

Navigator 600

Silica and phosphate analyzers



Profibus supplement

Measurement made easy

—
Cost-effective automated monitoring of silica or phosphate for a wide range of applications

Overview

The Navigator 600 series are advanced colorimetric silica and phosphate analyzers available in single- or multi-stream versions.

This supplementary user guide contains information specific to Profibus® DP-enabled Navigator 600 series analyzers and must be read in conjunction with the user guide relevant to each model.

This supplementary manual applies to Navigator 600 model numbers AW641/xxxxx9xx and AW642/xxxxx9xx.

For more information

Further publications for the Navigator 600 series analyzers are available for free download from:

www.abb.com/analytical

(see links and reference numbers below) or by scanning these codes:



Navigator 600 Silica



Navigator 600 Phosphate

Search for or click on

Data Sheet Navigator 600 Silica Silica analyzer	DS/NAV6S-EN
User Guide Navigator 600 Silica Single-stream	IM/NAV6S/SS-EN
User Guide Navigator 600 Silica Multi-stream	IM/NAV6S/MS-EN
Data Sheet Navigator 600 Phosphate Phosphate analyzer	DS/NAV6P-EN
User Guide Navigator 600 Phosphate Single-stream	IM/NAV6P/SS-EN
User Guide Navigator 600 Phosphate Multi-stream	IM/NAV6P/MS-EN

Electrical safety

One or more of the following symbols may appear on the equipment labelling:

	Warning – Refer to the manual for instructions
	Caution – Risk of electric shock
	Protective earth (ground) terminal
	Earth (ground) terminal
	Direct current supply only
	Alternating current supply only
	Both direct and alternating current supply
	The equipment is protected through double insulation

Information in this manual is intended only to assist our customers in the efficient operation of our equipment. Use of this manual for any other purpose is specifically prohibited and its contents are not to be reproduced in full or part without prior approval of the Technical Publications Department.

Health and safety

To ensure that our products are safe and without risk to health, the following points must be noted:

- The relevant sections of these instructions must be read carefully before proceeding.
- Warning labels on containers and packages must be observed.
- Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given.
- Normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and/or temperature.
- Chemicals must be stored away from heat, protected from temperature extremes and powders kept dry. Normal safe handling procedures must be used.
- When disposing of chemicals ensure that no two chemicals are mixed.

Safety advice concerning the use of the equipment described in this manual or any relevant hazard data sheets (where applicable) may be obtained from the Company address on the back cover, together with servicing and spares information.

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1 Introduction

Note. This Supplementary User Guide contains information specific to Profibus DP-enabled Navigator 600 Series analyzers and must be read in conjunction with the User Guide relevant to each model.

1.1 Profibus

Profibus is a manufacturer-independent, open fieldbus standard for a wide range of applications in manufacturing, process and building automation. Manufacturer independence and openness are ensured by the international standard EN 50170.

Using the Profibus protocol, devices from different manufacturers exchange information on the same communications bus without the need for special interface equipment.

The Profibus family comprises three types of protocol, Profibus DP, Profibus FMS and Profibus PA, each of which is used for different tasks. Of these three protocols, the most important for process automation are Profibus DP and Profibus PA.

Further information on Profibus can be found at www.profibus.com.

1.1.1 Profibus DP

Profibus DP is designed for high-speed data exchange and is commonly used by complex or externally-powered devices. The central controller or 'master' device (e.g. PLC or PC) utilizes Profibus DP as a fast serial connection with distributed (slave) field devices such as Profibus-enabled Navigator 600 Series analyzers.

DP-V0 is the basic stage of the Profibus DP communication protocol. DP-V0 provides cyclic data exchange between master and slave devices.

The Navigator 600 Series analyzers also support the DP-V1 extension that enables additional acyclic communication between master and slave devices.

1.1.2 Profibus PA

Profibus PA is designed to accommodate process automation field devices that require power via the network with the option to use intrinsic safety for hazardous areas. Typical devices using this protocol include transmitters and positioners.

A DP/PA coupler or link device is used to connect the Profibus PA network to the Profibus DP network.

1.2 Profibus and ABB Products

Navigator 600 Series analyzers utilize Profibus DP as this is the protocol optimized for high speed and low connection costs (see www.abb.com/fieldbus and follow the [Profibus](#) link).

1.3 Profibus DP Transmission Technology

The transfer method of Profibus DP is RS485 – a proven technology. A twisted, shielded, two-wire copper cable is used as the transfer medium.

The bus structure enables addition and removal of stations or step-by-step commissioning of the system without affecting other stations. Later expansion has no influence on stations already in operation.

Transmission speeds of between 9.6 kbit/sec and 12 Mbit/sec are available. One uniform transmission speed is selected for all devices on the bus when the system is commissioned.

2 Installation

2.1 Installation Overview

All devices are connected in a bus structure ('line'). Up to 32 stations (master or slaves) can be linked to create one 'segment'.

Each end of a segment must be terminated by an active bus terminating resistor. Both bus terminators must always be powered to ensure fault-free operation therefore it is strongly recommended that they are connected to a back-up power supply.

Up to three line bus amplifiers (repeaters) can be used to extend the network to a total of four segments, allowing a maximum of 125 devices to be installed in the system.

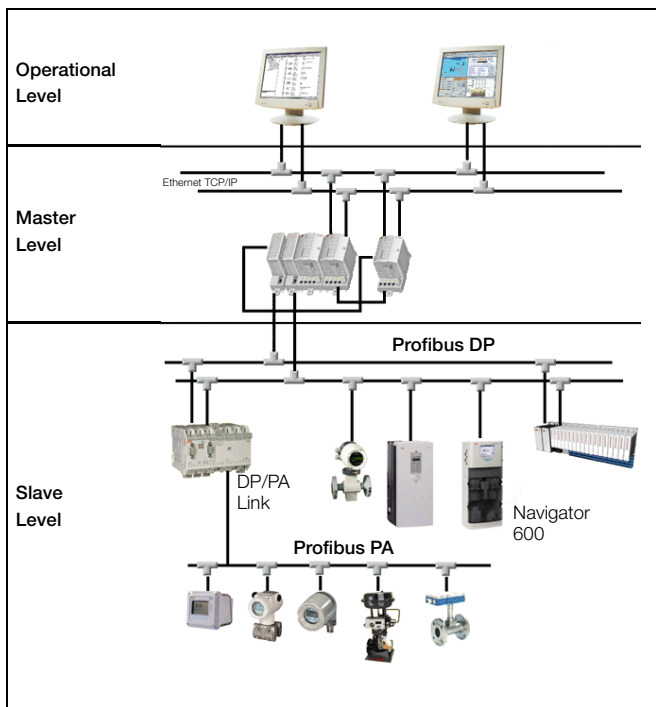


Fig. 2.1 Typical Profibus Network

2.2 Cable Length

The maximum cable length of a segment is determined by the transmission speed – see Table 2.1. The cable length specified can be extended by using repeaters but it is recommended that no more than three repeaters are connected in series.

Transmission Rate (bits/sec)	Maximum Segment Length (m)	Maximum Total Network Length (m)
9.6 to 93.75k	1200	4800
187.5k	1000	4000
500k	400	1600
1.5M	200	800
3 to 12M	100	400

Table 2.1 Cable Length

2.3 Cable Specification

The cable lengths in Table 2.1 refer to the following cable type:

Characteristic impedance	135 to 165Ω
Capacitance per unit length	<30 pf/m
Loop resistance	110Ω/km
Core diameter	0.64mm
Core cross section	>0.34mm ²

Suitable Profibus cable, part nos. PCA010, PCA 011 and PCA 012, can be obtained from ABB. Refer to Data Sheet 10/63-6.46 EN.

