices in USA, Germany, South Korea, Japan, Thailand, Israel and Malaysia, and is reinforced by our comprehensive distribution channels in Asia, Europe and North America.



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2 MACHINE SENSOR

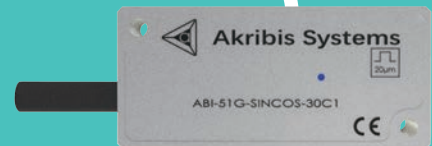
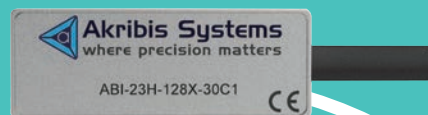
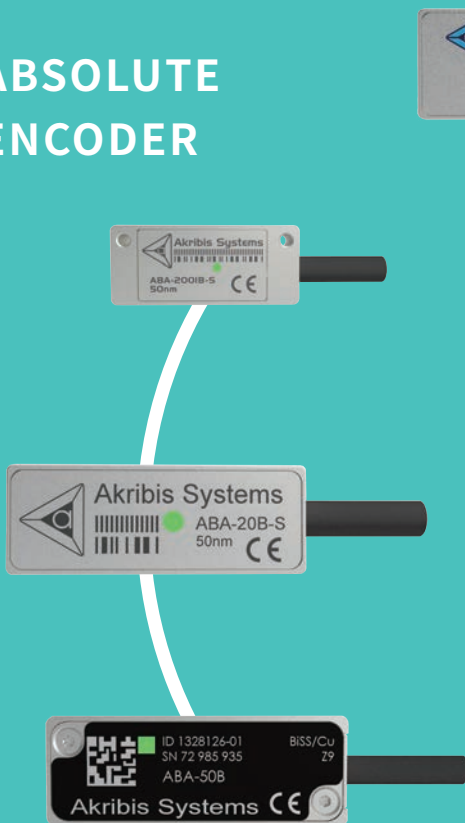
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3 INTERFACE ELECTRONICS

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ENCODER

ABSOLUTE ENCODER

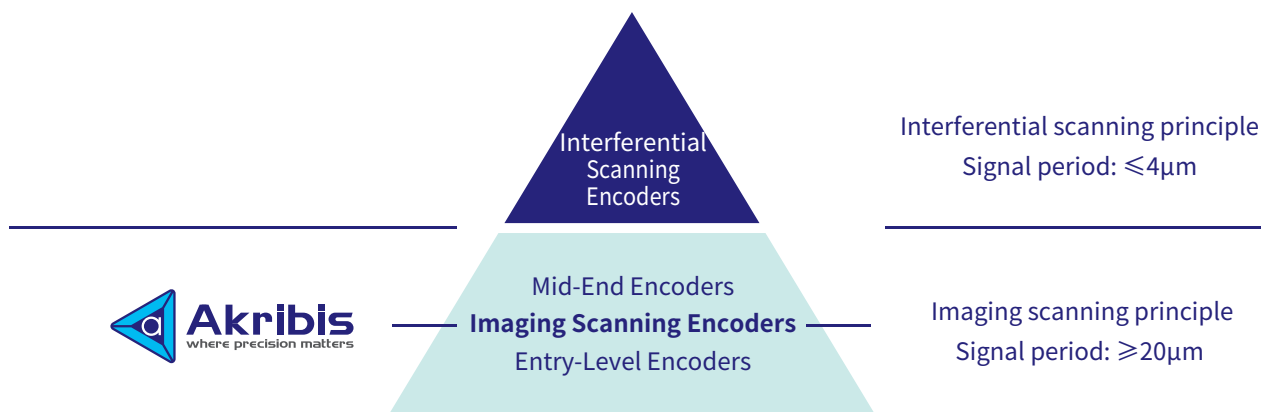


INCREMENTAL ENCODER

Introduction

Akribis Encoder Selection Guide

Akribis offers mostly optical encoders with fine grating period, high accuracy and resolution. By adopting imaging scanning technology, regular light is needed. Therefore, it is crucial to ensure the parallelism of the scale and readhead surface. Akribis encoders were categorized into absolute encoder and incremental encoder. These encoders are best suit in direct drive systems for factory automation and precision manufacturing application.



Absolute encoders have special scale pattern with communication protocol that require to be compatible with the driver. Due to special scale pattern, the encoder can run at high speed and allows the system to resume its operation without homing, whenever power reset. For Akribis absolute encoder, additional data such as serial number, resolution, etc, can be retrieved. Calibration can be done via BiSS C communication using encoder tester kit.

Incremental encoders are suitable for most of the systems, especially for position event triggering function. Most of the incremental encoders offer dual limits feature. For precision or higher resolution systems, incremental SINCOS 1Vpp signal will be better option.

Grade	Encoder Type	Product Family	Resolution	Grating Period	Scale Material
Precision Automation	Linear Absolute Optical	ABA-2001	50nm	-	Stainless Steel Robax
Precision Automation	Linear Absolute Optical	ABA-20	50nm	-	Stainless Steel Robax
Precision Automation	Linear Absolute Optical	ABA-50	50nm	-	Stainless Steel Robax
Precision Automation	Linear Incremental Optical	ABI-23H	1.0 μm 0.5 μm	64 μm	Stainless Steel
Precision	Linear Incremental Optical	ABI-51X	SINCOS 1Vpp 0.5 μm 0.1 μm	20 μm	Stainless Steel
Precision	Linear Incremental Optical	ABI-51G	SINCOS 1Vpp 0.5 μm 0.1 μm	20 μm	Sodalime Robax
Precision	Linear Incremental Optical	ABI-54X	SINCOS 1Vpp	20 μm	Stainless Steel
Precision	Linear Incremental Optical	ABI-54G	SINCOS 1Vpp	20 μm	Low Ppm Metal

Introduction

Systems Optimization with Akribis Encoders

When use with Akribis encoders, systems optimization can be achieved by using better coefficient of thermal expansion (CTE) scale. Most of the Akribis encoders offers both stainless steel scale for long stroke systems, and low CTE scale to improve system performance. Low CTE has minimum effect on temperature variation is suitable for high speed, high accuracy movement systems.

Mechanical is one of the main factors of system optimization. Due to optical principle, most of the Akribis encoders are sensitive to yaw and pitch. Ride height between readhead and scale must be within the specs. Therefore, it is required to keep the encoders within installation tolerance as specified in the drawing to ensure no missing counts. Encoder tester kit is available for alignment and troubleshooting.

In addition, contamination is a threat for optical encoders in optimizing the system. Always keep the scale clean to avoid missing counts or multiple indexes issue. When the scale is contaminated or mechanical off-scale, the readhead chip tends to consume higher current, thus will reduce encoder life span.

In many applications, Akribis encoders were tested with total length of 20m extension cable. Whenever the extension cable is required with Akribis encoders, kindly follow the table below for connection.

Suggested Extension Cable

Wiring Length	Number of paired 5V and GND (0V) connections	Wire Size
Up to 5m	1 pair	AWG22
Up to 10m	2 pairs	AWG22
Up to 20m	3 pairs	AWG22

Akribis provides one stop system solution and has many years of experience in direct drive application. Kindly contact cust-service@akribis-sys.com.

Linear Optical Absolute Encoder ABA-2001 Series



ABA-2001 Series

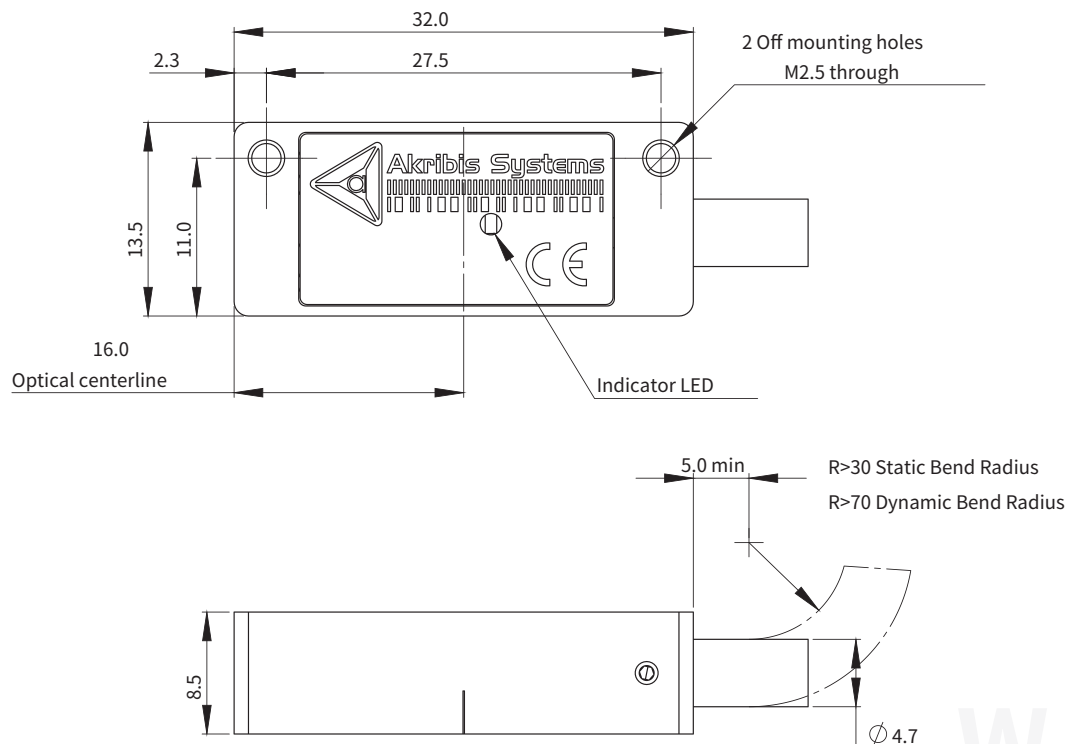
Features

- Dual track arbitrary code scanning sensor
- BiSS C bi-directional serial communications with SINCOS 1Vpp signal
- 50nm resolution, up to 6m scale length
- Integrated with LED indicators for easy installation
- Low jitter, with max. speed of 5m/s
- No batteries required, and compact size
- Available stainless steel and low thermal expansion Robax scale

