



## Industrial process analysis made easy



### Condition Monitoring at its best

To increase productivity, maximise quality, minimise down-time and reduce maintenance times, use PROMON – the complete High Speed Vision system from AOS Technologies. Hold all the cards in your hand:

- **Identify** causes of malfunctions instantly and repair them effectively.
- **Prevent** time-consuming trial and error (condition-oriented maintenance, RCM/Reliability Centred Maintenance).
- **Maximise** production rate and process speed – with increased quality and more consistency.
- **Visualise** delicate process stages and enable purposeful and rapid “Fine Tuning” of the production line.
- **Reduce** discussion times and achieve more flexibility and economy.
- **Document** your processes at every stage – even over hours. Provide traceability and trackability.



## Process control with High Speed Image Streaming – why?

Production plants are only profitable if ...

- The processes run stably
- The throughput is optimised
- Downtimes are minimised
- Causes of malfunction are rapidly identified and effectively repaired

But that is more simply said than done. Due to high clock rates, visual monitoring of the production plants by eye or with conventional cameras is not possible. The processes are

simply too fast. Now there is an effective solution.

The PROMON is specifically designed for the needs of industrial process control. An AOS camera system offers everything you need. A single, simple system which can enable you to

- Optimise manufacturing processes
- Reduce discussions and uncertainties
- Shorten set-up and changeover times
- Locate causes of malfunction
- Quantify and document improvements

## Why a PROMON camera system?

Process control using a commercial camcorder is common. However this leads to success in very few cases. On the one hand the picture rate of 25 or 30 pictures per second is usually too slowly, in fact most modern video cameras only capture a few supporting pictures per second and they interpolate intermediate frames so that no real information can be gleaned. What about “fast” digital cameras? – with advertisements often boasting “1000 pictures/second”. These are also unsuitable for industrial applications – the image quality is very poor due to smaller resolution and extreme data compression of the image. Video and digital cameras also require manual operation of the Start/Stop button, which makes the finding and analysing of the crucial sequences very time-consuming, like searching for a needle in a haystack.

PROMON camera systems however capture separate images with no temporal or spatial compression, so every detail of the fastest procedures is captured. In addition PROMON systems can also be triggered accurately, to guarantee that no critical procedure is missed and enabling rapid and purposeful evaluation of specific events.



Commercial video camera with compressed display format (supporting pictures with interpolated “intermediate frames”)



AOS PROMON (uncompressed frames, each one containing complete image information)

Note: This is a simplified representation.

## One system – Numerous applications

The system has a very wide range of applications due to its versatility and functionality. This makes the unique PROMON camera systems invaluable in almost all mechanical production areas. Effective and measurable process optimisation – a valuable investment.

### Bottling of beverages

Whether soft drinks, beer, or mineral waters, ... with PROMON, you can see damaged bottles and deformed bottle caps. And you can monitor the correct application of labels – at maximum speed.

### Packaging of goods

The correct feeding and folding of carton packaging, the precise cutting and ejection of metal packaging ... Thanks to PROMON nothing is hidden.

### Processing of food

Packaging of baked products, chocolates or confectionary ... with PROMON you can optimise your plants operation for maximised throughput – and minimised uncertainty.

### Packing pharmaceutical products

Particularly challenging is the correct blisterpacking of pills and tablets. Now it's possible to recognise small variations and document the whole process smoothly (product liability, traceability). PROMON will give you true peace of mind.

### Surface Inspection

Complete documentation of the condition of Foils and paper webs. Pro-actively pinpoint possible causes of malfunction ... the PROMON High Speed Camera system takes tasks like this in its stride.

### Processing of cellulose products

such as paper nappies (diapers), napkins and paper handkerchiefs. Manufactured and packed at the highest cycle rates, PROMON can document all these processes in exact detail, picture by picture.



• Bottling of beverages



• Packaging of goods



• Processing of food



• Packing pharmaceutical products



• Surface Inspection  
• Web-based products like paper and foil webs, plastic film, fabrics etc



• Processing of cellulose products (Disposable nappies, napkins, tissues, kitchen roll etc.)





