

# ISO 16484-6:2026-02 (E)

## Building automation and control systems (BACS) - Part 6: Data communication conformance testing

---

### Contents

Page

- FOREWORD ..... vi
- 1. PURPOSE ..... 1
- 2. SCOPE ..... 1
- 3. DEFINITIONS ..... 1
  - 3.1 Terms Adopted from International Standards ..... 1
  - 3.2 Abbreviations and Acronyms Used in the Standard ..... 1
  - 3.3 Common language used in tests ..... 1
- 4. ELECTRONIC PICS FILE FORMAT ..... 2
  - 4.1 Character Encoding ..... 2
  - 4.2 Structure of EPICS Files ..... 3
  - 4.3 Character Strings ..... 3
  - 4.4 Notational Rules for Parameter Values ..... 3
  - 4.5 Sections of the EPICS File ..... 4
- 5. EPICS CONSISTENCY TESTS ..... 10
- 6. CONVENTIONS FOR SPECIFYING BACnet CONFORMANCE TESTS ..... 12
  - 6.1 TCSL Components ..... 12
  - 6.2 TCSL Statements ..... 13
  - 6.3 Time Dependencies ..... 18
  - 6.4 BACnet References ..... 19
  - 6.5 TD Requirements ..... 19
  - 6.6 Test Execution Considerations ..... 19
- 7. OBJECT SUPPORT TESTS ..... 21
  - 7.1 Read Support for Properties in the Test Database ..... 21
  - 7.2 Write Support for Properties in the Test Database ..... 23
  - 7.3 Object Functionality Tests ..... 30
- 8. APPLICATION SERVICE INITIATION TESTS ..... 357
  - 8.1 AcknowledgeAlarm Service Initiation Tests ..... 357
  - 8.2 ConfirmedCOVNotification Service Initiation Tests ..... 359
  - 8.3 UnconfirmedCOVNotification Service Initiation Tests ..... 374
  - 8.4 ConfirmedEventNotification Service Initiation Tests ..... 379
  - 8.5 UnconfirmedEventNotification Service Initiation Tests ..... 425
  - 8.6 GetAlarmSummary Service Initiation Tests ..... 449
  - 8.7 GetEnrollmentSummary Service Initiation Tests ..... 449
  - 8.8 GetEventInformation Service Initiation Tests ..... 451
  - 8.9 LifeSafetyOperation Service Initiation Tests ..... 452
  - 8.10 SubscribeCOV Service Initiation Tests ..... 453
  - 8.11 SubscribeCOVProperty Service Initiation Tests ..... 454
  - 8.12 AtomicReadFile Service Initiation Tests ..... 459
  - 8.13 AtomicWriteFile Service Initiation Tests ..... 459
  - 8.14 AddListElement Service Initiation Tests ..... 460
  - 8.15 RemoveListElement Service Initiation Tests ..... 460
  - 8.16 CreateObject Service Initiation Tests ..... 461
  - 8.17 DeleteObject Service Initiation Tests ..... 461
  - 8.18 ReadProperty Service Initiation Tests ..... 462
  - 8.19 ReadPropertyConditional Service Initiation Tests ..... 464
  - 8.20 ReadPropertyMultiple Service Initiation Tests ..... 464
  - 8.21 ReadRange Service Initiation Tests ..... 466
  - 8.22 WriteProperty Service Initiation Tests ..... 470
  - 8.23 WritePropertyMultiple Service Initiation Tests ..... 473
  - 8.24 DeviceCommunicationControl Service Initiation Tests ..... 475
  - 8.25 ConfirmedPrivateTransfer Service Initiation Test ..... 476
  - 8.26 UnconfirmedPrivateTransfer Service Initiation Test ..... 476
  - 8.27 ReinitializeDevice Service Initiation Tests ..... 477
  - 8.28 ConfirmedTextMessage Service Initiation Tests ..... 477