2.4 Device Integration – the GSD File

Profibus devices differ with respect to available functionality and parameters and these vary individually for each device type and manufacturer. In order to obtain 'Plug-and-Play' configuration for Profibus, characteristic device communication features such as manufacturer name, device name, hardware/software versions, baud rate and the number and nature of inputs/outputs are defined in an electronic device data sheet known as a GSD file.

A GSD file is readable ASCII text file that contains both general and device-specific specifications for communication. Each of the entries describes a feature supported by a device. By the means of keywords, a configuration tool reads the device identification, the adjustable parameters, the corresponding data type and the permitted limit values for the configuration of the device from the GSD. Some keywords are mandatory, e.g. Vendor_Name; others are optional, e.g. Sync_Mode_supported.

The GSD file (ABB_OAD4_1001.gsd) for Profibus-enabled Navigator 600 Series analyzers conforms to the Profibus standard.

3 Network Connection and Configuration

Warning. When connecting a Profibus-enabled Navigator 600 Series analyzer to a Profibus-DP network:

- Use shielded data lines and ensure they are not reversed.
- Ensure all data lines are routed clear of the source of any strong electrical and magnetic fields.
- Refer to the User Guide for all other installation and connection details.

3.1 Network Connections

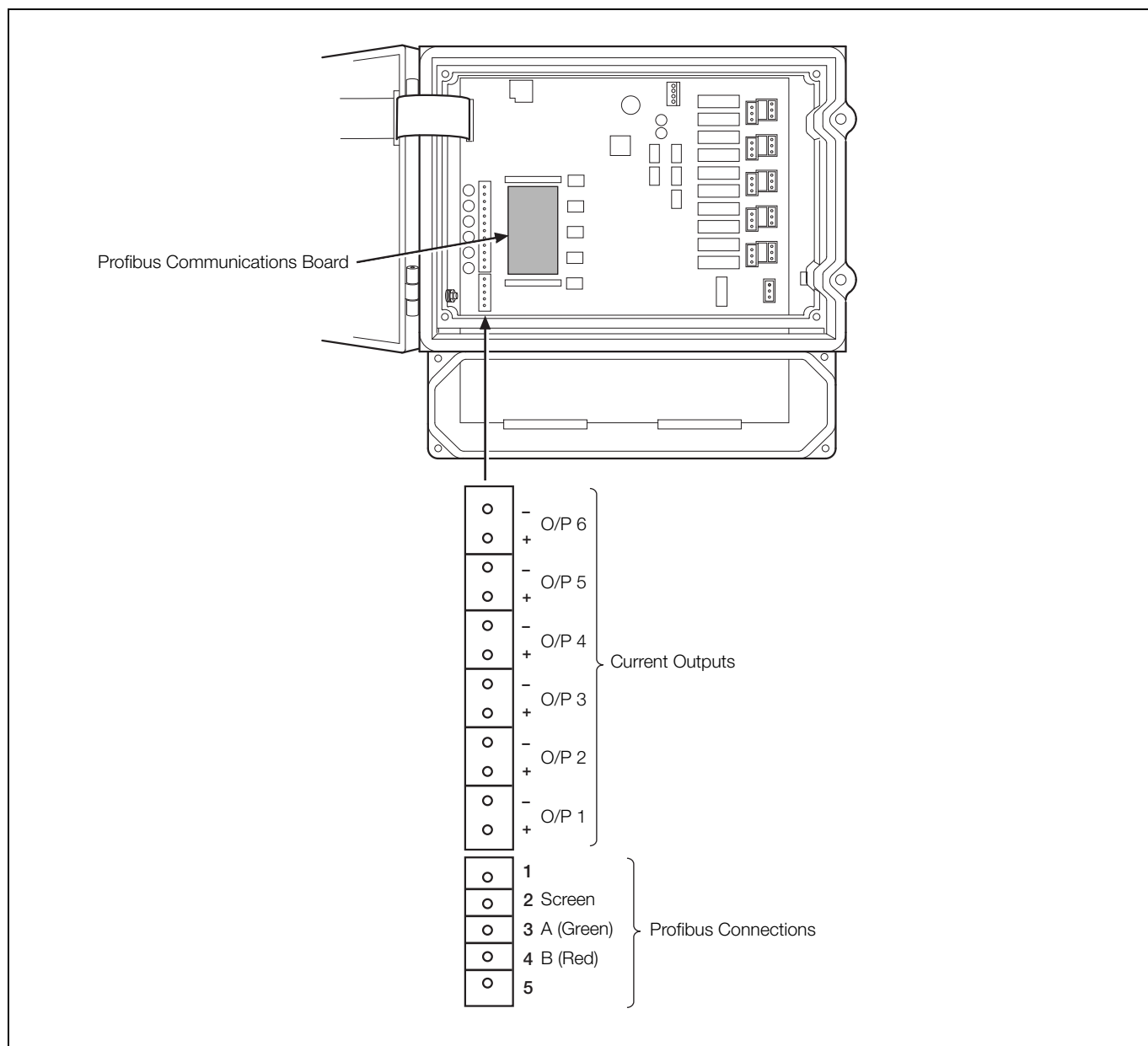


Fig. 3.1 Network Cable Connections

3.2 Network Configuration

Note. A Navigator 600 Series analyzer is not configured using Profibus commands but via the analyzer's keypad and menu system.

To configure Profibus communications, refer to Section 11.6 of the User Guide relevant to the analyzer model and access the Profibus tab:



Fields	Description
Slave Address	A unique identifying number for the analyzer from 1 to 126. A default address of 6 is set in the factory before shipping. This address can be changed to any value from 1 to 125 to enable the analyzer to be visible on a Profibus system.

Appendix A – GSD File Module

Note.

- Float = Floating-point number – requires 4 bytes
- Char = Character – requires 1 byte
- Int = Integer – requires 2 bytes

A.1 Module 01

Table A.1 defines the Module 01 data available from a Navigator 600 Series analyzer via Profibus cyclic transfer:

Byte	Type	Description
1 to 4	Float	Stream 1 value
5	Char	Stream 1 status
6 to 9	Float	Stream 2 value
10	Char	Stream 2 status
11 to 14	Float	Stream 3 value
15	Char	Stream 3 status
16 to 19	Float	Stream 4 value
20	Char	Stream 4 status
21 to 24	Float	Stream 5 value
25	Char	Stream 5 status
26 to 29	Float	Stream 6 value
30	Char	Stream 6 status

Table A.1 Module 01 Data

A.2 Status Byte Definition

Table A.2 defines the meaning of the contents of a Navigator 600 Series analyzer's status byte.

Byte (Hex)	Definition
1C	OOS (Out of Service)
80	Good
89	Low alarm limit advisory alarm
8A	High alarm limit advisory alarm
8D	Low-low alarm limit critical alarm
8E	High-high alarm limit critical alarm

Table A.2 Status Byte Definition

Appendix B – Acyclic Parameter Mapping

²Access Definitions:

R – Read only.
R/W – Read/Write.