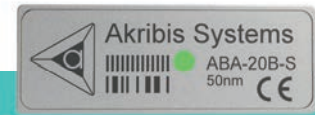
Applications

- Solar PV
- Automation
- LCD display
- Compact size system
- Bio-medical equipment

Readhead Dimension



Linear Optical Absolute Encoder ABA-20 Series



ABA-20 Series

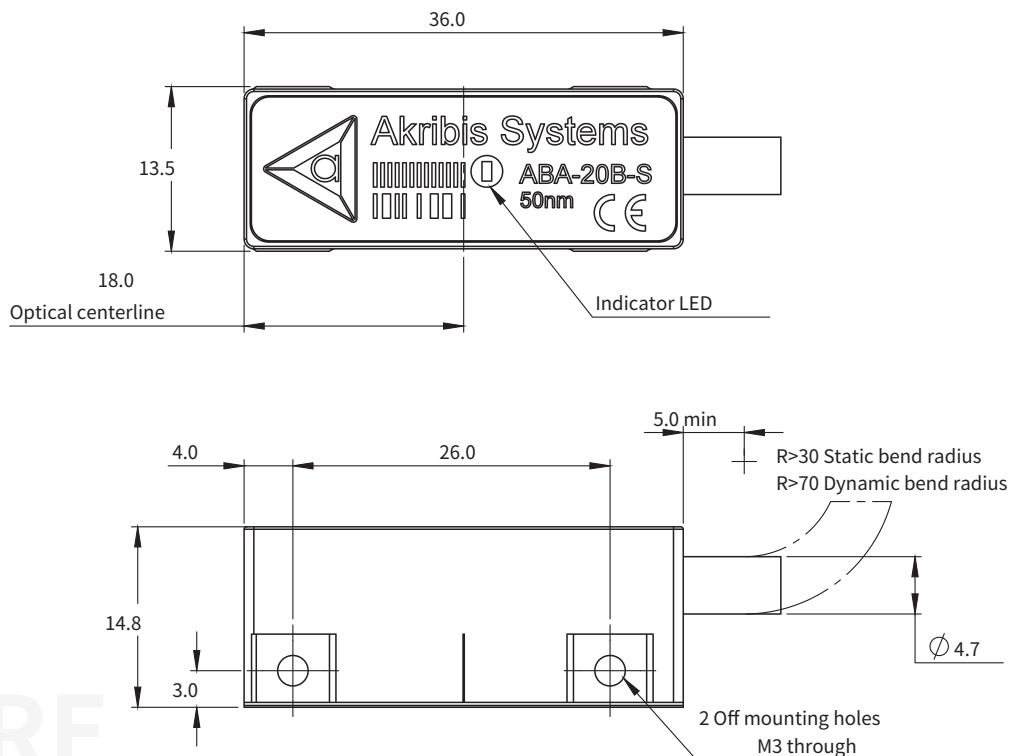
Features

- Dual track arbitrary code scanning sensor
- BiSS C bi-directional serial communications with SINCOS 1Vpp signal
- 50nm resolution, up to 6m scale length
- Integrated with LED indicators for easy installation
- Low jitter, with max. speed of 5m/s
- No batteries required, and compact size
- Available stainless steel and low thermal expansion Robax scale

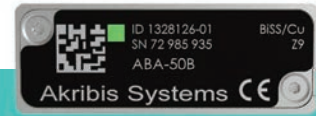
Applications

- Solar PV
- Automation
- LCD display
- Compact size system
- Bio-medical equipment

Readhead Dimension



Linear Optical Absolute Encoder ABA-50 Series



ABA-50 Series

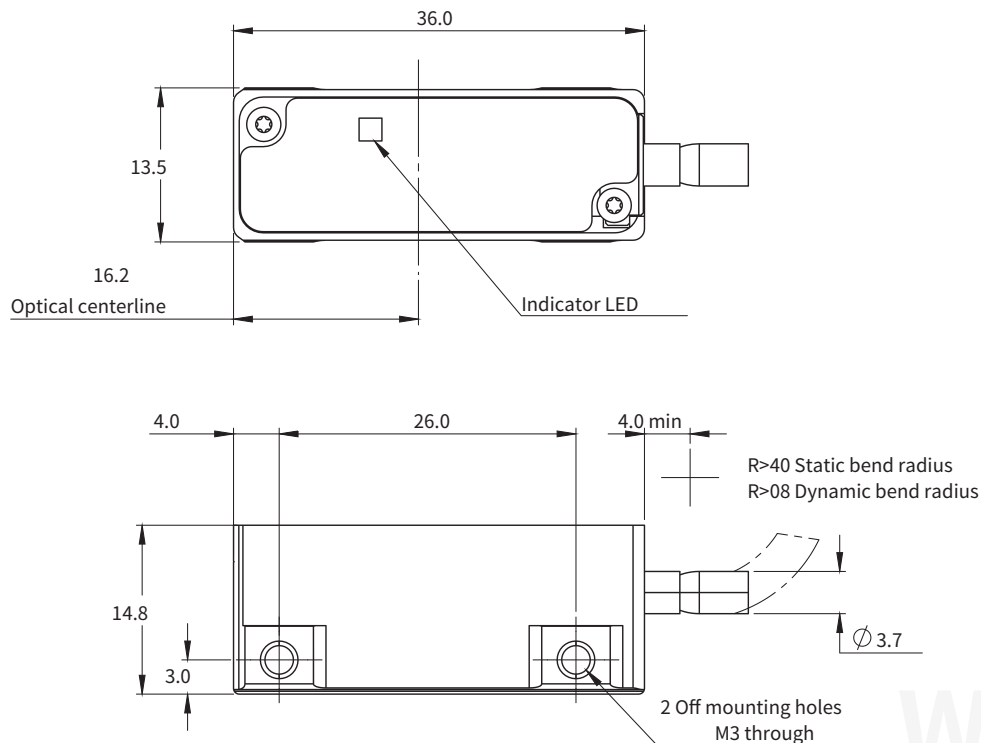
Features

- Available in various communication protocol suitable for wide range of drivers
- Available in 50nm resolution, up to 6m scale length
- Integrated with LED indicators for easy installation
- Low jitter, with max. speed of 10m/s
- No batteries required, and compact size
- Available stainless steel and low thermal expansion Robax scale
- UL compliance

Applications

- 3C
- Automation
- Electronic semiconductors
- Laser processing equipment
- Photovoltaic and lithium batteries

Readhead Dimension



Linear Optical Absolute Encoder Specifications

Products	ABA-2001	ABA-20	ABA-50
Scanning Principle	Optical	Optical	Optical
Output	BiSS C with SINCOS 1Vpp signal	BiSS C with SINCOS 1Vpp signal	BiSS C Endat 2.2 Mitsubishi 2-wires Pana02
Resolution	50nm	50nm	50nm
Dimension	L 32.0mm W 13.5mm H 8.5mm	L 36.0mm W 13.5mm H 14.8mm	L 36.0mm W 13.5mm H 14.8mm
Voltage Supply	4.5 ~ 5.5Vdc	4.5 ~ 5.5Vdc	3.6 ~ 14Vdc
Current Consumption	90mA (typ) @ 5V	90mA (typ) @ 5V	100mA (typ) @ 5V
Speed	5m/s	5m/s	10m/s
Temperature			
Operating	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C
Storage	-30 ~ 85°C	-30 ~ 85°C	-20 ~ 70°C
Humidity	10% ~ 80% @ RH (Non-condensing)	10% ~ 80% @ RH (Non-condensing)	10% ~ 80% @ RH (Non-condensing)
Cable	10 cores, single shielded	10 cores, single shielded	8 cores, single shielded
Max. Cable Length	5m, with extension of 20m ^①	5m, with extension of 20m ^①	3m, with extension of 20m ^①
Bending Radius			
Static/Dynamic	30mm/70mm	30mm/70mm	30mm/70mm
Sealing	IP40	IP40	IP40
Compliance	ROHS, REACH, CE	ROHS, REACH, CE	ROHS, REACH, CE, UL
Scale Part Number (Material/CTE)	SA20-ST (Stainless steel/10.8ppm/K) SA20-G0 (Robax/0ppm/K)	SA20-ST (Stainless steel/10.8ppm/K) SA20-G0 (Robax/0ppm/K)	SA50 (Stainless steel/10.8ppm/K) SA50-G0 (Robax/0ppm/K)
Form			
Stainless Steel	8mm × 0.45mm (Including adhesive)	8mm × 0.45mm (Including adhesive)	8mm × 0.45mm (Including adhesive)
Robax	15 mm × H4.15mm (Including adhesive)	15 mm × H4.15mm (Including adhesive)	10.0 mm × H2.80mm (Including adhesive)
Max. Scale Length			
Stainless Steel	Up to 6m	Up to 6m	Up to 6m
Robax	Up to 1.5m	Up to 1.5m	Up to 1.5m
Scale Accuracy			
Stainless Steel	± 15μm/m	± 15μm/m	± 15μm/m
Robax	± 5μm/m	± 5μm/m	± 5μm/m

Note:

① Please refer to the extension cable connection on page 6.

