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The Encoder Experts

Industrial Robots

Precise Speed Measurement with the LMSMA2x/3x

DEVELOPED AND
MADE IN GERMANY
5 YEARS WARRANTY

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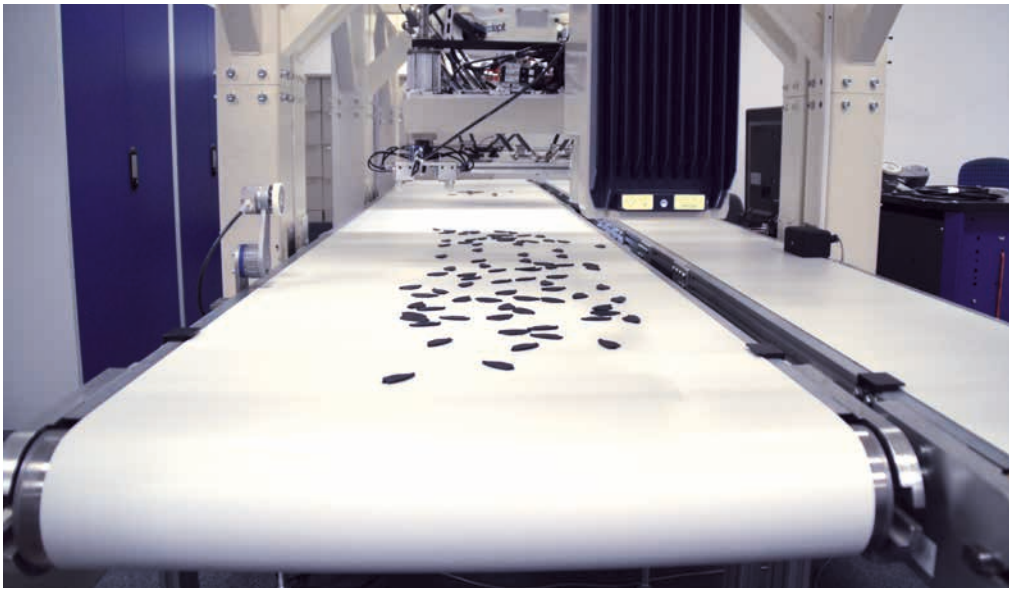
Complex tasks
Incredibly quick cycle times
Adjustable contact pressure
Measuring wheels for every surface
Selectable resolutions
Fast and flexible mounting

c UL us
LISTED

Industrie ROBUST



As if by Magic

No human can do it as quickly and as precisely. Modern robots can move workpieces around at a speed that you could once only dream of. Precise measuring instruments are needed to avoid mistakes occurring due to the incredibly quick cycle times required in modern production. For this, the manufacturer Omron Adept Technologies GmbH of Dortmund relies on systems made by Wachendorff Automation.

Small, mobile robots speed around almost without a sound – nothing more than snatches of the English language over a conference table. If it were not for the coffee machine in the black and yellow of Borussia Dortmund, you could be forgiven for thinking you'd ended up somewhere in Silicon Valley. Instead, we're in the middle of Dortmund – in the application laboratory of Omron Adept Technologies, one of the world's leading producers of industrial robots – with a HQ which is actually in California.

The European HQ for sales, service and training has been based here since 1986. In the local laboratory, most of the company's products – with names of the tenor of Cobra or Hornet – can be found in operation. "What we do here more than anything else is conduct feasibility studies," explains head trainer Günter Graß. „If a customer is looking for an automation solution, then she or he can come here to perform tests, such as those to ascertain whether our robots provide the required cycle times," he explains.

Automation tasks have become much more complex in recent years and the desired cycle times have become much shorter – these days, customers demand highly efficient solutions. Within a fraction of a second, these solutions have to recognise, pick and place correctly. There are many ways of doing this. Small parts are often handled using compressed air. Others have to be grasped carefully. For yet others, it's important that they are placed in a specific position.

Often, it's not done with pure conveyor and feeder technology. Packaging systems for magazines, for instance, ensure automatically that a give-away is attached to each copy and that the entire package is wrapped in clear plastic. Omron Adept Technologies is a successful system provider fur just these kinds of complex applications, delivering complete software and image processing systems alongside the robots.

In order to precisely coordinate the detection range of the camera and the movement of the gripper, it is important to measure the belt speed accurately. Only when this is known can the control system calculate when the work pieces reach the gripper and thus when they can be received.

