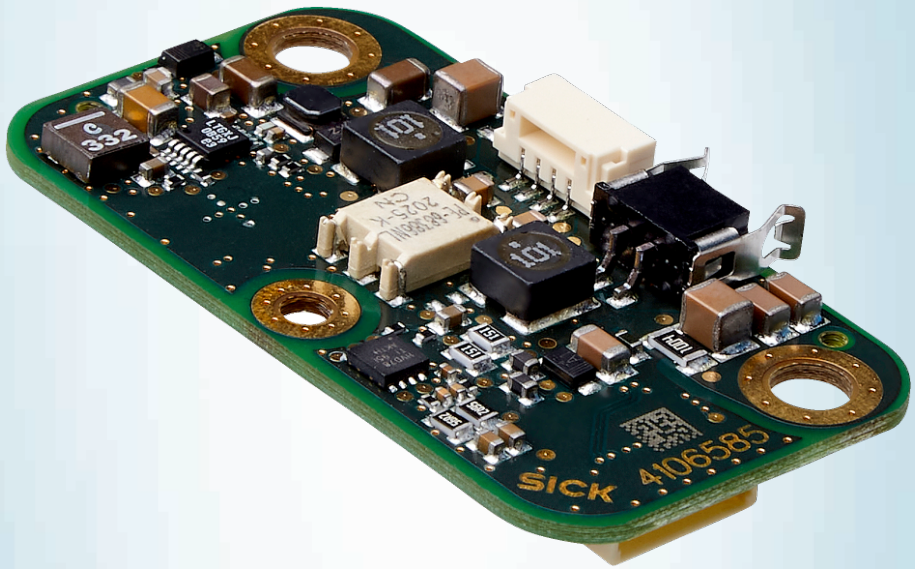
Data sheet



AD-HF2DSL02

sCon

MOTOR FEEDBACK SYSTEMS

SICK
Sensor Intelligence.

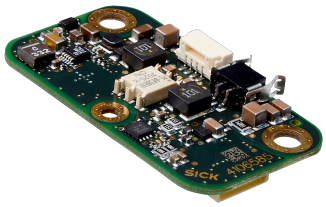


Illustration may differ

Ordering information

Type	part no.
AD-HF2DSL02	2123676

Other models and accessories ➜ www.sick.com/sCon

Detailed technical data

Safety-related parameters

$MTTF_D$ (mean time to dangerous failure)	≤ 190 years (EN ISO 13849) [1]

[1] This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 60 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

Performance

Speed when switching on/resetting the motor feedback system	≤ 0.5 min^{-1}
Interpolation factor	13 bit

Interfaces

Communication interface	HIPERFACE DSL®
Initialization time	≤ 1.3 ms [1]
Measurement external temperature resistance	32-bit value, without prefix (1 Ω) 0 ... 209,600 Ω [2]
Input signal	
Signal type	HIPERFACE®
Maximum cable length	≤ 0.2 m

[1] From reaching a permitted operating voltage.

[2] Without sensor tolerance; at –40 °C ... +160 °C: NTC +-2K; PTC+-3K (KTY84-130/PT1000). For additional conversion function of PT1000 to KTY84/130, see technical description.

Electronics

Connection type	Male connector, 4-pin, output Male connector, 8-pin, Input
Supply voltage	7 V ... 12 V
Warm-up time voltage ramp	Max. 180 ms [1]
Current consumption	80 mA (without load) [2]

[1] Duration of voltage ramp between 0 and 7.0 V.

[2] Current rating applies when using interface circuit suggestions as shown in HIPERFACE DSL ® manual (8017595).

Mechanics

Weight	≤ 10 g

Ambient data

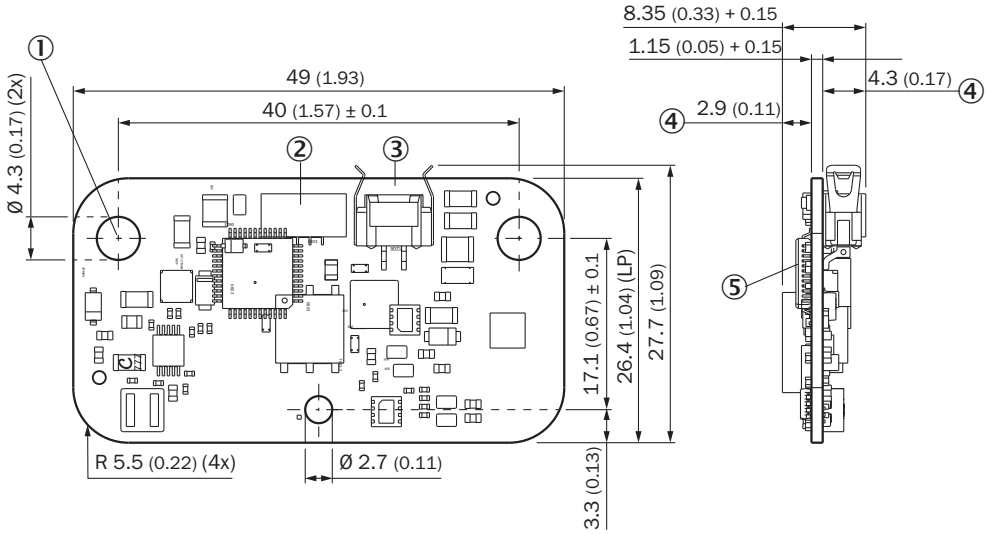
Operating temperature range	–30 °C ... +115 °C

