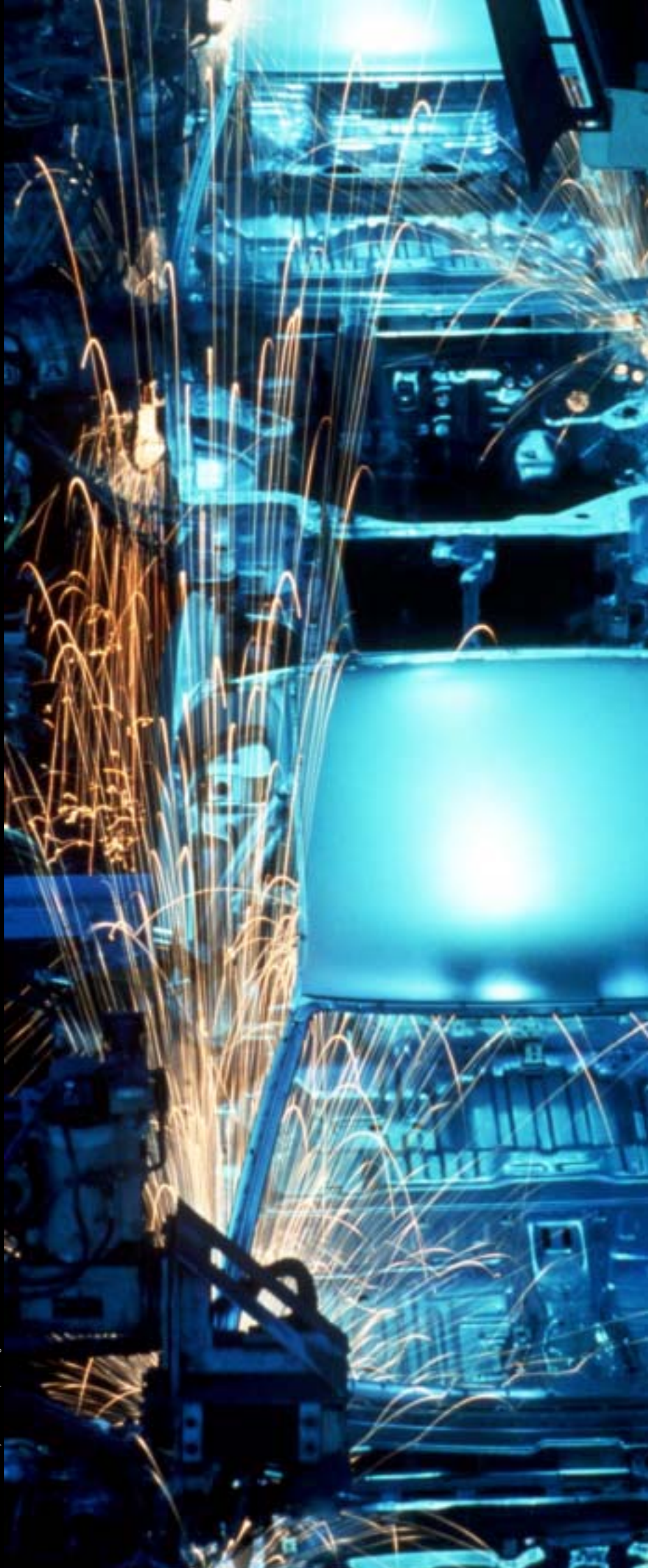


POSEYE[®]
POSITION MEASUREMENT SYSTEM

**The position
measurement
system
of the future**





Industrial automation

Industrial robots are integrated into many production systems. They are used for welding, manipulating, assembly etc.

Production systems that include robots are substantial investments and require careful planning. To provide the robots with a continuous flow of materials additional equipment is needed. All equipment and materials/components have to be accurately positioned.

Many automated processes take years to plan and install, which cause a conflict between the demand for increased flexibility and shorter product life.

