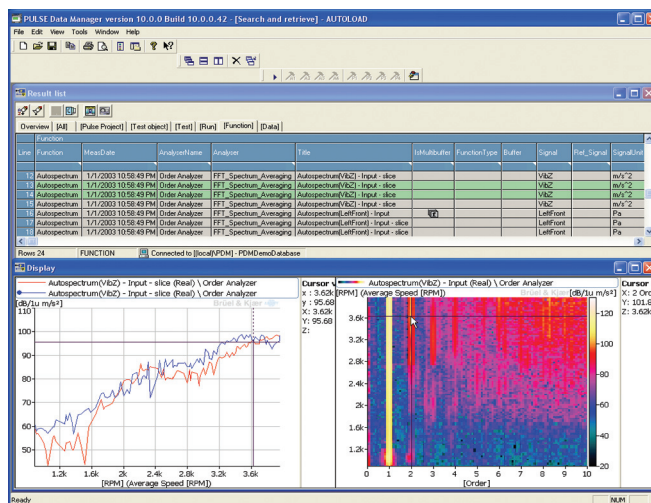


## PULSE Data Manager Type 7767

*PULSE Data Manager (PDM) is a family of data management solutions that enables measurements from PULSE™ LabShop or any of its applications to be labelled with metadata and saved to a database. PDM is based on the Microsoft® SQL Server® database management system and streamlines data handling, test documentation and archiving for PULSE LabShop. The software can be installed locally for a single user or on a local area network (LAN) for multiple users across an organization. PDM functions as either an independent application or as a component of PULSE LabShop and includes intuitive tools for search and retrieval, display, comparison, calculation and reporting.*



### Uses and Features

#### Uses

- Save measurement data (with metadata) within a centralized database
- Search and retrieve data
- Access, display, manage, evaluate, compare, calculate and report data across your entire organization

#### Features

- Stand-alone or fully integrated PULSE Labshop application
- Multi-user licences
- Microsoft SQL Server database management system
- Predefined or custom databases
- Single-click saving and labelling
- Data stored in XML
- Intelligent database queries
- Multiple search criteria
- Copy between databases
- Drag-and-drop functionality
- 3D displays
- Metadata-based legends
- Reporting using Microsoft Office
- Advanced reporting tool: Report Generator
- Calculator tool
- Storage of related files
- Automation via Microsoft Visual Basic®

### Introduction

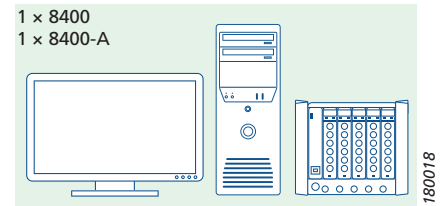
PULSE Data Manager Type 7767 (PDM) provides all the tools necessary for efficiently managing measurement data – whether storing, finding, combining, post-processing or reporting. To make things even easier, personalized settings can be stored for easier overview of the data.

Having measured and analysed large amounts of high-quality data, placing it in a database provides the most efficient means of storing it for easy retrieval and sharing. Using a database also allows you to combine old and new data sets into reports, comparing and illustrating exactly what you need.

**Fig. 1**  
Single data acquisition system with data management for a single user

**Single User**

Single-user data management is included in BK Connect Data Viewer (advanced) Type 8400-A (for which BK Connect Data Viewer Type 8400 is a prerequisite, see Product Data BP 0005). Type 8400-A enables data acquisition and database browsing for a single user with a single data acquisition system and includes Microsoft® SQL Server® 2014 Express installed locally with predefined databases.



**Multiple Users**

Types 7767-B and -C are PULSE Data Manager licences for up to 5 and 10 users, respectively. These multi-user licences have the same functionality as the single-user set-up, with the added feature of a database configuration tool for personalized database creation with metadata that matches your company’s requirements. PDM and its components can be run both independently of PULSE LabShop applications as well as from the application taskbar.

Multi-user configurations are based on Microsoft® SQL Server® 2014 Standard and consist of one Type 7767 licence (PDM administrator) and one licence for each additional PDM station.

