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WE ARE WELDING

Welding 4.0 – Welding management system

ewm Xnet

Industry 4.0 ewm

Welding 4.0 – ewm Xnet welding management system
A step towards more efficient and resource-saving weldin

Intelligent and productivity-boosting networking of man and machine for an automatic flow of data within the production chain: Industry 4.0 is now becoming established in welding production thanks to the new and innovative ewm Xnet Welding 4.0 welding management system. In this way, future concepts such as the smart factory and digital transformation effortlessly become reality.

The advantages are obvious: Improved networking of products and people improves efficiency and quality, reduces costs whilst saving resources. Intelligent monitoring and transparent processes from planning to production and final costing of weld seams keep you informed at all times. ewm Xnet provides welding companies of all sizes and types with the benefits of Industry 4.0. Bring the future into your company now – Get in touch with us.

Improved productivity, lower costs and ensured quality – Three advantages for you.

ewm Xnet produces measurable benefits throughout the entire value chain of your welding company. The future-oriented welding management system organises production, planning, quality management, welding coordination and management and in this way helps to improve economy, quality and documentation considerably. ewm Xnet future-proofs metalworking companies.

g technology

Increased productivity – Complete more work in the same time

- Longer arc times per shift improve efficiency
- Paperless transfer of all relevant data and WPS directly in the workplace reduce non-productive time
- Preset welding parameters reduce the number of error corrections
- Fewer unnecessary downtimes thanks to prompt, consumption-oriented maintenance notes, for e.g. consumables

Cost reduction – Increased profits with the same turnover

- Consumption values for power, gas and welding consumables are recorded to recognise potential savings
- Prompt maintenance instructions instead of early warnings minimises consumption of wear parts
- Transparent processes for constructive controlling with the option of precise final costing

Quality assurance and improvement – Exceptional quality is the greatest asset

- Documentation of welding parameters and welders of every bead for long-term records of weld quality
- WPS linked to component, on-time monitoring of parameters directly on the welding machine and clear assignment of required welder qualifications all reduce errors
- Mandatory specifications from components management and WPS manager ensure the correct parameters are always set
- Xbutton ensures expert welding and supports welding coordinators by identifying welders' qualifications

Perfection has a system – And it is made by EWM

The ewm Xnet Welding 4.0 welding management system is a modular system that effectively supports welders working on a workpiece and all their colleagues involved in the entire production process (planning, work preparation, purchasing, logistics, quality assurance, service). The services provided by ewm Xnet include real-time documentation of all weld seams from any number of networked machines. It also provides numerous evaluation options and electronically generated and transferred welding procedure specifications. This Welding 4.0 welding management system can also undertake all component management including all WPS and welding sequence plans. It is an ideal solution that is worthwhile for small specialist welding shops and global corporate groups alike.

Customisable user and machine management – Know what is where

- Convenient overview of all welding machines in the production facility in the site plan
- Displays the current machine operating statuses

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Comprehensive access rights system – Authorisation required

- Xbutton access authorisation provides individual user clearance for defined welding tasks

Platform-independent –
Browser-based for all end devices

- Supports graphical touchscreens
- Intuitive menu structure
- User-friendly operation
- Client-server solution with database

Xnet

Comprehensively extendable –
Room for improvement

- Any number of welding machines can be added at a later date using drag&drop
- Additional modules of ewm Xnet can be obtained at any time

LAN/WiFi control connection –
Wireless network

- Connect portable power sources, automated systems or robot systems
- Offline data recording even in 24-hour three-shift operation can be saved for up to 28 days
- Data exchange with external devices via USB stick, e.g. for applications on building sites
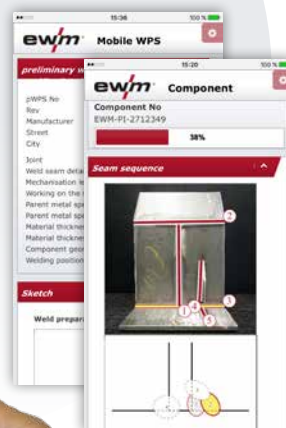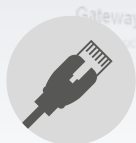
Needs-based depending on requirements
The ewm Xnet system modules and components