Linear Optical Absolute Encoder Ordering Part Number

ABA-2001/ABA-20 Ordering Part Number

Readhead

ABA-2001B-S-30C1

Product Series:

ABA-2001
ABA-20

Termination:

C1 = DB-15 plug
N = Flying leads

Communication Protocol:

B = BiSS C

Cable Length:^①

Scale Material:

S = Stainless steel
G = Robax

05 = 0.5m
10 = 1.0m
30 = 3.0m
50 = 5.0m

Scale

SA20-G0-S-LXXXX

Product Series:

SA20 = Absolute scale for ABA-2001/ABA-20

Scale Length (mm):^②

Max. scale length for stainless steel, up to 6m
Max. scale length for Robax, up to 1.5m

Scale Material:

ST = Stainless steel
G0 = Robax

Adhesive:

S = With adhesive
[Blank] = Without adhesive (applicable to Robax only)

Note:

- ① For customized cable length, kindly contact cust-service@akribis-sys.com.
- ② The shortest is 70mm and each increase of 50mm is 70mm, 120mm, 170mm.....

Linear Optical Absolute Encoder Ordering Part Number

ABA-50 Ordering Part Number

Readhead

ABA-50B-30C1

Product Series:

ABA-50

Termination:

C1 = DB-15 plug

Scale Material:

B = BiSS C
E = EnDat 2.2
M = Mitsubishi 2-wires
P = Pana02

Cable Length:

30 = 3.0m

Scale

SA50-G0-S-LXXXX

Product Series:

SA50 = Absolute scale for ABA-50

Scale Length (mm):

Max. scale length for stainless steel, up to 6m
Max. scale length for Robax, up to 1.5m

Scale Material:

[Blank] = Stainless steel
G0 = Robax

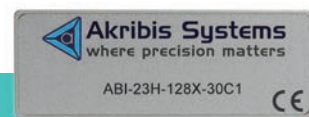
Adhesive:

S = With adhesive
[Blank] = Without adhesive (applicable to Robax only)

Note:

- ① For customized cable length, kindly contact cust-service@akribis-sys.com.
- ② The shortest is 70mm and each increase of 50mm is 70mm, 120mm, 170mm.....

Linear Optical Incremental Encoder ABI-23H Series



ABI-23H Series

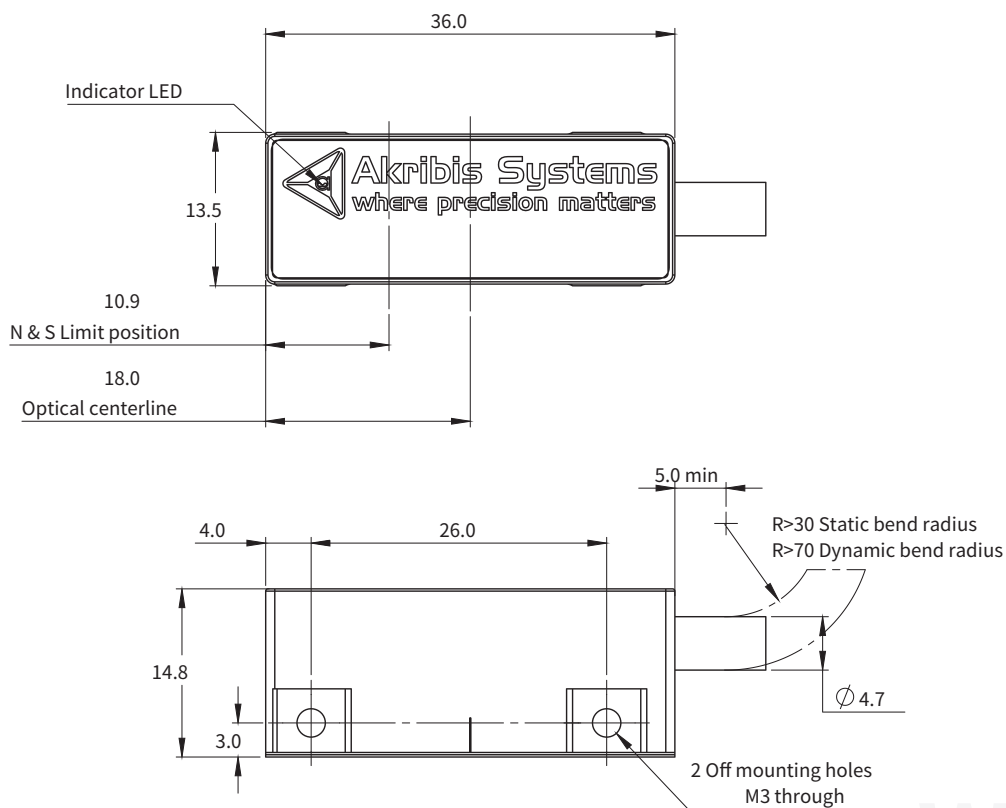
Features

- AB dual-channel TTL signal with integrated dual limits
- Available in various resolution, up to 6m scale length
- Available in various communication protocol suitable for wide range of drivers
- Max. speed of 4m/s (depend on the resolution)

Applications

- 3C
- Electronic semiconductors
- Medical equipment
- Industrial printing machines
- Laser processing equipment

Readhead Dimension



Linear Optical Incremental Encoder ABI-51X Series



ABI-51X Series

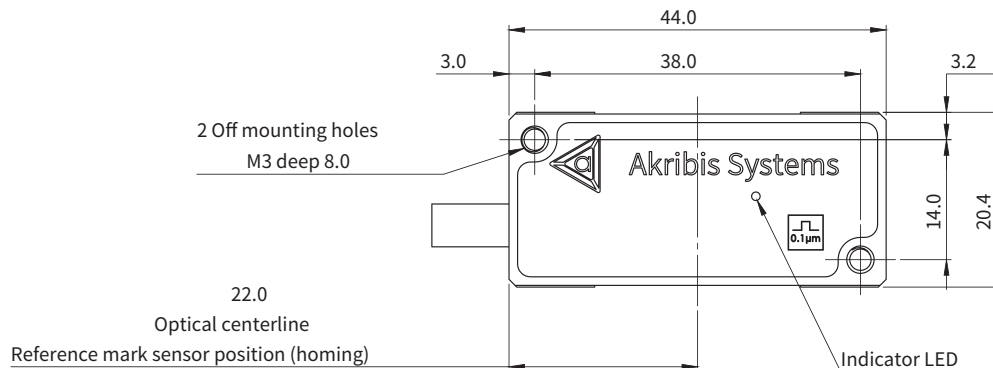
Features

- ABZ triple channel encoder
- Available in SINCOS 1Vpp and various resolution, up to 20m scale length
- Available in various communication protocol suitable for wide range of drivers
- Max. speed of 2m/s

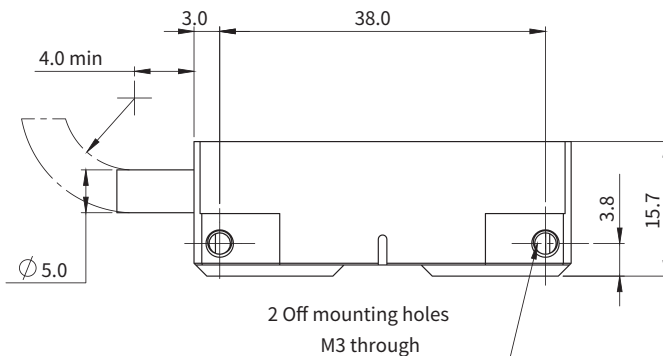
Applications

- LCD display
- Lithium batteries
- Medical equipment
- Electronic semiconductors
- Industrial printing machines
- Laser processing equipment
- Back-end wafer transport and inspection equipment

Readhead Dimension



R>70 Dynamic bend radius
R>30 Static bend radius



Linear Optical Incremental Encoder ABI-51G Series



ABI-51G Series

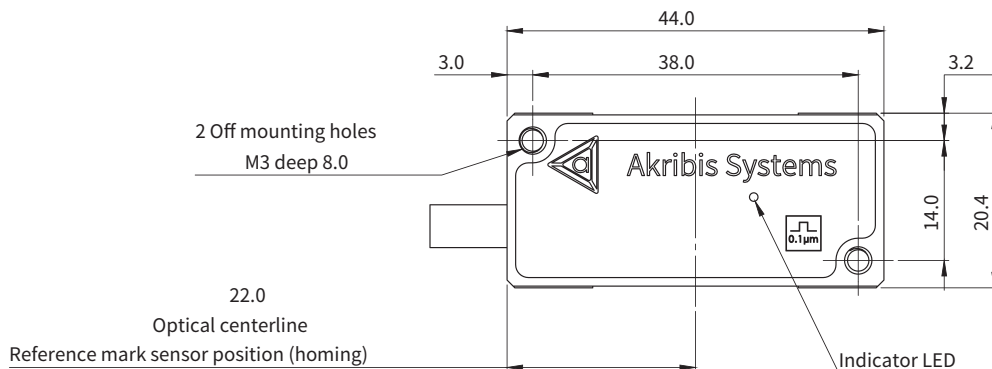
Features

- ABZ triple channel encoder
- Available in SINCOS 1Vpp and various resolution, up to 2m scale length (depends on glass material)
- Available in various communication protocol suitable for wide range of drivers
- Max. speed of 2m/s