8.29	UnconfirmedTextMessage Service Initiation Tests.....	478
8.30	TimeSynchronization Service Initiation Tests.....	479
8.31	UTCTimeSynchronization Service Initiation Tests.....	479
8.32	Who-Has Service Initiation Tests.....	479
8.33	I-Have Service Initiation Tests.....	481
8.34	Who-Is Service Initiation Tests.....	481
8.35	I-Am Service Initiation Tests.....	482
8.36	VT-Open Service Initiation Tests.....	482
8.37	VT-Close Service Initiation Tests.....	483
8.38	VT-Data Service Initiation Tests.....	484
8.39	RequestKey Service Initiation Tests.....	485
8.40	Authenticate Service Initiation Tests.....	486
8.41	WriteGroup Service Initiation Tests.....	489
8.42	SubscribeCOVPropertyMultiple Service Initiation Tests.....	489
8.43	AuditLogQuery Initiation Tests.....	493
8.44	Who-Am-I Service Initiation Tests.....	494
8.45	You-Are Service Initiation Tests.....	494
9.	APPLICATION SERVICE EXECUTION TESTS.....	497
9.1	AcknowledgeAlarm Service Execution Tests.....	497
9.2	ConfirmedCOVNotification Service Execution Tests.....	521
9.3	UnconfirmedCOVNotification Service Execution Tests.....	526
9.4	ConfirmedEventNotification Service Execution Tests.....	529
9.5	UnconfirmedEventNotification Service Execution Tests.....	534
9.6	GetAlarmSummary Service Execution Tests.....	535
9.7	GetEnrollmentSummary Service Execution Tests.....	536
9.8	GetEventInformation Service Execution Tests.....	539
9.9	LifeSafetyOperation Service Execution Test.....	541
9.10	SubscribeCOV Service Execution Tests.....	545
9.11	SubscribeCOVProperty Service Execution Tests.....	555
9.12	AtomicReadFile Service Execution Tests.....	566
9.13	AtomicWriteFile Service Execution Tests.....	572
9.14	AddListElement Service Execution Tests.....	581
9.15	RemoveListElement Service Execution Tests.....	584
9.16	CreateObject Service Execution Tests.....	585
9.17	DeleteObject Service Execution Tests.....	590
9.18	ReadProperty Service Execution Tests.....	591
9.19	ReadPropertyConditional Service Execution Tests.....	595
9.20	ReadPropertyMultiple Service Execution Tests.....	596
9.21	ReadRange Service Execution Tests.....	605
9.22	WriteProperty Service Execution Tests.....	618
9.23	WritePropertyMultiple Service Execution Tests.....	626
9.24	DeviceCommunicationControl Service Execution Test.....	641
9.25	ConfirmedPrivateTransfer Service Execution Tests.....	648
9.26	UnconfirmedPrivateTransfer Service Execution Tests.....	649
9.27	ReinitializeDevice Service Execution Tests.....	649
9.28	ConfirmedTextMessage Service Execution Tests.....	652
9.29	UnconfirmedTextMessage Service Execution Tests.....	653
9.30	TimeSynchronization Service Execution Tests.....	654
9.31	UTCTimeSynchronization Service Execution Tests.....	655
9.32	Who-Has Service Execution Tests.....	655
9.33	Who-Is Service Execution Tests.....	662
9.34	VT-Open Service Execution Tests.....	665
9.35	VT-Close Service Execution Tests.....	666
9.36	VT-Data Service Execution Tests.....	667
9.37	RequestKey Service Execution Test.....	668
9.38	Authenticate Service Execution Tests.....	669
9.39	General Testing of Service Execution.....	673
9.40	AuditLogQuery Service Execution Tests.....	674
9.41	WriteGroup Tests.....	676
9.42	SubscribeCOVPropertyMultiple Service Execution Tests.....	679
9.43	Who-Am-I Service Execution Tests.....	693
9.44	You-Are Service Execution Tests.....	695
10.	NETWORK LAYER PROTOCOL TESTS.....	702
10.1	General Network Layer Tests.....	702
10.2	Router Functionality Tests.....	703

10.3	Half-Router Functionality Tests .....	730
10.4	B/IP PAD Tests .....	737
10.5	Initiating Network Layer Messages.....	739
10.6	Non-Router Functionality Tests .....	740
10.7	Route Binding Tests .....	742
10.8	Virtual Routing Functionality Tests .....	747
11.	LOGICAL LINK LAYER PROTOCOL TESTS .....	766
11.1	UI Command and Response .....	766
11.2	XID Command and Response .....	766
11.3	TEST Command and Response.....	767
12.	DATA LINK LAYER PROTOCOLS TESTS .....	768
12.1	MS/TP State Machine Tests .....	768
12.2	PTP State Machine Tests.....	827
12.3	BACnet/IP Functionality Tests.....	859
12.4	BACnet/IPv6 Functionality Tests.....	890
12.5	Secure Connect Functionality Tests .....	905
13.	SPECIAL FUNCTIONALITY TESTS .....	965
13.1	Segmentation.....	965
13.2	Time Manager .....	973
13.3	Character Sets.....	977
13.4	Malformed PDUs .....	978
13.5	Subordinate Proxy Tests.....	979
13.6	Automatic Network Mapping.....	981
13.7	Automatic Device Mapping .....	981
13.8	Backup and Restore Procedure Tests .....	982
13.9	Application State Machine Tests.....	995
13.10	Workstation Scheduling Tests.....	996
13.11	BACnet/SC Certificate Replacement Tests.....	1013
14.	Reporting Test Results .....	1020
	ANNEX A – EXAMPLE EPICS (INFORMATIVE) .....	1021
	HISTORY OF REVISIONS.....	1039