Customised for the requirements of specialist production –

EWM's Welding 4.0 welding management system also adheres to this philosophy of needs-based products. The three interrelated ewm Xnet modules adjust to any individual requirements depending on the type and size of the company. The update capability typical of EWM products is integrated: Additional modules can be retrofitted at any time and with extreme ease. ewm Xnet provides measurable benefits from the first module onwards no matter which version you decide to purchase.

ewm Xnet starter set (module 1) –
Record and manage welding data and determine consumption values in real time

- Automatic documentation of every weld seam in line with DIN EN ISO 15612 greatly reduces administration costs
- Transparent recording of welding data in production improves quality
- Recognise untapped potential to optimise consumption of power, gas and wire by recording and evaluating all consumption values in a clearly understandable manner
- Transfer of characteristics and welding processes between welding machines via LAN/WiFi or USB stick for reproducible welding results
- Efficiency display supports production optimisation, final costing and controlling by evaluating the production process of each power source or each welder by date and shift

ewm Xnet component management (module 3) –
Manage components, create welding sequence plans, assign WPS
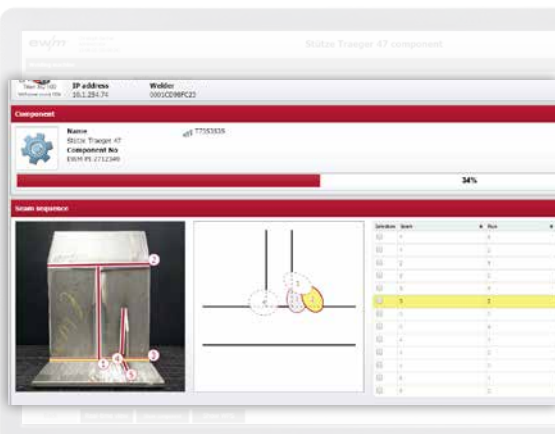
- Significantly reduced non-productive time for planning and determining welding parameters results in lower production costs
- Clear WPS for every individual bead minimises errors
- Quality assured by optimum welding parameters with reduced tolerance ranges specified automatically by welding machines
- Assignment of all target and actual welding parameters to the order numbers, component numbers, component groups, series numbers, batch numbers
- Requirements: Extend Titan XQ with Expert XQ 2.0, barcode scanner, PM RD3X welding torch

ewm Xnet WPQ-X Manager (module 2) –
Create and manage welding procedure specifications and assign them to welders

- Save time with simple, efficient WPS creation and management using the handy graphics editor to display seams
- Quality assured by definable user rights Identification of the welder and their qualifications via Xbutton
- Needs-based solutions – the WPQ-X Manager is also available as a standalone software module (WPQ Manager)

Xbutton –
Robust hardware key for access authorisation and WPS assignment for welders

- Quality assurance – only welders with suitable qualifications in line with ISO 9606-1 can perform the welding task
- Quick identification
- Simple and quick programming

ewm Xnet starter set (module 1)

