

A ℓ SCAN™ Continuous Monitoring Option & Upgrade P/N HMZ0500D & HMZ0600D

ABB has introduced the A ℓ SCAN™ Continuous Monitoring Option, a powerful tool that links aluminum hydrogen content to its main source: the humidity content in ambient air. With this option, the analyzer also measures the ambient temperature and humidity and then calculates the absolute humidity and the theoretical dissolved hydrogen content in the melt coming from this source. Process characterization and equipment optimization of an in-line degasser or other degassing treatments can now be performed more rapidly and efficiently as all the information related to dissolved hydrogen are put together for easy data analysis.

In addition, the A ℓ SCAN™ analyzer can now perform long sequences of measurements while being connected to a remote computer. You no longer have to baby-sit the analyzer as its operation can be remotely monitored from a control room or even from your own computer!

Direct access to saved data and flexibility in the A ℓ SCAN™ operation have never been so easy and straightforward, thanks to the Networkability & Multi-tasking qualities of the continuous monitoring option software!

Even with its new powerful capabilities and additional information, the A ℓ SCAN™ hydrogen analyzer is just as easy to operate as before... it still operates through the use of a single button!

Relationship between ambient humidity & dissolved hydrogen

The Continuous Monitoring Option measures the ambient conditions that affect the dissolved hydrogen in liquid aluminum with a humidity and ambient temperature sensor, which is located in the rechargeable nitrogen cylinder compartment.

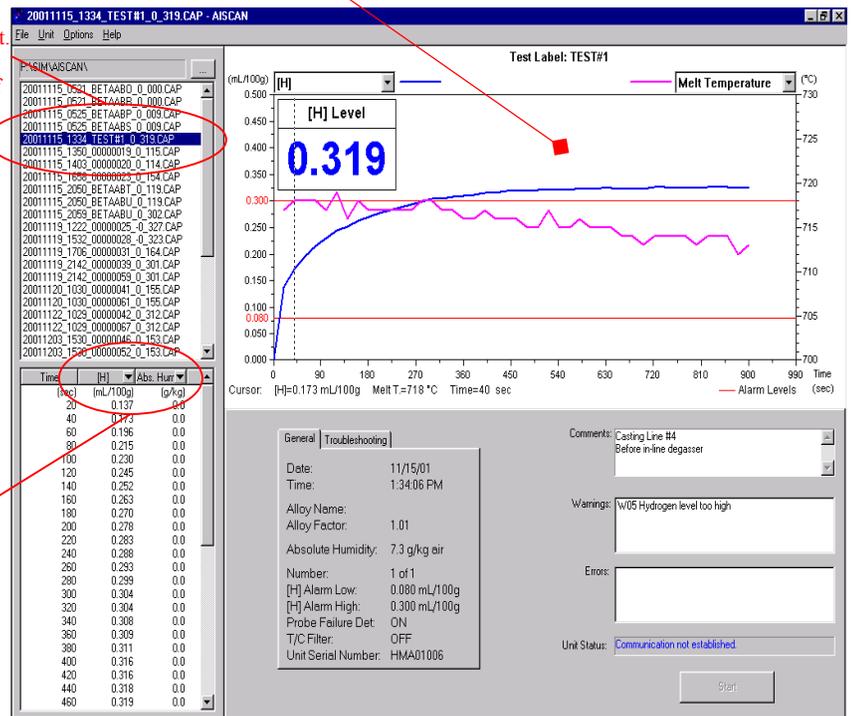
From the measured ambient conditions, the software calculates the absolute humidity and the theoretical value of the dissolved hydrogen level.

This information is vital when the A ℓ SCAN™ hydrogen analyzer is used to evaluate or optimize the performance of an in-line degasser or other degassing treatments.

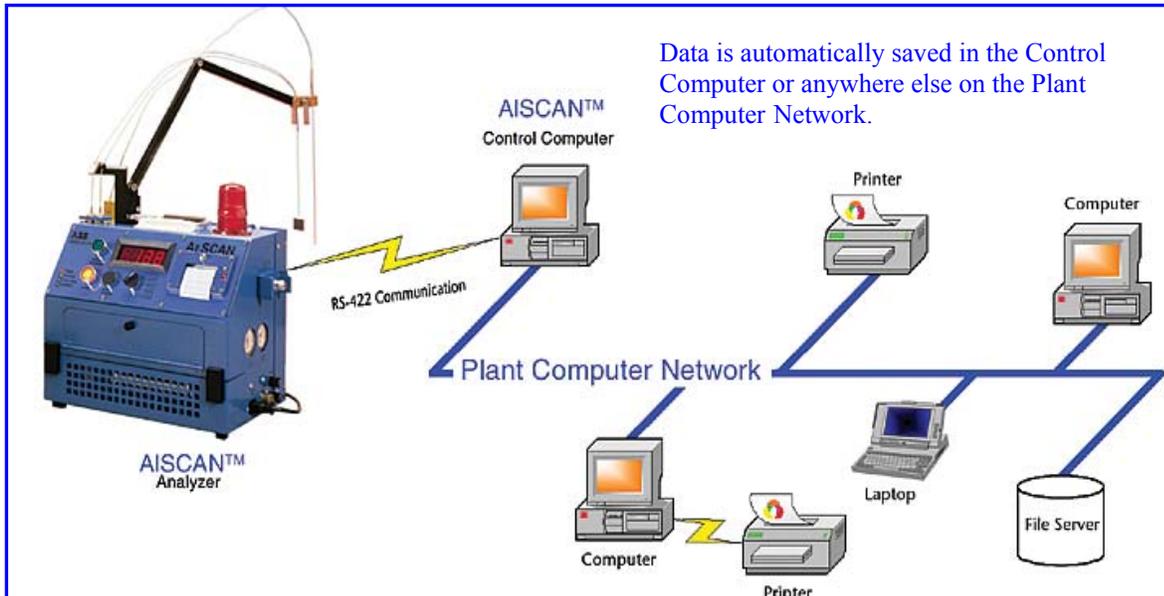
Graphical display of hydrogen concentration & related parameters