The industrial robot of today is very good at repeating a programmed motion, but most robots do not know their positions in the workshop with a useful accuracy.

The position of a robot is traditionally related to its base or foundation, and not to the work piece or its working area. In addition to this all robots have fundamental deficiencies in their mechanics resulting in position uncertainties. This makes it hard to download programs to robots without manual adjustments afterwards. This process is time consuming, engages skilled operators and interrupts the workflow.

A method or device that makes the information/ programs from the Virtual world of computers work, with full accuracy and without the need for manual interference, in the Real world of the workshop would be the key to a fully flexible automated production line.

– **PosEye is this key device**



– a new way of making industrial robots more effective

PosEye is a patented position measurement system based on infrared technology. The PosEye system measures its own position and orientation with an accuracy superior to previous systems.

PosEye improves the efficiency of industrial robots in the automotive industry as well as in a variety of other applications. PosEye introduces new possibilities for future production lines, with or without docking stations.

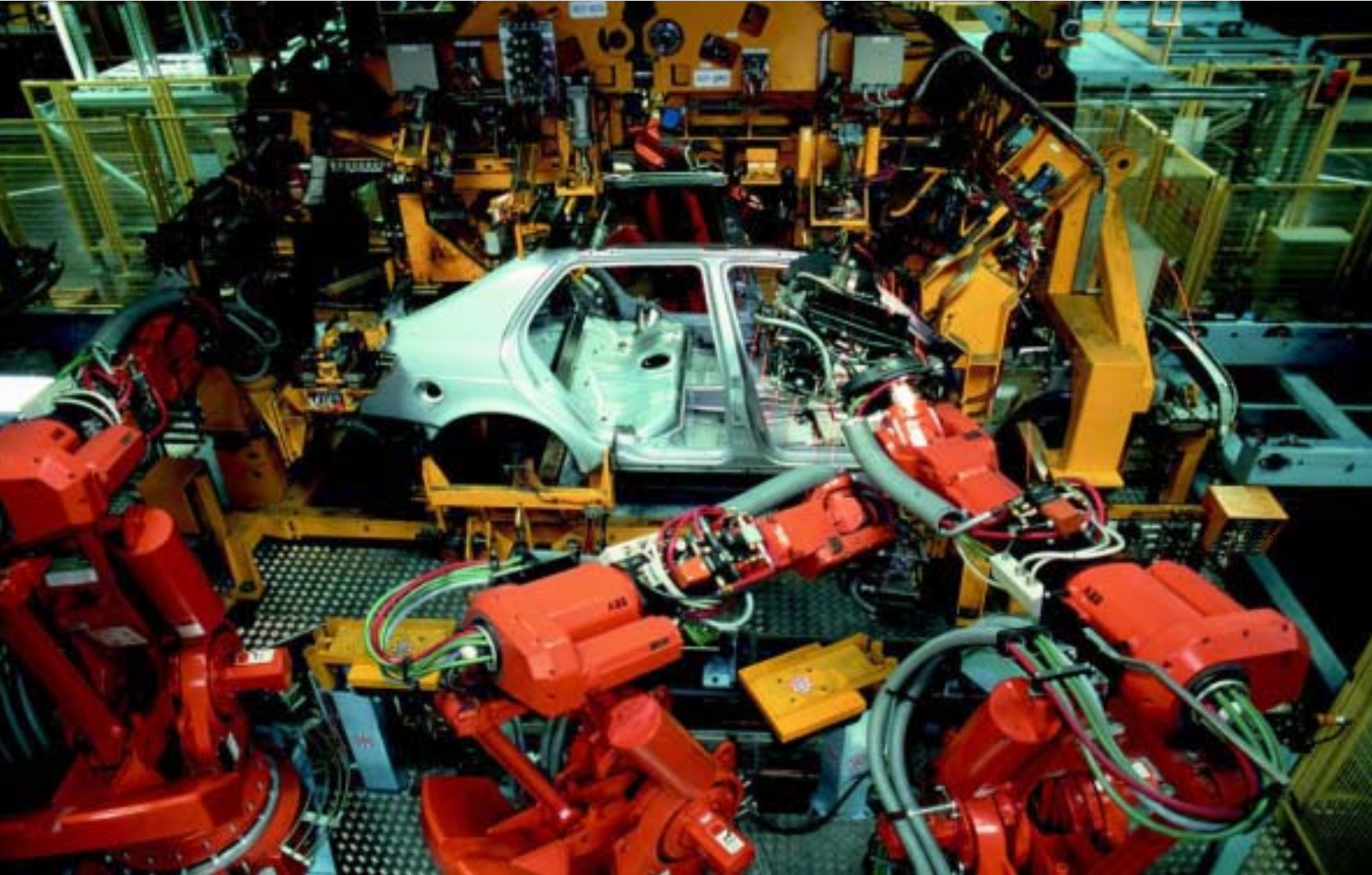
– a new position measurement method

The PosEye system has a small transducer that measures its own absolute position and orientation. Utilised on a robot, or other equipment in an automated process, this facilitates the equipment to control its position and orientation relative to its part of the work shop.