¹Store Definitions:

C = Constant – the value held in a Navigator 600 Series analyzer does not change
D = Dynamic – a value or state calculated by a Navigator 600 Series analyzer
N = Non-volatile – typically a configuration parameter that is stored in a Navigator 600 Series analyzer's non-volatile memory

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Physical Block Parameters										
Software revision	0	24	Simple	VisibleString	16	C	R	Current revision	ASCII string	Low level version number
Hardware revision	0	25	Simple	VisibleString	16	C	R	Current revision	ASCII string	
Manufacturer identification	0	26	Simple	Unsigned16	2	C	R	26 (ABB)		
Device identification	0	27	Simple	VisibleString	16	C	R	AW641 SiO2 AW642 – PO4 AW642 – P		
Device serial number	0	28	Simple	VisibleString	16	C	R	Unit's serial number	ASCII string	
Device diagnosis information	0	29	Simple	OctetString	4	D	R			See Table B.2, page 45
Additional device diagnosis information	0	30	Simple	OctetString	6	D	R			Navigator 600 specific errors See Table B.2, page 45
Diagnosis definition	0	31	Simple	OctetString	4	C	R			See Table B.2, page 45
Extended diagnosis definition	0	32	Simple	OctetString	6	C	R			See Table B.2, page 45
Device certification	0	33	Simple	VisibleString	32	C	R			
Number of streams fitted	0	64	Simple	Unsigned8	1	N	R		1 to 6	
Instrument tag	0	65	Simple	VisibleString	20	N	R/W	Navigator 600	ASCII string	
HMI software revision	0	66	Simple	VisibleString	16	C	R	Current revision	ASCII string	
OS software revision	0	67	Simple	VisibleString	16	C	R	Current revision	ASCII string	
Instrument type	0	68	Simple	Unsigned8	1	C	R	0	0 = Silica 1 = Phosphate	

Table B.1 Data Structure (Sheet 1 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Transducer Block Parameters										
Enable streams	1	145	Array	Unsigned8	6	N	RW		0= disabled 1 = enabled	
Stream sequence	1	146	Array	Unsigned8	12	N	RW	1,2,3,4,5,6	1 to 6	
Sample Interval	1	147	Simple	Unsigned16	2	N	RW		0 = continuous	
Up scale sample time	1	148	Simple	Unsigned8	1	N	RW		10 to 30 minutes	
Down scale sample time	1	149	Simple	Unsigned8	1	N	RW		10 to 30 minutes	
Zero calibration time	1	150	Simple	Unsigned16	2	N	RW		10 to 60 minutes	
Secondary calibration time	1	151	Simple	Unsigned16	2	N	RW		10 to 60 minutes	
Recovery time	1	152	Simple	Unsigned16	2	N	RW		10 to 60 minutes	
Calibration factor limit	1	153	Simple	Unsigned16	2	N	RW		15 to 50 (value x100)	0.15 to 0.5
Calibration offset limit	1	154	Simple	Unsigned16	2	N	RW		SiO2 = 50 to 500 PO4 = 2 to 200 (value x100) P = 0 to 65 (value x100)	SiO2 = 50 to 500 PO4 = 0.02 to 20.00 P = 0.00 to 0.65
Sample pump speed	1	155	Simple	Unsigned16	2	N	RW		1 to 20 (value x 10)	0.1 to 2.0
Reagent pump speed	1	156	Simple	Unsigned16	2	N	RW		1 to 20 (value x10)	0.1 to 2.0
Sample heater proportional band	1	157	Simple	Unsigned16	2	N	RW		1 to 9999 (%value x 10)	0.1 to 999.9%
Sample heater integral time	1	158	Simple	Unsigned16	2	N	RW		0 to 9999 seconds	
Sample heater cycle time	1	159	Simple	Unsigned16	2	N	RW		1 to 9999 (value in seconds x 10)	0.1 to 999.9s
Reagent bottle type	1	160	Simple	Unsigned8	1	N	RW	0	0 = Standard 1 = Custom	
Reagent bottle capacity	1	161	Simple	Unsigned16	2	N	RW	250	10 to 1000 litres (x 100)	0.1 to 10.0 litres – bottle type must be 'Custom' to change
Reagent limit	1	162	Simple	Unsigned16	2	N	RW	7	1 to 30 days	
Cal solution limit	1	163	Simple	Unsigned16	2	N	RW	3	1 to 30 calibrations	
Cleaning solution limit	1	164	Simple	Unsigned16	2	N	RW	3	1 to 30 cleaning cycles	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 2 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Secondary calibration value	1	165	Simple	Float	4	N	RW	50 ppb	0 to 5000 silica 0 to 10 phosphate	
Baseline calibration enable	1	166	Simple	Unsigned8	1	N	RW	0	0 = Disabled (Stop) 1 = Enabled	
Zero + secondary calibration enable	1	167	Simple	Unsigned8	1	N	RW	0	0 = Disabled (Stop) 1 = Enabled	
Zero calibration enable	1	168	Simple	Unsigned8	1	N	RW	0	0 = Disabled (Stop) 1 = Enabled	
Secondary calibration enable	1	169	Simple	Unsigned8	1	N	RW	0	0 = Disabled (Stop) 1 = Enabled	
Calibration offset	1	170	Simple	Float	4	D	R	0.0		Displayed to 1 decimal place
Calibration factor	1	171	Simple	Float	4	D	R	1.00		Displayed to 2 decimal places
Reset calibration offset & factor	1	172	Simple	Unsigned8	1		RW	0	1 = Reset	
Configuration mode	1	173	Simple	Unsigned8	1		RW	0		Reads 1 when in 'Profibus' config otherwise 0
Reagent level 1	1	174	Simple	Unsigned8	1	D	R	0	Days remaining – no decimal places	
Reagent level 2	1	175	Simple	Unsigned8	1	D	R	0	Days remaining – no decimal places	
Reagent level 3	1	176	Simple	Unsigned8	1	D	R	0	Days remaining – no decimal places	
Reagent level 4	1	177	Simple	Unsigned8	1	D	R	0	Days remaining – no decimal places	
Secondary calibration solution level	1	178	Simple	Unsigned8	1	D	R	0	Calibrations remaining	
Zero calibration solution level	1	179	Simple	Unsigned8	1	D	R	0	Calibrations remaining	
Cleaning solution level	1	180	Simple	Unsigned8	1	D	R	0	Cleaning cycles remaining	
Language	1	181	Simple	Unsigned8	1		R	0	0 = English 1 = German 2 = French 3 = Italian 4 = Spanish	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 3 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Level sensors	1	182	Simple	Unsigned8	1		R	0	0 = Disabled 1 = Enabled	
Flow sensors	1	183	Simple	Unsigned8	1		R	0	0 = Disabled 1 = Enabled	
Update time	1	184	Simple	Unsigned16	2		RW	15	1 to 20	
Automatic schedule	1	185	Record		21		RW			
			Simple	Unsigned8	1			0	0 = Off 1 to 7 = 1 to 7 days	Zero calibration frequency
			Simple	Unsigned16	2				Year	Next zero date & time
			Array	Unsigned8	4				Month Day Hour Minute	
			Simple	Unsigned8	1				0 = Off 1 to 7 = 1 to 7 days 8 = 2 weeks 9 = 4 weeks	Secondary calibration frequency
			Simple	Unsigned16	2				Year	Next secondary date
			Array	Unsigned8	4				Month Day Hour Minute	Time from zero
			Simple	Unsigned8	1				0 = Off 1 to 7 = 1 to 7 days 8 = 2 weeks 9 = 4 weeks	Clean frequency
			Simple	Unsigned16	2				Year	Next clean date
			Array	Unsigned8	4				Month Day Hour Minute	Time from zero

