CANSAS-P8

Module for capture of 8 pressure signals

Version 1.6

The module family CANSAS-P8, with its 8 nipples built into the housing, is designed to take measurements of pressure. A tube can be connected to these nipples via a coupling, and either the absolute or relative pressure of the gas or liquid in the tube can be measured, depending on the sensor in the nipple. A barometer inside the module makes it possible to derive the relative pressure even when using sensors for measurement of absolute pressure.

Order code:	Article #
CANSAS-L-P8-G4	1050103
CANSAS-K-P8-G4	1050104
CANSAS-L-P8-GX	1050079
CANSAS-K-P8-GX	1050071
CANSAS-L-P8-0,3GX	1050105
CANSAS-K-P8-0,3GX	1050106

3 different models available:

CANSAS-L-X

Fan-less extruded aluminum housing (Long model)
115 x 111 x 145 (W x H x D in mm)
Weight typ. 1.3 kg

CANSAS-K-X

Fan-less cassette, 3U/ 24HP (Cassette model)
for installation in the imc 19“ subrack
CAN-Bus and power supply are connected to the module via the 19“ subrack
Weight typ. 1.3 kg

CANSAS-IP65-X

Fan-less IP65-housing with mounting angle and water runoff pipe
129 x 110 x 188 (W x H x D in mm)

Weight approx. 1.8 kg

Refer also to the document *"CANSAS Installation and Assembly"* for information on the models and module racks.

Connections

- CAN-Bus connected via 2 DSUB-9 terminals; CAN IN (male), CAN OUT (female)
  CAN-Bus Interface for sending measurements on the CAN-Bus at rates of up to 1Mbit/s,
  (equipped in accordance with the CiA® Draft Standard 102 Version 2.0, CAN Physical Layer for Industrial Applications)
- Power supply via Phoenix (MC1, 5/4STF-3,81) socket (CAN/Power-Plug)1
- 8 pressure inputs in a variety of models (s. table below)
- With the housing model IP-65, the CAN-Bus connection is a 4-pin Amphenol terminal, and the power supply connection is 3-pin Amphenol.

Power supply

- Supply voltage: 10 V to 50 V DC [2] via (4-pin) PHOENIX plug or via CAN-Bus plug
- Automatic independent start upon application of supply voltage
- Power consumption 5 W (typ.), 8 W (max.)

Operating conditions

- Operating temperature: -15°C to 60°C condensation allowed
- Shock resistance 50 g pk over 5 ms
- Included accessories
- Calibration certificate as per DIN EN ISO 9001

Instruction manual

- With extruded aluminum housing: Connection terminal for power supply via Phoenix socket
- With IP65 model: 4-pin and 3-pin Amphenol terminals
  as well as adapters for Amphenol to DSUB-9 for CAN and Amphenol to CANSAS-POWER socket

Measurement characteristics

- 8 channels with built-in pressure sensors (either relative or absolute pressure as desired)
- Sampling rates in steps of 1-, 2-, 5; max. 1 kHz per channel
- Synchronized sampling of all measurement channels
- Synchronized sampling with measurement systems or other appropriate modules is possible both with extra synchronization line and also simply via the CAN-Bus.
- 16-bit resolution
- Built-in DSP for online signal processing:
  data reduction, filtering, scaling, statistics etc.

Measurement channels

- The input range of each of the 8 pressure measurement channels can be set separately, in accordance with the particular sensor connected. Due to the built-in barometer, measurements of relative pressure are possible by means of the absolute pressure sensors.
- Synchronized sampling of all measurement channels
- Synchronized sampling with measurement systems or other appropriate modules is possible both with extra synchronization line and also simply via the CAN-Bus.

[1] Not with the cassette and IP65 models
[2] modules build before April 2011: 9 V to 32 V see specification label

Available pressure sensors

Type	Part No.	Input range
Rel. pressure sensor (R0,3)	3314014	±0,3 bar
Abs. pressure sensor (A10)	3314042	0 bar to 10,0 bar
Abs. pressure sensor (A6)	3314043	0 bar to 6,0 bar
Abs. pressure sensor (A3,5)	3314049	0 bar to 3,5 bar
Abs. pressure sensor (A1,2)	3314012	0,8 bar to 1,2 bar
Abs. pressure sensor (A1,2)	3314055	0 bar to 1,2 bar

Available connector nipples

Material	Part No.	Remarks
Stainless E	3314038	NW5; Viton® sealing
Stainless E	3314053	NW7,8; Viton® sealing
Chrome-plated brass NW5	3314052	NW5, leak-free, for fuels; Kalrez® sealing
Stainless NW5	3314054	NW5, leak-free, for fuels; Kalrez® sealing

Special characteristics

- The module can send a CAN-Bus message at intervals ("heartbeat“). This periodic message can serve the purpose of monitoring whether the correct module is being used with the correct configuration.
- The module's configuration can be exported by the software; this makes it possible to transfer configurations made by others by means of just the module.
- With the Long and Cassette models, the module can import slot data from the rack and pass it to automation software.

