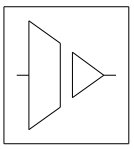
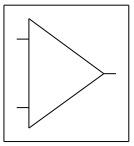
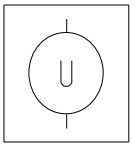
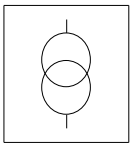
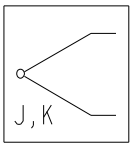
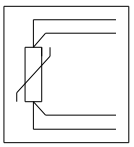
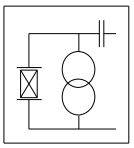
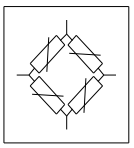
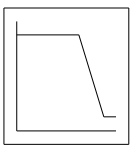
DATA TRANSLATION®

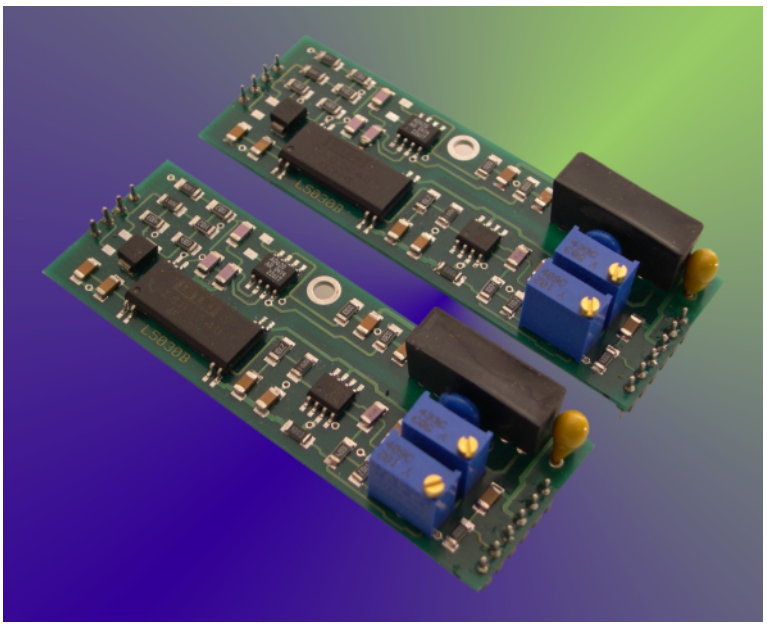



DT SAM Modules

Miniaturized

Signal Conditioning System



High-quality transformers with or without galvanic isolation

For temperature, pressure, bridge transducer, voltage, current signals

DT SAM Module Box or OEM specific application

- Rugged aluminium desktop cases or OEM application
- BNC-, or Lemo-, or Minithermo-connectors for signal connection
- Adapter for DT300 series PCI Data Acquisition boards
- Integrated DT9800-EC-I, DT9818, or ECON series USB Data Acquisition Device
- Universal D-Sub adapter

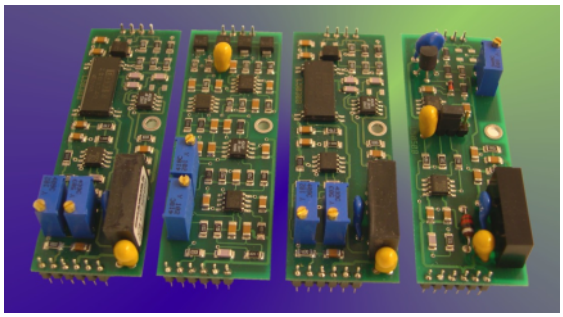
DT SAM Modules

DT SAM Modules are high-quality value transformers, which enable compact signal conditioning systems in PC-based Data Acquisition. They can be applied to OEM specific applications or inserted into DT SAM Module Boxes. The Module Boxes contain auxiliary power and a signal connector to the Data Acquisition device, which can be a DT9818, DT9800-EC-I, or DT ECON series USB module as well as a DT300 series PCI board. Each DT SAM Module enables one channel. DT SAM Modules are available for many sensors and signal types - voltage, current, RTD, thermocouples, ICP, bridge signals, low-pass filters - with or without galvanic isolation. All modules have a bipolar 10V output signal range.