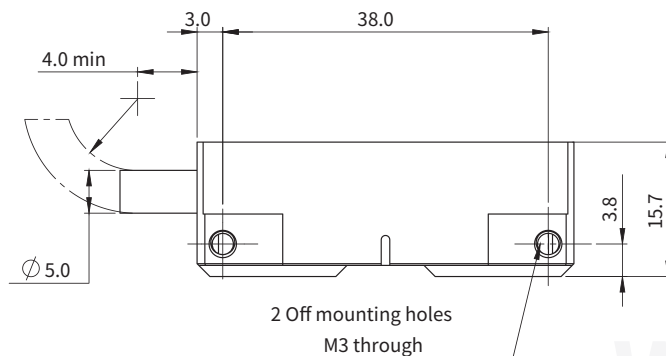
Applications

- LCD display
- Lithium batteries
- Medical equipment
- Electronic semiconductors
- Industrial printing machines
- Laser processing equipment
- Back-end wafer transport and inspection equipment

Readhead Dimension



R>70 Dynamic bend radius
R>30 Static bend radius



Linear Optical Incremental Encoder ABI-54X Series



ABI-54X Series

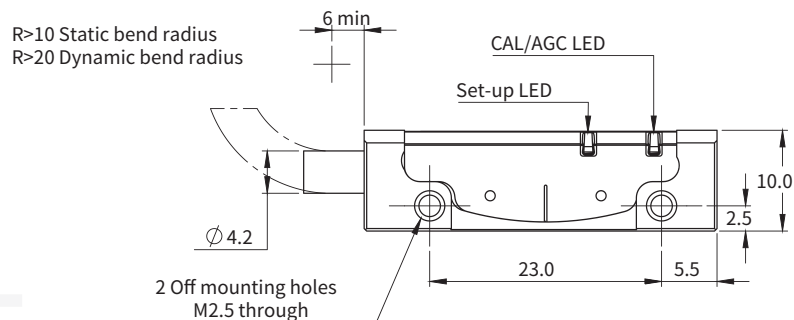
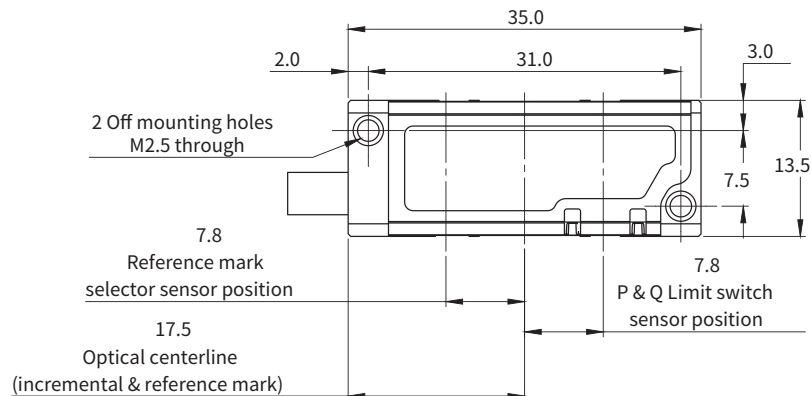
Features

- ABZ triple channel encoder with integrated dual limits
- Available in SINCOS 1Vpp, up to 10m scale length
- Available in various communication protocol suitable for wide range of drivers

Applications

- LCD display
- Lithium batteries
- Medical equipment
- Electronic semiconductors
- Front-end and back-end wafer transport and inspection equipment
- Micro-processing and laser manufacturing which require precision system

Readhead Dimension



WHERE
PRECISION
MATTERS

Linear Optical Incremental Encoder ABI-54G Series



ABI-54G Series

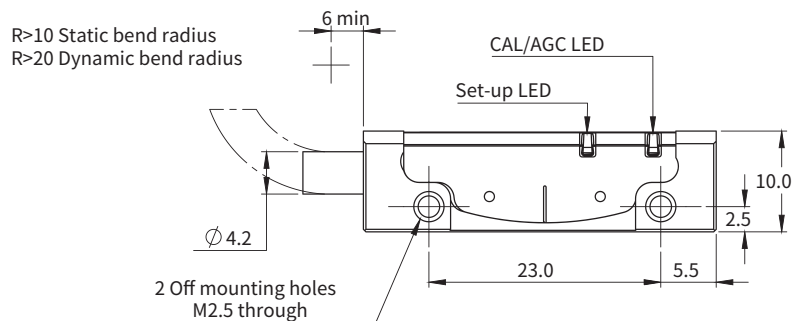
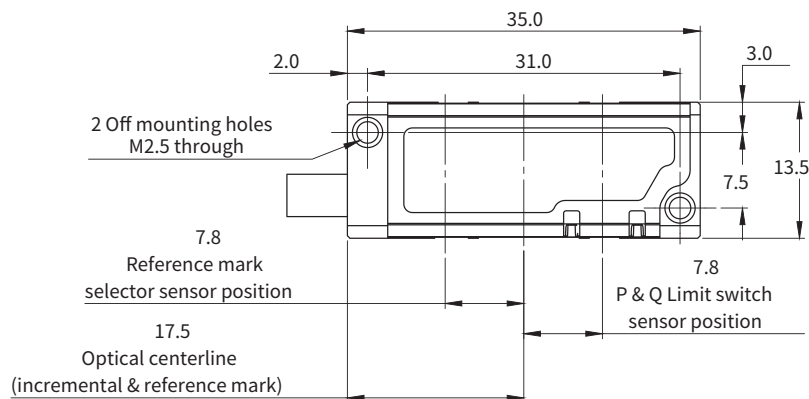
Features

- ABZ triple channel encoder with integrated dual limits
- Available in SINCOS 1Vpp
- Available in various communication protocol suitable for wide range of drivers

Applications

- LCD display
- Lithium batteries
- Medical equipment
- Electronic semiconductors
- Front-end and back-end wafer transport and inspection equipment
- Micro-processing and laser manufacturing which require precision system

Readhead Dimension



Linear Optical Incremental Encoder Specifications

Products	ABI-23H	ABI-51X	ABI-51G	ABI-54X	ABI-54G
Scanning Principle	Optical	Optical	Optical	Optical	Optical
Grating Period	64μm	20μm	20μm	20μm	20μm
Output	AquadB TTL	SINCOS 1Vpp AquadB TTL	SINCOS 1Vpp AquadB TTL	SINCOS 1Vpp	SINCOS 1Vpp
Resolution	1.0μm 0.5μm	SINCOS 1Vpp 0.5μm 0.1μm	SINCOS 1Vpp 0.5μm 0.1μm	SINCOS 1Vpp	SINCOS 1Vpp
Dimension	L 36.0mm W 13.5mm H 14.8mm	L 44.0mm W 20.4mm H 15.7mm	L 44.0mm W 20.4mm H 15.7mm	L 35.0mm W 13.5mm H 10.0mm	L 35.0mm W 13.5mm H 10.0mm
Voltage Supply	4.5 ~ 5.5Vdc	4.5 ~ 5.5Vdc	4.5 ~ 5.5Vdc	4.5 ~ 5.5Vdc	4.5 ~ 5.5Vdc
Current Consumption	210mA (typ) @ 5V	150mA (typ) @ 5V	150mA (typ) @ 5V	100mA (typ) @ 5V	100mA (typ) @ 5V
Speed					
SINCOS 1Vpp	--	2m/s	2m/s	10m/s	10m/s
1.0μm	4m/s	--	--	--	--
0.5μm	2m/s	2m/s	2m/s	--	--
0.1μm	--	2m/s	2m/s	--	--
Temperature					
Operating	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C	0 ~ 70°C
Storage	-20 ~ 70°C	-20 ~ 70°C	-20 ~ 70°C	-20 ~ 70°C	-20 ~ 70°C
Humidity	10% ~ 80% @ RH (Non-condensing)	10% ~ 80% @ RH (Non-condensing)	10% ~ 80% @ RH (Non-condensing)	10% ~ 80% @ RH (Non-condensing)	10% ~ 80% @ RH (Non-condensing)
Cable	10 cores, single shielded	10 cores, double shielded	10 cores, doubleshielded	12 cores, double shielded	12 cores, double shielded
Max. Cable Length	5m, with extension of 20m ^①	3m	3m	3m	3m
Bending Radius					
Static/Dynamic	30mm/70mm	30mm/70mm	30mm/70mm	30mm/70mm	30mm/70mm
Sealing	IP40	IP40	IP40	IP40	IP40
Compliance	ROHS, REACH, CE	ROHS, CE	ROHS, CE	ROHS, CE	ROHS, CE
Scale Part Number (Material/CTE)	SI23H (Stainless steel/ 10.8ppm/K)	SI51X (Stainless steel/ 10.8ppm/K)	SI20-G8 (Sodalime/8ppm/K) SI20-G0 (Robax/0ppm/K)	SI54-ST (Stainless steel/ 10.8ppm/K)	SI54-G0 (Low ppm metal/ 0.75ppm/K)
Form					
Stainless Steel	8mm × 0.45mm	8mm × 0.45mm	15mm × 4.12mm	8mm × 0.4mm	14.9mm × 1.8mm
Sodalime & Robax	(Including adhesive)	(Including adhesive)	(Including adhesive)	(Including adhesive)	(Including adhesive)
Low Ppm Metal					
Max. Scale Length					
Stainless Steel	Up to 6m	Up to 20m	--	Up to 10m	--
Sodalime	--	--	Up to 2m	--	--
Robax	--	--	Up to 1.5m	--	--
Low Ppm Metal	--	--	--	--	Up to 1.5m
Scale Accuracy					
Stainless Steel	± 15μm/m	± 15μm/m	--	± 5μm/m	--
Sodalime	--	--	± 5μm/m	--	--
Robax	--	--	± 5μm/m	--	--
Low Ppm Metal	--	--	--	--	± 1μm/m

Note:

① Please refer to the extension cable connection on page 6.

