

# Resolver-to-digital converter



The MSX-RDC-17 is a device for supplying and acquiring a resolver. It converts the position value given by the resolver into a digital incremental output signal. The resolution of the incremental encoder output can be defined using the switch on the front side of the MSX-RDC-17.

## MSX-RDC-17

Resolver-to-digital converter

Conversion of resolver signals into digital signals

4 different resolution settings

### Features

#### Power supply

Nominal voltage: 5 V

#### Resolver output/input

- Frequency: 10 kHz

#### Incremental encoder output

- Output signals: incremental A+, A-, B+, B-, Index+, Index-
- Output type: differential, RS485
- Resolution: 10-/12-/14-/16-bit

### Power supply connector

For the power supply of the MSX-RDC-17, a 4-pin screw terminal is fixed on the bottom side of the housing.

Pin No.	Signal
1	+V <sub>s</sub> (5 V)
2	Ground
3	Ground
4	+V <sub>s</sub> (5 V)

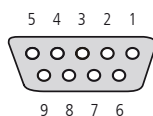


The Ground and the supply pins are connected internally with each other. For less current flow over the terminals, please connect all four pins externally with each other!

### Resolver connector

The resolver has to be connected to the 9-pin D-Sub female connector on the front side of the MSX-RDC-17.

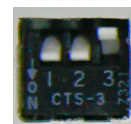
Pin No.	Signal
1	Ref-
2	Not connected
3	Not connected
4	Not connected
5	SIN+
6	SIN-
7	Ref+
8	COS+
9	COS-
Shield	PE



### Switch

On the front side of the MSX-RDC-17, a switch panel with three switches is installed. Switches 1 and 2 are used for setting the resolution of the incremental encoder output. Switch 3 allows you to reset the MSX-RDC-17. To do a reset, you have to switch on switch 3 for a short time and then switch it off again. Please do not leave switch 3 switched on permanently, because the MSX-RDC-17 is not functional with this switch position!

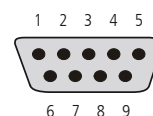
1	2	3	
OFF	OFF	OFF	16-bit resolution
OFF	ON	OFF	14-bit resolution
ON	OFF	OFF	12-bit resolution
ON	ON	OFF	10-bit resolution
X	X	ON	Whole device in reset state



### Incremental encoder output

The incremental encoder signals are available at the 9-pin D-Sub male connector of the MSX-RDC-17.

Pin No.	Signal
1	Ground
2	Index-
3	Index+
4	A-
5	A+
6	Not connected
7	+V <sub>s</sub>
8	B-
9	B+
Shield	PE



## Specifications

Dimensions:	118 x 23 x 100 mm (L x B x H)
Weight:	100 g

### Power supply

Nominal voltage:	+5 V
Supply voltage:	+4.9 V to +5.25 V
Current consumption at 5 V:	140 mA (at 100 rps / 16-bit resolution)
Reverse voltage protection:	-6 V

### Resolver output/input

#### Output reference signal

Amplitude:	$7 V_{pp}$ (differential)
Frequency:	10 kHz
Max. output current:	100 mA

#### Input signals

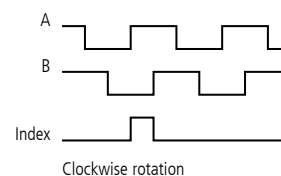
Amplitude:	from $2.3 V_{pp}$ min. to $4 V_{pp}$ max.
------------	---

### Incremental encoder output

Output signals:	A+, A-, B+, B-, Index+, Index-	
Output type:	differential, RS485	
Nominal voltage:	+5 V	
Max. output current:	100 mA	
Resolution:	selectable via switch:	A/B pulse / revolution:
	10-bit	256
	12-bit	1024
	14-bit	4096
	16-bit	16384
Accuracy:	$\pm 5$ arcmin	
Max. speed:	depends on the selected resolution	
	10-bit: 2500 rps	
	12-bit: 1000 rps	
	14-bit: 500 rps	
	16-bit: 125 rps	

### Index signal (incremental encoder output)

An Index pulse is generated when the absolute angular position passes through 0.



### Intended Use

The resolver-to-digital converter MSX-RDC-17 has to be used as electrical equipment for measurement, control and laboratory pursuant to the standard DIN EN IEC 61010-1.

The power supply for the resolver-to-digital converter MSX-RDC-17 must fulfil the requirements of DIN EN IEC 62368-1 and DIN EN 55032 or IEC/CISPR 32 and DIN EN 55024 or IEC/CISPR 24.

### Usage restrictions

The resolver-to-digital converter MSX-RDC-17 must not be used as a safety-related part (SRP).

The resolver-to-digital converter MSX-RDC-17 must not be used for safety-related functions, for example for emergency stop functions.

The resolver-to-digital converter MSX-RDC-17 must not be used in potentially explosive atmospheres.

The resolver-to-digital converter MSX-RDC-17 must not be used as electrical equipment according to the Low Voltage Directive 2014/35/EU.

### Limits of use

All safety information and the instructions on this datasheet must be followed to ensure proper intended use.

Uses of the resolver-to-digital converter beyond these specifications are considered as improper use. The manufacturer is not liable for damages resulting from improper use.

The resolver-to-digital converter must remain in its anti-static packaging until it is installed.

Please do not delete the identification numbers of the resolver-to-digital converter or the warranty claim will be invalid.

## Ordering information

### MSX-RDC-17

Resolver-to-digital converter, conversion into digital signals, 4 different resolution settings.