The DT SAM Modules are developed and manufactured under employment of modern components and production processes, predominantly in SMD technology in Germany. Thus a long availability of the products is ensured.

General technical data DT SAM Modules:

Auxiliary power:	±15V DC ±5%
Design:	plug-in boards
Dimensions:	24.5 x 72.5 mm
Height:	max. 20 mm
Connector assembly:	2 pin rows RM2.54 mm



DT SAM Module Box S1

The DT SAM Module Box S1 has a rugged aluminium case and 5 slots for DT SAM modules. It also contains the power supply system and a signal connector to the Data Acquisition device. The power supply of the DT SAM Modules is galvanically isolated from the supply voltage of the box. The signal connection is made either by Lemo- or BNC-connectors.

Product Summary:

DT SAM Module slots:	5
Auxiliary power:	9 ... 18V DC
Power consumption:	< 8W
Dimensions:	165x160x45 mm
Connectors:	BNC or Lemo connectors
Power supply:	100-240V AC adaptor included

Ordering summary:

Signal adapter	with BNC-connectors	with Lemo-connectors (size1, 4-pin)
Data Translation DT300	DT SAM Module Box S1-BNC-DT300	DT SAM Module Box S1-L14-DT300
D-Sub connector 50-way	DT SAM-Module Box S1-BNC-DSub	DT SAM Module Box S1-L14-DSub

DT SAM Module Box S2

The DT SAM Module Box S2 is a rugged aluminium case with 7 slots for DT SAM-MC module carriers, each for two DT SAM modules. It is possible to build up signal conditioning systems with max. 14 analog input channels. The DT SAM Module Box also contains a wide range power supply unit and an universal 25-way D-Sub adapter to connect the output signals of the DT SAM amplifiers to a data acquisition board.

Product Summary:

DT SAM Module slots:	14 (7x2)
Dimensions:	257x111x256 mm
Connectors:	7 module carriers SAM-MC
Adapter:	25-way D-Sub
Power Supply:	100-240V AC included
Ordering Information:	DT SAM Module Box S2 (DT SAM-MC not included)

DT SAM Module Box S3

The DT SAM Module Box S3 is a rugged aluminium case with an integrated USB data acquisition device and 7 slots for DT SAM-MC module carriers, each for two DT SAM modules. It also contains a wide range power supply unit. With a DT SAM Module Box S3 it is possible to build up signal conditioning systems with max. 14 analog input channels.

Product Summary:

DT SAM Module Slots:	14 (7x2)
Dimensions:	364x111x256 mm
Connectors:	7 module carriers SAM-MC
USB Device:	DT9818, DT9800-EC-I, or ECON USB series
Power Supply:	100-240VAC integrated

Ordering information:

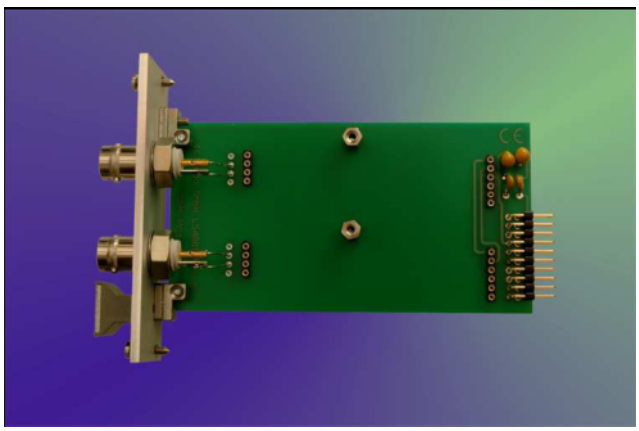
DT SAM Module Box S3-DT9800
DT SAM Module Box S3-DT9818
DT SAM Module Box S3-ECON
(DT SAM-MC and USB measurement device not included)

