



Complete fleet management package for Qualitrol Information Products

- Scalable client-server solution
- Automatic data collection, storage and backup
- Secure access control and user administration
- Flexible data management and display
- Systems overview and health check functionality
- Advanced Record Analysis diagnostics
- Custom report creation and e-mail notifications
- Visualization / analysis of digital fault records, fault location waveforms, power quality data and phasors

Product Summary

Description Complete software package for the configuration, collection and analysis of data from the Qualitrol range of Information Products.

Client-server scalable architecture - manage single devices up to complete fleets of units.

Intuitive interface and advanced Record Analysis diagnostic tools enable users to monitor signals and protection equipment, quickly identify faults and diagnose root causes.

Application Generation, transmission and distribution monitoring.



iQ+ Master Station - Configuration, collection and analysis platform

Complete fleet management package for Qualitrol Information Products

- Manage / configure an entire fleet of units from one or multiple locations
- One intuitive software package for:
 - Digital fault recorders (DFR): IDM+, IDM-E, BEN 6000
 - TWS fault locators (TWS FL): TWS FL-8 / FL-1
 - Power quality monitors (PQ): INFORMA PMD-A / Fluke 1760
 - Legacy units: IDM, QWAVE family, Hathaway DFR, BEN 5000 and TWS / DSFL range

Scalable client-server solution

- Scalable solution - iQ+ can be installed as single user / unit to multiple users / complete fleet wide deployment
- Secure client-server architecture enables multiple simultaneous users to access devices and information
- Single server database to back up, improving data security / integrity
- As fleet size increases - Communication Managers can be added for faster data acquisition
- Multiple protocols / carriers - utilize existing communications infrastructure

Automatic data collection, storage and backup

- Qualitrol intelligent autocomms broadcasts a signal to iQ+ which in turn polls the unit, downloads the data and performs the user defined / configured scheduled actions
- Built in scheduled data backup facility
- Manual or scheduled automatic data export to COMTRADE / PQDIF

Secure access control and user administration

- Multiple simultaneous user capability
- Secure user access password control prevents unauthorized changes to devices
- Windows authentication can be used when logging into iQ+ simplifying password control
- Designated user levels from viewing of data up to full administration privileges

Flexible data management and display

- Fully customizable fault recording viewer
 - Triggered recordings (DDR-T)
 - Continuous recording (DDR)
- Power Quality event display
- Fault Location - traveling wave fault waveform viewer
- Multiple interlinked network topology modes including device, voltage level, geography, asset type and station
- User configurable favorites / preferences / views

Systems overview and health check functionality

- Simplified overview screens enable at-a-glance visual management
- Single screen system and health check providing device / communication infrastructure information

Record Analysis Diagnostics

- Automatic analysis of DFR records
- Configurable analysis algorithm parameters
- Advanced results filtering
- Analysis reports automatically generated and emailed to end users
- One click data analysis
- Quickly identifies actual faults - useful during storm conditions
- Identifies non compliant records that may indicate onset of plant failure



E-mail notifications and custom reports

- Meeting utilities specific report requirements, Qualitrol's customized report writer allows user to create, save and edit templates. When an event occurs, reports are generated and automatically sent to the user via e-mail
- Full suite of customizable reports - available in HTML, Microsoft Word, PDF formats
- Distribution system Operating Engineers using iQ+ save 90% analysis time in obtaining information to quickly identify PQ problems, allowing focus on important issues before they become customer complaints
- Analysis summary reports
- View fault locations as maps from e-mail reports
- Reports can be automatically sent via e-mail or placed in a known location on the network

Visualization / analysis of digital fault records, fault location waveforms and power quality data