Although there are systems that decrease the belt speed directly at the motor – external influences such as band slippage are not taken into account with these. In addition to shorter cycle times, maximum precision is also key. This can only be reached if speed is decreased directly on the belt – as close as possible to the workpiece.

So as to have a secure and easy-to-integrate solution, Omron Adept Technologies decided in favour of Wachendorff Automation's new LMSMA length measuring system. The Rheingau-based producer demonstrated the new product at the SPS/IPC/Drives fair in Nuremberg, where it won the attention of Günter Graß and his colleagues.

"We were looking for a solution that's universally deployable, because our products find a use in many different sectors,

right up to the food industry," explained the applications engineer. In addition, they should have the longest service life possible and a high-quality look and feel, matching the robust and durable products made by Omron Adept.

The new length measuring systems – comprising a patented spring arm, rotary encoder measuring wheel and mounting bracket – were ordered straight away. The high expectations for this order were totally fulfilled. "It's especially practical that the contact pressure can be adjusted via the resolution on the base plate," says Graß, explaining why the system is so precise and why slippages can be avoided. A special spring ensures that the contact pressure remains constant in the long run. In the new systems, the preload of the spring is adjustable in steps of 5 N up to a maximum 30 N preload.

The measurement system is mounted using a base plate and screws. The clearance for these is adjusted to the standard mounting profiles. The measurement system can be connected quickly and easily to the base plate with a captive central screw.
If there are no direct installation options on the plant, various installation positions can be achieved using the highly-adjustable angle bracket.

The measuring wheels are available with different surfaces, making them ideally adaptable to belt or material properties (cardboard, wood, soft plastics, textiles, leather, paper, wire, steel profiles, web, cable, greased metals, painted surfaces, carpet...). They are also available in circumferences of 200 mm or 500 mm.

Especially practical is the ability to move (or even fix) the spring arm into the resting position. „When it comes to maintenance or cleaning work, it would otherwise have been necessary to always remove the whole system and adjust it again afterwards. This way, we can use a hand grip to lift the arm from the band, hold it up and simply lower it again later. The system continues to work precisely, with the original contact pressure," says Graß on the benefits of the handling function in LMSMA Wachendorff's length measuring system.

With the LMSMA, an incremental rotary encoder is responsible for the actual speed measurement. It is also extremely robust and can withstand high bearing loads. With resolutions of between 1.0 mm/pulse and 0.008 mm/pulse, it can easily keep pace with the high speeds of Omron Adept robot systems.

Wachendorff Automation GmbH & Co. KG, Geisenheim:
The experience shows in the detail
... Systems save time
With Wachendorff Automation systems, positions, speeds and travel lengths of items such as conveyor belts, film/paper webs or cardboard packaging can be recorded reliably and efficiently. Wachendorff has significantly improved the adjustment possibilities across the whole system, which is based on a spring arm with a central spring. This results in a number of constructive and valuable benefits.
The LMSMA2x/3x delivers constant and precise measurement results in various conditions using its optimal, low-slip measurements.

Product highlights:
- Adjustable contact pressure
- Coordinated measuring wheels for every surface
- Selectable resolutions from 1.0 to 0.008 mm/pulse.
- Small space requirement thanks to compact design.
- Long service lifetimes thanks to high mechanical robustness of all components.
- Mounting on the machine is fast and flexible
- Fixing in resting position saves time during initial setup mode and plant maintenance

www.wachendorff-automation.com/lms

Omron Adept Technologies GmbH, Dortmund:
Partner for intelligent robots and mobile robot solutions
Omron Adept Technologies is a world leader in producing intelligent robots and autonomous mobile robot solutions. „High productivity through individual, flexible automation." That's how this business area can be described in just a single sentence. The focal points of the product portfolio include the high-speed SCARA robot (Adept Cobra), the parallel robot (Adept Quattro + Adept Hornet), the 6-axis robot (Adept Viper) and the mobile robot platform Adept Lynx. In addition, the company offers integrated image processing systems for conveyor tracking and advanced technologies for flexible feeding of small parts. Omron Adept Technologies has been offering first-class service for over 30 years and is committed to providing the best possible support and service available.

Omron Adept Technologies operates worldwide, focusing on the development of state-of-the-art robot technology with a handling weight of up to 20 kg. To date, Omron Adept is the only manufacturer of robot systems that include integrated image processing. Since October 2015, Omron Adept Technologies has been part of Japan's Omron Corporation.
https://www.adept.de

Image WA1601_1a and WA1601_1b
Adept Quattro is designed specifically for high-speed handling applications. This depends on very precise measurements – and these are just what is provided by Wachendorff Automation's LMSMA2x/3x length measuring system.

