



ADS Basic
Automation solutions for the lighting industry



Your Connection to Light

Rethinking productivity means
continuously making full use of all opportunities.



The increasing intensity of the competition, saturated markets, and not least globalisation mean that all companies have to continuously find new potential for rationalisation. In order to remain profitable, innovation processes must also be integrated into business activities so they are able to deal with the steady increase in customer standards more successfully.

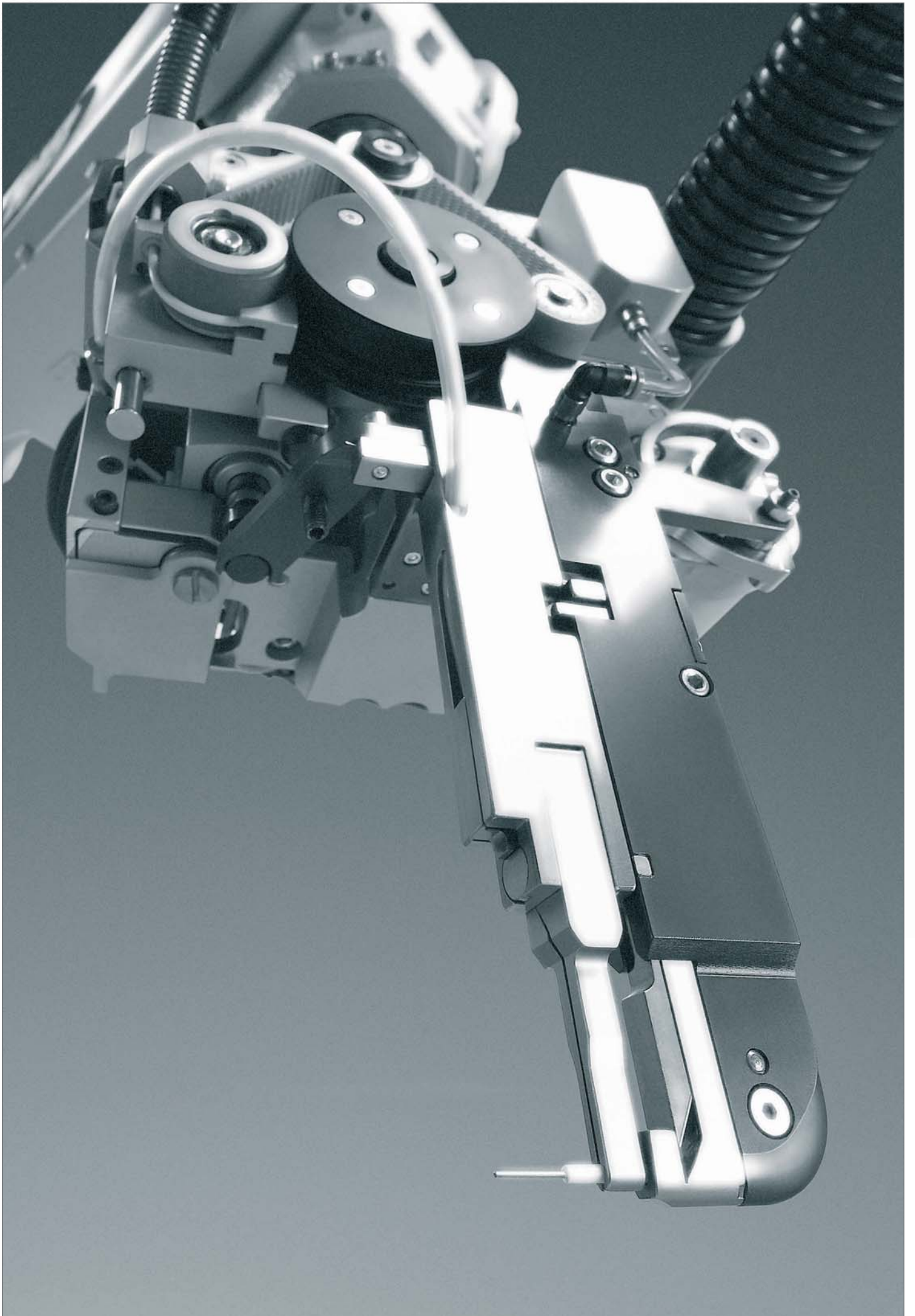
The new ADS machine series from BJB combines both aspects even better. As the leading supplier and system provider for lighting components in the world, we have been familiar with the requirements and standards of the international lighting industry for over 140 years. It is precisely this practical experience that continuously enhances the further development and improvement of our ADS systems.

