

# ADTi-100 Advanced Diagnostic Tool






The ADTi-100 Advanced Diagnostic Tool acquires comprehensive real-time data from Renishaw's QUANTiC™, VIONiC™ and ATOM DX™ encoders, aiding installation and diagnostics, as well as allowing system optimisation. This information is displayed via the user-friendly Renishaw ADT View software <sup>1</sup> interface on a Windows™ tablet or PC.

The set-up LED on the readhead is generally sufficient for setting up the encoder but Advanced Diagnostic Tools can be used to aid more challenging installations. The ADTi-100, in conjunction with ADT View, displays diagnostic information from the encoders, such as signal strength vs position along the axis, and can save this data in standard file formats such as CSV. This allows system performance to be tracked, assisting in planning scheduled preventative maintenance and system fault-finding, therefore helping avoid lengthy unplanned machine downtime.

The ADTi-100 can be connected in-line between an incremental encoder readhead and the motion controller to give continuous encoder data feedback in real time.

<sup>1</sup> Free ADT View software download is available directly from [www.renishaw.com/adt](http://www.renishaw.com/adt).

## Compatible readheads

	QUANTiC	VIONiC	ATOM DX
			
<b>Output</b>	Analogue 1 Vpp. Digital resolutions from 10 µm to 50 nm.	Digital resolutions from 5 µm to 2.5 nm.	Digital resolutions from 10 µm to 5 nm
<b>Readhead size (Length x Width x Height)</b>	35 mm x 13.5 mm x 10 mm	35 mm x 13.5 mm x 10 mm	Cabled variant: 20.5 x 12.7 x 10.85 Top exit variant: 20.5 x 12.7 x 7.85
<b>Pitch</b>	40 µm	20 µm	20 µm or 40 µm
<b>Sub-Divisional Error (typical)</b>	Analogue: < ±120 nm Digital: < ±80 nm	< ±15 nm	20 µm version: < ±75 nm 40 µm version: < ±120 nm

## ADTi-100 general specifications

<b>Power supply</b>	5 V -5%/+10%  Ripple	Typical current consumption < 20 mA <sup>1</sup> The ADTi-100 can be powered from the USB port or an external 5 Vdc supply with the requirements for SELV of standard IEC 60950-1 200 mVpp maximum @ frequency up to 500 kHz
<b>Temperature</b>	Storage Operating	-20 °C to +70 °C 0 °C to +55 °C
<b>Humidity</b>		95% relative humidity (non-condensing) to IEC 60068-2-78
<b>Sealing</b>		IP20
<b>Shock</b>	Operating	500 m/s <sup>2</sup> , 11 ms, ½ sine, 3 axes
<b>Vibration</b>	Operating	Sinusoidal 40 m/s <sup>2</sup> max @ 55 Hz to 2000 Hz, 3 axes
<b>Mass</b>		110 g
<b>EMC compliance</b>		IEC 61326-1: 2013

## Minimum PC requirements

- Supported operating systems: Windows® 10 (x86 or x64) or Windows 11 (x64).
- Quad-core 1.44-1.92 GHz processor
- 2 GB DDR3 RAM
- 5 GB disk space (including 2.5 GB for .NET)
- 500 MHz GPU capable of 1024 x 600 resolution or higher

<sup>1</sup> For the current consumption of the encoder system refer to the relevant data sheet.