Module Carrier DT SAM-MC

Each DT SAM-MC module carrier has two free slots for DT SAM modules. The input signal of each DT SAM module is wired to a connector placed in the front plate of the module carrier. Available are front plates with isolated BNC connectors, Lemo connectors size 1, or miniature thermocouple connectors. The internal system connector supplies the DT SAM modules and transfers the output signals of the DT SAM amplifiers to the USB data acquisition device (S3) or to the D-Sub connector on the back panel of the system case (S2).

Ordering summary:

DT SAM-MC-BNC	isolated BNC connectors
DT SAM MC-L12	2-way Lemo connectors, size 1
DT SAM MC-L14	4-way Lemo connectors, size 1
DT SAM MC-MTJ	Miniature Thermo Type J
DT SAM MC-MTK	Miniature Thermo Type K
DT SAM MC-D01	Digital I/O 12-24V, D-Sub 9 4x Dig. In, 2x Dig. Out



Overview DT SAM-Modules

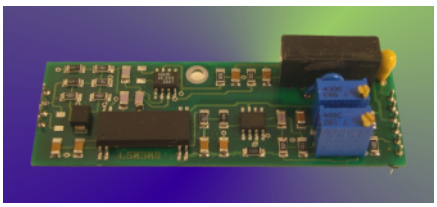
DT SAM 101 Voltage input with galvanic isolation

Signal Conditioning Module with active signal processing and galvanic isolation, capacitive signal transmission, isolation barrier voltage 1000V DC, fixed bandwidth, 2-pole low-pass filter.

Input ranges:	±500mV, ±1V, ±5V, ±10V, ±20V, ±30V, ±50V, other ranges on inquiry
Output range:	±10V
Signal bandwidth:	100Hz, 1000Hz, 5000Hz, 10.000Hz

Technical data:

Input resistance:	1MΩ
Output signal:	±10V
Accuracy:	0.1%
Linearity:	0.05%
Isolation voltage:	1000V DC
Common-Mode rejection:	>80dB
Output noise:	$10mV_{pp}$



Ordering summary:	DT SAM 101 - MMM - FFF - 10
Input ranges [MMM]:	±500mV [501], ±1V [102], ±5V [502], ±10V [103], ±20V [203], ±30V [303], ±50V [503]
Bandwidth [FFF]:	100Hz [101], 1000Hz [102], 5000Hz [502], 10.000Hz [103]

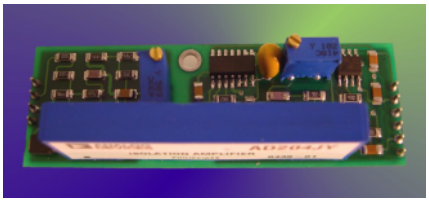
DT SAM 102 Voltage input with galvanic isolation

Signal Conditioning Module with active signal processing and galvanic isolation, inductive signal transmission, isolation barrier voltage 1000V DC, fixed bandwidth, 2-pole low-pass filter.

Input ranges:	±500mV, ±1V, ±5V, ±10V, ±20V, ±30V, ±50V, other ranges on inquiry
Output range:	±10V
Signal bandwidth:	100Hz, 1000Hz

Technical data:

Input resistance:	1MΩ
Output signal:	±10V
Accuracy:	0.1%
Linearity:	0.05%
Isolation voltage:	1000V DC
Common-Mode rejection:	>80dB
Output noise:	$5mV_{pp}$



Ordering summary:	DT SAM 102 - MMM - FFF - 10
Input ranges [MMM]:	±500mV [501], ±1V [102], ±5V [502], ±10V [103], ±20V [203], ±30V [303], ±50V [503]
Bandwidth [FFF]:	100Hz [101], 1000Hz [102]