The PosEye system measures its position relative to a set of reference points. These reference points may be active IR diodes or passive reflexes. Reference points may be moved, concealed or mirrored without causing malfunctioning.

By adding additional reference points close to critical positions the local accuracy of the PosEye system can be further increased. By adding reference points in the surrounding area the working area of the PosEye system can easily be enlarged.





PosEye is available in two versions

– as transducer

to be placed conveniently close to the point of interest. This is commonly the robots TCP (Tool Centre Point). As the PosEye system measures both the position and orientation accurate enough it is in most cases sufficient only to position the PosEye transducer somewhere on the tool. The robot will know the position and orientation of its TCP after a traditional TCP determining procedure.



As the PosEye system measures its position relative to the selected co-ordinate system, independent of the robot's control system and mechanics, it will determine the position and orientation of the robots TCP regardless of the robot's temperature, load etc. This makes it possible to accurately position a robot according to the positions intended by the overhead computers without manual touch-ups. It is also possible to dynamically position the robot correctly relative to a moving carrier .

The PosEye system is capable of keeping track of more than one co-ordinate system at a time. This is needed to prevent the robots action to wander of if the main activity is focused on a moving co-ordinate system.

– as hand held joystick

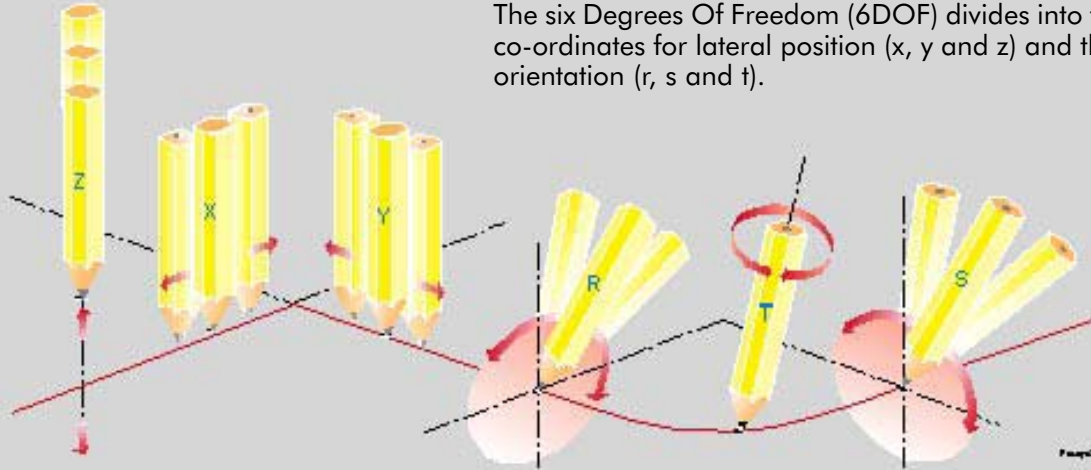
to be used by an operator manually controlling a robot.