Machine management
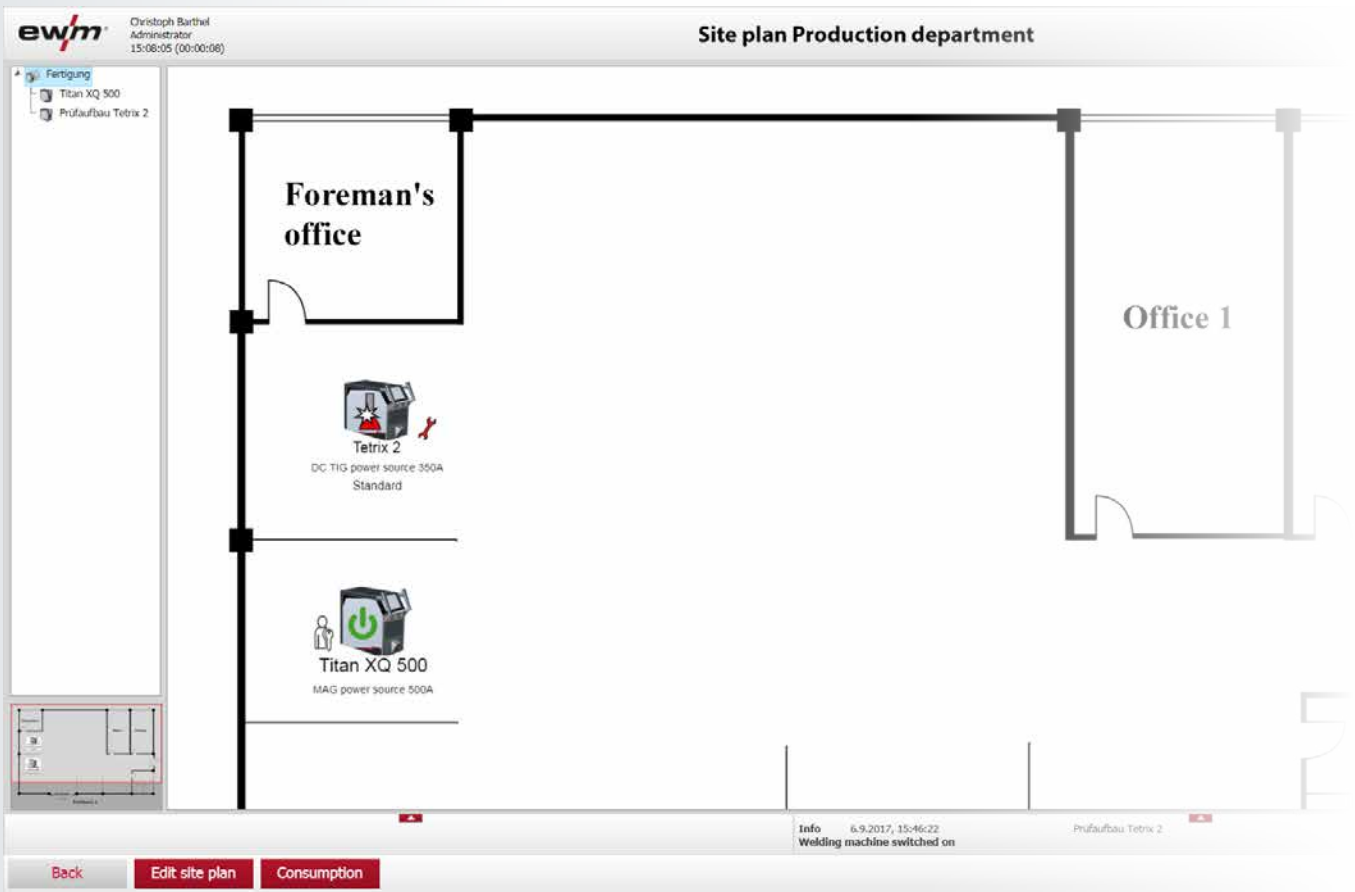
- Convenient overview of all welding machines in the site plan
- Well-structured list of all welding machines
- Current machine operating statuses displayed

- Status ON/Standby/OFF
- Maintenance request
- Error message
- Status active (welding)
- WiFi activated/deactivated

