Take Advantage of Remote Diagnosis and Maintenance

... and at the same time be protected against attacks?
ALL DEVICES. ALL SITES. ONE SOFTWARE SOLUTION. 
What sets our remote maintenance solution apart from the others.

You’d like to monitor and maintain your medical devices at any time and from anywhere but without integration additional hardware? You’d like to impress your customers with this service by significantly reducing maintenance costs and preventing device downtime? Then you should consider our remote maintenance solution.

Remote Diagnosis and Maintenance with Personality

SECURE
- Comprehensive security concept
- Secure data transmission using end-to-end encryption
- Two-sided authentication of client and server
- Protection of communications in terms of confidentiality and integrity
- Device and patient data cryptographically protected
- Anonymization of personal data possible

FLEXIBLE
- Remote maintenance adaptable to manufacturers’ requirements
- Can be integrated in new and existing devices with embedded control
- No additional hardware required in the device

EFFICIENT & COMFORTABLE
- During device development and testing:
  - Geographically distributed development
  - Quality assurance and personalization for end users can be carried out during production
- In the field:
  - Reduce downtimes with predictive diagnostics and remote maintenance
  - Minimize on-site service work and reduce service costs by monitoring device data directly
  - Remotely deploy software updates
  - Plan maintenance call-outs early
  - Reduce downtimes by providing detailed device information for service technicians

ALL DEVICES. ALL SITES. ONE SOFTWARE SOLUTION.
What sets our remote maintenance solution apart from the others.
The application is suitable for:
- Complex devices with embedded control
- Existing and new product families

Save valuable development time and achieve market maturity faster thanks to:
- Early error detection
- Process and product optimizations via remote field testing
- Automated data analysis

How you can benefit from remote diagnosis during development and testing.

The solution supports you during device development, production and field testing. As soon as the device has been integrated into the service infrastructure, you will be able to conduct field tests and analyze the results remotely. Process and product optimizations are also possible even in the case of geographically distributed development. In addition, development functions such as component calibration can be integrated into the device by using remote access to provide those functions to service technicians during operation. Personalization for the end user is also possible via the internet even before the device is delivered.
**TARGET-ORIENTED. RELIABLE. CERTIFIABLE.**

How remote maintenance is implemented in your equipment.

The solution was developed in compliance with ISO 13485 and contains three key components. Besides online access, local access is also possible at any time.

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**Service Daemon**
- Expands the target system to include a remote maintenance interface in the device controller.
- Connects the target system with the data center via internet or cellular telephone system/mobile telephone system.
- Authentication of the device and encryption of device and patient data.

**Data center server**
- Stores and manages device data.
- Offers extensive statistics modules for data analysis and evaluation.
- Manages access authorizations for service technicians.
- Contains a wide range of notification functions.

**User applications**
- Access to remote diagnosis and maintenance.
- Applications for service administrators (admin app) and service technicians (service app) with an intuitive interface as mobile app, desktop program or web application.
- Authentication of service technicians and data encryption.

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**Compatible systems**
- Linux, Windows, and Mac.
- Embedded systems, RTOS.

**Data center**
- Cloud-based.
- Self-hosting in own computer center.

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Implementation

The solution was developed in compliance with ISO 13485 and contains three key components. Besides online access, local access is also possible at any time.
How your security is ensured.

The internet connection: a potential gateway for unauthorized access? Imagine personal data being stolen and device functionality altered? Is the patients’ well-being at risk? Our security concept protects your devices and your patients from such scenarios both in online and offline mode.

The foundation for secure remote diagnosis and maintenance:
- Opening the target system to a network is minimized, as the device only connects when necessary
- Defense-in-depth: communication via virtual private network (VPN)
- Refusal of all connections outside the VPN
- Use of standardized security mechanisms based on IETF1 and BSI2 recommendations (broad accessibility allows vulnerabilities to be identified significantly quicker as compared to proprietary developments)
- End-to-end encryption of all connections
- Authentication for service access to devices via single-use passwords
- No local storage of sensitive data
What You Can Expect From Us.

**SWITCH TO REMOTE DIAGNOSIS AND MAINTENANCE NOW**

… and impress your customers with predictive equipment servicing!

Efficient remote diagnosis and maintenance for complex devices
- Monitoring
- Diagnosis
- Maintenance

Competent partner for consistent security and embedded solutions for medical systems
- Consistent security concepts and continuous security committee work
- Resource-optimized embedded developments
- User-friendly environment

We look forward to advise you personally about how we can help you integrate remote maintenance in your device family. Contact us at remote@itk-engineering.com or read about us at www.itk-engineering.com
ITK Engineering

Stability, reliability and methodological expertise – this is what we have been standing for since the early beginning in 1994. At all times, our customers have been benefiting from our dedicated multi-industry know-how, especially in the fields of control systems design and model-based development. Customers can count on us – from conception through to series production, we cover the overall development process or parts thereof. Our areas of expertise include:

- Electrics/Electronics
- System Integration
- System and software development
- Qualität assurance
- Hardware development

The satisfaction of all of our partners and a respectful atmosphere of cooperation shape our corporate philosophy, in which four values are firmly anchored: Read more about this on the web.