**Conscientious customers choose PROMON – and win time and time again. For example:**

<b>Procter &amp; Gamble</b>	Monitoring machinery adjustments within the plant. For quality control as well as faultfinding.
<b>ABB</b>	Complete recording of the supplied raw rock in cement plants (quality control).
<b>Feldschlösschen</b>	Process optimisation as well as pinpointing breakdown causes during the bottling of beverages.
<b>Habasit</b>	Optimisation and development of high speed conveyors – often bespoke. Optimisation of the individual elements as well as the drive and guide rollers.

« *The PROMON system enables completely new possibilities in process optimisation and is simple to operate.*

Bernhard Steinegger, Head of mechanical maintenance, bottling hall,  
Brewery Feldschlösschen, Switzerland, member of the Carlsberg group



## Ready to use complete systems

As your expertise lies in manufacturing process engineering, you don't want to spend time specifying a camera system from individual components. Quite the reverse. That's why AOS Technologies developed the PROMON systems.

These Swiss manufactured systems contain all necessary components: controller, camera module, AOS PROMON Studio software as well as the necessary cables and power packs. In addition, accessory sets with the following contents are available, so you have all you need at your fingertips:

- Lenses
- Camera mount
- LED lighting
- Transit/ storage case

A broad range of supplementary accessories is available from AOS as well as through sales partners. All accessories are perfectly co-ordinated to operate with PROMON systems.



## Two basic models – custom-made configurations



### PROMON SCOPE

- The plant technicians' "oscilloscope"
- Mobile compact system
- With touchscreen control you operate the camera system with your fingertips (similar to your music player)



### PROMON Mobile, PROMON Streaming

- Set with camera module and software to be installed on existing PCs
- Portable systems on Laptop- and Tablet-PC
- Stationary systems with up to 4 cameras on Desktop-PCs
- Recording for several hours possible
- Simple and fast installation



## Simple, comfortable operation

Comprehensive functionality, Unique handling.  
The PROMON systems from AOS set new standards of operability. They are – without complex training – completely intuitively controlled.

Instead of confusing instructions you operate the PROMON SCOPE simply by fingerstrokes over the touch-sensitive screen (Touch screen). With few simple “Gestures” you steer the system – similar your mobile multimedia player.