Linear Optical Incremental Encoder Ordering Part Number

ABI-23H Ordering Part Number

Readhead

ABI-23H-128X-30C1

Product Series:

ABI-23H

Termination:

C1 = DB-15 plug
N = Flying leads

Signal output / Resolution:

64X = AquadB TTL 1.0μm
128X = AquadB TTL 0.5μm

Cable Length:

05 = 0.5m
10 = 1.0m
30 = 3.0m
50 = 5.0m

Scale

SI23H-S-LXXXX

Scale Length (mm):

Max. scale length for stainless steel, up to 6m

Product Series:

SI23H = Incremental scale for ABI-23H

Adhesive:

S = With adhesive

Note:

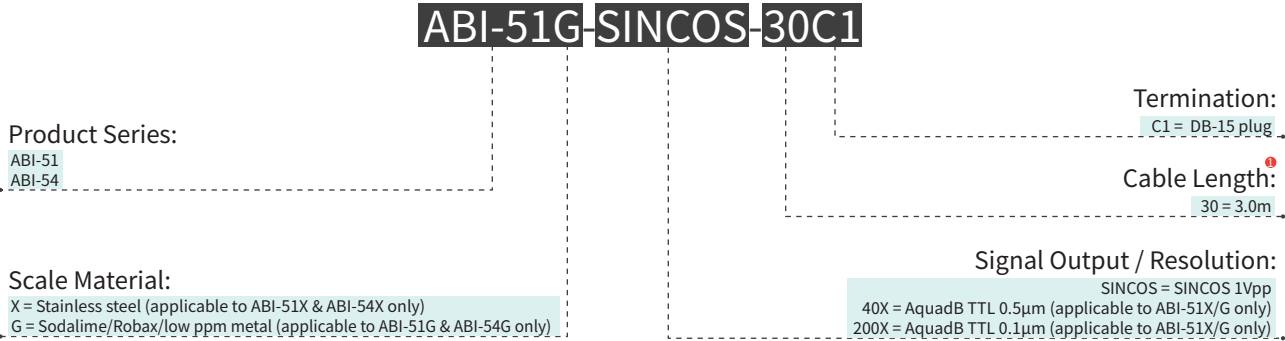
- ① For customized cable length, kindly contact cust-service@akribis-sys.com.
- ② The shortest is 70mm and each increase of 50mm is 70mm, 120mm, 170mm.....

Linear Optical Incremental Encoder

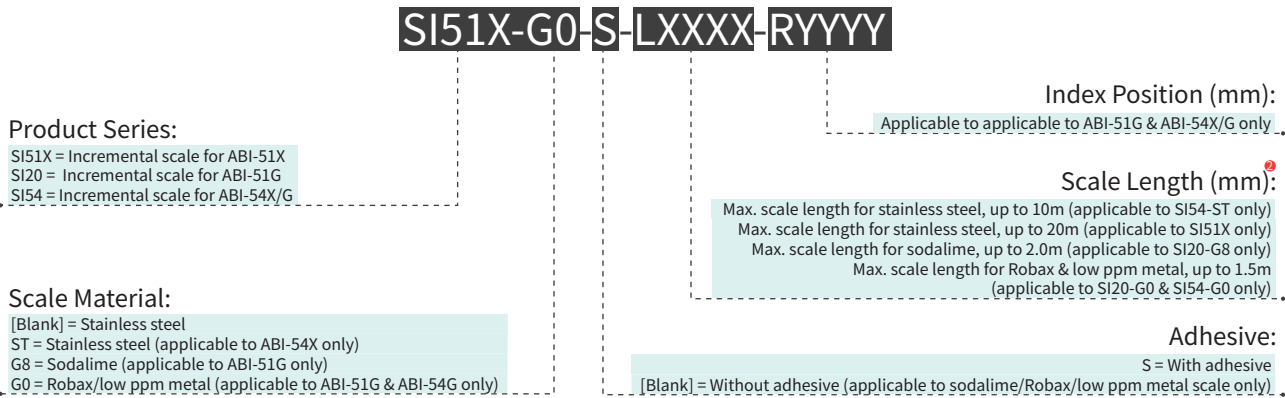
Ordering Part Number

ABI-51X/ABI-51G/ABI-54X/ABI-54G Ordering Part Number

Readhead



Scale



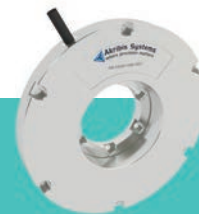
Note:

① For customized cable length, kindly contact cust-service@akribis-sys.com.

② The shortest is 70mm and each increase of 50mm is 70mm, 120mm, 170mm.....

Rotary Optical Incremental Encoder Module Specifications

ABI-2333H Series



ABI-2333H Series

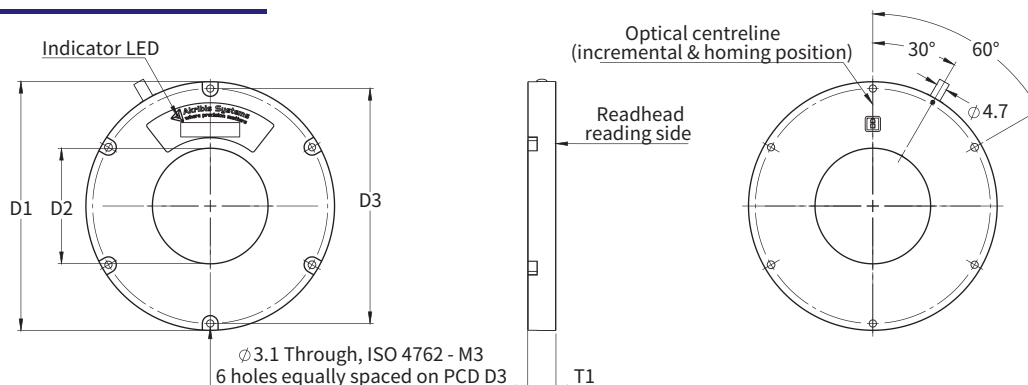
Features

- ABZ triple channel encoder
- Available in various communication protocol suitable for wide range of drivers

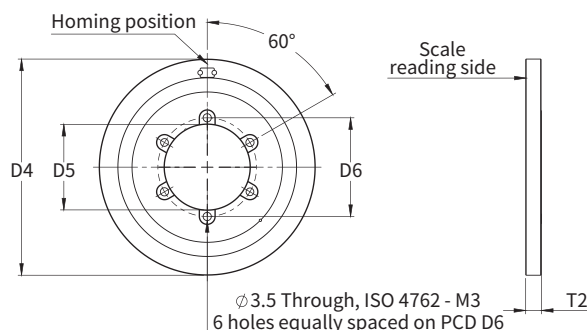
Applications

- 3C
- Electronic semiconductors
- Medical equipment
- Industrial printing machines
- Laser processing equipment

Stator Dimension



Rotor Dimension



Lines Per Rev (LPR)	Stator Dimension				Rotor Dimension				64X		128X	
	D1	D2	D3	T1	D4	D5	D6	T2	CPR	RPM	CPR	RPM
3579	106.00	49.00	100.00	12.00	92.00	36.40	42.00	6.70	229056	1048	458112	524
4910	128.00	71.00	122.00	12.00	114.00	59.25	65.00	6.70	314240	764	628480	382
6939	170.00	104.00	163.00	12.00	154.00	90.50	101.00	7.70	444096	540	888192	270