## ADTi-100 pinouts

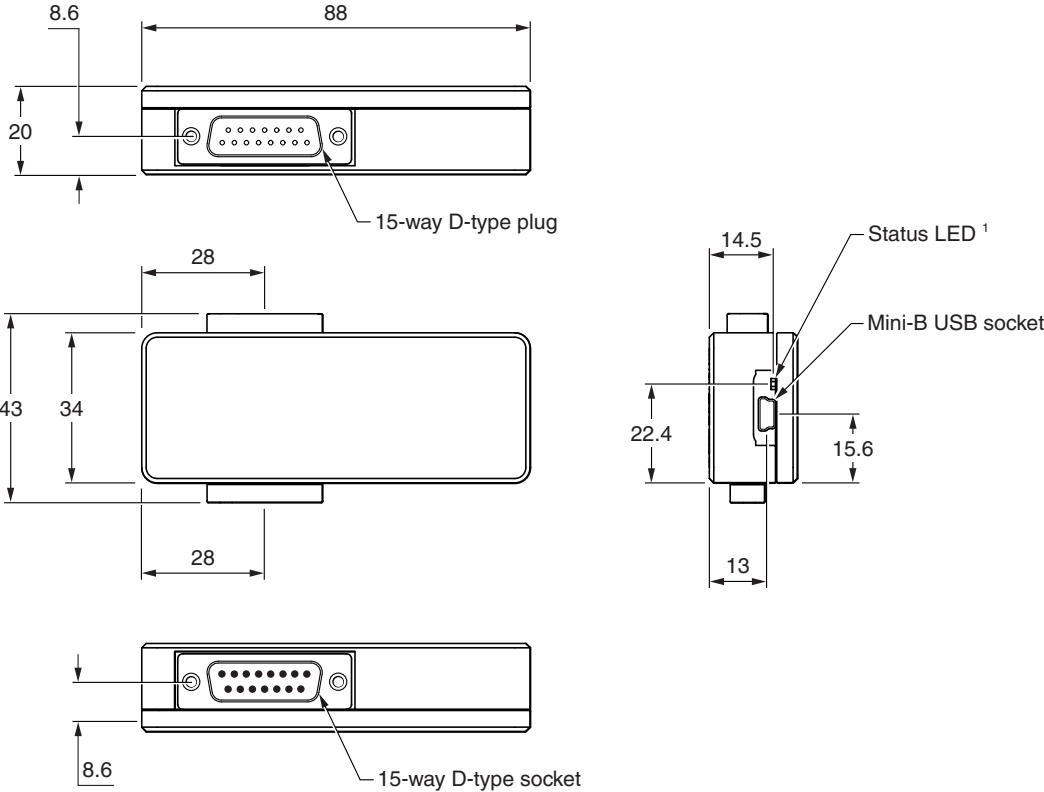
Function	Signal		Input pins (15-way D-type socket)	Output pins (15-way D-type plug)
Power	5 V		7, 8	7, 8
	0 V		2, 9	2, 9
Incremental	A	+	14	14
		-	6	6
	B	+	13	13
		-	5	5
Reference mark	Z	+	12	12
		-	4	4
Limits <sup>1</sup>	P		11	11
	Q		10	10
Alarm	E	-	3	3
CAL/Comms	CAL		1	-
Not connected	-		15	15
Shield	-		Case	Case

**NOTE:** Adaptor cables required when connecting the analogue variant of QUANTiC.

<sup>1</sup> Limits are not available with ATOM DX systems.




# ADTi-100 dimension drawing

Dimensions and tolerances in mm



<sup>1</sup> **Status LED indication:**  
**Red** - ADT connected to controller or PC.  
**Green** - ADT View software communicating with ADT.

## ADTi-100 and accessory part numbers

Part description	Part number	Product image
<p><b>ADTi-100</b></p>	<p>A-6195-0100</p>	
<p><b>USB cable</b> Connects the ADTi-100 to a PC</p>	<p>A-9572-0098</p>	
<p><b>ADT View software</b></p>	<p>Free to download from <a href="http://www.renishaw.com/adt">www.renishaw.com/adt</a></p>	

## Adaptor cables

The listed adaptor cables enable readheads with different terminations to be connected to the 15-way D-type input of the ADTi-100. Each kit consists of two cables. One connects the readhead cable to the ADTi-100. The other, if required, connects the ADTi-100 to the controller cable.

### Digital readheads

Readhead cable termination <sup>1</sup>	Pin-out	Part number
D	15-way D-type (standard pin-out)	The readhead plugs directly into the ADTi-100.
A	9-way D-type	A-6195-0102
K	10-way JST	A-6195-2074
H	15-way D-type (alternative pin-out)	A-6195-0103
X	12-way circular	A-6195-0104
J	14-way JST	A-6195-2073

### Analogue readheads

**NOTE:** The ADT will require 120 Ω termination. This must be provided by, either the controller, or the termination tool. Refer to the *Advanced Diagnostic Tools and ADT View software* user guide (Renishaw part no. M-6195-9413) for more information.


Readhead cable termination <sup>1</sup>	Pin-out	Part number
L	15-way D-type (standard pin-out)	A-6637-1540
H	15-way D-type (alternative pin-out)	A-6637-1560
J	14-way JST	A-6195-2073

Part description	Product image	Part number
<p><b>Termination tool</b> For use with the analogue variant of QUANTiC</p>		A-6195-2132

<sup>1</sup> Determined from readhead nomenclature. Refer to the relevant readhead series data sheet for full readhead nomenclatures.

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+44 (0) 1453 524524  [uk@renishaw.com](mailto:uk@renishaw.com)

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