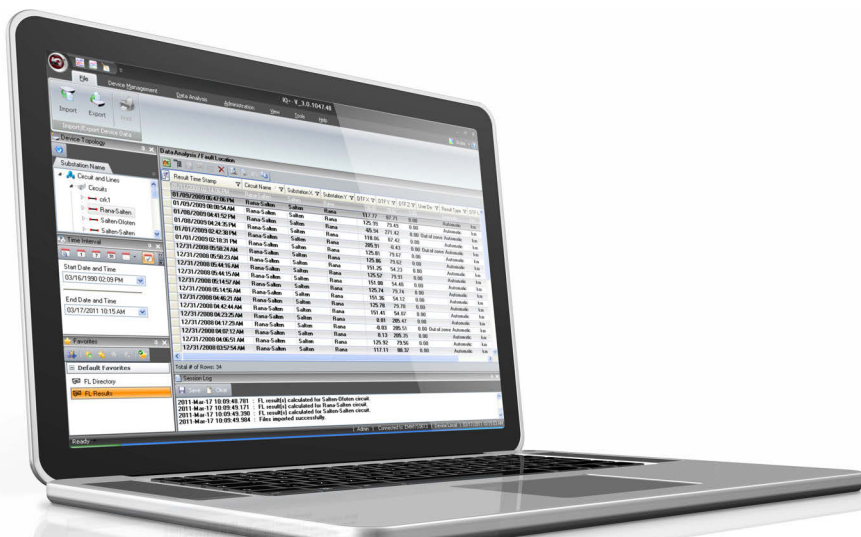
- Customizable DFR viewer
- Recording mode limits / trigger points
- Configure circuit / line parameters
- Impedance DTF calculation
- Phasor view
- Harmonic analysis
- Interlinked tables, records and reports
- Favorites / configurable preferences
- Data import / export via COMTRADE



- Customizable fault location viewer
- Distance to fault for multi-ended circuits (up to 6)
- View / analyze fault location waveforms
- Configure circuit / line parameters
- Interlinked tables, records and reports
- Favorites / configurable preferences
- Structure IDs

