

ISO 21622-3:2024-03 (E)

Irrigation techniques - Remote monitoring and control for irrigation - Part 3: Interoperability

Contents		Page
Foreword.....		vi
Introduction.....		vi
1 Scope		1
2 Normative reference		1
3 Terms and definitions.....		2
4 Interoperability I: System architecture.....		4
4.1 Levels and components of an interoperable architecture.....		4
4.2 Interface specifications		6
5 Interoperability II: exchange of data from irrigation entities.....		20
5.1 General outline		20
5.2 Static data of the irrigation entities		20
5.3 Structure of an irrigation entity identifier (EntityID).....		28
5.4 Properties.....		28
5.5 Entity events.....		35
6 Interoperability III: Exchange of data from procedural elements performed in irrigation entities		37
6.1 General outline		37
6.2 Statuses and actions		37
6.3 Types of Operation recipes		37
6.4 Types of Unit Procedure recipes		56
6.5 Types of Procedure recipes		58
6.6 Report		59
6.7 Procedural element events		62
Annex A (normative) Management interface with SOAP 1.2		64
A.1 Overview		64
A.2 Requirements.....		64
A.3 Implementation classes for web services.....		66
A.4 Implementation classes for authorization server		87
A.5 WSDL		88
Annex B (normative) Subsystem interface with SOAP 1.2		104
B.1 Overview		104
B.2 Requirements.....		104
B.3 Implementation classes for web services.....		106
B.4 Implementation classes for authorization server		121
B.5 WSDL		122
Annex C (normative) Event interface with SOAP 1.2		135
C.1 Overview		135
C.2 Requirements.....		135
C.3 Implementation classes for web services.....		137
C.4 Implementation classes for authorization server		140
C.5 WSDL		140

Annex D (informative) Interoperability test protocol.....	144
D.1 Overview	144
D.2 General description	144
D.3 IT infrastructure	145
D.4 Test bed description	146
D.5 Test procedure.....	148
D.6 Tests over subsystems.....	151
D.7 Tests over coordination brokers.....	235
D.8 Tests over management information systems	243
D.9 Tests report.....	245
Annex E (informative) Coordination broker software requirement specifications	247
E.1 Overview	247
E.2 Data model.....	249
E.3 Minimal functions — Coordination broker	255
E.4 Desirable functions	259
E.5 Specific requirements.....	267
E.6 Request management	285
E.7 Cases of use.....	294
Annex F (normative) Management interface with REST	295
F.1 Overview	295
F.2 Requirements	295
F.3 Implementation method for web services	297
F.4 ComplexType definition	307
F.5 Implementation methods for authorization	321
F.6 WADL	322
F.7 ComplexTypeF.....	325
Annex G (normative) Subsystem interface with REST	334
G.1 Overview	334
G.2 Requirements	334
G.3 Implementation method for web services	336
G.4 ComplexType definition	342
G.5 Implementation methods for authorization	353
G.6 WADL	354
G.7 ComplexTypeG	356
Annex H (normative) Event interface with REST.....	363
H.1 Overview	363
H.2 Requirements	363
H.3 Implementation methods for web services — NewEvent method	364
H.4 ComplexType definition	365
H.5 Implementation methods for authorization	368
H.6 WADL	369
H.7 ComplexTypeH.....	370
Bibliography.....	371