BD FACS™ Workflow Manager

BD FACS™ Workflow Manager is a fully integrated Middleware solution for BD FACSLyric™ and BD FACSVia™ Flow Cytometers and BD FACSDuet™ Sample Preparation System.

BD

This solution provides a **seamless bi-directional interface**, integrating flow cytometry sample patient data from different laboratories **within the same hospital as well as from different hospitals hubs**, supporting hospital consolidation and differentiation.

By providing automated reporting workflows and data transfer between the Laboratory Information System (LIS) or Hospital Information System (HIS) and the BD instrumentation, the BD FACS™ Workflow Manager reduces manual tasks and workload, **minimising the manual intervention in patient sample data handling**, optimising efficiency and productivity in clinical flow cytometry laboratories and patient sample data management.

In line with GDPR requirements for protection of personal data and privacy of all European citizens, the solution provides **security, encryption and data privacy controls** in instruments and/or software where patient data is processed and stored.

Features also include **data storage, query and reporting on a full testing history**, including original data files and a history of re-analysis and re-runs.

BD FACS™ Workflow Manager v.1.1 **Technical Specifications**

Hardware

HP Z2 G9 SFF
Operating System: Microsoft Windows 10 IoT ENT LTSC Multilang
Processor: Intel® Core i7 12700 12C 65W CPU
Hard drive: Z Turbo Drive 1TB 2280 TLC Solid State Drive (SSD)
16GB (2x8GB) DDR5 4800 UDIMM ECC Memory
Intel UHD Graphics 770
HP Flex Single Port 1GbE NIC
HP Keyboard and Mouse
HP Serial Port
HP Care Pack NBD HW Support with DMR 5y 9x5

Minimum Hardware specifications for running BD FACS™ Workflow Manager software on a Virtual Machine

Operating System: Microsoft Windows 10 Pro/Enterprise (US-English) (64-bit) / Windows Server 2019 (US-English) (64-bit)
Processor: Quad Core
Hard drive: 100GB (excluding storage of reports and documents)
RAM Memory: 16GB
Ports: NIC 100 Mbps or higher Ethernet
PowerShell Module Sql Server (Required Version 21.0.17224)
Software: Microsoft Visual C++ 2019 Redistributable

Minimum Hardware specifications for running BD FACS™ Workflow Manager Client software on a separate workstation

Operating System: Microsoft Windows 10 IoT Desktop (64-bit)
Processor: Quad Core
Hard drive: 1GB
RAM Memory: 8GB
FHD capable Graphics card
Display: FHD Monitor
Ports: NIC Gigabit Ethernet
Software: Microsoft Visual C++ 2019 Redistributable

Monitor

NEC 24-inch, 1920x1080 resolution

Uninterruptible Power Supply (UPS)

Back UPS Pro BR 650VA, 6 Outlets, AVR, LCD Interface
Warranty 5 years

Dimensions

Workstation	Height 10cm (3.95”)
	Width 38.4cm (15.1”)
	Depth 38.4cm (15.1”)
Monitor	Height 33.66 cm (13.25”)
	Width 53.77 cm (21.16”)
	Depth 25.0 cm (9.8”)
UPS	Height 19 cm (7.5”)
	Width 9.1 cm (3.6”)
	Depth 31 cm (12.2”)

Weights

Workstation	5.0 kg
Monitor	7.0 kg
UPS	6.4 kg

Power Requirements

Input voltage range	230 VAC nominal
Input frequency	50/60 Hz +/- 3Hz (auto sensing)
Power Consumption	Max. 650VA

UPS runtime

Approximately 20 minutes UPS runtime is the time that main power can be interrupted while BD FACS™ Workflow Manager stays operational and before UPS initiates automatic power down cycle of BD FACS™ Workflow Manager server.

