DIN EN 16314:2013-09 (E)

Gas meters - Additional functionalities

Contents

Page

Foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms, definitions and abbreviated terms 8
3.1 Terms and definitions 8
3.2 Abbreviated terms 9

4 General requirements 10
4.1 Meter 10
4.2 Meters with electronic index 10
4.3 Suitability - AFD/Meter combination 10
4.4 Types of additional functionality devices 10
4.5 AFD1 11
4.6 AFD2 11
4.7 AFD3 11
4.8 Resistance to high ambient temperature 12
4.9 Climatic environments 12
4.10 Gas temperature range 16
4.11 Safety Requirements 16
4.12 Immunity to electromagnetic disturbances 16
4.13 Immunity to electromagnetic disturbances for Meters / AFD's with external ports 20
4.14 Resistance to mishandling 23
4.15 Resistance to storage temperature 23
4.16 Ageing test 24
4.17 Expected lifetime 24

5 Security 24
5.1 General 24
5.2 Software, data and hardware security 25
5.3 Firmware upgrade 25
5.4 Software identification 26

6 Power system 26
6.1 General 26
6.2 Battery 26
6.3 Battery life 27
6.4 Battery compartment 27
6.5 Battery replacement 28
6.6 Battery lifetime totaliser 29
6.7 Voltage interruptions 29
6.8 Operating voltage 29

7 Additional Functionalities 30
7.1 General 30
7.2 Display 30
7.3 Diagnostics 30
7.4 Metrological influence 31

7.5 AFD connections ... 31
7.6 Input to AFD ... 31
7.7 Output from AFD ... 31
7.8 Data storage ... 32
7.9 Time interval accuracy ... 33
7.10 Energy Calculation within the meter/AFD ... 34
7.11 Tariffs ... 34
7.12 Display/Human interface ... 35
7.13 Gas valve and System ... 35
7.14 Registers ... 41
7.15 Prepayment System with valve ... 41
7.16 Prepayment system without a valve ... 42
7.17 History of Consumption ... 42
7.18 Memory ... 42

8 Marking ... 44
8.1 Requirements ... 44
8.2 Test ... 44

9 Documentation ... 44
9.1 General ... 44
9.2 Declaration of conformity ... 45
9.3 Technical documentation ... 45
9.4 Instruction manual ... 45

10 Environmental considerations ... 45

Annex A (informative) Download software ... 46

Annex B (informative) Implementation method - Conformity to the SM-CG Additional Functionalities ... 47

Annex C (normative) Electronic index ... 50

C.1 General ... 50
C.2 Display ... 50
C.3 Display reset ... 50
C.4 Test signal ... 51
C.5 Non-volatile memory ... 51
C.6 Flags and alarms information ... 52
C.7 Interfaces ... 52
C.8 Ports ... 52
C.9 Durability ... 53

Annex D (normative) Valve type test plan ... 54

D.1 List of tests ... 54
D.2 Endurance Test ... 54
D.3 Toluene/iso-octane test ... 54
D.4 Water Vapour Test ... 57
D.5 Ageing Test ... 59

Bibliography ... 60