Rotary Optical Incremental Encoder Module Specifications

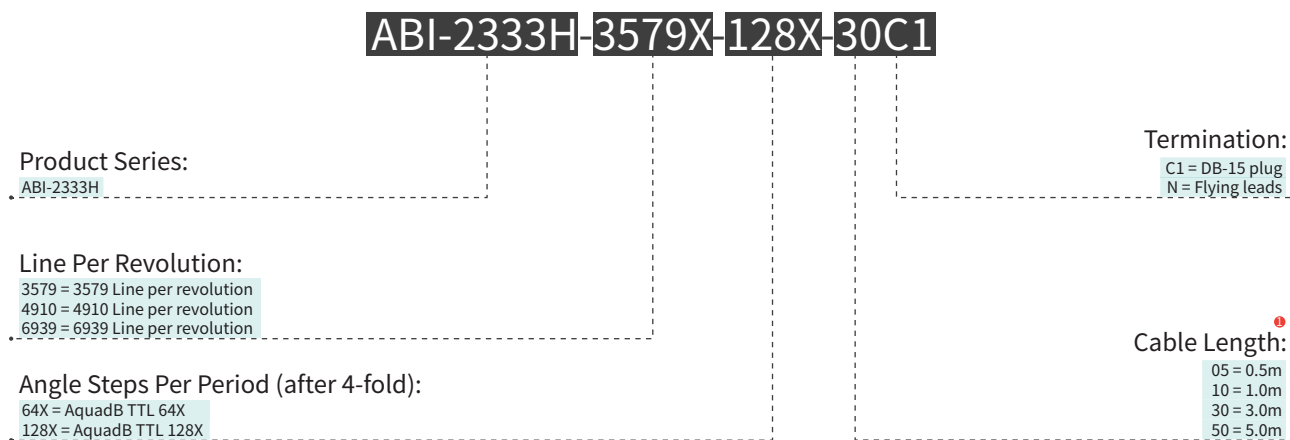
Specifications & Ordering Part Number

Product Family	ABI-2333H
Scanning Principle	Optical
Output	AquadB TTL
Resolution	64X 128X
Voltage Supply	4.5 ~ 5.5Vdc
Current Consumption	210mA (typ) @ 5V
Temperature	
Operating	0 ~ 70°C
Storage	-20 ~ 70°C
Humidity	10% ~ 80% @ RH (Non-condensing)
Cable	10 cores, single shielded
Max. Cable Length	5m, with extension of 20m ^①
Bending Radius	
Static/Dynamic	30mm/70mm
Sealing	IP40
Scale (Material/CTE)	Aluminum/24ppm/K

Note:

① Please refer to the extension cable connection on page 6.

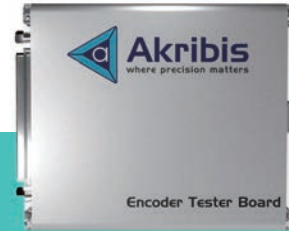
ABI-2333H Ordering Part Number



Note:

① For customized cable length, kindly contact cust-service@akribis-sys.com.

Encoder Tester Kit ETB-100



ETB-100

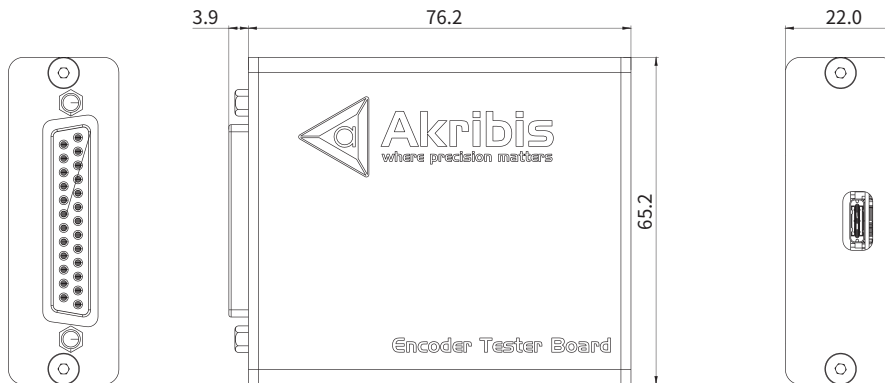
Features

- Support AquadB TTL and SINCOS 1Vpp encoder position readout with index counter
- Function as Akribis BiSS C encoder reader and writer
- Serve as up to six-channels oscilloscope with trigger feature
- Display encoder voltage and current measurement for debugging
- Plug and play, powered by USB C

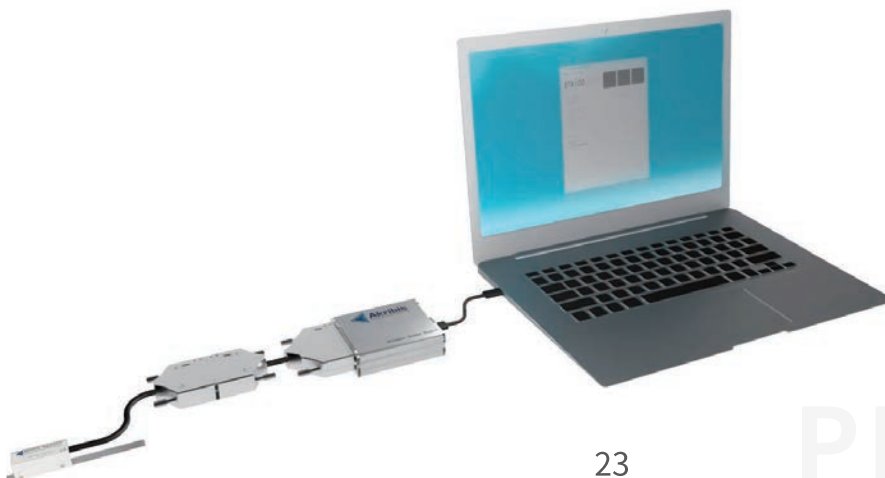
Compatible

- Akribis BiSS C absolute and incremental encoders

Dimension



System Configuration



Encoder Tester Kit Specifications & Ordering Part Number

Compatible with Akribis Encoder

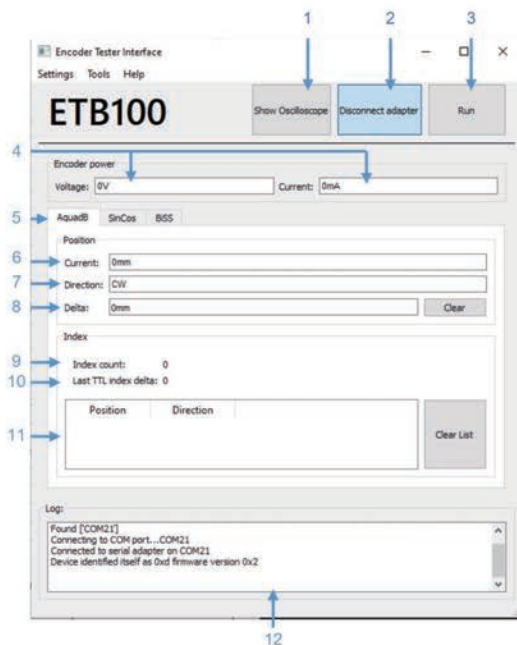
Function Specification	SINCOS 1Vpp	SINCOS 1Vpp	BiSS C
Display encoder current consumption	O	O	O
Detect and display encoder moving direction	O	O	X
Detect and display index count, with the last index position	O	O	X
Able to record previous indexes position, for debugging purpose	O	O	X
Oscilloscope features to view Lissajous circle, SINCOS 1Vpp and index signal, up to six-channels	O	X	X
Oscilloscope features to view AquadB TTL signal and index signal, up to six-channels	X	O	X
Calibrate and read encoder information	X	X	Selected model only

USB C Specifications

Connectivity	UART over USB C
Baud Rate	2Mbps

GUI

OS	Windows
Application Name	UET210



- Open oscilloscope window
- Connect or disconnect to ETB
- Start or stop reading
- Encoder voltage and current
- Encoder interface
- Encoder position
- Encoder running direction
- Max. min of position readout
- Number of index pulse received
- Position difference between index received
- List of position where index was received
- Log window

Encoder Tester Kit Ordering Part Number

ETB-100

Product Series:

ETB-100

Note:

★ 0.5m length interface cable from ETB-100 to Akribis absolute BiSS C encoder is provided;
0.5m length interface cable from ETB-100 to Akribis incremental SINCOS 1Vpp encoder is provided;
0.5m length interface cable from ETB-100 to Akribis incremental AquadB TTL encoder is provided;
USB C cable is not provided;
Kindly contact cust-service@akribis-sys.com.

ABI-23

Features

- ABZ triple-channel TTL signal
- Available in various resolution, up to 2m scale length
- Available in various communication protocol suitable for wide range of drivers
- Max. speed of 2m/s (depend on the resolution)
- Suitable for miniature systems

ABI-23Q

Features

- ABZ triple-channel TTL signal with integrated dual limits
- Available in various resolution, up to 2m scale length^①
- Available in various communication protocol suitable for wide range of drivers
- Max. speed of 4m/s (depend on the resolution)

Note:

① Representative for other scale length, kindly contact cust-service@akribis-sys.com.

