Certificate No: LR21103166TA
Issue Date: 23/04/2021
Expiry Date: 17/03/2024

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**Endress+Hauser**
Address	Flowtec AG, Kaegenstrasse 7, Reinach, 4153, Switzerland
Place of Production	Endress+Hauser Flowtec AG Division Cernay, 35 rue de l`Europe, 68700 Cernay, France
Place of Production	Endress+Hauser Flowtec (China) Co. Ltd. China-Singapore Industrial Park (SIP), Su-Hong-Zhong-Lu No. 465, 215021 Suzhou, China
Type	Flowmeters
Description	Flowmeter Refer to the Appendix for details.
Trade Name	Promass E100, F100, O100, E300, E500, Q300, Q500, F300, F500, O300, O500, X300, X500; Promag H100, W300, W500, P100, P300, P500, H300, H500
Application	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV5 (transmitters 300/500 if fitted in stainless steel housing) as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 - 2018.

Thorsten Wolff

Senior Specialist to Lloyd's Register EMEA
A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Type Approval Certificate

Transmitters 100 are suitable for general power distribution zone only.

Specified Standard

Manufacturer's specification
IACS unified requirements E10 (Rev.8 Feb 2021)

Ratings

Power Supply: 24V DC

Output signal (100 transmitters):
4…20 mA HART® (Firmware version (FW): 01.01.zz)
Profibus DP (FW: 01.01.zz)
Modbus RS485 (FW: 01.01.zz Promag; FW: 01.03.zz Promass)
Ethernet IP (FW 01.01.zz Promag; FW 01.02.zz Promass)
Profinet (FW 01.00.zz)

Output signal (300/500 transmitters):
4…20 mA HART® (FW: 01.05.zz)
Profibus PA (FW: 01.01.zz)
Profibus DP (FW: 01.00.zz)
Modbus RS485 (FW: 01.05.zz)
Ethernet IP (FW: 01.00.zz)
Profinet (FW: 01.01.zz)
Foundation F (FW: 01.00.zz)

Additional Tests

Low temperature (-40°C/16h)

Other Conditions

Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.
Transmitters are suitable for DC supply not connected to a battery.

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Certificate No: LR21103166TA
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Type Approval Certificate

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: This certificate supersedes certificate number 19/20022 (E1) issued on 18 March 2019 and certificate number 19/20021 issued on 05 March2019 which are hereby cancelled.

The Design Appraisal Document HTS/ETS 41167-21/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Appendix

TYPES

Promass E 100
8E1C aa – bb c d e f g hh iii j
aa = Nominal diameter: 08; 15; 25; 40; 50; 80
bb = Approval: two letter and/or number combination
c = Power supply: D
d = Output; Input: B; L; M; N; R
e = Display; Operation: A; B
f = Housing: A; B; C
g = Electrical connection: A; B; C; D; I; L; N; P; Q; U
hh = Meas. tube mat., Wetted parts surface: SA; SB; SC;
iii = Process connection: Any triple letter and/or number combination
j = Calibration flow: A; B; C; H; I; J; 9

Promass F 100
8F1B aa – bb c d e f g hh iii j
aa = Nominal diameter: 08; 15; 25; 40; 50; 80; 1H; 1F; 2F
bb = Approval: two letter and/or number combination
c = Power supply: D
d = Output; Input: B; L; M; N; R
e = Display; Operation: A; B
f = Housing: A; B; C
g = Electrical connection: A; B; C; D; I; L; N; P; Q; U
hh = Meas. tube mat., Wetted parts surface: HA; SA; SB; SC; SD; SE; SF; TH
iii = Process connection: Any triple letter and/or number combination
j = Calibration Flow: A; B; C; D; K; L; M; 8; 9

Promass O 100
8O1B aa – bb c d e f g hh iii j
aa = Nominal diameter: 80; 1H; 1F; 2F
bb = Approval: two letter and/or number combination
c = Power supply: D
d = Output; Input: B; L; M; N; R
e = Display; Operation: A; B
f = Housing: A; B; C
g = Electrical connection: A; B; C; D; I; L; N; P; Q; U
hh = Meas. tube mat., Wetted parts surface: FA
iii = Process connection: Any triple letter and/or number combination
j = Calibration flow: A; B; C; D; K; L; M; 9

Promag H 100
5H1B aa – bb c d e f g h iii j k
aa = Nominal diameter: 02; 04; 08; 15; 22; 26; 40; 50; 65; 80; 1H; 1Z; 1F
bb = Approval: two letter and/or number combination
c = Power supply: D
d = Output; Input: B; L; M; N; R
e = Display; Operation: A; B
f = Housing: A; B; C
g = Electrical connection: A; B; C; D; L; N; P; Q; U
h = Seal: A; B; C; F; G; H; 0
iii = Process connection: Any triple letter and/or number combination
j = Electrodes: A; B; D; G; 0; 1; 2; 5
k = Calibration flow: A; B; D; E; M; N; 9