Optional accessories

Pressure inlet couplings

- CAN/21KLAD14MKC Leak-free, chrome-plated brass coupling

  Coupling with Kalrez® sealing, NW5, with 60° conical seal and metric outside thread as per DIN 2353 for connecting the tubes; flow direction from the coupling to the nipple suitable for fuels

- CAN/21KLAD14RKXS Leak-free, stainless steel coupling

  Coupling with Kalrez® sealing, NW5, with 60° conical seal and metric outside thread as per DIN 2353 for connecting the tubes, flow direction from the coupling to the nipple suitable for fuels

- CAN/25KAAD14RVX One-way stainless coupling

  Coupling with Viton® sealing, NW7,8, with 60° conical seal and metric outside thread as per DIN 2353 for connecting the tubes, flow direction from the coupling to the nipple

- CAN/21KFAD14RVX Free-passage stainless coupling

  Coupling with Viton® sealing, NW5, with 60° conical seal and metric outside thread as per DIN 2353 for connecting the tubes

- CAN/21KFAD14MPX Free-passage brass coupling

  Coupling with Perbunan® sealing, with 60° conical seal and metric outside thread as per DIN 2353 for connecting the tubes

Accessories for IP 65 model

- CAN/AMPH-3 3-pin Amphenol cable socket
- CAN/AMPH-4 4-pin Amphenol cable socket
- CAN/Adapter-AMPH-3 Adapter for power supply for CANSAS-IP65-P8

  3-pin Amphenol plug to CANSAS Power socket
  for connection to the power supply for CANSAS, CAN/Power-230
- CAN/Adapter-AMPH-4 Adapter for CANSAS-IP65-P8

  3-pin Amphenol plug to DSUB-9 plug
  for connection to CAN/Y-cable
- CAN/Adapter-AMPH-CON Adapter kit for configuration of a CANSAS-IP65-P8 unit

  Consists of a cable set with 3-pin Amphenol plug to CANSAS Power socket,
  4-pin Amphenol plug, Y-adapter with DSUB plug and 9-pin socket.
  DSUB-9 plug terminated with reset

Additional options and accessories

- Depending on the model, the modules can be either attached together to form stacks or installed in racks; see the document *"CANSAS Installation and Assembly"* for more on these options.
- The connectors necessary for the signals are described in "*Signal Connection Terminals*".
- The modules can be configured for CAN-network applications either by order at factory, or by the customer using appropriate configuration software. The necessary software as well as cables and additional accessories are presented in the documentation "*Integrating CANSAS in CAN-Networks*".

P8 (Pressure)

Datasheet **Version 1.6** (8 pressure measurement inputs)

Parameter	Value (typ. / max.)	Remarks
Inputs	8	
Measurement modes:	absolute pressure relative pressure	
Sampling rate/ channel	1 kHz (max.)	
Resolution	16Bit	

Absolute pressure measurement	Measurement uncertainty		Remarks
Input range +0.5 bar to 10.0 bar +0.5 bar to 3.5bar +0.8 bar to 1.2bar internal barometer	 < 0.2 % < 0.2 % < 0.2 % < 0.1 % abs. < 0.1 %abs.	 < 20 mbar < 7 mbar < 12 mbar < 1.2 mbar < 1.2 mbar	10°C to 60°C; input range determined by the built-in sensor; mounting position see outline of description of the module in CANSAS manual.[1]

Relative pressure measurement	Measurement uncertainty		Remarks
Input range			10°C to 60°C; uncertainty specs pertain to range
-0.3 bar to +0.3 bar	< 0.3 %	< 1.8 mbar	pressure sensor
-0.5 bar to +9.0 bar	< 0.2 %	< 21 mbar	derived by means of intern. barometer
-0.5 bar to +2.5 bar	< 0.25 %	< 8.2 mbar	“
-0.2 bar to +0.2 bar	< 0.6 %	< 2.4 mbar	“