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 4 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Clean durations	1	186	Array	Unsigned16	4		RW	20, 20	20, 30, 60 mins 2, 4, 6, 8, 12 hours	Automatic and manual clean durations
Valve & pump status	1	187	Array	Unsigned8	11		R			Streams 1 to 6. Zero, secondary & clean valves. Sample & reagent pumps.
Mode of operation	1	189	Simple	Unsigned8	1		R	0	0 = Normal 1 = Demonstration 2 = Test	
Archive definition	1	190	Record		6		RW			
			Simple	Unsigned8	1			0	0 = Text 1 = Binary	Archive format
			Array	Unsigned8	3			0, 0, 0	Data, alarm event and audit logs 0 = Off 1 = On	Archive enable
			Simple	Unsigned8	1			2	0 = Off 1 = Hour 2 = Day 3 = Month	New file interval
			Simple	Unsigned8	1			0	0 = Off 1 = On	File wrapping
Filter type	1	191	Simple	Unsigned8	1		RW	0	0 = Instantaneous 2 = Average 3 = Minimum only 4 = Maximum only 5 = Minimum & Maximum	
Sample rate	1	192	Simple	Unsigned32	4		RW	10000	1000 to 43200000	Sample rate in ms

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 5 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Chart view definition	1	193	Record		7		RW			
			Simple	Unsigned8	1			1	0 = Horizontal 1 = Reversed Horizontal 2 = Vertical	Chart type
			Simple	Unsigned8	1			0	0 = None 1 = Alarms 2 = Alarms & Messages	View annotation
			Simple	Unsigned8	1			5	1 to 10	Major chart divisions
			Simple	Unsigned8	1			2	1 to 10	Minor chart divisions
			Simple	Unsigned8	1			1	0 = Off 1 = On	Trace pointers
			Simple	Unsigned8	1			8	0 = 18 seconds 1 = 90 seconds 2 = 3 minutes 3 = 6 minutes 4 = 9 minutes 5 = 12 minutes 6 = 15 minutes 7 = 30 minutes 8 = 1 hour 9 = 4 hours 10 = 8 hours 11 = 12 hours 12 = 1 day 13 = 2 days 14 = 3 days 15 = 7 days	Screen interval
			Simple	Unsigned8	1			1	1 to 3	Trace width

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 6 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Chemical units	1	194	Simple	Unsigned8	1		R/W	0	0 = PO4 1 = P	Used only for phosphate
Control temperature	1	195	Simple	Float	4		R/W	45	10 to 50	
Screen saver wait time	1	196	Simple	Unsigned8	1		R/W	0	0 = Disabled 1 = 5 minutes 2 = 15 minutes 3 = 30 minutes 4 = 1 hour 5 = 2 hours 6 = 4 hours 7 = 1 day	
Screen capture	1	197	Simple	Unsigned8	1		R/W	0	0 = Disabled 1 = Enabled	
Brightness	1	198	Simple	Unsigned8	1		R	60	0 to 100	
Date & time	1	199	Record		7		R/W			
			Simple	Unsigned16	2			2000	Year	
			Array	Unsigned8	5			1, 1, 0, 0, 0	Month Day Hour Minute Second	
Day/light saving	1	200	Record		9		R/W			
			Simple	Unsigned8	1			0	0 = Off 1 = USA 2 = Europe 3 = Custom	Start and end dates used for custom
			Array	Unsigned8	4			2, 5, 1, 3	Hour Occurrence Day of week 1 = Sun Month 1 = Jan	Occurrence is 1 st , 2 nd , 3 rd , 4 th or last occurrence of the day in the month
			Array	Unsigned8	4			2, 5, 1, 10	Hour Occurrence Day of week 1 = Sun Month 1 = Jan	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 7 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 1 Function Block Parameters										
Stream 1 output	1	26	Record	DS-33	5	D	Cyclic / R			
Output scale	1	28	Record	DS-36	11	S	RW			
	High range		Simple	Float	4	S	RW	5000 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Low range		Simple	Float	4	S	RW	0 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Units		Simple	Unsigned16	2	S	RW	ppb	1423 = ppm 1424 = ppb 1558 = mg/l 1559 = ug/l 1521 = ug/kg 1522 = mg/kg	Common units setting for all streams. SiO2 = ppb, ug/l only PO4 & P = ppm, mg/l & mg/kg only
	Decimal point		Simple	Integer8	1	S	RW	0	0 or 1	
Alarm hysteresis	1	35	Simple	Float	4	S	RW	0		
High-high alarm limit	1	37	Simple	Float	4	S	RW	5000 ppb		
High alarm limit	1	39	Simple	Float	4	S	RW	50000 ppb		
Low alarm limit	1	41	Simple	Float	4	S	RW	0 ppb		
Low-low alarm limit	1	43	Simple	Float	4	S	RW	0 ppb		
Simulate	1	50	Record	DS-50	6	S	RW			Affects only the Profibus output and not the value displayed on the analyzer's display
	Simulate status			Unsigned8	1	S	RW	0 x 80		
	Simulate value			Float	4	S	RW	0		
	Simulate enable/disable			Unsigned8	1	S	RW	0	0 = Disabled Not 0 = Enabled	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 8 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 1 tag	1	61	Simple	OctetString	20	S	RW	Spaces		Tag displayed on the analyzer's display
Stream 1 statistics	1	62	Record		12		R			
			Simple	Float	4					Maximum
			Simple	Float	4					Minimum
			Simple	Float	4					Average
Alarm relay 1	1	63	Record		24		RW			
			Simple	Unsigned8	1			0	0 = Off 1 to 6 = Stream number 7 = Clearing	Alarm source
			Simple	Unsigned8	1			1	1 = High process 2 = Low process 3 = High latch 4 = Low latch 5 = High annunciate 6 = Low annunciate 7 = Out of sample	Alarm type
			Simple	VisibleString	20			Alarm A	ASCII string	
			Simple	Unsigned8	1			1	0 = False 1 = True	Fail safe
			Simple	Unsigned8	1			1	0 = False 1 = True	Log enable

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 9 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Current output 1	1	64	Record		13		RW			
			Simple	Unsigned8	1			0	0 = None 1 to 6 = Stream 1 to 6	Output source
			Simple	Unsigned16	2			2000	0 to 5000	Output range high
			Simple	Unsigned16	2			0	0 to 5000	Output range low
			Simple	Unsigned16	2			4000	0 to 22000	Output type low * 1000
			Simple	Unsigned16	2			20000	0 to 22000	Output type high * 1000
			Simple	Unsigned8	1			0	0 = False 1 = True	Calibration hold
			Simple	Unsigned8	1			0	0 = False 1 = True	Out of sample indication
			Simple	Unsigned16	2			22000	0 to 22000	Default output *1000 when out of sample
Alarm relay 1 limits	1	65	Record		12		RW			
			Simple	Float	4			0	0 to 5000	Trip
			Simple	Float	4			0	0 to 5000	Hysteresis
			Simple	Unsigned32	4			0	0 to 5000	Time hysteresis