Storage temperature range	–40 °C ... +125 °C, without package
Relative humidity/condensation	90 %, Condensation not permitted
Enclosure rating	IP00

Classifications

ECLASS 5.0	27270590
ECLASS 5.1.4	27270590
ECLASS 6.0	27270590
ECLASS 6.2	27270590
ECLASS 7.0	27270590
ECLASS 8.0	27270590
ECLASS 8.1	27270590
ECLASS 9.0	27270590
ECLASS 10.0	27273805
ECLASS 11.0	27273901
ECLASS 12.0	27273901
ETIM 5.0	EC001486
ETIM 6.0	EC001486
ETIM 7.0	EC001486
ETIM 8.0	EC001486
UNSPSC 16.0901	41112113

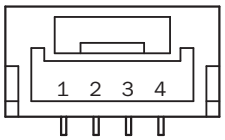
Dimensional drawing



Dimensions in mm (inch)
When installing/attaching the sCon® interface converter, designing the support surface as a dome is recommended. In order to guarantee the recommended distance of 1.0 mm to all electronic components from an EMC standpoint, the diameter of the domes must not exceed 8 mm. Since the sCon® interface converter can be mounted on either side, the minimum height of the domes must be 3.9 mm or 5.3 mm.
① Bore holes for fixing screws
② HIPERFACE DSL® male connector-female connector

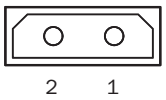
③ Temperature sensor female connector
④ Max. component height
⑤ HIPERFACE® male connector-female connector

Anschlussbelegung HIPERFACE DSL® pin assignment



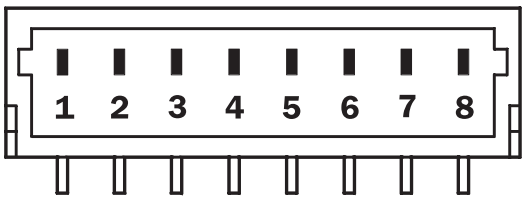
PIN	Signal	Explanation
1	–	Not connected - no function
2	+U_S/DSL+	Supply 7 V ... 12 V
3	GND/DSL-	Ground connection
4	–	Not connected - no function
Recommended outer diameter of set of stranded wires: 2.8 mm ±0.3 mm		
Recommended mating connector: JST (GHR-04V-S)		

Anschlussbelegung Temperature sensor pin assignment



PIN	Signal	Explanation
1	T+	Thermistor connection
2	T-	Thermistor connection (to ground)
Recommended outer diameter of set of stranded wires: 2.2 mm ± 0.1 mm		
Recommended mating connector: Harwin M80-8990205		

Anschlussbelegung HIPERFACE® pin assignment



PIN	Signal	Wire colors (cable connection)	Explanation
1	U_S	Red	Supply voltage
2	+ SIN	White	Process data channel
3	REFSIN	Brown	Process data channel
4	+ COS	Pink	Process data channel
5	REFCOS	Black	Process data channel

PIN	Signal	Wire colors (cable connection)	Explanation
6	GND	Blue	Ground connection
7	Data +	Gray or yellow	Parameter channel RS 485
8	Data -	Green or purple	Parameter channel RS 485
The GND connection (0 V) of the supply voltage is not connected to the housing			