The fact that we are taking an open approach is already reflected in the name, which originates from the term „automatic direct wiring of standard components“. We wanted a

system that leaves it up to our customers to decide which lampholders, ballasts, terminals, connectors and switches go into their products. ADS generally processes standard components, but is not confined to a specific manufacturer, and uses pushwire connection technology for wiring. In this way, components that are currently inexpensive to procure or in stock in the warehouse can be used.

In brief: with their quality and efficiency features, ADS production machines from BJB are coordinated to the requirements, standards and concepts of our customers - right down to the smallest detail. This brochure contains an overview of the ADS Basic machine family, which has specifically been developed for the production automation of small and medium-size series.

But regardless of the configuration you choose, even the ADS Basic lets you enjoy numerous options for creating an individual solution that will contribute to increasing productivity in your company.



ADS Basic. The compact automation solution for small to medium-size lighting batches.



With the new generation, BJB presents an advanced design of the ADS Basic production machines. They are systems for the automation of wiring and testing work for small and medium-size lighting batches. In the base version, ADS Basic consists of three elements: a manual workstation, a central wiring station with a 6-axis robot and a test station for checking luminaires in accordance with EN 60598.

Depending on the amount of work and the production standards, ADS Basic can be equipped with two or three workpiece carriers which can be set up flexibly. The integrated test system is equipped with test adapters suitable for use with the production processes, according to specific customer requirements. These adapters work with freely programmable resistances according to the equivalent load principle.

The wiring tool has been optimised and can now reach even more difficult to reach places to access inside the luminaire body. The wiring robot enables the horizontal wiring of pushwire contacts up to a 90° vertical pushwire angle. The collision module reliably prevents damage to the wiring tool. The test data is archived for documentation purposes, and as an option, a printer can be connected for labelling the luminaire. The ADS Basic is controlled centrally via an intuitive, menu-guided user interface.

Rationalisation effects, repeatable quality, 100 percent final luminaire checks or production safety: the ADS Basic provides its users unique advantages for production process automation in luminaire manufacturing.

ADS Basic 2. Production machine with a manual workstation and two workpiece carriers.



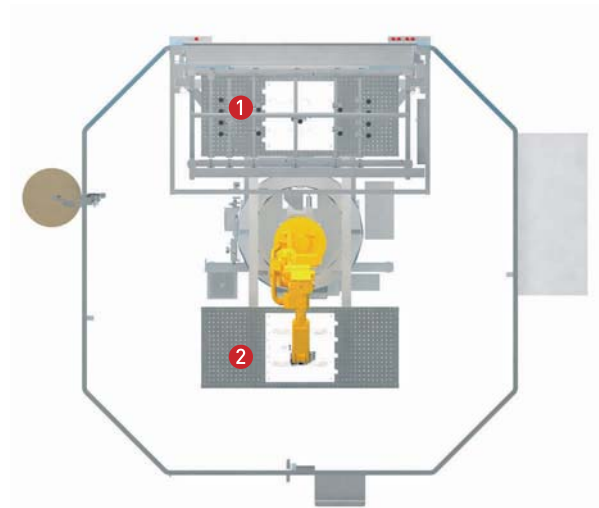
Luminaire quality is a competitive advantage that can be constantly produced with ADS.

The ADS Basic 2 system consists of a welded base frame with a rotary table and two workpiece carriers. It contains a wiring station with the wiring robot at the centre, and a manual workstation with integrated test station.

Functional description:

1. The luminaire body which is equipped with components is placed onto the workpiece carrier by the system operator at the manual workstation.
2. After release by pressing a button, the protective screen is automatically lowered and the luminaire is pivoted into the working area of the wiring robot.
3. The luminaire is then automatically wired at the wiring station using the principle of pushwire connection technology.
4. During the pivot movement, the previously wired luminaire is transported back to the manual workstation on the second workpiece carrier.
5. In parallel to the wiring process, the previously wired luminaire is automatically checked on the manual workstation by the integrated test station. For this purpose, the testing mechanism moves downwards and connects the different components with the test system.
6. After the electrical test, the testing mechanism moves back to its home position and the protective screen is raised pneumatically.
7. The test result is shown on the manual workstation and the luminaire can be removed by the system operator.

An already checked luminaire can be re-checked as required, since the test station is integrated in the manual workstation.



- 1 Manual workstation with test station
- 2 Wiring station

ADS Basic 3. Production machine with two manual workstations and three workpiece carriers.



Enough room for manual component assembly with a 2nd workstation.

The ADS Basic 3 system consists of a welded base frame with a rotary table and three workpiece carriers. It contains a wiring station with the wiring robot at the centre, manual workstation 1 with integrated test station and additional manual workstation 2.

