



**International  
Standard**

**ISO 21622-1**

**Irrigation techniques — Remote  
monitoring and control for  
irrigation —**

**Part 1:  
General considerations**

*Techniques d'irrigation — Surveillance et commande à distance  
pour l'irrigation —*

*Partie 1: Considérations générales*

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# Contents

|  | Page      |
|--|-----------|
| <b>Foreword</b> .....  | <b>v</b>  |
| <b>Introduction</b> .....  | <b>vi</b> |
| <b>1 Scope</b> .....   | <b>1</b>  |
| <b>2 Normative references</b> .....  | <b>1</b>  |
| <b>3 Terms and definitions</b> .....   | <b>1</b>  |
| <b>4 Remote monitoring and control system (RMCS) type, classification and characterization</b> ..... | <b>5</b>  |
| 4.1 General.....   | 5         |
| 4.2 Field 1: RMCS type.....  | 5         |
| 4.2.1 General.....   | 5         |
| 4.2.2 Type 0 RMCS (Type0).....   | 5         |
| 4.2.3 Type 1 RMCS (Type1).....   | 5         |
| 4.2.4 Type 2 RMCS (Type2).....   | 6         |
| 4.2.5 Type 3 RMCS (Type3).....   | 6         |
| 4.3 Field 2: RMCS classification.....  | 6         |
| 4.4 Field 3: RMCS characterization.....  | 7         |
| <b>5 RMCS design parameters</b> .....  | <b>9</b>  |
| 5.1 General.....   | 9         |
| 5.2 General criteria.....  | 9         |
| 5.3 Environmental robustness.....  | 9         |
| 5.4 Architecture.....  | 10        |
| 5.4.1 General.....   | 10        |
| 5.4.2 Data availability.....   | 11        |
| 5.4.3 Time required for discrete actuations.....   | 11        |
| 5.5 Communication technologies and protocols.....  | 11        |
| 5.6 Communication interfaces.....  | 12        |
| 5.7 Signal connections.....  | 12        |
| 5.8 Data transmission modes.....   | 12        |
| 5.8.1 General.....   | 12        |
| 5.8.2 Devices unable to initiate data transmission.....  | 12        |
| 5.8.3 Devices able to initiate data transmission.....  | 12        |
| 5.9 Power supply.....  | 13        |
| 5.10 Runtime.....  | 13        |
| 5.11 Supported sensors and actuators.....  | 13        |
| 5.12 Wiring specifications.....  | 14        |
| 5.12.1 General requirements.....   | 14        |
| 5.12.2 Wire sizing.....  | 14        |
| 5.12.3 For analog inputs and outputs.....  | 14        |
| 5.12.4 For field buses.....  | 14        |
| 5.13 Safety.....   | 14        |
| 5.14 Electromagnetic compatibility (EMC) requirements.....   | 14        |
| <b>6 RMCS specifications</b> .....   | <b>15</b> |
| 6.1 System specifications.....   | 15        |
| 6.1.1 General.....   | 15        |
| 6.1.2 Requirements.....  | 15        |
| 6.1.3 Recommendations.....   | 15        |
| 6.2 Hardware specifications for controllers developed for irrigation.....                            | 15        |
| 6.2.1 Requirements.....  | 15        |
| 6.2.2 Recommendations.....   | 16        |
| 6.3 Supervisory and control software specifications.....   | 16        |
| 6.3.1 General.....   | 16        |
| 6.3.2 Requirements.....  | 16        |
| 6.3.3 Recommendations.....   | 16        |

|   |                     |    |
|---|---------------------|----|
| 7 | Documentation ..... | 17 |
|   | Bibliography .....  | 18 |

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 18, *Irrigation and drainage equipment and systems*.

A list of all parts in the ISO 21622 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

In this document, any telecontrol system intended to control and/or monitor processes related to irrigation, is referred to as remote monitoring and control system (RMCS). Different control devices can be used to monitor and control an irrigation entity. The different requirements and constraints of the different irrigation entities will determine and guide the choice of the type of device required in each case.

Monitoring and control of an irrigation entity may be based on different controller technologies (or a combination thereof) and monitoring data provided by third parties available in the cloud. Some of these technologies can be used for other purposes unrelated to irrigation. This is the case of programmable logic controllers (PLCs), remote terminal units (RTUs), industrial personal computers (IPCs) or single board computers (SBCs), among others. They are normally non-specialized hardware solutions subject to international standards, such as IEC 61131, using standard programming languages and communication protocols and supporting other kinds of automation logic. As non-specialized hardware solutions, the majority are subject to other standards required in industry.

On the other hand, there are controllers that have been developed specifically for irrigation purposes, with similar capabilities to non-specialized technologies, but which have not been subject to a standardization process until now.

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# Irrigation techniques — Remote monitoring and control for irrigation —

## Part 1: General considerations

### 1 Scope

This document defines the general considerations applicable to any type of remote monitoring and control system (RMCS) used in irrigation.

The document also includes some specific clauses on RMCS that fully or partially incorporate controllers developed for irrigation. These controllers are specific hardware developments designed for specific irrigation monitoring and/or control requirements.

An indication is given at the beginning of each section that clearly defines when it is specifically intended for controllers developed for irrigation.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 21622-3, *Irrigation techniques — Remote monitoring and control for irrigation — Part 3: Interoperability*

IEC 60529, *Degrees of protection provided by enclosures*

IEC 60870-1-1, *Telecontrol equipment and systems — Part 1: General considerations — Section One: General principles*

IEC 60870-2-1, *Telecontrol equipment and systems — Part 1: Operating conditions — Section 1: Power supply and electromagnetic compatibility*

IEC 60870-2-2, *Telecontrol equipment and systems — Part 2: Operating conditions — Section 2: Environmental conditions (climatic, mechanical and other non electrical influences)*

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1

##### **accumulator**

reusable electrical battery which can be charged, discharged with a load, and recharged multiple times