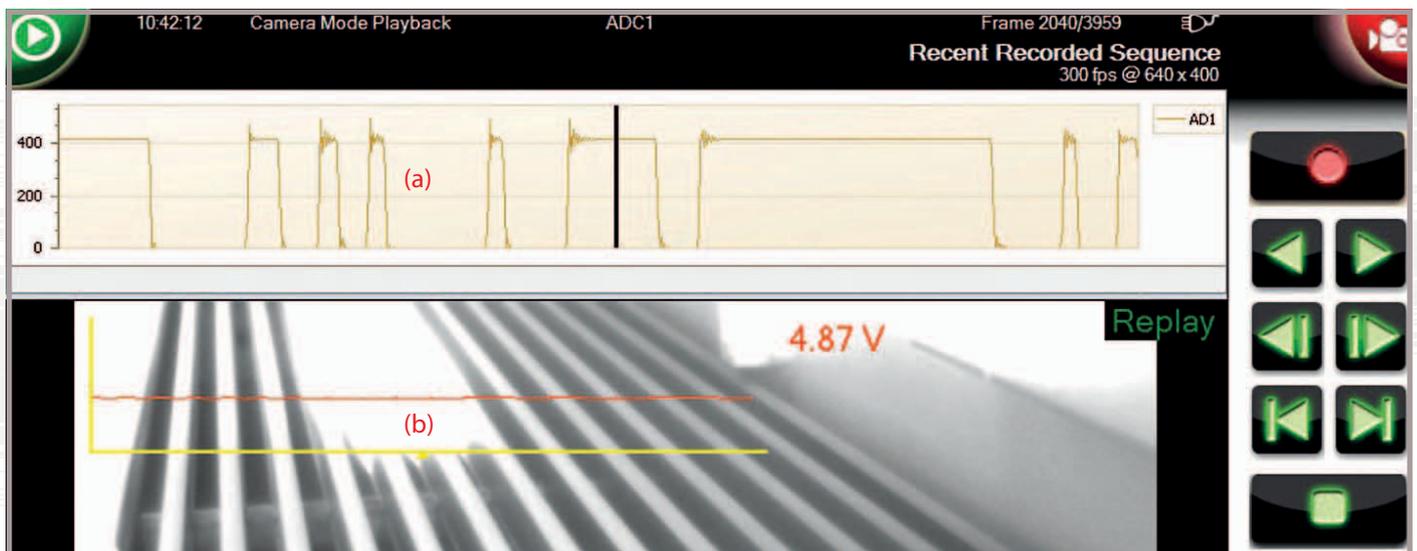


## PROMON – more than “just” a camera system

In addition to images, capture important measured data on your PROMON SCOPE. Now you have the opportunity to carry out more comprehensive evaluations. Possible measured data includes:

- Forces and tension
- Pressure
- Temperature
- Conditions (open/closed)

The recorded analogue and digital data are displayed in a separate chart (a). In addition, detailed data lines and values are overlaid onto the images (b).



## PROMON Specifications – an overview

	PROMON SCOPE	PROMON Mobile	PROMON Streaming
Product	Ready-to-use system	Set including camera module and software, to be installed on existing PCs	Set including camera module and software, to be installed on existing PCs
Image resolution (max.)	640 x 480	PROMON 300: 640 x 480 PROMON 500: 1280 x 1024	PROMON 300: 640 x 480 PROMON 500: 1280 x 1024
Framing rate (Standard) Framing rate (max, at reduced resolution)	250fps 300, 600, 1000 (opt.)	PROMON 300: 300fps, max. 1000fps PROMON 500: 500fps (max.)	PROMON 300: 300fps, max. 1000fps PROMON 500: 500fps (max.)
Number of cameras	1	1	Max. 4
Recording time	40 minutes	8 secs. (at 300fps/VGA)	Depending on PC
Display size	10.5"	Depending on PC	Depending on PC
Control	Touchscreen	Depending on PC	Depending on PC
Dataexport Dataformat	USB2.0, eSATA AVI, BMP	Depending on PC AVI, BMP	Depending on PC AVI, BMP
Weight (control unit)	Approx. 3.7 kg	Depending on PC	Depending on PC

For more detailed technical data and information about other camera systems please refer to the individual camera systems datasheets, or online on AOS's or your local sales partners' websites.

## Terminology

The most important terms briefly explained:

### Frame rate

Number of individual pictures per second (bps or fps).  
The higher the frame rate, the more detail the procedure is temporally "divided" and analysed

### Image resolution

The number of pixels dictates the level of detail in the image. The higher the resolution the finer the details.  
A resolution of 640 x 480 pixels is perfect for showing every detail, enough for analysis of complex machine actions.

### Trigger

The beginning as well as the end of the video recording can be triggered to individual image accuracy - both manually and automatically (by Motion Detection) or by external signal

### Streaming

Continuous data stream. PROMON camera systems store the graphic data continuously on the incorporated hard drive, so the entire process can be captured seamlessly – for hours if required.

### Motion Detection

Innovative technology, which releases a trigger automatically from a deviating picture content. This guarantees that all events are captured reliably and completely.



## Custom-made solutions for individual needs

Do you have specific applications or individual needs? If so, the PROMON is ideal. Due to the modular platform customer and user-specific PROMON systems can be configured.

Even for more specialist applications, demanding high framing rates and/or picture resolution, AOS can supply suitable high speed cameras, some framing at up to 100,000 pictures per second.

Interested? Your AOS sales partner will be happy to advise you.

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