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 10 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 2 Function Block Parameters										
Stream 2 output	2	26	Record	DS-33	5	D	Cyclic / R			
Output scale	2	28	Record	DS-36	11	S	RW			
	High range		Simple	Float	4	S	RW	5000 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Low range		Simple	Float	4	S	RW	0 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Units		Simple	Unsigned16	2	S	RW	ppb	1423 = ppm 1424 = ppb 1558 = mg/l 1559 = ug/l 1521 = ug/kg 1522 = mg/kg	Common units setting for all streams. SiO2 = ppb, ug/l only PO4 & P = ppm, mg/l & mg/kg only
	Decimal point		Simple	Integer8	1	S	RW	0	0 or 1	
Alarm hysteresis	2	35	Simple	Float	4	S	RW	0		
High-high alarm limit	2	37	Simple	Float	4	S	RW	5000 ppb		
High alarm limit	2	39	Simple	Float	4	S	RW	50000 ppb		
Low alarm limit	2	41	Simple	Float	4	S	RW	0 ppb		
Low-low alarm limit	2	43	Simple	Float	4	S	RW	0 ppb		
Simulate	2	50	Record	DS-50	6	S	RW			Affects only the Profibus output and not the value displayed on the analyzer's display
	Simulate status		Simple	Unsigned8	1	S	RW	0 x 80		
	Simulate value		Simple	Float	4	S	RW	0		
	Simulate enable/disable		Simple	Unsigned8	1	S	RW	0	0 = Disabled Not 0 = Enabled	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 11 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 2 tag	2	61	Simple	OctetString	20	S	RW	Spaces		Tag displayed on the analyzer's display
Stream 2 statistics	2	62	Record		12		R			
			Simple	Float	4					Maximum
			Simple	Float	4					Minimum
			Simple	Float	4					Average
Alarm relay 2	2	63	Record		24		RW			
			Simple	Unsigned8	1			0	0 = Off 1 to 6 = Stream number 7 = Cleaning	Alarm source
			Simple	Unsigned8	1			1	1 = High process 2 = Low process 3 = High latch 4 = Low latch 5 = High annunciate 6 = Low annunciate 7 = Out of sample	Alarm type
			Simple	VisibleString	20			Alarm A	ASCII string	
			Simple	Unsigned8	1			1	0 = False 1 = True	Fail safe
			Simple	Unsigned8	1			1	0 = False 1 = True	Log enable

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 12 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Current output 2	2	64	Record		13		RW			
			Simple	Unsigned8	1			0	0 = None 1 to 6 = Stream 1 to 6	Output source
			Simple	Unsigned16	2			2000	0 to 5000	Output range high
			Simple	Unsigned16	2			0	0 to 5000	Output range low
			Simple	Unsigned16	2			4000	0 to 22000	Output type low * 1000
			Simple	Unsigned16	2			20000	0 to 22000	Output type high * 1000
			Simple	Unsigned8	1			0	0 = False 1 = True	Calibration hold
			Simple	Unsigned8	1			0	0 = False 1 = True	Out of sample indication
			Simple	Unsigned16	2			22000	0 to 22000	Default output *1000 when out of sample
Alarm relay 2 limits	2	65	Record		12		RW			
			Simple	Float	4			0	0 to 5000	Trip
			Simple	Float	4			0	0 to 5000	Hysteresis
			Simple	Unsigned32	4			0	0 to 5000	Time hysteresis

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 13 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 3 Function Block Parameters										
Stream 3 output	3	26	Record	DS-33	5	D	Cyclic / R			
Output scale	3	28	Record	DS-36	11	S	RW			
	High range		Simple	Float	4	S	RW	5000 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Low range		Simple	Float	4	S	RW	0 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Units		Simple	Unsigned16	2	S	RW	ppb	1423 = ppm 1424 = ppb 1558 = mg/l 1559 = ug/l 1521 = ug/kg 1522 = mg/kg	Common units setting for all streams. SiO2 = ppb, ug/l only PO4 & P = ppm, mg/l & mg/kg only
	Decimal point		Simple	Integer8	1	S	RW	0	0 or 1	
Alarm hysteresis	3	35	Simple	Float	4	S	RW	0		
High-high alarm limit	3	37	Simple	Float	4	S	RW	5000 ppb		
High alarm limit	3	39	Simple	Float	4	S	RW	50000 ppb		
Low alarm limit	3	41	Simple	Float	4	S	RW	0 ppb		
Low-low alarm limit	3	43	Simple	Float	4	S	RW	0 ppb		
Simulate	3	50	Record	DS-50	6	S	RW			Affects only the Profibus output and not the value displayed on the analyzer's display
	Simulate status			Unsigned8	1	S	RW	0 x 80		
	Simulate value			Float	4	S	RW	0		
	Simulate enable/disable			Unsigned8	1	S	RW	0	0 = Disabled Not 0 = Enabled	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 14 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note	
Stream 3 tag	3	61	Simple	OctetString	20	S	RW	Spaces		Tag displayed on the analyzer's display	
Stream 3 statistics	3	62	Record		12		R				
			Simple	Float	4					Maximum	
			Simple	Float	4					Minimum	
Alarm relay 3	3	63	Simple	Float	4					Average	
			Record		24		RW				
			Simple	Unsigned8	1			0	0 = Off 1 to 6 = stream number 7 = Clearing	Alarm source	
			Simple	Unsigned8	1			1	1 = High process 2 = Low process 3 = High latch 4 = Low latch 5 = High annunciate 6 = Low annunciate 7 = Out of sample	Alarm type	
			Simple	VisibleString	20			Alarm A	ASCII string		
			Simple	Unsigned8	1			1	0 = False 1 = True	Fail safe	
			Simple	Unsigned8	1			1	0 = False 1 = True	Log enable	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 15 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Current output 3	3	64	Record		13		RW			
			Simple	Unsigned8	1			0	0 = None 1 to 6 = Stream 1 to 6	Output source
			Simple	Unsigned16	2			2000	0 to 5000	Output range high
			Simple	Unsigned16	2			0	0 to 5000	Output range low
			Simple	Unsigned16	2			4000	0 to 22000	Output type low * 1000
			Simple	Unsigned16	2			20000	0 to 22000	Output type high * 1000
			Simple	Unsigned8	1			0	0 = False 1 = True	Calibration hold
			Simple	Unsigned8	1			0	0 = False 1 = True	Out of sample indication
			Simple	Unsigned16	2			22000	0 to 22000	Default output *1000 when out of sample
Alarm relay 3 limits	3	65	Record		12		RW			
			Simple	Float	4			0	0 to 5000	Trip
			Simple	Float	4			0	0 to 5000	Hysteresis
			Simple	Unsigned32	4			0	0 to 5000	Time hysteresis

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 16 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 4 Function Block Parameters										
Stream 4 output	4	26	Record	DS-33	5	D	Cyclic / R			
Output scale	4	28	Record	DS-36	11	S	RW			
	High range		Simple	Float	4	S	RW	5000 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Low range		Simple	Float	4	S	RW	0 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Units		Simple	Unsigned16	2	S	RW	ppb	1423 = ppm 1424 = ppb 1558 = mg/l 1559 = ug/l 1521 = ug/kg 1522 = mg/kg	Common units setting for all streams. SiO2 = ppb, ug/l only PO4 & P = ppm, mg/l & mg/kg only
	Decimal point		Simple	Integer8	1	S	RW	0	0 or 1	
Alarm hysteresis	4	35	Simple	Float	4	S	RW	0		
High-high alarm limit	4	37	Simple	Float	4	S	RW	5000 ppb		
High alarm limit	4	39	Simple	Float	4	S	RW	50000 ppb		
Low alarm limit	4	41	Simple	Float	4	S	RW	0 ppb		
Low-low alarm limit	4	43	Simple	Float	4	S	RW	0 ppb		
Simulate	4	50	Record	DS-50	6	S	RW			Affects only the Profibus output and not the value displayed on the analyzer's display
	Simulate status		Simple	Unsigned8	1	S	RW	0 x 80		
	Simulate value		Simple	Float	4	S	RW	0		
	Simulate enable/disable		Simple	Unsigned8	1	S	RW	0	0 = Disabled Not 0 = Enabled	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 17 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 4 tag	4	61	Simple	OctetString	20	S	RW	Spaces		Tag displayed on the analyzer's display
Stream 4 statistics	4	62	Record		12		R			
			Simple	Float	4					Maximum
			Simple	Float	4					Minimum
			Simple	Float	4					Average
Alarm relay 4	4	63	Record		24		RW			
			Simple	Unsigned8	1			0	0 = Off 1 to 6 = Stream number 7 = Cleaning	Alarm source
			Simple	Unsigned8	1			1	1 = High process 2 = Low process 3 = High latch 4 = Low latch 5 = High annunciate 6 = Low annunciate 7 = Out of sample	Alarm type
			Simple	VisibleString	20			Alarm A	ASCII string	
			Simple	Unsigned8	1			1	0 = False 1 = True	Fail safe
			Simple	Unsigned8	1			1	0 = False 1 = True	Log enable