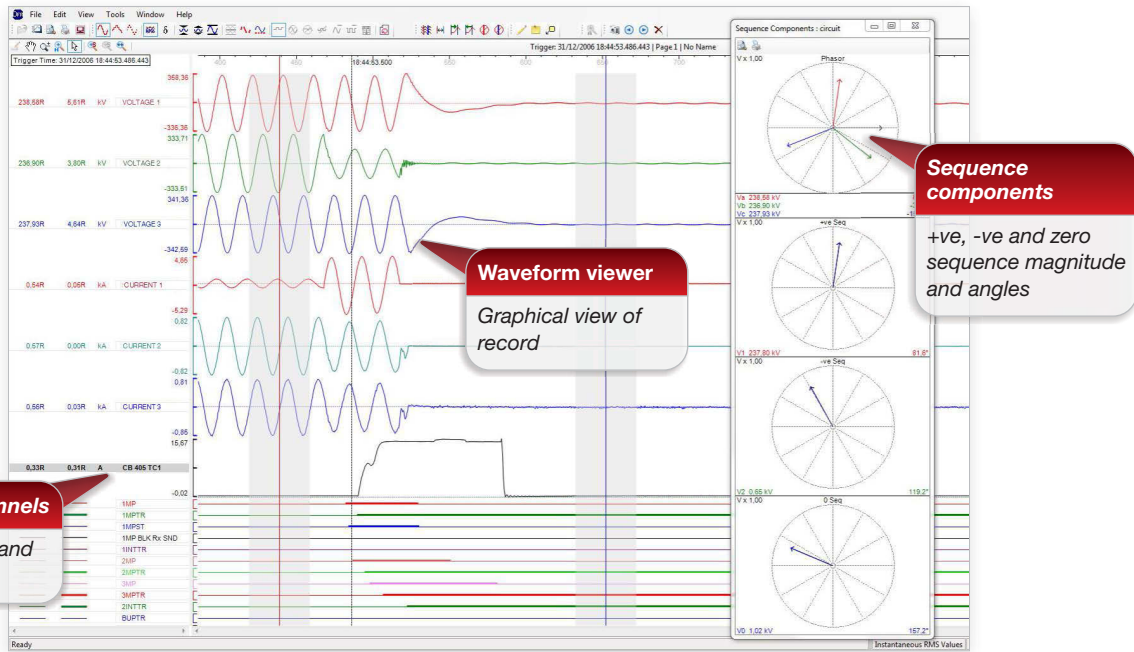


- Power quality viewer
- Power quality system overview
- Power quality / energy recording plots
- Histograms / harmonic analysis
- One click data analysis
- Fully customizable power quality reports including built in EN 50160 / IEC 61000-3-6/7
- Data import / export via PQDIF