Environmental

Ambient operating temperature	5 °C....35 °C
Operating Relative Humidity	20%....80% (non-condensing)
Operating elevation	0....3048 meters
Noise Levels	Workstation - Operating: 20 db(A)
	UPS - Operating: 45 db(A)
Heat Dissipation	Typical: 816 Btu/hr
	Max: 845 Btu/hr

Software

Windows 10 Enterprise (US-English) (64-bit)

Microsoft® SQL Server® 2022 Express

BD FWM software USB Wafer

LIS Data Transfer

TCP/IP Connection for use with HL7 and CLSI

Standardised transfer protocol using the industry standard HL7 v2.4 & v2.5, ASTM E-1381 (CLSI LIS1-A) and ASTM E-1394-97 (CLS LIS2-A)

Bi-directional communication with LIS systems over RS-232 serial communications for use with the CLSI protocol

Supported LIS Encoding

Unicode (UTF-7)

Unicode (UTF-8)

Unicode (UTF-16)

Unicode (Big endian)

Unicode (UTF-32)

Unicode (UTF-32 Big endian)

US-ASCII

Western European (iso-8859-1)

Central European (iso-8859-2)

Latin 3 (iso-8859-3)

Baltic (iso-8859-4)

Cyrillic (iso-8859-5)

Arabic (iso-8859-6)

Greek (iso-8859-7)

Hebrew (iso-8859-8)

Turkish (iso-8859-9)

Estonian (iso-8859-13)

Latin 9 (iso-8859-15)

Europa (x-Europa)

Hebrew (iso-8859-8-i)

Japanese (iso-2022-jp)

Japanese JIS-Allow 1 byte Kana (csISO2022JP)

Japanese JIS-Allow 1 byte Kana - SO/SI (iso-2022-jp)

Korean (iso-2022-kr)

Chinese Simplified ISO-2022 (x-cp50227)

Japanese (euc-jp)

Chinese Simplified (EUC-CN)

Korean (euc-kr)

Chinese Simplified (hz-gb-2312)

Chinese Simplified (GB18030)

ISCII Devanagari (x-iscii-de)

ISCII Bengali (x-iscii-be)

ISCII Tamil (x-iscii-ta)

ISCII Telugu (x-iscii-te)

ISCII Assamese (x-iscii-as)

ISCII Oriya (x-iscii-or)

ISCII Kannada (x-iscii-ka)

ISCII Malayalam (x-iscii-ma)

ISCII Gujarati (x-iscii-gu)

ISCII Punjabi (x-iscii-pa)

Flow Cytometer Data Transfer

Transfer of Panel Requests from BD FACS™ Workflow Manager to connected instruments

Import of Flow Cytometry results, reports and ERP files to BD FACS™ Workflow Manager

Peer to peer Gigabit Ethernet, connections using industry standard HTTP(S) protocol for BD FACSLyric™ and BD FACSVia™ Workstations and BD FACSDuet™

Performance

Supporting BD FACSLyric™and BD FACSVia™ Flow Cytometry Workstations, BD™ FACSDuet™ Sample Preparation System Workstation and Analysis Workstations.

Importing orders for Sample Preparation System worklists creation, for flow cytometric patient analysis (including hematology analyzer results)

Sending validated results back to the LIS

Using of Microsoft SQL Server Express databases for storage of patient test results.

Data security

- Uninterruptible power supply (UPS)
- Automated daily data backup
- Independent and separate user account profiles and passwords for BD FACS™ Workflow Manager application
- Database Encryption of Patient Information
- Archived data files and reports encryption
- Instrument and LIS communication encryption

Data Backup

- Automated daily data backup

BD Flow Cytometers supported

- BD FACSLyric™
- BD FACSVia™

BD Sample Preparation Systems supported

- BD FACSDuet™ Sample Preparation System
- BD FACSDuet™ Premium Sample Preparation System

BD software supported

- BD FACSuite™ Clinical and BD FACSuite™ Applications
- BD FACSVia™ Clinical software
- BD FACSDuet™ software

Documentation

- BD FACS™ Workflow Manager User Guide
- BD FACS™ Workflow Manager Software LIS Interface-Specification Guide
- BD Product Security White Paper-BD FACS™ Workflow Manager Software v1.1 (on request)

BD- Europe, Terre-Bonne Park - A4, Route de Crassier 17, 1261 Eysins, Switzerland

BD Flow Cytometers, the BD FACSDuet™ Sample Preparation System and the BD FACSDuet™ Premium Sample Preparation System are Class 1 Laser Products.

CE The BD FACSLyric™Flow Cytometer with the BD FACSuite™ Clinical and BD FACSuite™Applications, the BD FACSDuet™Sample Preparation System and the BD FACSDuet™Premium Sample Preparation System are in vitro diagnostic medical device bearing a CE mark.

The BD FACSVia™ Flow Cytometer is no longer sold in EU.

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