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 18 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Current output 4	4	64	Record		13		RW			
			Simple	Unsigned8	1			0	0 = None 1 to 6 = Stream 1 to 6	Output source
			Simple	Unsigned16	2			2000	0 to 5000	Output range high
			Simple	Unsigned16	2			0	0 to 5000	Output range low
			Simple	Unsigned16	2			4000	0 to 22000	Output type low * 1000
			Simple	Unsigned16	2			20000	0 to 22000	Output type high * 1000
			Simple	Unsigned8	1			0	0 = False 1 = True	Calibration hold
			Simple	Unsigned8	1			0	0 = False 1 = True	Out of sample indication
			Simple	Unsigned16	2			22000	0 to 22000	Default output *1000 when out of sample
Alarm relay 4 limits	4	65	Record		12		RW			
			Simple	Float	4			0	0 to 5000	Trip
			Simple	Float	4			0	0 to 5000	Hysteresis
			Simple	Unsigned32	4			0	0 to 5000	Time hysteresis

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 19 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 5 Function Block Parameters										
Stream 5 output	5	26	Record	DS-33	5	D	Cyclic / R			
Output scale	5	28	Record	DS-36	11	S	RW			
	High range		Simple	Float	4	S	RW	5000 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Low range		Simple	Float	4	S	RW	0 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Units		Simple	Unsigned16	2	S	RW	ppb	1423 = ppm 1424 = ppb 1558 = mg/l 1559 = ug/l 1521 = ug/kg 1522 = mg/kg	Common units setting for all streams. SiO2 = ppb, ug/l only PO4 & P = ppm, mg/l & mg/kg only
	Decimal point		Simple	Integer8	1	S	RW	0	0 or 1	
Alarm hysteresis	5	35	Simple	Float	4	S	RW	0		
High-high alarm limit	5	37	Simple	Float	4	S	RW	5000 ppb		
High alarm limit	5	39	Simple	Float	4	S	RW	50000 ppb		
Low alarm limit	5	41	Simple	Float	4	S	RW	0 ppb		
Low-low alarm limit	5	43	Simple	Float	4	S	RW	0 ppb		
Simulate	5	50	Record	DS-50	6	S	RW			Affects only the Profibus output and not the value displayed on the analyzer's display
	Simulate status			Unsigned8	1	S	RW	0 x 80		
	Simulate value			Float	4	S	RW	0		
	Simulate enable/disable			Unsigned8	1	S	RW	0	0 = Disabled Not 0 = Enabled	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 20 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 5 tag	5	61	Simple	OctetString	20	S	RW	Spaces		Tag displayed on the analyzer's display
Stream 5 statistics	5	62	Record		12		R			
			Simple	Float	4					Maximum
			Simple	Float	4					Minimum
			Simple	Float	4					Average
Alarm relay 5	5	63	Record		24		RW			
			Simple	Unsigned8	1			0	0 = Off 1 to 6 = Stream number 7 = Clearing	Alarm source
			Simple	Unsigned8	1			1	1 = High process 2 = Low process 3 = High latch 4 = Low latch 5 = High annunciate 6 = Low annunciate 7 = Out of sample	Alarm type
			Simple	VisibleString	20			Alarm A	ASCII string	
			Simple	Unsigned8	1			1	0 = False 1 = True	Fail safe
			Simple	Unsigned8	1			1	0 = False 1 = True	Log enable

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 21 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Current output 5	5	64	Record		13		RW			
			Simple	Unsigned8	1			0	0 = None 1 to 6 = Stream 1 to 6	Output source
			Simple	Unsigned16	2			2000	0 to 5000	Output range high
			Simple	Unsigned16	2			0	0 to 5000	Output range low
			Simple	Unsigned16	2			4000	0 to 22000	Output type low * 1000
			Simple	Unsigned16	2			20000	0 to 22000	Output type high * 1000
			Simple	Unsigned8	1			0	0 = False 1 = True	Calibration hold
			Simple	Unsigned8	1			0	0 = False 1 = True	Out of sample indication
			Simple	Unsigned16	2			22000	0 to 22000	Default output *1000 when out of sample
Alarm relay 5 limits	5	65	Record		12		RW			
			Simple	Float	4			0	0 to 5000	Trip
			Simple	Float	4			0	0 to 5000	Hysteresis
			Simple	Unsigned32	4			0	0 to 5000	Time hysteresis

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 22 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 6 Function Block Parameters										
Stream 6 output	6	26	Record	DS-33	5	D	Cyclic / R			
Output scale	6	28	Record	DS-36	11	S	RW			
	High range		Simple	Float	4	S	RW	5000 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Low range		Simple	Float	4	S	RW	0 ppb	SiO2 = 0 to 5000ppb PO4 = 0 to 12ppm P = 0 to 4ppm	
	Units		Simple	Unsigned16	2	S	RW	ppb	1423 = ppm 1424 = ppb 1558 = mg/l 1559 = ug/l 1521 = ug/kg 1522 = mg/kg	Common units setting for all streams. SiO2 = ppb, ug/l only PO4 & P = ppm, mg/l & mg/kg only
	Decimal point		Simple	Integer8	1	S	RW	0	0 or 1	
Alarm hysteresis	6	35	Simple	Float	4	S	RW	0		
High-high alarm limit	6	37	Simple	Float	4	S	RW	5000 ppb		
High alarm limit	6	39	Simple	Float	4	S	RW	50000 ppb		
Low alarm limit	6	41	Simple	Float	4	S	RW	0 ppb		
Low-low alarm limit	6	43	Simple	Float	4	S	RW	0 ppb		
Simulate	6	50	Record	DS-50	6	S	RW			Affects only the Profibus output and not the value displayed on the analyzer's display
	Simulate status		Simple	Unsigned8	1	S	RW	0 x 80		
	Simulate value		Simple	Float	4	S	RW	0		
	Simulate enable/disable		Simple	Unsigned8	1	S	RW	0	0 = Disabled Not 0 = Enabled	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 23 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Stream 6 tag	6	61	Simple	OctetString	20	S	RW	Spaces		Tag displayed on the analyzer's display
Stream 6 statistics	6	62	Record		12		R			
			Simple	Float	4					Maximum
			Simple	Float	4					Minimum
Alarm relay 6	6		Simple	Float	4					Average
		63	Record		24		RW			
			Simple	Unsigned8	1			0	0 = Off 1 to 6 = Stream number 7 = Cleaning	Alarm source
			Simple	Unsigned8	1			1	1 = High process 2 = Low process 3 = High latch 4 = Low latch 5 = High annunciate 6 = Low annunciate 7 = Out of sample	Alarm type
			Simple	VisibleString	20			Alarm A	ASCII string	
			Simple	Unsigned8	1			1	0 = False 1 = True	Fail safe
			Simple	Unsigned8	1			1	0 = False 1 = True	Log enable