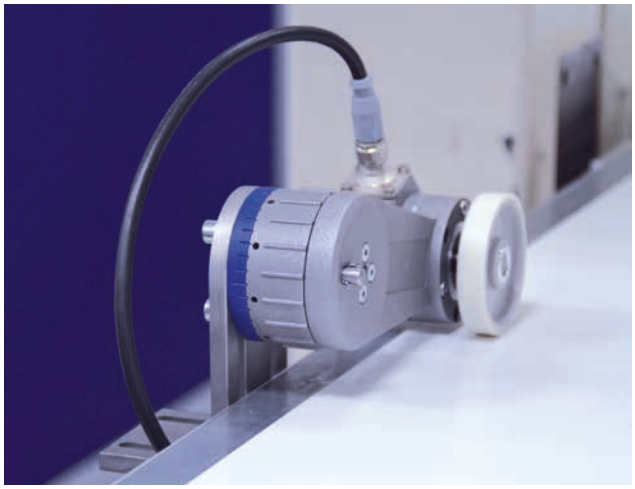


Image WA1601_2
The resolutions – via which contact pressure can easily be varied between 5 and 30 N – can be seen clearly here.

Image WA1601_3
The LMSMA2x/3x length measuring system from Wachendorff Automation can be elevated easily and held in a resting position. In this way, adjustments, maintenance or cleaning work on the belt can be done comfortably. The hand grip allows the arm to be returned back into action.

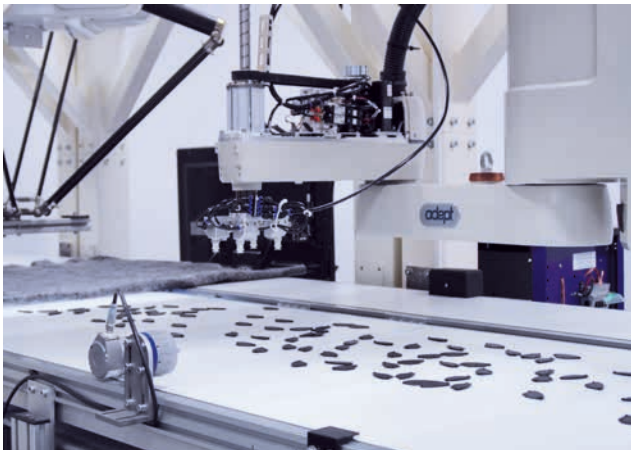


Image WA1601_4
In the applications laboratory, the spring arm was installed with the help of the bracket. In this way, the position can be quickly changed for all the various tests.

Image WA1601_5
Stephan Rump (right) of Wachendorff Automation provided consultation to Günter Graß (left) at the SPS/IPC/DRIVES fair in Nuremberg and was able to persuade him of the advantages of the new length and speed measuring tool.

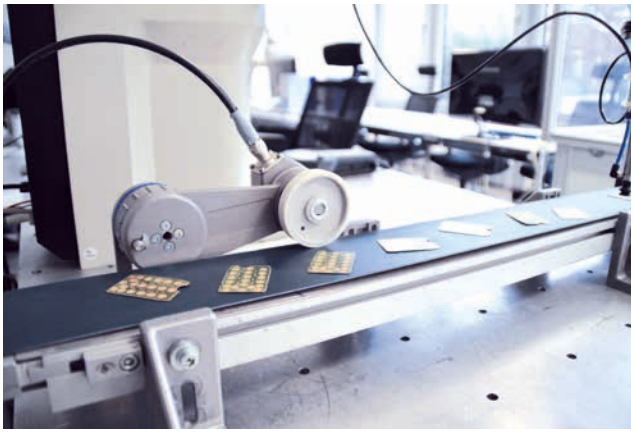


Image WA1601_6
Wachendorff Automation's LMSMA2x/3x length measuring system has also already been installed in the training room, where customers can make themselves familiar both with the handling and with the range of possibilities on offer.

Any Questions? Just call us at +49 (0) 67 22 / 99 65 414, send us an E-Mail to support-wa@wachendorff.de or call your local distributor: **www.wachendorff-automation.com/distri**

WACHENDORFF
The Encoder Experts

Wachendorff Automation GmbH & Co. KG
Industriestrasse 7 • D-65366 Geisenheim

Tel.: +49 (0) 67 22 / 99 65 - 25
E-Mail: sales-wa@wachendorff.de
www.wachendorff-automation.com

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