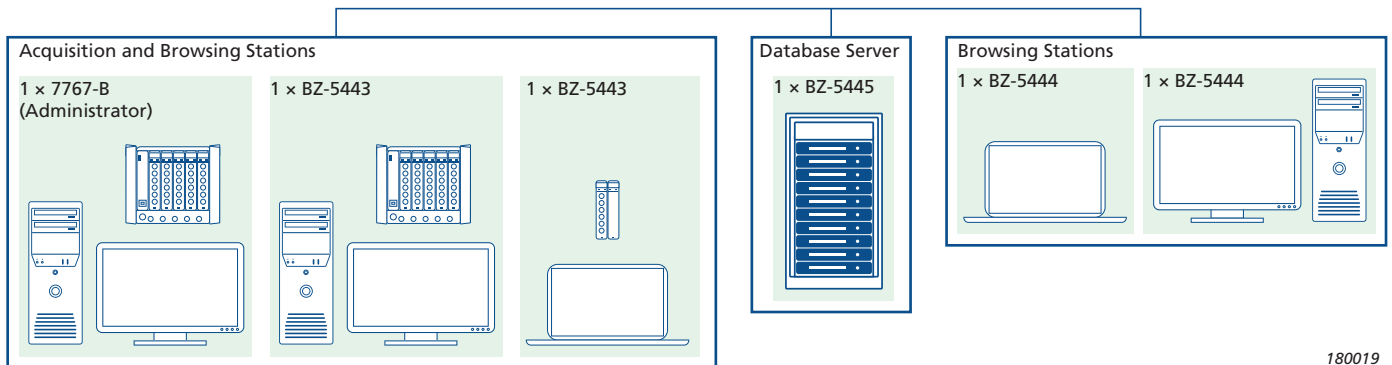
**Database Server Licence BZ-5445**

BZ-5445 provides licencing for SQL Server 2014 Standard for up to ten users.

**Additional PDM Stations**

There are two types of PDM stations that can be added to multi-user set-ups: acquisition and browsing stations and browsing stations. Acquisition and Browsing Licence BZ-5443 creates a measurement station with both data acquisition and database browsing permissions. Browsing Licence BZ-5444 creates a station with database browsing permission only. Each PDM station requires one licence for either BZ-5443 or BZ-5444. In multi-user scenarios, the licence for either Type 7767-B or Type 7767-C creates one measurement station (with permissions equivalent to one BZ-5443 licence).

**Fig. 2** A multi-user PULSE Data Manager scenario with three data acquisition stations and two browsing stations



**Microsoft SQL Server**

**Table 1** SQL Server overview for Brüel & Kjær data management software

	2014 Express Edition	2014 Standard Edition
Single-user Systems	Included	Recommended, not included
Multiple-user Systems	Not supported	Required, not included
SQL Server Installation and Configuration (Brüel & Kjær service product BK-0058)	Not required	Required

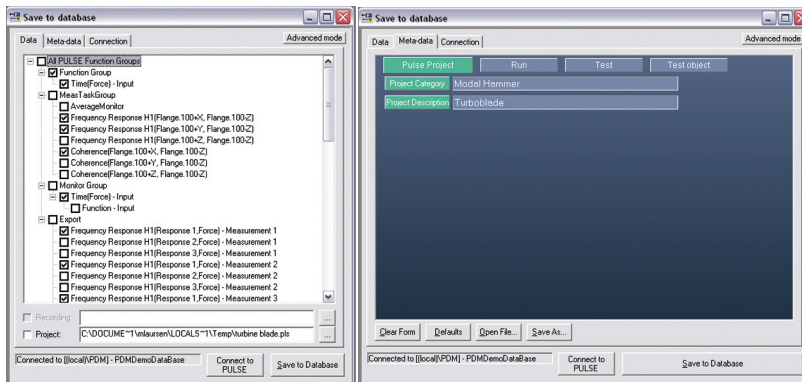
**Table 2** Overview of data management software functionality

Tools		Single User	Multiple Users		
		BK Connect Data Viewer Types 8400 + 8400-A	PDM Type 7767-B PDM Type 7767-C	+ Acquisition and Browsing Licence BZ-5443	+ Browsing Licence BZ-5444
Database	Save	✓	✓	✓	–
	Search and retrieve	✓	✓	✓	✓
	Copy between databases	✓	✓	✓	✓
	Maintenance	✓	✓	✓	✓
	Creation and configuration	✓	✓	–	–
Data	Display	✓	✓	✓	✓
	Calculate	✓	✓	✓	✓
Reporting	Drag and drop	✓	✓	✓	✓
	Automated reporting (template design)	✓	✓	✓	✓

**Save**

After you measure and analyse large amounts data, save it to a database with a single-click using the Save to Database task. Select data from the project, label it with metadata and save it to a PDM database for future processing, reporting or viewing. You can also save the entire project or any type of file-based annotation (pictures, reports, etc.) with your measurement data.