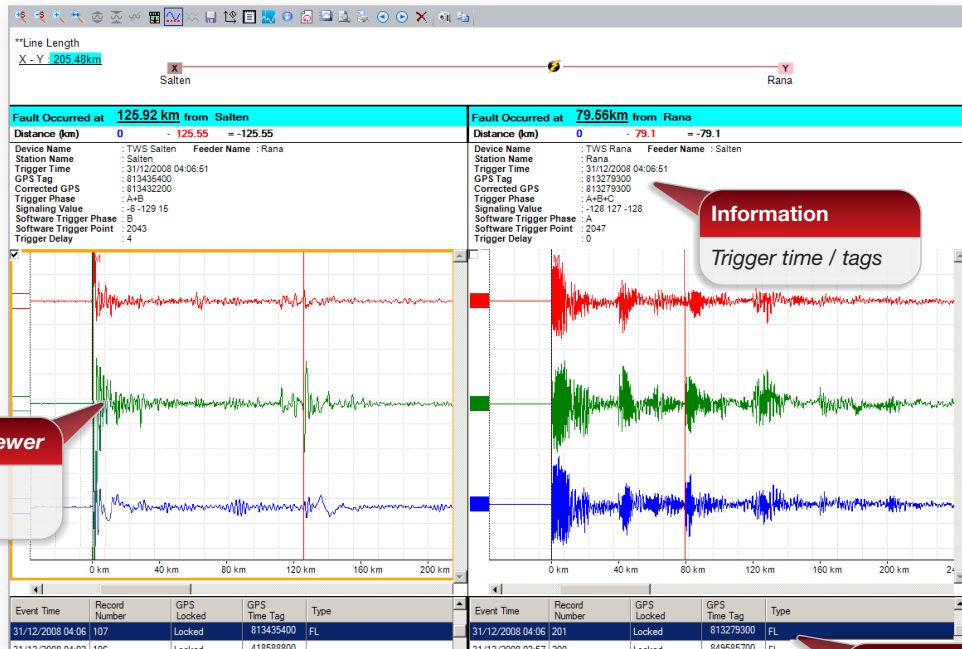


Complete fleet management package for Qualitrol Information Products

- Intuitive software designed by industry experts



▲ DFR Viewer



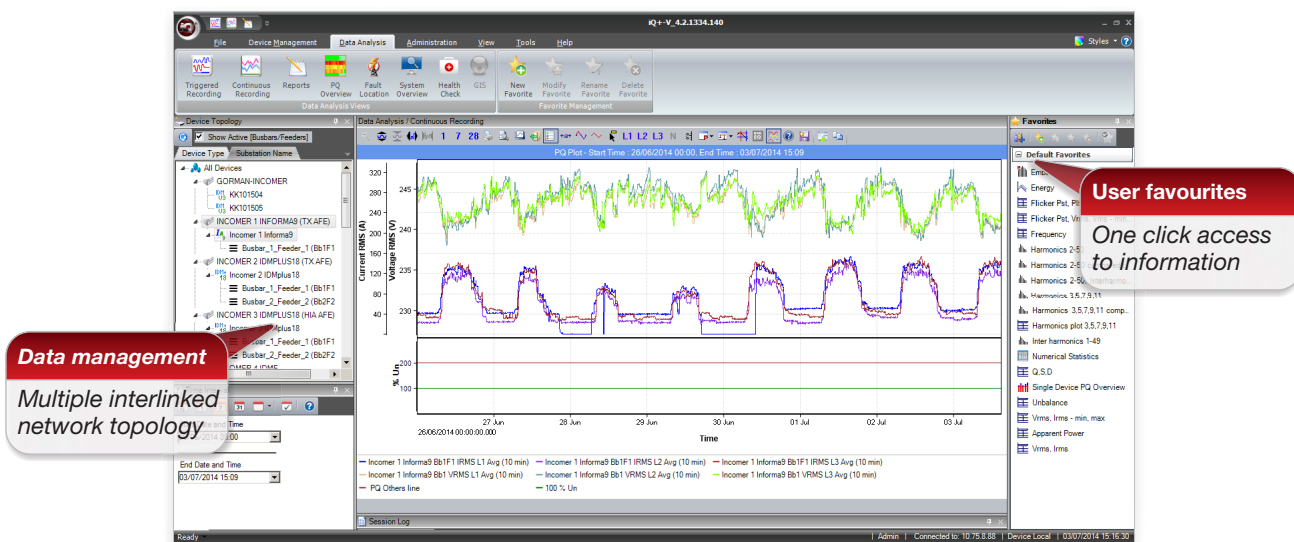
▲ TWS FL Viewer

Results captured
Select results to view



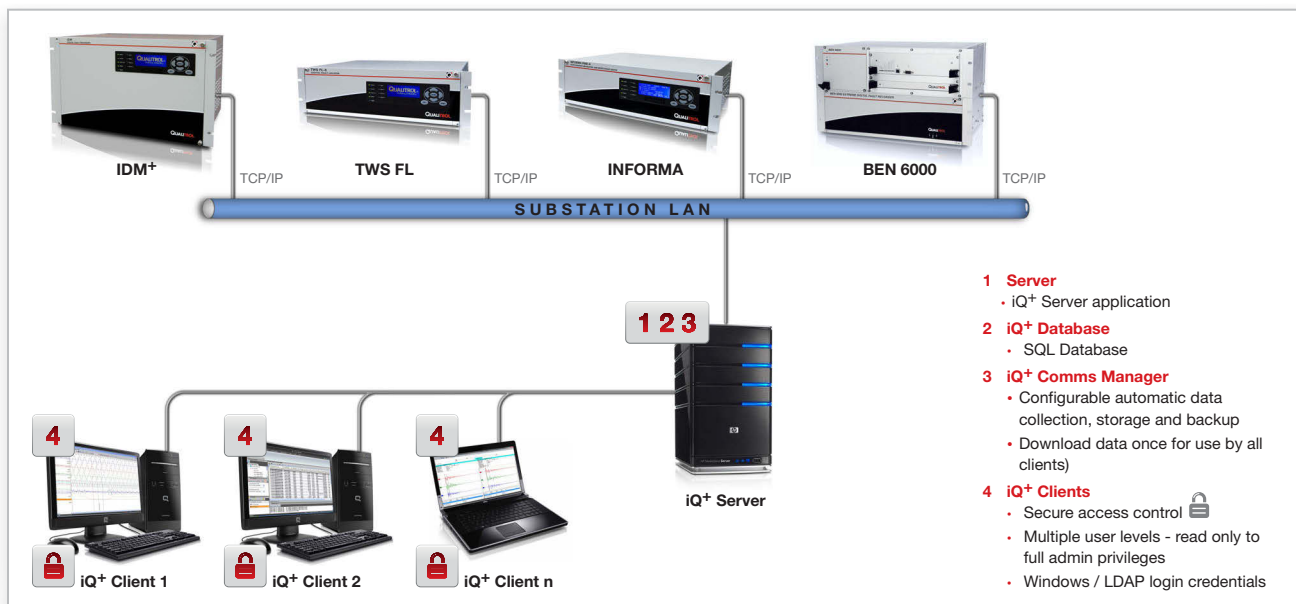
Flexible data management and display

- Powerful data visualisation tools
- Quickly navigate to units
- Multiple interlinked topology design - view as devices / voltage levels / asset type / station name or geography
- Configure favourite units / views to quickly access information