Consumption module
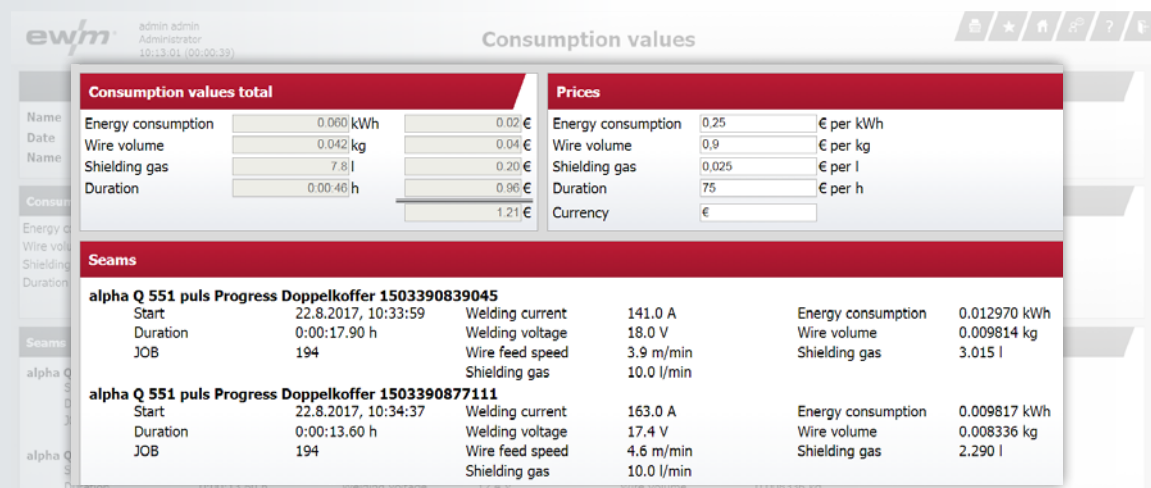
- Detailed views available for individual machines, groups and production lines
- Consumption values: Secondary power, shielding gas and wire volume

- Analysis, evaluation, reporting and documentation of welding parameters recorded online
- Regarding individual welding machines or a single seam/day

Real-time display
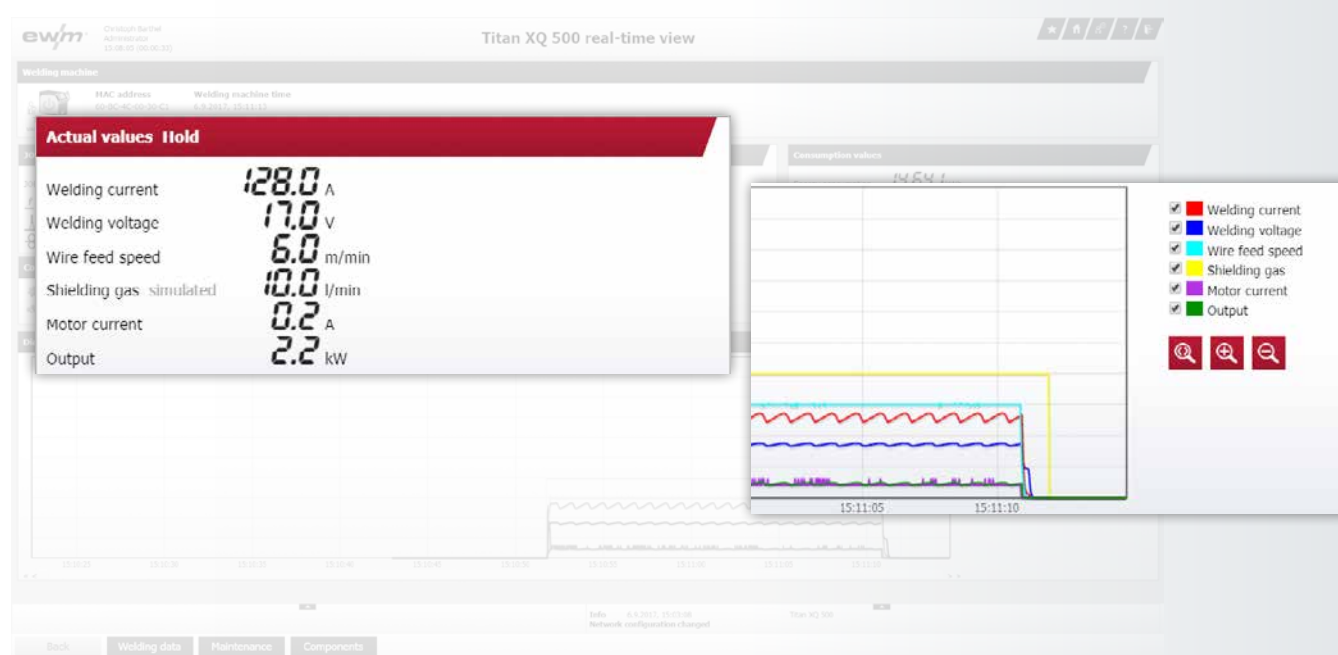
- JOB (welding task) display
- Display of current and cumulative consumption values for each machine
- All values displayed as a diagram over time