Functional description 1: Only manual workstation 2 occupied

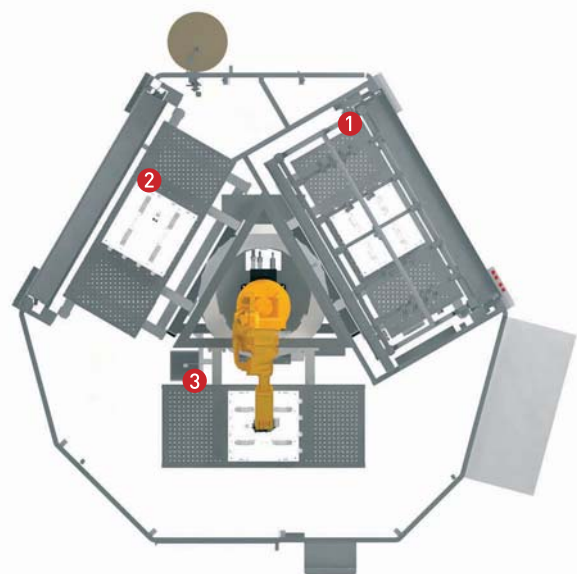
Manual workstation 1 is not occupied. Here, the wired luminaire is only checked and taken to the operator on manual workstation 2 for removal.

1. The body of the luminaire which is equipped with components is placed onto the workpiece carrier by the system operator at manual workstation 2. Further manual assembly activities within the luminaire are possible at this point.
2. After release by pressing a button, the protective screen is automatically lowered and the luminaire is pivoted into the working area of the wiring robot.
3. The luminaire is then automatically wired at wiring station 3 using the principle of pushwire connection technology.
4. During the pivot movement, the previously wired luminaire is transported to manual workstation 1 for the electrical test, and the previously checked luminaire is transported to manual workstation 2 for manual removal.
5. The test system is integrated into manual workstation 1. In parallel to the wiring process, the previously wired luminaire is automatically checked here.
6. For this purpose, the testing mechanism moves downwards and connects the different components with the test system. After the electrical test, the testing mechanism moves back to its home position.
7. After a further pivot movement the luminaire arrives at manual workstation 2. The test result is displayed and the luminaire can be removed after the protective screen is automatically opened by the system operator.

Functional description 2: Manual workstations 1 and 2 occupied

If further manual assembly work is needed or desired within the luminaire, manual workstation 1 can be used in addition to manual workstation 2. In this case, the system is operated by two people.

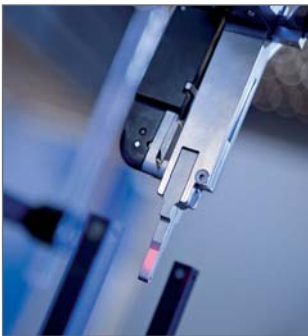
1. In contrast to functional description 1, the test result is now shown at workstation 1 and the checked luminaire is removed by the workstation operator directly after the check. The next luminaire body can now be placed onto the workpiece carrier. The first manual assembly work can be conducted inside the luminaire.
2. At workstation 2, further assembly work can then be conducted on the partially assembled luminaire.
3. Since the test station is integrated into manual workstation 1, a luminaire that has already been checked can be re-checked as required. For this purpose, the test result is displayed in detail on an LCD monitor.



- 1 Manual workstation with test station
- 2 Manual workstation
- 3 Wiring station

ADS Basic 2 and ADS Basic 3.

The sum total of the advantages is really convincing.



Automatic tool measurement

In order to obtain the best possible wiring result, the wiring tool must be set perfectly. This happens automatically with the aid of the tool measurement. In order to do this, the robot travels with the wiring tool gripper through a laser fork light barrier, and in so doing determines the position of the gripper relative to the robot flange. The newly measured values can then be adopted permanently.

In order to check the setting of the wiring tool, the wire tip can also be checked for the position of the initial and final pushwire terminals. If the deviation is too great, the system operator is requested to check the setting of the wiring tool and to correct it, if necessary.



Improved wiring tool with collision module

The improved wiring tool is particularly narrow and can wire both horizontally and vertically. As the core component of the system, it is a necessary requirement for successful and efficient luminaire wiring automation. Together with the dynamic 6-axis robot, it provides very high wiring speeds. More advantages: simplified maintenance and a high degree of availability. It is now even safer thanks to the collision

module, which can prevent serious damage to the wiring tool. When a collision occurs in the direction of travel, e.g. with a series connection device, the entire wiring tool pivots backwards and the robot immediately comes to a standstill. The operator can correct the error in the operating area and click the wiring tool back into the home position.





Intuitive operating interface

The ADS Basic System is simple and intuitive to use. The production data is shown in the main menu, and production can be influenced directly using the mouse or keyboard.