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 24 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Current output 6	6	64	Record		13		RW			
			Simple	Unsigned8	1			0	0 = None 1 to 6 = Stream 1 to 6	Output source
			Simple	Unsigned16	2			2000	0 to 5000	Output range high
			Simple	Unsigned16	2			0	0 to 5000	Output range low
			Simple	Unsigned16	2			4000	0 to 22000	Output type low * 1000
			Simple	Unsigned16	2			20000	0 to 22000	Output type high * 1000
			Simple	Unsigned8	1			0	0 = False 1 = True	Calibration hold
			Simple	Unsigned8	1			0	0 = False 1 = True	Out of sample indication
			Simple	Unsigned16	2			22000	0 to 22000	Default output *1000 when out of sample
Alarm relay 6 limits	6	65	Record		12		RW			
			Simple	Float	4			0	0 to 5000	Trip
			Simple	Float	4			0	0 to 5000	Hysteresis
			Simple	Unsigned32	4			0	0 to 5000	Time hysteresis

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 25 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Security definition	7	145	Record		10		RW			
			Simple	Unsigned8	1			0	0 = Basic 1 = Advanced	Security type
			Simple	Unsigned8	1			0	0 = Password 1 = Switch protected	
			Simple	Unsigned8	1			0	0 = Disabled 1 = Enabled	Logging level security
			Simple	Unsigned16	2			0	0 to 9999	Basic security logging level password
			Simple	Unsigned8	1			0	0 = False 1 = True	Re-enter password at first use
			Simple	Unsigned8	1			0	0 = Off 1 = 7 days 2 = 14 days 3 = 30 days 4 = 60 days 5 = 90 days 6 = 180 days 7 = 360 days	Password expiry time
			Simple	Unsigned8	1			0	0 = Off 1 = 7 days 2 = 14 days 3 = 30 days 4 = 60 days 5 = 90 days 6 = 180 days 7 = 360 days	Inactive user password expiry time
			Simple	Unsigned8	1			0	0 to 10 0 = infinite	Number of incorrect password entries allowed
			Simple	Unsigned8	1			4	4 to 20	Minimum password length

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 26 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
User 1 access	7	146	Record		23		RW			
			Simple	VisibleString	20			User 1	ASCII string	User name
			Simple	Unsigned8	1			3	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to maintenance & calibration
User 2 access	7	147	Record		23		RW			
			Simple	VisibleString	20			User 2	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to maintenance & calibration
User 3 access	7	148	Record		23		RW			
			Simple	VisibleString	20			User 3	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to maintenance & calibration

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 27 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
User 4 access	7	149	Record		23		RW			
			Simple	VisibleString	20			User 4	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			1	0 = False 1 = True	User access to maintenance & calibration
User 5 access	7	150	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 5	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration
User 6 access	7	151	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 6	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 28 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
User 7 access	7	152	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 7	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration
User 8 access	7	153	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 8	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration
User 9 access	7	154	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 9	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 29 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
User 10 access	7	155	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 10	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration
User 11 access	7	156	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 11	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration
User 12 access	7	157	Record		23		RW			Advanced configuration only
			Simple	VisibleString	20			User 12	ASCII string	User name
			Simple	Unsigned8	1			0	0 = No access 1 = Load only 2 = Limited 3 = Full	User access to configuration
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to logging
			Simple	Unsigned8	1			0	0 = False 1 = True	User access to maintenance & calibration

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 30 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Email 2 recipient 1	7	158	Simple	VisibleString	32		R		ASCII string	First 32 bytes
Email 2 recipient 1	7	159	Simple	VisibleString	8		R		ASCII string	Last 8 bytes
Email 2 recipient 2	7	160	Simple	VisibleString	32		R		ASCII string	First 32 bytes
Email 2 recipient 2	7	161	Simple	VisibleString	8		R		ASCII string	Last 8 bytes
Email 2 recipient 3	7	162	Simple	VisibleString	32		R		ASCII string	First 32 bytes
Email 2 recipient 3	7	163	Simple	VisibleString	8		R		ASCII string	Last 8 bytes
User 1 passwords	7	169	Record		22		RW			
			Simple	Unsigned16	2			0	0 to 9999	Basic security password
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 2 passwords	7	170	Record		22		RW			
			Simple	Unsigned16	2			0	0 to 9999	Basic security password
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 3 passwords	7	171	Record		22		RW			
			Simple	Unsigned16	2			0	0 to 9999	Basic security password
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 4 passwords	7	172	Record		22		RW			
			Simple	Unsigned16	2			0	0 to 9999	Basic security password
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 5 passwords	7	173	Record		22		RW			
			Simple	Unsigned16	2			0	0	Advanced configuration only
			Simple	VisibleString	20		RW		ASCII string	Advanced security password

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 31 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
User 6 passwords	7	174	Record		22		RW			Advanced configuration only
			Simple	Unsigned16	2			0	0	0
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 7 passwords	7	175	Record		22		RW			Advanced configuration only
			Simple	Unsigned16	2			0	0	0
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 8 passwords	7	176	Record		22		RW			Advanced configuration only
			Simple	Unsigned16	2			0	0	0
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 9 passwords	7	177	Record		22		RW			Advanced configuration only
			Simple	Unsigned16	2			0	0	0
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 10 passwords	7	178	Record		22		RW			Advanced configuration only
			Simple	Unsigned16	2			0	0	0
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 11 passwords	7	179	Record		22		RW			Advanced configuration only
			Simple	Unsigned16	2			0	0	0
			Simple	VisibleString	20		RW		ASCII string	Advanced security password
User 12 passwords	7	180	Record		22		RW			Advanced configuration only
			Simple	Unsigned16	2			0	0	0
			Simple	VisibleString	20		RW		ASCII string	Advanced security password

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 32 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Message 1	7	181	Simple	VisibleString	20		RW		ASCII string	
Message 2	7	182	Simple	VisibleString	20		RW		ASCII string	
Message 3	7	183	Simple	VisibleString	20		RW		ASCII string	
Message 4	7	184	Simple	VisibleString	20		RW		ASCII string	
Message 5	7	185	Simple	VisibleString	20		RW		ASCII string	
Message 6	7	186	Simple	VisibleString	20		RW		ASCII string	
Message 7	7	187	Simple	VisibleString	20		RW		ASCII string	
Message 8	7	188	Simple	VisibleString	20		RW		ASCII string	
Message 9	7	189	Simple	VisibleString	20		RW		ASCII string	
Message 10	7	190	Simple	VisibleString	20		RW		ASCII string	
Message 11	7	191	Simple	VisibleString	20		RW		ASCII string	
Message 12	7	192	Simple	VisibleString	20		RW		ASCII string	
Message 13	7	193	Simple	VisibleString	20		RW		ASCII string	
Message 14	7	194	Simple	VisibleString	20		RW		ASCII string	
Message 15	7	195	Simple	VisibleString	20		RW		ASCII string	
Message 16	7	196	Simple	VisibleString	20		RW		ASCII string	
Message 17	7	197	Simple	VisibleString	20		RW		ASCII string	
Message 18	7	198	Simple	VisibleString	20		RW		ASCII string	
Message 19	7	199	Simple	VisibleString	20		RW		ASCII string	
Message 20	7	200	Simple	VisibleString	20		RW		ASCII string	
Message 21	7	201	Simple	VisibleString	20		RW		ASCII string	
Message 22	7	202	Simple	VisibleString	20		RW		ASCII string	
Message 23	7	203	Simple	VisibleString	20		RW		ASCII string	
Message 24	7	204	Simple	VisibleString	20		RW		ASCII string	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 33 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
I/P Address	7	205	Simple	VisibleString	16		R	192.168.1.6	ASCII string	Dotted IP address
Subnet mask	7	206	Simple	VisibleString	16		R	255.255.255.0	ASCII string	
Default gateway	7	207	Simple	VisibleString	16		R		ASCII string	
FTP user 1	7	208	Record		29		R			
			Simple	VisibleString	25				ASCII string	Username and password string
			Simple	Unsigned32	4				Bit1 = Write Bit2 = Read access Bit3 = Operator Bit4 = Configuration access	Access rights
FTP user 2	7	209	Record		29		R			
			Simple	VisibleString	25				ASCII string	Username and password string
			Simple	Unsigned32	4				Bit1 = Write Bit2 = Read access Bit3 = Operator Bit4 = Configuration access	Access rights
FTP user 3	7	210	Record		29		R			
			Simple	VisibleString	25				ASCII string	Username and password string
			Simple	Unsigned32	4				Bit1 = Write Bit2 = Read access Bit3 = Operator Bit4 = Configuration access	Access rights
FTP user 4	7	211	Record		29		R			
			Simple	VisibleString	25				ASCII string	Username and password string
			Simple	Unsigned32	4				Bit1 = Write Bit2 = Read access Bit3 = Operator Bit4 = Configuration access	Access rights