MACHINE SENSOR



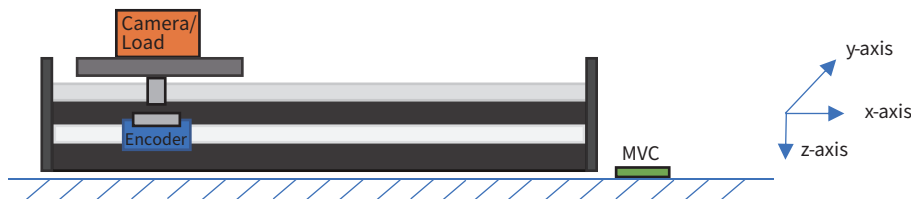
Vibration Sensor MVC-ACC-94 Series

Introduction

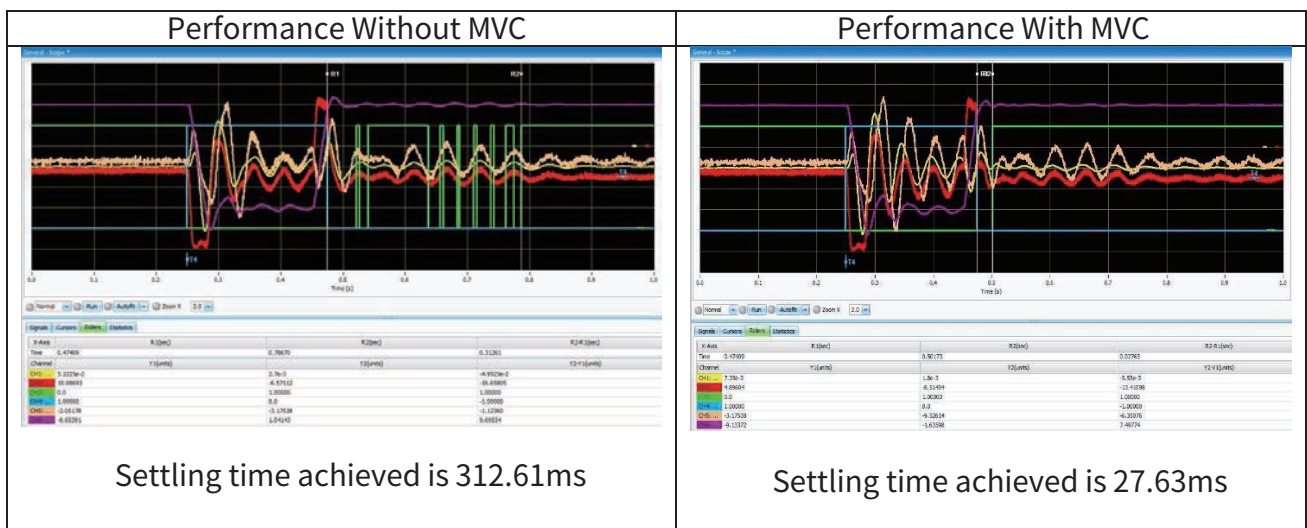
Akribis machine vibration sensors are designed to convert vibration information into electrical signals and feed them to controllers. The machine vibration sensor helps improve the settling time of your direct drive system and keep it performing at its better.

Designed to provide three-axis selectable sensing, the machine vibration sensor, offers a high 9000mV/g sensitivity with $\pm 2\%$ non-linearity, $\pm 0.25G$ detection range and a frequency response up to 300Hz. It detects variations in mechanical vibration amplitudes and frequencies and feeds the data to the controller. With a little effort of both hardware and software integration, Akribis machine vibration sensor can enhance overall system performance. The unit comes with an integrated filter to remove unwanted noise, for compensating its vibration amplitudes and frequencies in the systems.

Setup (Recommended)



Result (Example)



Note:

★ Kindly contact cust-service@akribis-sys.com.

Vibration Sensor MVC-ACC-94 Series

MVC-ACC-94 Series



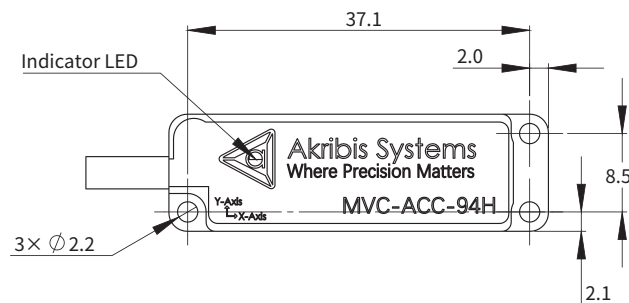
Features

- Helps to improve settling time of a system
- 3-axis selectable sensing
- Easy installation
- Compact size

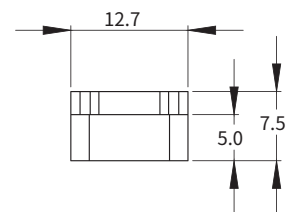
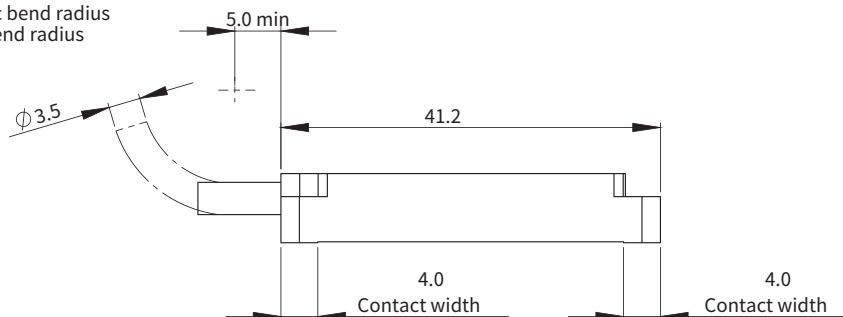
Applications

- General purpose automation manufacturing equipment

Dimension



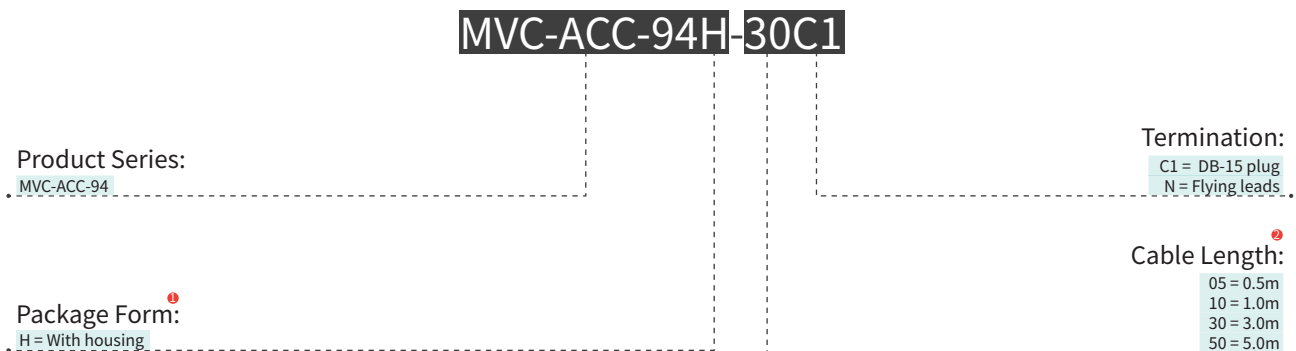
R>70 Dynamic bend radius
R>30 Static bend radius



Vibration Sensor Specifications & Ordering Part Number

Product Family	MVC-ACC-94
Output	Differential analog output
Dimension	L 41.2mm W 10.5mm H 3.9mm
Detection Range	$\pm 0.25g$ (Gravity)
Sensitivity	DC – 300Hz (LPF @300Hz) Representative for other LPF option, kindly contact cust-service@akribis-sys.com
Frequency Response	$\pm 2\%$
Nonlinearity	9000mV/g
Voltage Supply	4.5 ~ 5.5Vdc
Current Consumption	4mA (typ) @ 5V
Temperature	
Operating	0 ~ 70°C
Storage	-20 ~ 70°C
Humidity	10% ~ 80% @ RH (Non-condensing)
Cable	10 cores, double shielded
Max. Cable Length	5m
Bending Radius	
Static/Dynamic	30mm/70mm
Sealing	IP40

Vibration Sensor Ordering Part Number



Note:

- ❶ For other package form, kindly contact cust-service@akribis-sys.com.
- ❷ For customized cable length, kindly contact cust-service@akribis-sys.com.