▲ Powerful data visualization tools

Scalable client-server fleet management solution



▲ iQ+ can be installed on a single system to corporate deployment

iQ+ Record Analysis - Advanced Diagnostics

- In times of adverse conditions such as storms, it is not uncommon for hundreds of fault events to be recorded. Whilst the capture of all events is important, it is frequently not possible for a company to have the time or resource to analyse each record, determine the cause of fault and assign a priority filtering. To assist the user in these critical times, Qualitrol have developed **Record Analysis** for iQ+

Record information

Details of occurrence / reason for trigger

Analog channels

Waveform view for review

Analysis

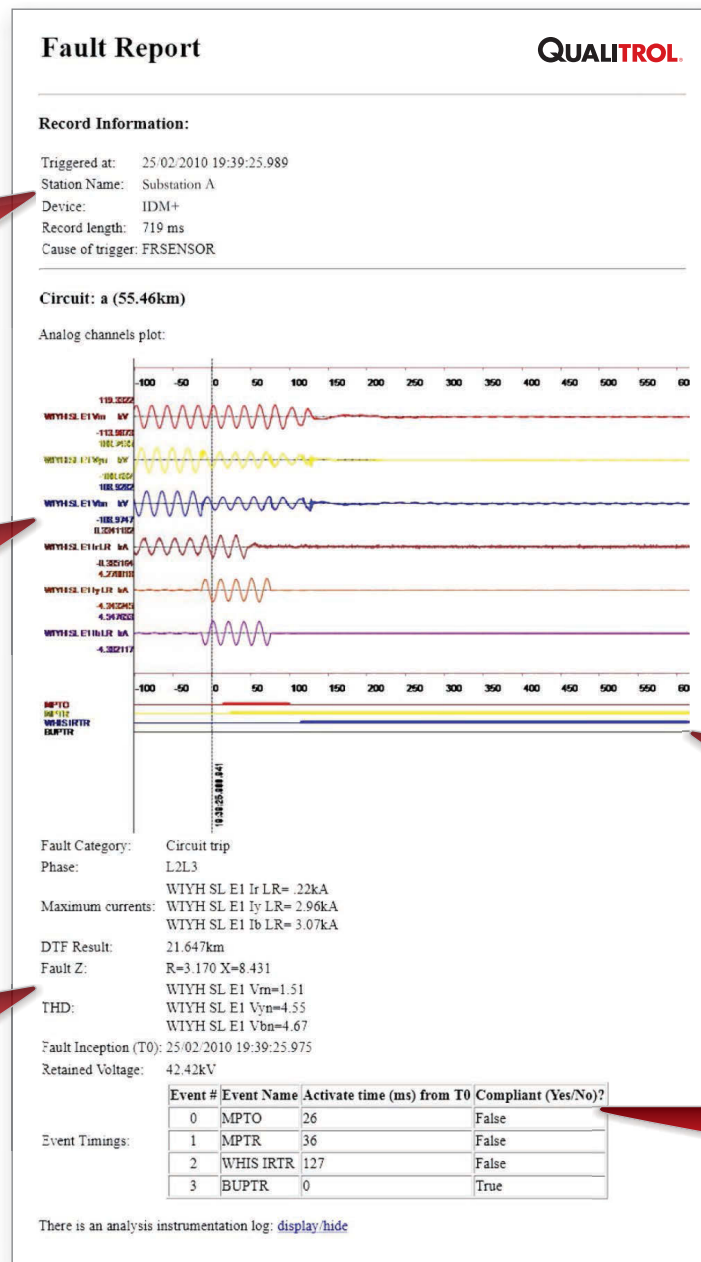
Fault category, DTF and maximum currents