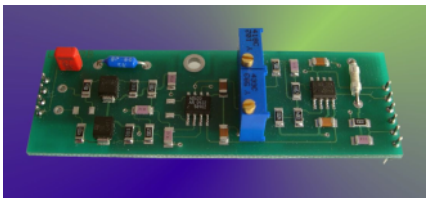
DT SAM 131 Voltage input without galvanic isolation

Signal Conditioning Module with active signal processing, without galvanic isolation, differential input amplifier, fixed bandwidth, 2-pole low-pass filter.

Input ranges:	±500mV, ±1V, ±5V, ±10V, ±20V, other ranges on inquiry
Output range:	±10V
Signal bandwidth:	100Hz, 1000Hz, 5000Hz, 10.000Hz

Technical data:

Input resistance:	1MΩ
Output signal:	±10V
Accuracy:	0.1%
Linearity:	0.05%
Common-Mode impedance:	250kΩ
Common-Mode rejection:	>80dB



Ordering summary:	DT SAM 131 - MMM - FFF -10
Input ranges [MMM]:	±500mV [501], ±1V [102], ±5V [502], ±10V [103], ±20V [203]
Bandwidth [FFF]:	100Hz [101], 1000Hz [102], 5000Hz [502], 10000Hz [103]

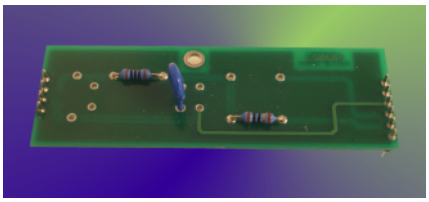
DT SAM 401 Voltage input without active signal conditioning

Signal Conditioning Module without active signal processing, input overvoltage protection, with passive low-pass filter option

Input range:	±10V
Output range:	±10V
Signal bandwidth:	n/a

Technical data:

Over voltage protection:	14V AC
Output signal:	±10V
Low pass filter:	optional



Ordering summary:	DT SAM 401 - 103 -10

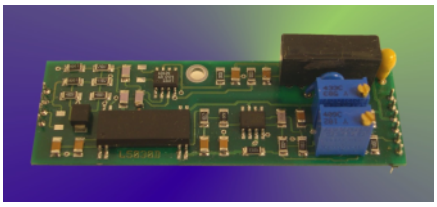
DT SAM 111 Current input with galvanic isolation

Signal Conditioning Module with active signal processing and galvanic isolation, capacitive signal transmission, isolation barrier voltage 1000V DC, fixed bandwidth, 2-pole low-pass filter.

Input range:	±20mA
Output range:	±10V
Signal bandwidth:	100Hz, 1000Hz

Technical data:

Input resistance:	50Ω
Output signal:	±10V
Accuracy:	0.1%
Linearity:	0.05%
Isolation voltage:	1000V DC
Common-Mode rejection:	>80dB
Output noise:	$10mV_{pp}$



Ordering summary:	DT SAM 111 - 200 - FFF - 10
Bandwidth [FFF]:	100Hz [101], 1000Hz [102]

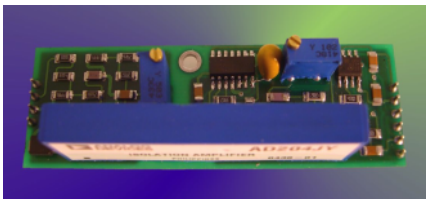
DT SAM 112 Current input with galvanic isolation

Signal Conditioning Module with active signal processing and galvanic isolation, inductive signal transmission, isolation barrier voltage 1000V DC, fixed bandwidth, 2-pole low-pass filter.