Operation note Overview of warnings and fault indications for HIPERFACE DSL®

Error type	Error register	Error bit	Description
Position (incremental)	40h	0	A Protocol reset was executed
	40h	1	Acceleration overflow, invalid position
	40h	2	Test running
	40h	4	Internal error in angular tracking, invalid position
	40h	5	Internal error in vector length, invalid position
	40h	6	Internal error in position counter, invalid position
	40h	7	Internal error in position synchronization, invalid position
Position (absolute)	41h	0	Error in absolute position in a rotation
	41h	1	Multiturn amplitude error
	41h	2	Multiturn sync error
	41h	3	Multiturn vector length error
	41h	4	Position cross check error
Initialization	42h	0	Switch-on self-test undertaken (only safety versions)
	42h	1	Warning safety parameter: error could be rectified (only safety variants)
	42h	2	Error safety parameter: error cannot be rectified (only safety variants)
	42h	3	Standard parameter error
	42h	4	Internal communications error 1
	42h	5	Internal communications error 2
	42h	6	Internal general error
Checking	43h	0	Critical temperature
	43h	1	Read axial position
	43h	2	Critical supply voltage
	43h	3	Critical speed
	43h	5	Counter overflow
	43h	6	Internal monitoring error
Access to resources	44h	0	Invalid argument given during resource access procedure
	44h	1	Resource access refused due to incorrect access level
	44h	2	Internal error during resoure access
	44h	3	Error when accessing a user file
User-defined warnings	47h	0	User-defined warning 0
	47h	1	User-defined warning 1
	47h	2	User-defined warning 2
	47h	3	User-defined warning 3

Operation note Supported resources for HIPERFACE DSL®

Resource Index	Function	Size (max. Offset)	Read access	Write access	Time overrun [ms]	Name
000h	Root node		0	-	75	ROOT
001h	Identification note		0	-	75	IDENT
002h	Monitoring node		0	-	75	MONITOR
003h	Administration node		0	-	75	ADMIN
004h	Counter node		0	-	75	COUNTER
005h	Data storage node		0	-	75	DATA
006h	Sensor hub nodes		0	-	75	SENSHUB
080h	Type of encoder	2	0	-	120	ENCTYPE
081h	Resolution	4	0	-	120	RESOLUTN
082h	Measurement range	4	0	-	120	RANGE
083h	Type name	18	0	-	120	TYPECODE
084h	Serial number	10	0	-	120	SERIALNO
085h	Device version	20	0	-	120	FWREVNO
086h	Firmware date	8	0	-	120	FWDATE
087h	EEPROM size	2	0	-	120	EESIZE
089h	Number of steps per turn of safe channel 2	4	0	-	120	VPOS2RES
0C0h	Temperature range	4	0	-	90	TEMPRNG
0C1h	Temperature	2	0	-	70	TEMPRTUR
0C4h	Supply voltage range	4	0	-	90	SUPRANGE
0C5h	Supply voltage	2	0	-	70	SUPVOLT
0C6h	Rotation speed range	2	0	-	90	SPEEDRNG
0C7h	Rotation speed	2	0	-	70	SPEED
0C8h	Acceleration range	2	0	-	90	ACCRANGE
0CBh	Lifetime	8 for non-SIL 12 for SIL2	0	-	70	LIFETIME
0CDh	Usage histogram	4	0	-	70	HISTOGRM
0D5h	Filters error log entries	2	0	4	100	ERRLOGFI
100h	Reset/shut down	0	-	0	240	RESET
101h	Set position	8	0	4	200	SETPOS
104h	Set access level	8	0	0	70	SETACCESS
105h	Change access key	8	-	0	90	CHNGEKEY
107h	User-defined warnings	8	0	2	90	UWARNING
108h	Factory setting	8	-	2	1100	FACRESET
10Ah	Position filter setting	4	0	3	90	POSFILT
111h	User-defined encoder index and incorporation function	2	0	3	90	ENCINDEX
11Fh	Bootloader	8	4	4	200	BOOTLOAD
120h	Read counter	4	0	-	90	READCNT
121h	Increment counter	0	-	0	90	INCCOUNT
122h	Reset counter	0	-	2	90	RESETCNT
130h	Load file	8	-	0	900	LOADFILE
131h	Read/write file	File size	User-defined	User-defined	260	RWFILE
132h	File status	4	0	-	70	FILESTAT
133h	Create/delete/change file	8	-	User-defined	1000	MAKEFILE
134h	Directory	8	0	-	150	DIR
136h	Set or read back status of user file backup	2	0	2	90	FILEBACK
200h	Access simple I/O	4	0	0	70	ACCESSIO
201h	Manage simple I/O	4	0	2	90	MANAGEIO
202h	Identify simple I/O	8	0	-	70	IDENTIO

Operation note Supported access levels

Access level	User	Standard access key
0	Execute (default setting)	- (no key required)
1	Operator	1111 (31 31 31 31h)
2	Maintenance	2222 (32 32 32 32h)
3	Authorized client	3333 (33 33 33 33h)
4	User service	4444 (34 34 34 34h)

Recommended accessories

Other models and accessories ➜ www.sick.com/sCon

	Brief description	Type	part no.
connectors and cables			
	• **Connection type head A:** Female connector, JST, 8-pin, straight • **Connection type head B:** Female connector, JST, 8-pin, straight • **Signal type:** HIPERFACE® • **Cable:** 0.1 m, 8-wire • **Description:** HIPERFACE®, unshielded	DDL-0J08-G0M1XB6	2117842

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com

SICK
Sensor Intelligence.