Digital channels

Response of digital channels during event

Event timings

Response times of protection equipment



▲ Record Analysis - Fault Report

- Record Analysis** is a powerful diagnostics tool that automatically analyses fault records and highlights critical issues to speed up resolution. When an event occurs, the device signals iQ+ with a high priority event, iQ+ polls the device and downloads the record. **Record Analysis** analyses the record and creates a diagnostic report that is then e-mailed directly to the relevant users. Configurable analysis algorithm parameters, one click data analysis and advanced results filtering are all part of the **Record Analysis** Suite. Once configured, the end user may never have to view the actual fault records - just the output results!



iQ+ Report Writer - custom report creation and e-mail notifications

- Full suite of customizable reports
- Pre configured industry standard templates - EN 50160, IEC 61000-3-6 and 61000-3-7
- Automatically generated and e-mailed to recipients



Fully automatic systems overview and health check functionality

- Interactive status tables
- Quickly identify problematic areas

CPU Usage	SQL Edition	Database Size	Free Disk Space	Number of Active Users	RAM Usage
0.3547%	Express Edition	243.31 MB	186.2504 GB	2	1063

Device Name	Substation Name	Comms Failure	Last Data Download On	Firmware Version	Last Reboot On	Serial Number
Incomer 1 Informa9	Incomer 1 Informa9 (TX AFE)	0	03/07/2014 15:09:30	CMP01.15_CD4	System Soft Reboot: Tue-Jun 24.2014:Time: 14: 56: 49	329266299
Incomer 2 IDMplus18	Incomer 2 IDMplus18 (TX AFE)	0	03/07/2014 15:10:04	CMP01.15_CD4	System Soft Reboot: Tue-Jun 24.2014:Time: 14: 56: 28	382448474
Incomer 3 IDMplus18	Incomer 3 IDMplus18 (HIA AFE)	0	03/07/2014 15:09:40	CMP01.15_CD4	System Soft Reboot: Tue-Jun 24.2014:Time: 14: 55: 55	382411077
Incomer 4 IDMe	Incomer 4 IDMe	0	03/07/2014 15:09:23	IDMP01.15_B04	System Soft Reboot: Thu-Jun 26.2014:Time: 12: 02: 29	342182255

Parameters	%	Network Voltage Level	Report	Events	VRMS (% Un)	THD (%)	V Unbalance (%)	Flicker (Pst)	VH 03 (% of Fund.)	VH 05 (% of Fund.)	VH 07 (% of Fund.)	Frequency (Hz)						
Device Name			EN Std.	Dip	Swell	Int.	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Incomer 1 Informa9_Bb1	95.09	MV	0	0	0	0												
Incomer 2 IDMplus18_Bb1	95.00	MV	0	0	0	1												
Incomer 2 IDMplus18_Bb2	95.00	MV	0	0	0	1												
Incomer 3 IDMplus18_Bb1	95.00	MV	0	0	0	1												

▲ Health check and systems overview at-a-glance

iQ+ system requirements and available languages

- Intel® Pentium® 4 processor, 2.4 GHz, 2 GB RAM, 50 GB HDD
- Windows® XP Professional with Service Pack 3, Windows® 7 (32-bit or 64-bit)
- Microsoft® SQL Server 2005 or 2008
- iQ+ is available in the following languages: English, French, German, Russian



iQ+

*Fleetwide power
system monitoring*



About QUALITROL®

Established in 1945, with continual improvement at the core of our business, QUALITROL® provides smart utility asset condition monitoring across the globe. We are the largest and most trusted global leader for partial discharge monitoring, asset protection equipment and information products across generation, transmission and distribution. At QUALITROL® we are redefining condition monitoring technology for Electric utilities assets.

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