**Fig. 3**  
Select data from a PULSE project and save it to your database with metadata

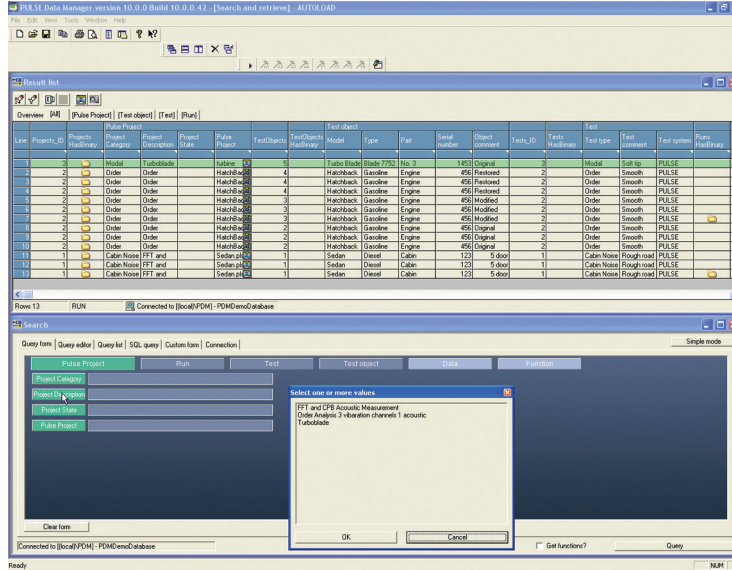


## Search and Retrieve

The Search and Retrieve task in PDM lets you find and retrieve data stored in a database. With correctly labelled data, you can, for example, search for and retrieve all measurements made over time at a specific measurement point on all vehicles of a specified type.

Searches use the same metadata as the Save to Database task, and can be saved in a query list for future searches. You can also initiate and define queries in SQL.

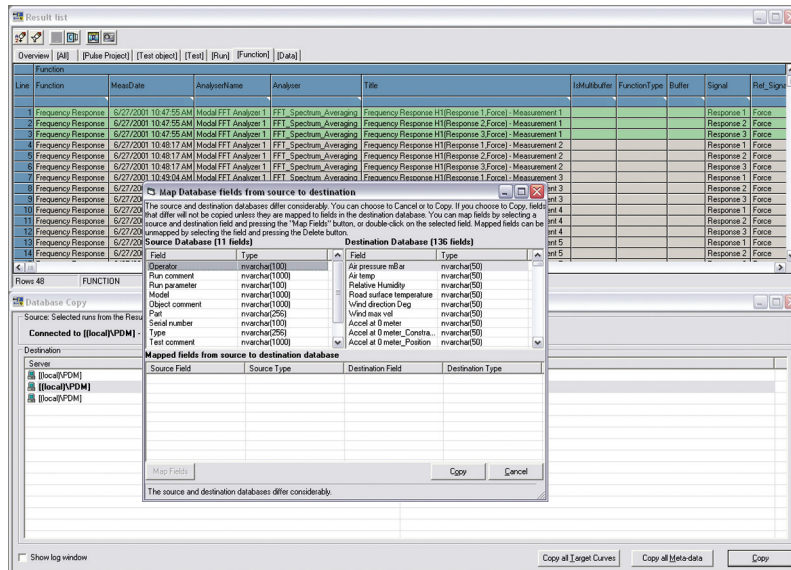
**Fig. 4**  
Use metadata to search your database; possible metadata values for fields are provided



## Copy

The Copy task allows you to copy selected data, all metadata, or all tolerance curves from one database to another. If the structure of the databases differs, you are given the opportunity to map fields between the databases.