PosEye, as joystick, allows the operator to simultaneously control the TCP of the robot in all its 6 degrees of freedom in an intuitively correct manner . Unlike most other types of joysticks, PosEye is not fixed to a base but relates to a chosen, surrounding, co-ordinate system, preferably the one used by the robot. This makes it faster to manually reach certain positions and to manoeuvre the robot in narrow passages.

This adds up to faster manual programming and safer manual control. As PosEye makes the robot to mime the movements of the operator it also facilitates lead-through-programming without mechanical contraptions.



The six Degrees Of Freedom (6DOF) divides into three co-ordinates for lateral position (x, y and z) and three for orientation (r, s and t).



PosEye make's automated production more effective

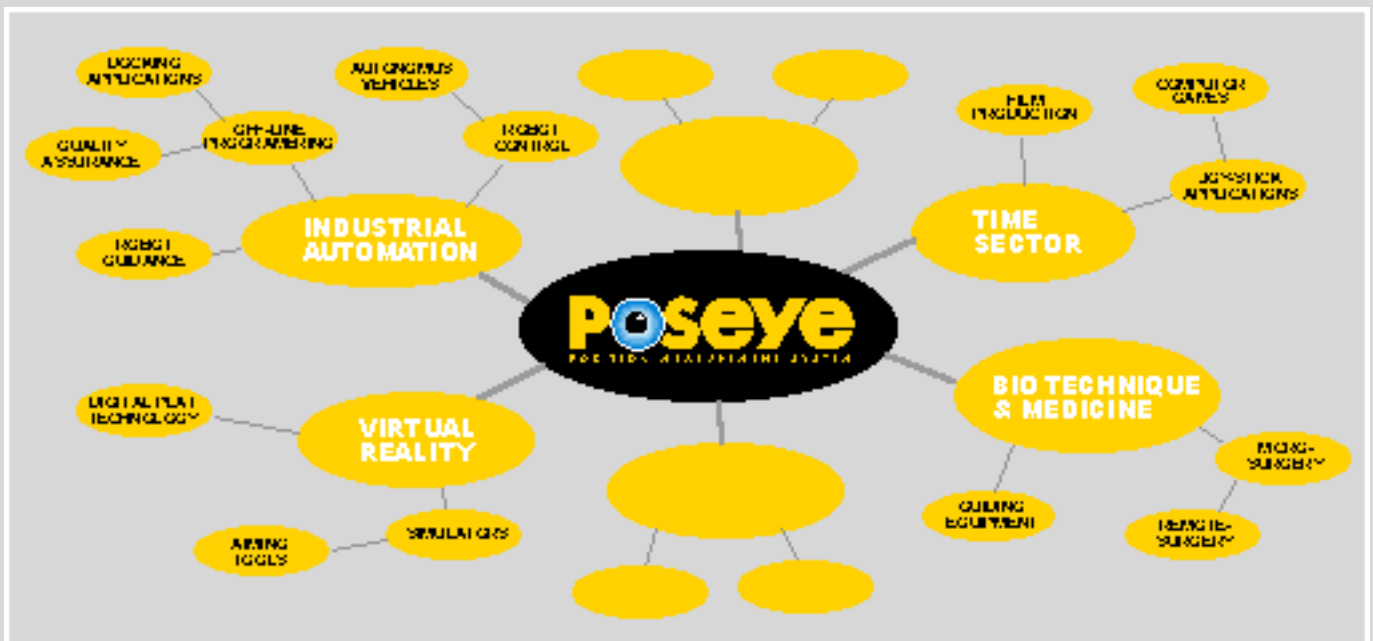
PosEye makes automated production more effective