Parameter	Value (typ. / max.)		Remarks
Medium hookup			
Leak-free [3]	quick-release nipples 5 stainless steel, perfluorine rubber (FFKM)4 5 chrome-plated brass, FFKM		designed for: gases, fuels, oils, water fuels
Non-leak-free	5 or 7,2, stainless, fluorine rubber (FPM, FKM)[5] 5, brass, butadiene acrylonitrile rubber (NBR)[6]		gases, oils, water gases
Mating cycles	1000		with regular lubrication
Overload protection			
	min.	max.	
Input ranges 0 bar to +10.0bar 0 bar to +3.5bar +0.8 bar to +1.2bar -0.3 bar to +0.3bar	 +0.5 bar -0.5 bar	 +15 bar +5 bar +1.5 bar +0.5 bar	
Material temperature:	0°C to +100°C Perfluorine rubber (FFKM) -15°C to +100°C Fluorine rubber (FPM, FKM)[4] 0°C to +100°C butadiene acrylonitrile rubber (NBR)[5] 0°C to +100°C Ethylene Propylene		The upper limits are determined by the pressure sensors. Sealings not used in standard models

CANSAS-IP65-P8 fluid pressure measurement module					
Channel	Range	Medium	Sensor	Module nipple	Recommended coupling (optional)
1, 2	0..10bar	fuel	absolute pressure sensor (A10)	NW5, chrome-plated brass, Kalrez®-sealing, leakage-free	order code: CAN/21KLAD14MKC NW5, chrome-plated brass, Kalrez®-sealing, leakage-free
3,4,5	0..6bar	oil / water	absolute pressure sensor (A10)	NW7,8, stainless, Viton®-sealing, free passage	CAN/25KAAD14RVX NW5, stainless, Viton®-sealing, one-way flow
6,7,8	0..10bar	oil / water	absolute pressure sensor (A10)	NW5, stainless, Viton®-sealing, free passage	CAN/25KAAD14RVX NW5, stainless, Viton®-sealing, one-way flow

[1] Due to the effect of gravity on the oil column in its internal barometer, the sensors' high sensitivity can lead to offset errors if its position is changed. (For measurements of relative pressure, this can be compensated using the Tare function)

[3] Leak-free signifies that the nipples come with a valve which closes automatically when the tube is disconnected (useful for liquids).

4 Brand name: Kalrez®

[5] Brand names: Viton®, Technoflon®, Fluorel®,

[6] Brand names: Perbunan® , Chemigum®, Hycar®, Krynac®, Elaprim®, JSR-N®

CANSAS-L-P8-G4 gas pressure measurement module, Type IV					
Channel	Range	Medium	Sensor	Module nipple	Recommended coupling (optional)
1-8	0..10bar	Gas	absolute pressure sensor (A10)	NW5, brass, Perbunan®-sealing, free passage	CAN/21KFAD14MPX: NW5, brass, Perbunan®-sealing, free passage

General technical specs			
Parameter	Value (typ. / max.)		Remarks
Isolation: CAN-Bus	±50 V		to housing (CHASSIS)
Supply voltage	10 V to 50 V DC		
Power consumption:	5 W (typ.)	8 W (max.)	24 V, over entire temperature range
Operating temperature	-15°C to 60°C		ambient temperature
Operating altitude	up to 1500 m		
Shock resistance	50 g pk		over 5 ms
Dimensions (W x H x D)	111 x 115 x 145 mm 122 x 128 x 145 mm 129 x 110 x 188 mm		CANSAS-L-P8 (dimensions without terminals) CANSAS-K-P8 CANSAS-IP65-P8 (incl. mounting angle)
Weight	approx. 1.3 kg approx. 1.8 kg		CANSAS-L-P8 CANSAS-IP65-P8
Connection terminals	8 x pressure nipples 2x DSUB-9 PHOENIX (MC 1.5/4STF-3.81) AMPHENO (C091 4-pin M) AMPHENO (C091 3-pin M)		Inputs: CANSAS-L-P8 CAN (in / out) Supply CANSAS-IP65-P8 CAN (in / out) Supply

Remarks:

- Accuracy ratings pertain to state after transients.
- If the module is subjected to accelerations, the inertia will cause measurement errors with the sensitive sensors.