- Current actual values displayed
  - Welding current
  - Wire feeder
  - Shielding gas quantity
  - Energy per unit length
  - Welding voltage
  - Wire feeder-motor current
  - Welding power

ewm Xnet starter set (module 1)

Welding data display

- All values can also be displayed as lists over time welding duration, welding ID and JOB parameters displayed
- Detailed view showing history of recorded welding parameters
- Display of current and cumulative consumption values for each machine
- JOB display
- Optional comparison with previously recorded welding data

Efficiency display

- Simplifies and accelerates production optimisation, final costing and controlling
- Evaluation of production sequence per power source or per welder by date and shift

- Displays include numerical values and bar graphs of
  - Number of seams
  - Gas volume and type
  - Arc time
  - Wire quantity and type
  - Energy consumption

Maintenance module

- Minimises production downtime

- Consumption-based maintenance of e.g. welding torch consumables for high availability of welding machines and components

ewm Xnet WPQ-X Manager (module 2)

- Reduced administration costs as all data is always accessible in paperless format
- Simple and efficient WPS creation and management
- Graphics editor for illustrating seams and defining beads and layers
- Integration in Xnet provides significant advantages:
  - Seam/WPS assignment
  - Automatic transfer of stored welding parameters to the WPS

- Network capability enables multiple users to access database
- The combination of ewm Xnet with WPQ-X Manager and Xbutton enables individual user rights to be assigned
- Identification of welders and their qualifications
- Administration of access rights for different control operating levels

The WPQ-X Manager is available as a standalone software module or as part of the ewm Xnet software.

# Managing and administrating welding qualifications

- Overview of all welders and all qualifications
- Create qualifications in line with ISO 9606-1-2013
- Special qualifications can be added
- Creation and assignment of WPS for component-
  management (module 3)

ewm Xnet component management (module 3)

Step 1 –
Work preparation in ewm Xnet

- Create the component to be produced in ewm Xnet during work preparation on PC in the office
- Create the component to be produced in the office on PC
- Create drawing file or import from CAD
- Determine seam sequence plan
- Assign WPS
- Print barcode, add the work order or attach directly to the component as a sticker
- Send component data to welding machine via LAN/WiFi
- The data is available offline in the machine e.g. for use on construction sites
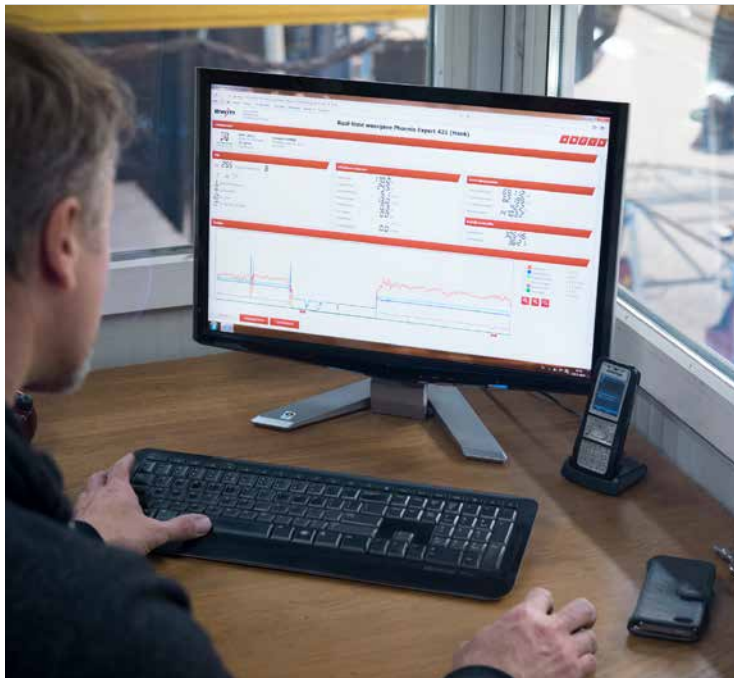
Step 2 –
Scan the barcode on the component

