



# ART+ 2D

## Instrument Description & System Specifications

### General Description

Art+<sup>®</sup> is designed to be used only in conjunction with Aims<sup>®</sup> inventory management software. The Art+<sup>®</sup> instrument consist of an Art+<sup>®</sup> scanning instrument, its mounting system, control cable and ART<sup>®</sup> control cabinet.

Art+<sup>®</sup> is a 220° single axis laser scanner with a range of 50m(>80% reflectivity) and an angular resolution of 0.0012° which, when used in conjunction with Aims<sup>®</sup> produces a 2D point cloud with a 50m radius.

The data derived from the point cloud is used by Aims<sup>®</sup> to create an accurate profile of the product being stored in the silo bin.

The instrument has an IP65 rating and has a 24v±10% DC power requirement, with communication from the controller to the device being RS232 and from the controller to the network being TCP/IP V4.

The ART<sup>®</sup> control cabinet is the communication and power interface to the Art+<sup>®</sup> scanning instrument and contains an Ethernet to Serial Device Server and DIN rail mounted terminals for power and data. The 24VDC outputs are protected by suitably rated fuses with a breaking capacity of 1500A (1.5kA).

ART<sup>®</sup> Control cabinet receives power from a 24VDC power buss.

Depending on the model, the ART<sup>®</sup> Control Cabinet can be supplied with either a 5 GHz Ethernet radio or a fibre optic switch both of which connect to the on board Ethernet Serial Device Server.

Art+<sup>®</sup> is designed for use in silo bins with single, centrally located fill and discharge points. The silo bin should be self-emptying and have a diameter of less than 18 meters.

Art+<sup>®</sup> is recommended for use on medium to high reflectivity products, but including sunflower, that are not exposed to direct sunlight and where the measuring ranges do not exceed 50m.

Several Art+<sup>®</sup> instruments can be deployed as part of a network where they can operate in a bin or silo. The point cloud density is fixed and scan times are dependent upon product reflectivity / laser response time.

The accuracy of the scanner is effected by the accuracy of the laser, being 1-3mm, (this can be impaired by the laser scanning against acute surfaces as well as by further distances), and the accuracy of the motors' movement, being ±5% of step size.



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Art+® can be mounted either overhead or alongside the product profile, however placement depends upon the field of view that a position provides. It is always preferable to position Art+® as close to the centre of the silo bin as possible with the scanner scanning through the empty silo bins' discharge hopper.

Ideally Art+® should be positioned so that the instruments full range of movement is used to its best potential. The instrument should be mounted so that the moving parts of the instrument neither contact against any structures nor against the product profile.

The maximum distance that the ART® cabinet can be installed from the Art+® instrument is 20m and both the cabinet and the instrument should be installed in a position where they are accessible for maintenance purposes.

AIMS® maintains a diagnostic schedule which notifies the user to any system faults and where possible the cause thereof, many of these faults can be either diagnosed and resolved remotely and this service can be remotely provided by Ronin.

Art+® does not require any preventative maintenance or servicing, although dust can build up on the inside of the dust tubes and this may require for them to be cleaned on an annual or bi-annual basis, this can be simply done by maintenance personnel in-situ. Do not use high pressure or compressed air to blow away dust or dirt build-up.

In order to maintain its certification any repairs to the Art+® instrument must be carried out by qualified personnel at a certified facility. However if a customer operates several Art+® systems then we recommend that the customer maintains a service exchange stock as the laser can be replaced in-situ by maintenance personnel, as can the whole Art+® instrument if necessary.

### Models

	Power Source	Network Connection
Art+® M	Buss	LAN
Art+® J	Buss	LAN
Art+® ATEX	Buss	LAN