Input range:	±20mA
Output range:	±10V
Signal bandwidth:	100Hz, 1000Hz

Technical data:

Input resistance:	50Ω
Output signal:	±10V
Accuracy:	0.1%
Linearity:	0.05%
Isolation voltage:	1000V DC
Common-Mode rejection:	>80dB
Output noise:	$5mV_{pp}$



Ordering summary:	DT SAM 112 - 200 - FFF - 10
Bandwidth [FFF]:	100Hz [101], 1000Hz [102]

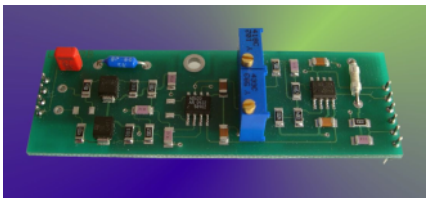
DT SAM 132 Current input without galvanic isolation

Signal Conditioning Module with active signal processing, without galvanic isolation, differential input amplifier, fixed bandwidth, 2-pole low-pass filter.

Input range:	±20mA
Output range:	±10V
Signal bandwidth:	100Hz, 1000Hz

Technical data:

Input resistance:	50Ω
Output signal:	±10V
Accuracy:	0.1%
Linearity:	0.05%
Common-Mode impedance:	250kΩ
Common-Mode rejection:	>80dB



Ordering summary:	DT SAM 132 - 200 - FFF - 10
Bandwidth: [FFF]:	100Hz [101], 1000Hz [102]

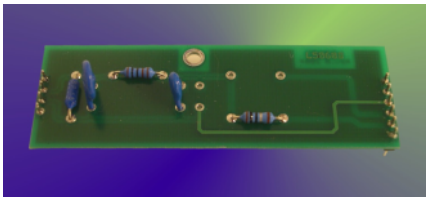
DT SAM 402 Current input without active signal conditioning

Signal Conditioning Module without active signal processing, input overvoltage protection, with passive low-pass filter option.

Input range:	±20mA
Output range:	±10V
Signal bandwidth:	not defined

Technical data:

Input resistance:	500Ω, 0.1%
Over voltage protection:	14V AC
Output signal:	±10V
Low-pass filter:	optional



Ordering summary:	DT SAM 402 – 200 – 10

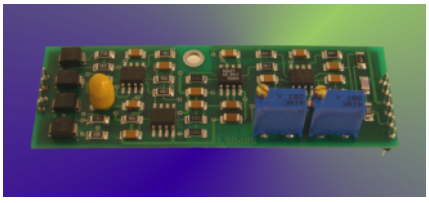
DT SAM 190 RTD without galvanic isolation

Signal Conditioning Module with active signal processing without galvanic isolation for PT100 transmitter, differential input amplifier, impressed current of 0.5mA for sensor supply, fixed bandwidth, 2-pole low-pass filter.

Input range:	PT100 up to 150°C, up to 400°C, other ranges on inquiry
Output range:	±10V
Signal bandwidth:	10Hz

Technical data:

Input resistance:	1MΩ
Output signal:	±10V
Sensor mode:	4-wire
Sensor supply:	0.5 mA
Accuracy:	0.1%
Linearity:	0.05%
Common-Mode rejection:	>80dB



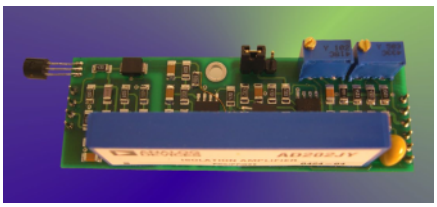
Ordering summary	DT SAM 190 - MMM - 100 - 10
Input range [MMM]:	150°C [151], 400°C [401]

DT SAM 141 Thermocouple Type J with galvanic isolation

Signal Conditioning Module with active signal processing with galvanic isolation for Type J Thermocouples. Cold junction compensation can be switched off, isolation barrier voltage 1000V DC, fixed bandwidth, 2-pole low-pass filter.