- Welder scans the barcode on the component using a barcode scanner
- Component data is called up on the control:
  - Order numbers
  - Component numbers
  - Component group
  - Series numbers
  - Batch numbers
  - Welding sequence plan (e.g. seam 1, bead 1, seam 1, bead 2 etc.)
  - WPS (welding data for every bead/seam)
  - Required welding qualification

Step 3 –
Xbutton

- Welder identifies themselves for welding approval using the Xbutton on the welding machine

Step 4 –
Call up the beads and seams corresponding to the welding sequence plan using the PM welding torch and graphic display

- Welder begins working in line with the displayed seam sequence
- All welding parameters are set automatically for every individual bead/seam by the machine
- After each bead/seam, the welder confirms its completion by pressing a button on the PM welding torch with graphic display
- Two-part exit e.g. for tack-welding tasks using a button on the PM welding torch with graphic display
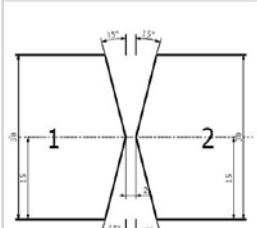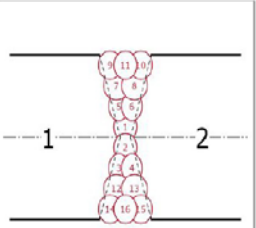- Display with seams/beads

ewm Xnet component management (module 3)

The aim is: To increase added value on weld seams.

From work preparation in the office to welding in production – ewm Xnet component management makes a great job of networking. The software supports all parties involved during the entire work process up until the perfectly finished workpiece is produced. It ensures that errors cannot even arise or that they are promptly detected for rectification. In addition to high and reproducible weld seam quality, EWM component management can greatly increase production efficiency. For instance, clear WPS assignment in the production plan eliminates non-productive time spent by welders searching for and setting the respective precisely suitable welding parameters.

Barcode created from WPS

Work preparation in ewm Xnet – Step 1

- Accelerated, paperless data transfer and communication results in increased productivity
- Comprehensive work preparation including automatic setting of welding parameters for every bead/seam results in higher production rates
- Elimination of error sources improves quality – the welding sequence plan defines the WPS for every individual bead/seam
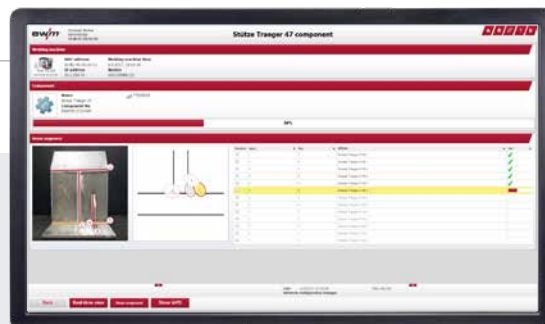
OPC UA interface

Standardised interfaces such as OPC UA enable users to export data from the EWM system to a standard format so that these data can be integrated into higher-level production management systems.

Optional screen directly at welding site shows welding sequence plan amongst other things

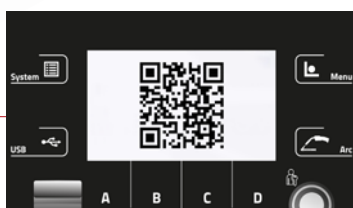**Barcode scanner Scanning the component IDs – Step 2**

Welding sequence – Step 4

PM welding torch with graphic display

Xbutton component/welder assignment – Step 3

QR code

Login from any mobile end device, smartphone or tablet etc. using Expert XQ 2.0

ewm Xbutton

## Access rights via Xbutton – Individual user rights

- An individual hardware key controls access rights of welders in line with WPS assignment
- Individual assignment of permissions
- Simple Xbutton programming
- List of all Xbutton owners and their qualifications available from ewm Xnet
- Create and manage qualifications in line with ISO 9606-1
- Create special qualifications for welders
- Handy and robust – the Xbutton can be carried on a keyring, for example
- Incredibly easy to use even when wearing gloves

Network solutions

The compact solution

- Occasional recording, review and analysis of welding data and overview of networked equipment

- The computer used does not need to be switched on permanently

- Ideal for smaller single-shift operations and small to medium-sized companies with up to approx. 15 networked machines