One file per measurement. (File name composed of the date, time, test label and final result)

Dissolved [H] calculations & absolute humidity



For example, the hydrogen removal capacity of an in-line degasser is limited by ambient humidity conditions. Results from in-line degassing model and plant data have shown that degassing efficiency alone is not a good basis for degasser optimization. The impact of ambient humidity must also be considered. ^[1]



Modes of operation: local operation & remote monitoring

The continuous monitoring option also offers you flexibility in operating your A ℓ SCAN™. The unit can operate on its own or be linked and controlled by a remote computer. When the analyzer is not connected, the files are saved in the extended built-in memory of the unit and can be easily transferred to an external computer for later data review and analysis.

Process characterization or equipment optimization normally requires long or numerous sequences of measurements in order to acquire enough data to accomplish the task. Therefore, it would be more convenient to connect the A ℓ SCAN™ analyzer(s) to a remote computer.

A ℓ SCANTM continuous monitoring software P/N HMZ0500D

Direct access to saved data and flexibility in the A ℓ SCANTM's operation has never been so easy and straightforward, thanks to the Networkability & Multi-tasking qualities of the continuous monitoring option software!

Networkability

From the comfort of your office or from any other computer throughout your network, you can:

- ➔ Share and review A ℓ SCANTM data with your colleagues,
- ➔ Directly see a new measurement that has just been acquired by the unit.

Multi-Tasking

From the A ℓ SCANTM control computer, you can:

- ➔ Simultaneously control several A ℓ SCANTM units. To do so, each analyzer must be connected to a separate serial port,
- ➔ Review previous measurements while one or several measurements is (are) in progress.

➔ Configure the range of each parameter in a blink of an eye

➔ Built your own Table of Alloys

➔ Determine alloy parameters for each alloy position

AℓSCAN™ continuous monitoring upgrade P/N HMZ0600D

All existing AℓSCAN™ analyzers manufactured after May 1993 are compatible with the continuous monitoring option upgrade P/N HMZ0600D. This upgrade includes the following:

- New AℓSCAN™ continuous monitoring software,
- Temperature and humidity sensors built into a robust stainless steel NEMA 4 enclosure that is located in the refillable-bottle compartment, c/w holding brackets and external connector,
- New nitrogen cylinder recess cover,
- Serial interface RS-232 to RS-422 optically-coupled converter for a safe long distance link,
- A 50' communication cable c/w connectors and a RS-422 to RS-232 re-converter to connect the analyzer to a computer,
- CPU memory upgrade to extend memory capabilities to more than 240 tests of 10-minute measurements.

Date of Manufacture	CPU Revision	Actual Memory		Memory Upgrade ^{(2) (4)}	
		Kb RAM	# tests ⁽¹⁾	Kb RAM	# tests ⁽¹⁾
Before May 1993 ⁽³⁾	---	N/A	N/A	N/A	N/A
Between May 1993 and July 1998	HEA3100D (Rev. 2-0)	32	~ 40	64	~ 80
Between July 1998 and January 2002	HEA3100D (Rev. 3-0)	64	~ 80	192	~ 240
After February 2002	HEA5000D (Rev. 1-0)	192	~ 240	N/A	N/A

Notes:

- (1) Number of tests based on 10-minute measurements with a data point saved every 20 seconds. These values are approximate.
- (2) Analyzers should be returned to our factory for a memory upgrade installation.
- (3) AℓSCAN™ systems manufactured before May 1993 that have not been upgraded to software version 4-2 or higher need an evaluation from ABB before installation of the new software or the continuous monitoring option can be done.
- (4) For additional memory, the new CPU P/N HEA5000D must be installed.

References:

[1] Peter D. Waite, "Improved metallurgical understanding of the Alcan compact degasser after two years of industrial implementation in aluminium casting plants", *Light Metals 1998*, pages 791-796