Input range:	Type J	0-750°C, other ranges on inquiry
Output range:	0-10V	
Signal bandwidth:	10Hz	

Technical data:



Input resistance:	100kΩ
Output signal:	0-10V
Accuracy:	0.1%
Linearity:	0.05%
Isolation voltage:	1000V DC
Common-Mode rejection:	>80dB
Output noise:	$5mV_{pp}$
Cold junction CJC:	on/off
Accuracy CJC:	±1.5°C

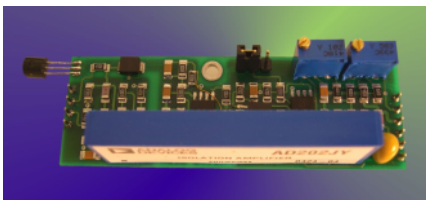
Ordering summary: DT SAM 141 - 751 - 100 - 10

DT SAM 146 Thermocouple Type K with galvanic isolation

Signal Conditioning Module with active signal processing with galvanic isolation for Type K Thermocouples. Cold junction compensation can be switched off, isolation barrier voltage 1000V DC, fixed bandwidth, 2-pole low-pass filter.

Input range:	Type K	0-500°C, 0-1000°C, other ranges on inquiry
Output range:	0-10V	
Signal bandwidth:	10Hz	

Technical data:



Input resistance:	100kΩ
Output signal:	0-10V
Accuracy:	0.1%
Linearity:	0.05%
Isolation voltage:	1000V DC
Common-Mode rejection:	>80dB
Output noise:	$5mV_{pp}$
Cold junction CJC:	on/off
Accuracy CJC:	±1.5°C

Ordering summary: DT SAM 146 - MMM - 100 - 10

Input range [MMM]: 500°C [501], 1000°C [102]

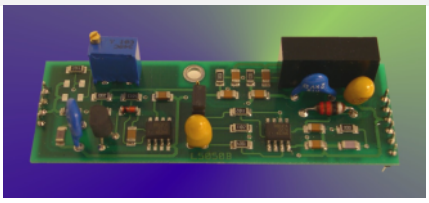
DT SAM 158 ICP accelerometers – without galvanic isolation

Signal Conditioning Module with active signal processing without galvanic isolation for ICP accelerometers, impressed current of 4 mA for sensor supply, max. supply voltage 30V, fixed bandwidth, low-pass filter 1st order.

Input range:	ICP signal ±10V
Output range:	±10V
Signal bandwidth:	20kHz

Technical data:

Input resistance:	500kΩ
Sensor supply:	4mA / 30V
Output signal:	±10V
Accuracy:	0.1%
Linearity:	0.05%
Common-Mode rejection:	>80dB



Ordering summary: DT SAM 158 - 103 - 203 - 10

DT SAM 151 Strain gages with instrumentation amplifier

Signal Conditioning Module with active signal processing without galvanic isolation for strain gages (full bridge), reference voltage 10V, differential input amplifier, zero and full scale calibration with potentiometers, jumper-selectable gain values, 2-pole low-pass filter.

Input ranges:	±20mV and ±50mV (2mV/V and 5mV/V), other ranges on inquiry
Output range:	±10V
Signal bandwidth:	100Hz, 1000Hz, 5000Hz

Technical data:

Input resistance:	1MΩ
Reference voltage:	10V / 35mA
Selectable input range:	Jumper
Output signal:	±10V
DC-Accuracy:	0.1%
Linearity:	0.05%
Common-Mode rejection:	>80dB

Ordering summary: DT SAM 151 - 200 - FFF - 10

Bandwidth [FFF]: 100Hz [101], 1000Hz [102], 5000Hz [502]

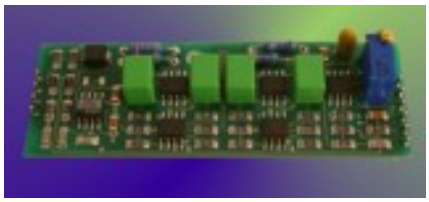
DT SAM 501 Butterworth low pass filter, 4th order

Signal Conditioning Module with active signal processing without galvanic isolation, 4-pole low-pass filter, differential input amplifier, fixed cut-off frequency.