The PosEye system decreases the down time of the production line in a number of ways:

- Large or minor reprogramming of the line can be performed off line and down loaded to the robots with no need for further manual activities; true seamless CAE/CAD/CAM
- Less time needed for residual manual operation of the robots, then needed after emergency stops etc
- Faster programming of manually entered points, TCP routines etc
- Automatic 100% Quality Assurance of fixtures etc makes sure the line is in tune

The future world of robotics – the PosEye way

- Robots engineered to work with the PosEye system will be made lighter and less rigid
- Robots will work on moving work pieces, docking stations will be omitted
- Robots will be moved or be moving while performing precision work



This explicit need for higher accuracy in the positioning of the tools, as well as of the materials and pieces, has till now lacked a good easy to use solution.



Matton AB

PosEye - makes the pieces fit

The increased demands for weight reductions within the aerospace industry lead to new materials and new joining techniques, which in their turn call for high precision machining and positioning.

Increased demands for quality control, low weight, new materials and welding methods etc. is an expanding market for the PosEye-system.

High accuracy both in position and orientation as well as control of tooling and detailing is required to meet these new demands.

- PosEye solve these problems.



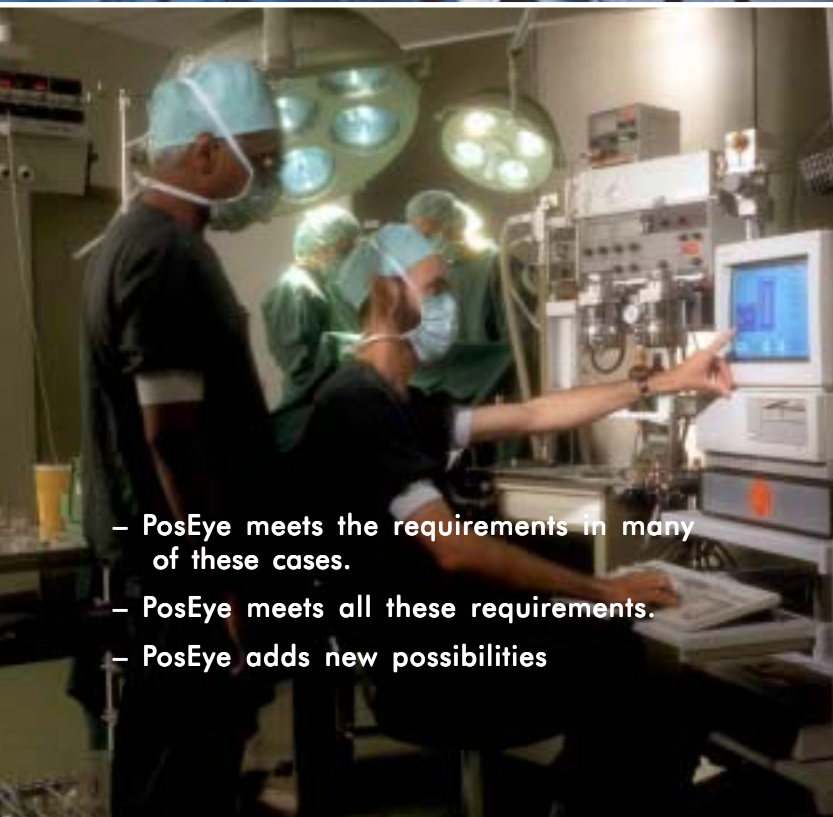
Matton AB

PosEye - moves Virtual Reality closer to reality

To uphold a good feeling of presens in Virtual Reality-applications you need to have very powerful computers and very good positioning.

If a person should have a feeling of Real presens in the VR-environment you need to measure the head position and orientation with high accuracy and short delays. This is a major problem today. To fool your senses in the virtual domain, powerful computers and fast rendering software is not enough. To really be there it takes good, light weight, fast and accurate position and orientation measurement equipment with short latency – to keep track of your head! Till now this has been a real problem.