A menu-guided user interface is provided in order to optimise and adapt luminaire programs. In the clearly structured submenus, parameters such as wiring speeds can be changed, positions can be moved and lines can be re-arranged. All changes are

incorporated and implemented directly by the machine following a plausibility check.

The graphic display of the current luminaire with the corresponding repositioning plan makes it easier to enter data for the specific luminaire. New programs can be created based on existing data. The operator can use this function in parallel with the ongoing production to prepare new luminaires.



Test system with equivalent load

The test system checks the luminaires in conformance with EN 60598. All test results are saved and prepared for statistical evaluation. The test system can be individually adapted with regard to the number and type of test adapters. In addition to the standard checks (functional check with equivalent load, protective earth conductor check, high voltage check, insulation resistance check and passage test between „L“ and „N“), additional checks such as dimming 1-10 V, DALI, DSI and emergency lighting functions are also possible.

The equivalent load is based on programmable load resistance as an equivalent to the coil and gas path resistances in a fluorescent lamp. The resistance values of the simulated fluorescent lamps are stored in a database and can be retrieved and supplemented by the user as required.

In summary, the ADS test system has the following features:

1. Future-proofed testing through freely programmable resistances
2. Very short testing cycle times due to parallel checks
3. Identification of faulty connection points and wiring errors
4. Special functions such as emergency lighting, analogue and digital dimming
5. Optional dummy testing (test system check before start of production)
6. Easier to maintain and more cost-efficient operation (no lamps)
7. Menu-guided control via the central ADS user interface
8. Archiving of test results and optional print-out of labels



Flexible workpiece carrier

The flexible workpiece carriers are set up quickly and, above all, without tools for the type of luminaire to be processed. This is achieved using „fixing elements“ in connection with the matrix on the workpiece carrier. This system also guarantees that future generations of luminaires can be accommodated without changing the workpiece carrier.



ADS Basic 2 and ADS Basic 3. Expand your options.



Workpiece carrier superstructures

Luminaire-specific workpiece carrier jigs. The jigs can have integrated connection for testing.



Test adapter

In addition to the existing test adapters for T8 and T5 lampholders, a large number of additional test adapters are also available for other lampholder systems. Special constructions for a specific luminaire are possible.



Vertical pushwire direction

Bend positioners curve the end of the cable held in the gripper into the vertical position, and integrated guide elements guarantee precise positioning.

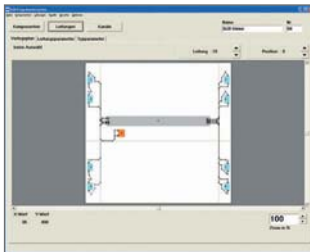
Label printer

Label printers provide the option of documenting and tracking a luminaire. After the luminaire has been checked in the test station, a self-adhesive label is printed and manually fixed in the luminaire.

Additional checks

If required, additional checks and other special functions such as equipment for the manual workstations (open-front storage box, automatic screwdrivers) can be integrated into the system.

Unlimited learning capabilities with the ADS Offline programming systems.



ADS Offline PC version

With the ADS Offline programming system, entire wiring programs can be simply and effectively created independently of production. For this purpose, the luminaire is created and positioned over coordinates. The components are then loaded from the integrated component database and inserted in accordance with the drawing. The line paths are then determined by specifying cable channels. After the connection points have been defined, the system automatically

calculates the best wiring path on the basis of the cable channels which have been defined. Pre-defined operation strategies make it easier to create a wiring program.

The program is available on user-friendly, Windows-based software. The completed wiring program can be stored on diskette, flash memory or in the network and then read by the robot controller.



ADS Offline with infrared camera system

In addition to the software described above, this system extension consists of a table with a standard workpiece carrier for holding the luminaires and an infrared camera system with a special teach target that contains the measurements of the wiring tool. The position of the wiring tool is recorded by the infrared camera system using reflection balls. The PC is integrated in the system. Using the teach target, components can be positioned or individual robot positions defined.



The system is used with luminaires where components are difficult to access and guarantees the user the possibility of simulating offline the full flexibility of the 6-axis robot.

And we promise you one more thing:
we won't leave you on your own!



ADS Lifetime support

After an ADS system is commissioned, a team of BJB specialists remain available for consultation and support to help system operators. Trained staff are available on workdays from 7am to 9pm CET via PC or telephone hotline to answer your questions on programming, operation or maintenance all free of charge. Remote diagnosis is standard for all ADS systems. The ADS support package is rounded off by a comprehensive stock of replacement parts and components.



As with all technical products, the ADS automation systems from BJB are constantly being further developed and adapted as progress is made in technology and experience gained in the field. For this reason and for your benefit, we retain the right to change design features and technical data. Only our written confirmation of order is binding.

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