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 34 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Email 1 server address	7	212	Simple	Unsigned32	4		R	16847020	Network address	Network byte order (172.16.1.1)
Email 2 server address	7	213	Simple	Unsigned32	4		R	16847020	Network address	Network byte order
Email 1 recipient 1	7	214	Simple	VisibleString	32		R		ASCII string	First 32 bytes
Email 1 recipient 1	7	215	Simple	VisibleString	8		R		ASCII string	Last 8 bytes
Email 1 recipient 2	7	216	Simple	VisibleString	32		R		ASCII string	First 32 bytes
Email 1 recipient 2	7	217	Simple	VisibleString	8		R		ASCII string	Last 8 bytes
Email 1 recipient 3	7	218	Simple	VisibleString	32		R		ASCII string	First 32 bytes
Email 1 recipient 3	7	219	Simple	VisibleString	8		R		ASCII string	Last 8 bytes
Email 1 trigger 1	7	222	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 2 trigger 1	7	223	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 35 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Email 1 trigger 2	7	224	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 2 trigger 2	7	225	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 1 trigger 3	7	226	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 2 trigger 3	7	227	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 1 trigger 4	7	228	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 2 trigger 4	7	229	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 36 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Email 1 trigger 5	7	230	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 2 trigger 5	7	231	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 1 trigger 6	7	232	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 2 trigger 6	7	233	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 1 trigger 7	7	234	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
Email 2 trigger 7	7	235	Record		5		R			
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	
			Simple	Unsigned32	4			0	0 = No source	Source name, type and number reference
			Simple	Unsigned8	1			0	0 = Non-inverted 1 = Inverted	

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 37 of 38)

Description	Slot	Slot Index	Object Type	Data Type	Bytes	Store ¹	Access ²	Default	Valid Range	Note
Email 1 trigger 8	7	236	Record		5		R			
			Simple	Unsigned32	4		0	0 = No source	Source name, type and number reference	
Email 2 trigger 8	7	237	Record		5		R			
			Simple	Unsigned8	1		0	0 = Non-inverted 1 = Inverted		
Email 1 trigger 9	7	238	Record		5		R			
			Simple	Unsigned32	4		0	0 = No source	Source name, type and number reference	
Email 2 trigger 9	7	239	Record		5		R			
			Simple	Unsigned8	1		0	0 = Non-inverted 1 = Inverted		
Email 1 trigger 10	7	240	Record		5		R			
			Simple	Unsigned32	4		0	0 = No source	Source name, type and number reference	
Email 2 trigger 10	7	241	Record		5		R			
			Simple	Unsigned8	1		0	0 = Non-inverted 1 = Inverted		
			Record		5		R			
			Simple	Unsigned32	4		0	0 = No source	Source name, type and number reference	
			Record		5		R			
			Simple	Unsigned8	1		0	0 = Non-inverted 1 = Inverted		
			Record		5		R			
			Simple	Unsigned32	4		0	0 = No source	Source name, type and number reference	
			Record		5		R			
			Simple	Unsigned8	1		0	0 = Non-inverted 1 = Inverted		

¹ Store definitions – refer to page 7

² Access definitions – refer to page 7

Table B.1 Data Structure (Sheet 38 of 38)

Octet	Bit	Description	Diagnosis Mask (1 = enabled)
DIAGNOSIS			
1	0	Hardware failure – electronic	1
	1	Hardware failure – mechanical	0
	2	Motor temperature too high	0
	3	Electronic temperature too high	1
	4	Memory error	1
	5	Failure in measurement	1
	6	Device not initialized (no self-calibration)	0
	7	Self-calibration failed	0
2	0	Zero point error (limit position)	0
	1	Power supply failed	1
	2	Configuration not valid	1
	3	New start-up (warm startup) carried out	0
	4	Re-start (cold startup) carried out	0
	5	Maintenance required	1
	6	Characterization invalid	0
	7	Identification number violation	0
3			
4			

Table B.2 Diagnostic Data (Sheet 1 of 3)

Octet	Bit	Description	Diagnosis Mask (1 = enabled)
DIAGNOSIS_EXTENSION			
1	0	Out of reagent 1	1
	1	Out of reagent 2	1
	2	Out of reagent 3	1
	3	Out of reagent 4	1
	4	Out of all samples	1
	5	Out of sample 1	1
	6	Out of sample 2	1
	7	Out of sample 3	1
2	0	Out of sample 4	1
	1	Out of sample 5	1
	2	Out of sample 6	1
	3	Out of cleaning solution	1
	4	Out of zero calibration solution	1
	5	Out of secondary calibration solution	1
	6	Reserved for future use	0
	7	Reserved for future use	0
3	0	Reserved for future use	0
	1	Reserved for future use	0
	2	Reserved for future use	0
	3	Reserved for future use	0
	4	Reserved for future use	0
	5	Reserved for future use	0
	6	Reserved for future use	0
	7	Reserved for future use	0
4	0	Control temperature too high >10°C	1
	1	Control temperature too high/low >2°C and <10°C	1
	2	A/D error main measurement	1
	3	Reserved for future use	0
	4	Faulty measurement optics	1
	5	Failed reaction block temperature sensor	1
	6	Excessive secondary current	1
	7	Cleaning in progress	1

Table B.2 Diagnostic Data (Sheet 2 of 3)

Octet	Bit	Description	Diagnosis Mask (1 = enabled)
5	0	Calibration in progress	1
	1	In manual test settings	1
	2	Annual service in progress	1
	3	Solution replacement in progress	1
	4	Excessive zero offset	1
	5	Calibration factor too high/low	1
	6	Next annual service due in x days	1
	7	Next annual service overdue	1
6	0	Less than x days reagent left	1
	1	Less than x days zero calibration solution left	1
	2	Less than x days secondary calibration solution left	1
	3	Less than x days cleaning solution left	1
	4	Media card full	1
	5	Internal communications failure	1
	6		
	7		

Table B.2 Diagnostic Data (Sheet 3 of 3)

Notes

Acknowledgements

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Sales/Software
Navigator 600
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Sales/Software
Navigator 600
Phosphate



Service



ABB Limited

Measurement & Analytics

Oldends Lane, Stonehouse
Gloucestershire,
GL10 3TA
UK

Tel: +44 (0)1453 826661

Fax: +44 (0)1453 829671

Email: instrumentation@gb.abb.com

ABB Inc.

Measurement & Analytics

125 E County Line Road
Warminster, PA 18974
USA

Tel: +1 215 674 6000

Fax: +1 215 674 7183

abb.com/measurement



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