- PosEye solve these problems.



Hein Hopmans/ Scansip Sverige AB

PosEye - a cure for Medicine

Within the health care sector, the demand for even safer methods and diagnoses is essential. To achieve this you need to increase the efficiency and accuracy of positioning medical equipment, etc.

Microsurgery and remote surgery, or completely automated operations requires very sophisticated techniques.

In the quest for new methods, drugs and therapies the need to accurately know and control the positions and movements of everything from x-ray equipment and laboratory robots to the tip of invasive electrodes and remotely controlled surgical knives, position measurement equipment have become a key component to make the new ways feasible.

- PosEye meets the requirements in many of these cases.
- PosEye meets all these requirements.
- PosEye adds new possibilities

PosEye

-Timely docking

In an increased number of situations, objects are to be matched together – docked.

At airports

all over the world, one tries to minimise the time on the ground for the costly aircrafts. Moreover the time at the gate itself is expensive.

– PosEye decreases the time to dock gates to the aircraft and makes it feasible to do it completely automatic

– PosEye decreases the time for loading and unloading cargo and supplies during the ground stops

IMS Bildbyrå AB

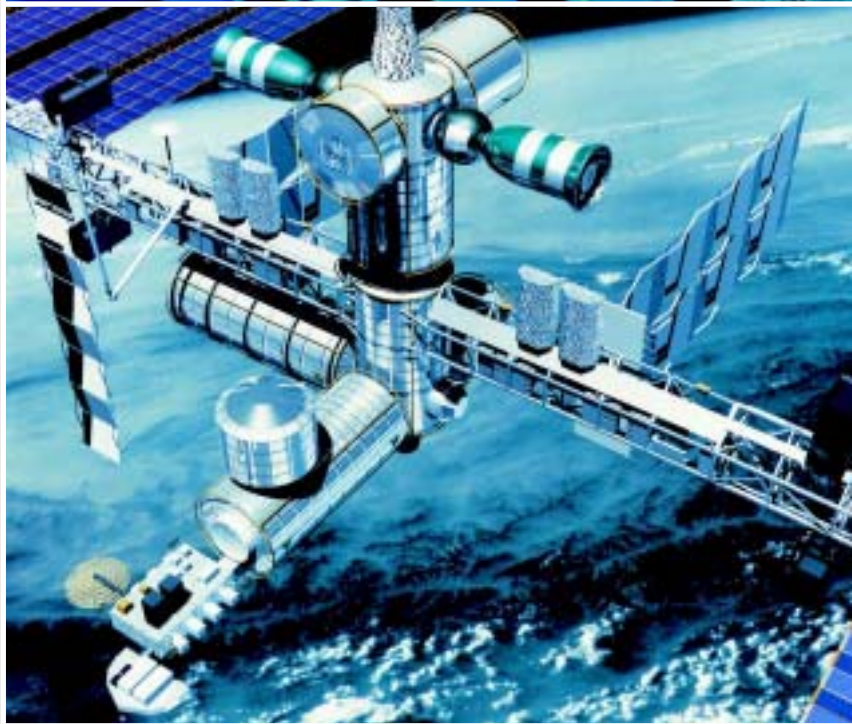


In space

it is essential to join space crafts or parts with absolute control of position, orientation and speed. The building and use of the International Space Station (ISS) relies on numerous dockings.

– PosEye is the perfect equipment to control the critical final stages of docking space crafts

Marion AB



PosEye

- for safety's sake

There are many places around there you ought not to be. The environment may be hazardous or hostile, as in nuclear power plants and mines. Reducing the number of persons needed in these areas will save money.

– PosEye makes it possible to automate or to remotely control the processes.

There are a number of situations where two objects must be "docked" together.

ABB, Sverige AB





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