INTERFACE ELECTRONICS



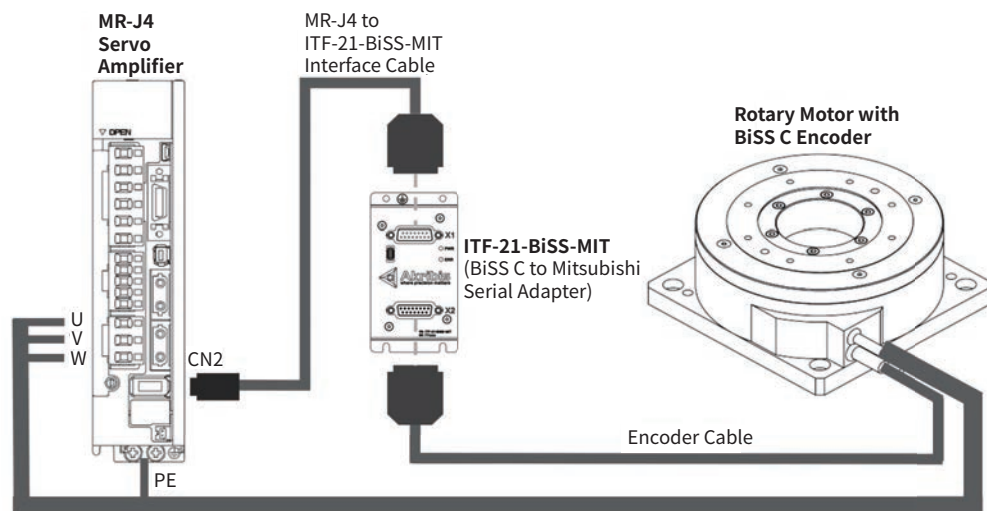
Signal Converter ITF-21 Series

Introduction

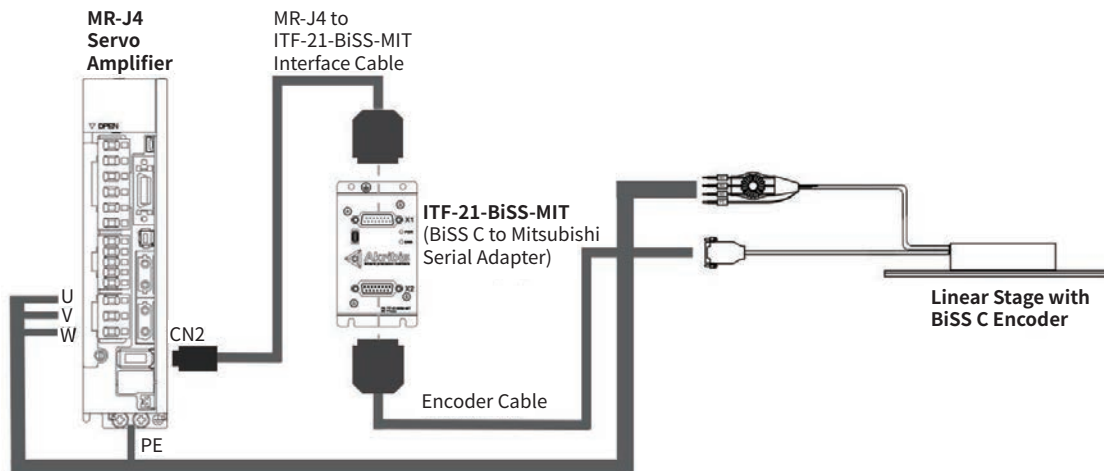
The ITF-21-BiSS-MIT signal converter supports any 12-bit to 32-bit BiSS C absolute encoder compatible with the popular Mitsubishi Electric MR-J4 servo amplifier. Developed through our collaboration with Mitsubishi Electric, the ITF-21-BiSS-MIT adapter allows users to take advantage of the high-speed, bidirectional communication supported by both protocols while providing flexibility and a convenient way to use their preferred encoder.

The ITF-21-BiSS-MIT adapter is compatible with MR-J4 servo amplifier: MR-J4-_A/B-RJJ021 (Note that resolutions above 27 bits will be capped at 26 bits). The adapter supports both two-wire half duplex and four-wire full duplex Mitsubishi serial communication with LED indicator for debugging purpose. Encoder setting configuration and firmware upgrade can be done via USB C and PC software.

Setup (Recommended)



Rotary Application



Linear Application

Note:

★ Kindly contact cust-service@akribis-sys.com.

ITF-21 Series

Features

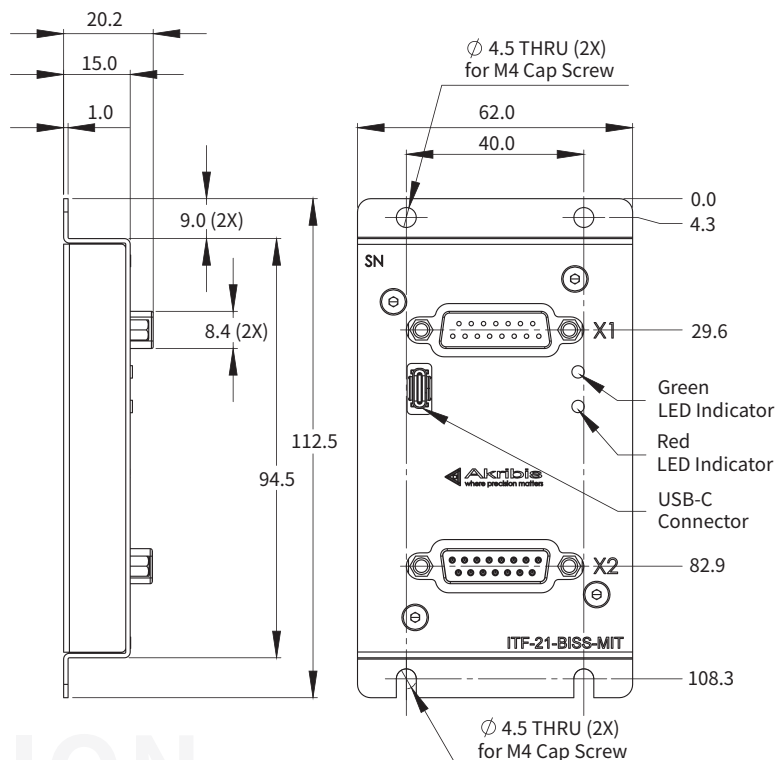
- Interface BiSS C encoder to mitsubishi MR-J4 amplifier
- Support 12-bit to 32-bit BiSS C encoder (note: for 27-bit and above, resolution capped at 26-bit)
- Support both 2 wire (half duplex) and 4 wire (full duplex) mitsubishi serial communication
- Setting configuration and firmware upgrade via USB C and PC software
- Integrated LED indicator and PC software for BiSS C encoder diagnostic
- Support up to 20m encoder cable
- Compatible to MR-J4 servo amplifier:
MR-J4-_A/B-RJJ001 and MR-J4-_A/B-RJJ021

Compatible

- Support any linear or rotary absolute single turn BiSS C encoder



Dimension



Signal Converter Specifications & Ordering Part Number

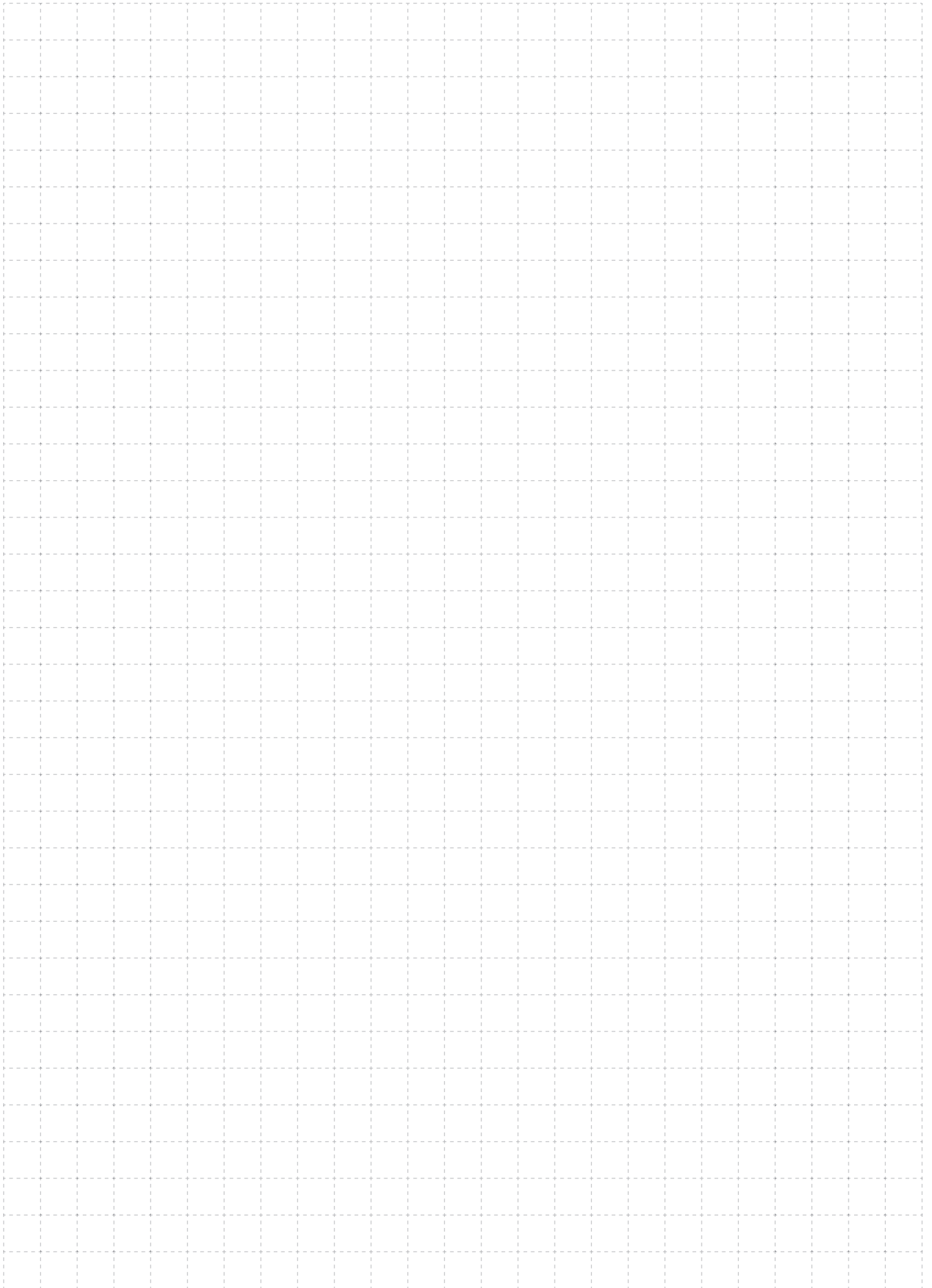
Product Family	ITF-21
Input	BiSS C
Output	Mitsubishi 2 wires Mitsubishi 4 wires
Dimension	L 112.5mm W 62.0mm H 20.2mm
Voltage Supply	4.5 ~ 5.5Vdc
Current Consumption	190mA (typ) @ 5V (Without encoder)
Temperature	
Ambient	0 ~ 40°C
Operating	0 ~ 70°C
Storage	-20 ~ 85°C
Humidity	10% ~ 80% @ RH (Non-condensing)
Sealing	IP40

Signal Converter Ordering Part Number



Note:

❗ Output protocol can be set by user via Akribis ITF-21 GUI, kindly contact cust-service@akribis-sys.com.



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