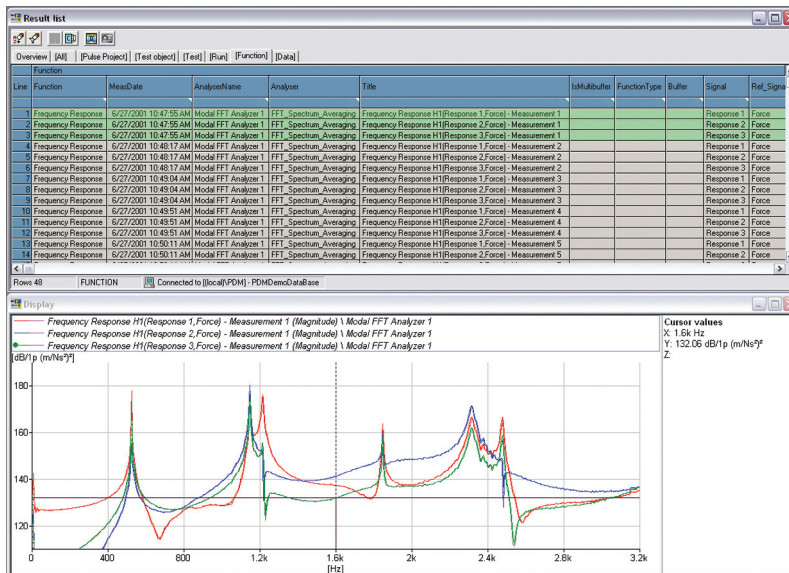
**Fig. 5**  
Map dissimilar metadata from one database to another



## Display

Display results by dragging and dropping retrieved data from the Result List into a GCX graph area (or report, see below). The display window can be divided into up to 25 graph areas, each of which can hold one or more sets of data, allowing easy comparison of data. Each graph area can be set up independently, for example, to display curves, 3D plots, etc.

**Fig. 6**  
Drag and drop data from the Result List to the display area



## Calculate

With PULSE Calculator, simple arithmetic, statistics and dB calculations can be performed on selected data, including functions, scalars and previous calculation results. Drag-and-drop data directly from a PULSE LabShop application, PDM, or Windows® Explorer (PULSE ASCII or UFF files) to the Calculator and apply calculations on selected functions as necessary.

Results can be immediately displayed, saved to the database and copied as live or static graphs to any Microsoft Word, Excel, etc., for reporting.

**Fig. 7**  
Selected input data (left graph), select an operation (lower menu) and the results are displayed in the graph on the right



## Report

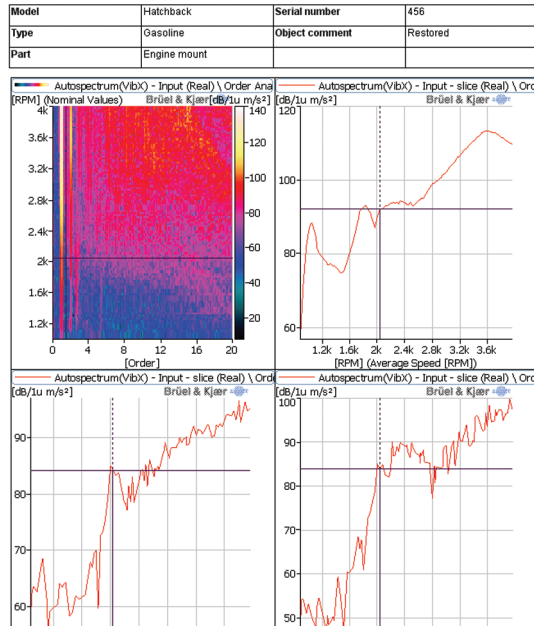
### Drag-and-Drop Reporting

PDM allows you to drag-and-drop data into live displays in Microsoft Word reports, with active cursors and cursor values\*. You also have full access to graph properties and options to change, for example, axis-scaling, colours or add annotations. You can also add more curves to a report at a later date, avoiding the recreation of the entire report – simply open an existing report and add more data.

### Automated Reporting

Using the built-in Report Generator, create report templates by defining the type of metadata and displays to be shown in a report. Once created, selected data from the database is automatically added to the report with one click, complete with metadata, ready for printing. A number of predefined report templates are also provided.

**Fig. 1**  
Microsoft Word  
document with live  
displays and cursors



\* Requires a 32-bit version of Microsoft® Office

## Specifications – PULSE Data Manager Type 7767

Type 7767 is a Windows®-based application

Software is delivered via installation media (DVD or USB). The licence is either: node-locked to a PC host ID or dongle; or floating, locked to a network server. Floating licences require a licence server.