Input range:	±5V, ±10V
Output ranges:	±10V
Signal bandwidth:	100Hz, 500Hz, 1000Hz, 5000Hz, 10kHz, other ranges on inquiry

Technical data:

Input resistance:	1MΩ
Frequency error:	±2.5%
Attenuation:	24dB/Oct.
Output range:	±10V
DC-Accuracy:	0.1%
Linearity:	0.05%
Common-Mode rejection:	>80dB



Ordering summary:	DT SAM 501 - MMM - FFF - 10
Input range [MMM]:	±5V [502], ±10V [103]
Bandwidth [FFF]:	100Hz [101], 500Hz [501], 1000Hz [102], 5000Hz [502], 10kHz [103]

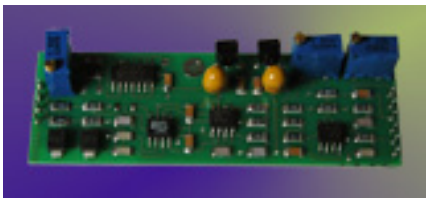
DT SAM 512 Butterworth low pass filter, 8th order

Signal Conditioning Module with active signal processing without galvanic isolation, 8-pole switched capacitor low-pass filter, differential input amplifier, fixed cut-off frequency.

Input range:	±10V
Output range:	±10V
Signal bandwidth:	100Hz, 500Hz, 1000Hz, 5000Hz

Technical data:

Input resistance:	300kΩ
Frequency error:	±3%
Attenuation:	48dB/Oct.
Output range:	±10V
DC-Accuracy:	0.1%
Linearity:	0.05%
Common-Mode rejection:	>80dB



Ordering summary:	DT SAM 512 - 103 - FFF - 10
Bandwidth [FFF]:	100Hz [101], 500Hz [501], 1000Hz [102], 5000Hz [502]

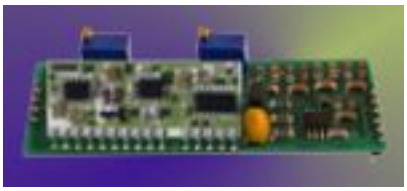
DT SAM 600 LVDT Displacement transducer without galvanic isolation

Signal Conditioning Module for full-bridge displacement transducer, Potentiometer for zero and full scale adjustment, fixed signal bandwidth.

Input range:	80mV/V
Output range:	±10V
Signal bandwidth:	400Hz

Technical data:

Input resistance:	100kΩ
Oscillator:	3500Hz / 2.2V_{eff}
Linearity:	0.02%
Output range:	±10V
Phase error (10Hz):	2.5°
Output noise:	5mV_{eff}



Ordering summary: DT SAM 600 - 100 - 401 - 10

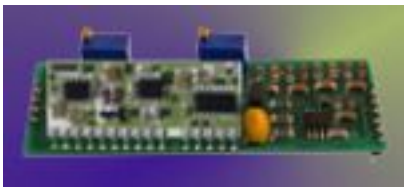
DT SAM 605 LVDT Displacement transducer without galvanic isolation

Signal Conditioning Module for half-bridge displacement transducer, Potentiometer for zero and full scale adjustment, fixed signal bandwidth.

Input range:	80mV/V
Output range:	±10V
Signal bandwidth:	400Hz

Technical data:

Input resistance:	100kΩ
Oscillator:	5000Hz / 1V_{eff}
Linearity:	0.02%
Output range:	±10V
Phase error (10Hz):	2.5°
Output noise:	5mV_{eff}



Ordering summary: DT SAM 605 - 100 - 401 - 10

Errors excepted. Subject to change without notice.

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