PC

Client
Server
Log server
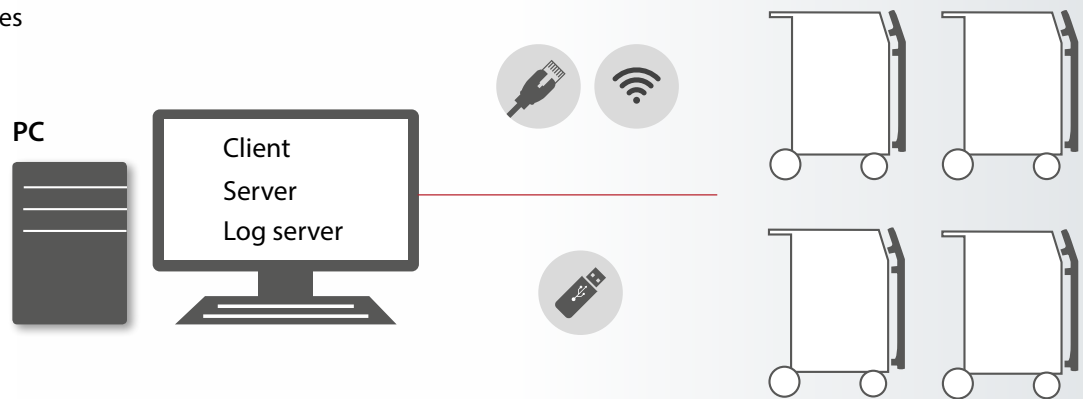
The standard solution

- Continuous recording, review and analysis of welding data and overview of networked equipment

- The computer used should be permanently switched on to reduce network loads

- The standard solution for medium-sized and large companies with up to approx. 60 networked machines
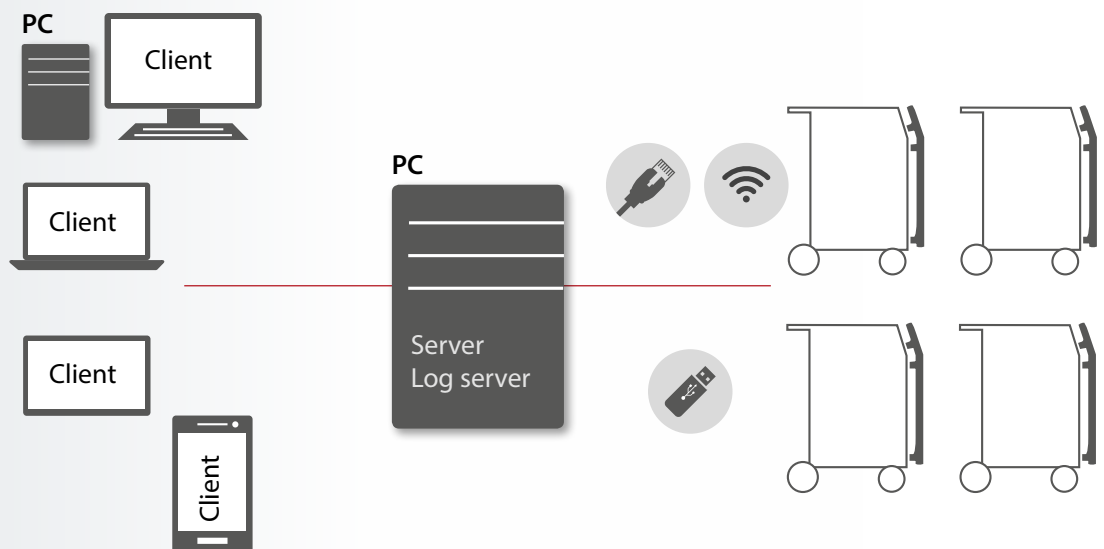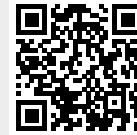

PC

Client

Client

Client

Client

PC

Server
Log server

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Product range, services

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Welding machines and accessories

Catalogue

Welding torches and accessories

Catalogue

Welding accessories

Handbook
Welding consumables

Handbook
EWM welding dictionary

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