### SYSTEM REQUIREMENTS

- Microsoft® Windows® 10 Pro or Enterprise (x64) with either Current Branch (CB) or Current Branch for Business (CBB) servicing model; or Windows® 7 Pro, Enterprise or Ultimate (SP1) (x64) operating systems
- Microsoft® Office 2016 (x32 or x64) or Office 2013 (x32 or x64)
- Microsoft® SQL Server® 2014 Express (SP2) (included in installation), Microsoft® SQL Server® 2014 (SP2), SQL Server 2012 R2, SQL Server 2008 or 2008 R2 Express Edition SP1

### SOFTWARE FORMAT

Microsoft® ActiveX® Components can be embedded directly in a PULSE project, an Internet browser or their own dedicated component container

### TOOLS INCLUDED

- Save to database
- Search database
  - All metadata fields
  - Via user-defined SQL queries
- Retrieve from database
- New Database Tool (Advanced)
- Copy between databases
  - Selected data
  - All metadata
  - All tolerance curves
- Database maintenance
  - Attach-detach
  - Field editor
  - Upgrade and maintenance tool (backup, repair, restore)
- Display data
- Drag and drop reporting

### DATA FORMATS

Measurement data: XML format  
Supplementary files: Binary format

## CALCULATOR

### Database Interface

Search, retrieve and save to database

### Calculation Options

- Addition
- Subtraction
- Multiplication
- Division
- Squaring
- Square root
- Reciprocal
- Minimum
- Maximum
- Sum value
- Variance
- Mean
- Mean  $\pm$  standard deviation
- Mean  $\pm$  3 standard deviation

### Units

Calculation units can be manually edited

## Reporting

Copy of functions or displays to clipboard for pasting to Microsoft® Word document as live displays or fixed metafiles

**Note:** Live displays are not supported for 64-bit versions of Microsoft® Office

## REPORTING

Via Microsoft Word

### Reporting Options

- Drag-and-drop
- Automated

## DATABASE

Single User (Type 8400 + Type 8400-A)	<b>Database Type:</b> Microsoft® SQL Server® 2014 Express <b>Data Capacity:</b> 10 GB <b>Number of Users:</b> 1 <b>Optional Database Type:</b> Microsoft® SQL Server® 2014 Standard (for network environments or large databases)
Type 7767-B	<b>Database Types:</b> Microsoft® SQL Server 2014 Standard (network environment) <b>Data Capacity:</b> Hardware dependent <b>Number of Users:</b> Dependent on Type 7767 licence or SQL Server, whichever is smaller
Type 7767-C	

## Ordering Information

Software licences are either node-locked or floating

### Single-user Licencing

The single-user licence Type 7767-A is, from 2018, included in BK Connect™. Please order the following applications:

- Type 8400: BK Connect Data Viewer
- Type 8400-A: BK Connect Data Viewer (advanced)

### SOFTWARE MAINTENANCE AND SUPPORT AGREEMENTS

M1-8400 Agreement for Type 8400  
M1-8400-A Agreement for Type 8400-A

### Multi-user Licencing

Multi-user set-ups are available as customized solutions with on-site installation and configuration of the database by a qualified Brüel & Kjær representative

Type 7767-B PULSE Data Manager, 5-user licence  
Type 7767-C PULSE Data Manager, 10-user licence

Requires:

- BK-0058: SQL Server Database Installation and Configuration

### SOFTWARE MAINTENANCE AND SUPPORT AGREEMENTS

M1-7767-B Agreement for Type 7767-B  
M1-7767-C Agreement for Type 7767-C

### OPTIONS

BZ-5443 PULSE Data Manager Acquisition and Browsing Licence  
BZ-5444 PULSE Data Manager Browsing Licence  
BZ-5445 Microsoft® SQL Server 2014 Standard Edition, 10 users

### SERVICE

BK-0058 SQL Server Database Installation and Configuration

### SAMPLE MULTI-USER INSTALLATION

Three-user set-up with two acquisition and browsing stations, and one browsing station requires the following licences:

1 × Type 7767-B PULSE Data Manager, 5-user Licence  
1 × BZ-5443 PULSE Data Manager Acquisition and Browsing Licence  
1 × BZ-5444 PULSE Data Manager Browsing Licence  
1 × BZ-5445 Microsoft® SQL Server 2014 Standard Edition, 10 users  
1 × BK-0058 SQL Server Database Installation and Configuration

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