Promass E 300
8E3B aa – bb c dd e f g h i jj kkk
aa = Nominal diameter: 08; 15; 25; 40; 50; 80
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Power supply: D; E; I
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J
g = Display; Operation: A; F; G; M; O
h = Housing: A; B
i = Electrical connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
jj = Meas. tube mat., Wetted Parts Surface: SA; SB; SC
kkk = Process connection: Any triple letter and/or number combination
j = Calibration flow: A; B; C; H; I; J; 9

Promass E 500
8E5B aa – bb c dd e f g h i j k l m nn ooo p
aa = Nominal diameter: 08; 15; 25; 40; 50; 80
bb = Approval; Transmitter; Sensor: two letter and/or number combination
c = Power supply: D; E; I; X
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA; XX
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J; X
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J; X
g = Output; Input 4: A; B; C; D; E; G; H; I; J; X
h = Display; Operation: F; G; X
i = Integrated ISEM electronic: A; B
j = Transmitter housing: A; X
k = Sensor junction housing: A; B; C
l = Cable, Sensor connection: A; B; E; F; 1; 2; 3

m = Electrical connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
nn = Meas. tube mat., Wetted parts surface: SA; SB; SC
ooo = Process connection: Any triple letter and/or number combination
p = Calibration flow: A; B; C; H; I; J; 9

Promass Q 300
8Q3B aa – bb c dd e f g h i jj kkk l
aa = Nominal diameter: 25; 50; 80; 1H
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Power supply: D; E; I
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J
g = Display; Operation: A; F; G; M; O
h = Housing: A; B; L
i = Electrical connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
jj = Meas. tube mat., Wetted parts surface: LA; SA; SB
kkk = Process connection: Any triple letter and/or number combination
l = Calibration flow: A; B; C; D; K; L; M; 9

Promass Q 500
8Q5B aa – bb c dd e f g h i j k l m nn ooo p
aa = Nominal diameter: 25; 50; 80; 1H
bb = Approval; Transmitter; Sensor: two letter and/or number combination
c = Power supply: D; E; I, X
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA; XX
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J; X
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J; X
g = Output; Input 4: A; B; C; D; E; G; H; I; J; X
h = Display; Operation: F; G; X
i = Integrated ISEM electronic: A; B
j = Transmitter housing: A; L; X
k = Sensor junction housing: A; B; C; L
l = Cable, Sensor connection: A; B; E; F; 1; 2; 3
m = Electrical connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
nn = Meas. tube mat., Wetted parts surface: LA; SA; SB
ooo = Process connection: Any triple letter and/or number combination
p = Calibration flow: A; B; C; D; K; L; M; 9

Promass F 300
8F3B aa – bb c dd e f g h i jj kkk l
aa = Nominal diameter: 08; 15; 25; 40; 50; 80; 1H; 1F; 2F
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Power supply: D; E; I

dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J
g = Display; Operation: A; F; G; M; O
h = Housing: A; B; L
i = Electrical connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
jj = Meas. tube mat., Wetted parts surface: HA; LA; SA; SB; SC; SD; SE; SF; TH
kkk = Process connection: Any triple letter and/or number combination
l = Calibration flow: A; B; C; D; K; L; M; 8; 9

Promass F 500
8F5B aa – bb c dd e f g h i j k l m nn ooo p
aa = Nominal diameter: 08; 15; 25; 40; 50; 80; 1H; 1F; 2F
bb = Approval; Transmitter; Sensor: two letter and/or number combination
c = Power supply: D; E; I; X
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA; XX
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J; X
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J; X
g = Output; Input 4: A; B; C; D; E; G; H; I; J; X
h = Display; Operation: F; G; X
i = Integrated ISEM electronic: A; B
j = Transmitter housing: A; L; X
k = Sensor junction housing: A; B; C; L
l = Cable, Sensor connection: A; B; E; F; 1; 2; 3
m = Electrical connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5;
nn = Meas. tube mat., Wetted parts surface: HA; LA; SA; SB; SC; SD; SE; SF; TH
ooo = Process connection: Any triple letter and/or number combination
p = Calibration flow: A; B; C; D; K; L; M; 8; 9

Promass O 300
8O3B aa – bb c dd e f g h i jj kkk l
aa = Nominal diameter: 80; 1H; 1F; 2F
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Power Supply: D; E; I
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J
g = Display; Operation: A; F; G; M; O
h = Housing: A; L
i = Electrical connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
jj = Meas. tube Mat., Wetted parts surface: FA
kkk = Process Connection: Any triple letter and/or number combination
l = Calibration Flow: A; B; C; D; K; L; M; 8; 9

Promass O 500
8O5B aa – bb c dd e f g h i j k l m nn ooo p
aa = Nominal Diameter: 80; 1H; 1F; 2F
bb = Approval; Transmitter; Sensor: two letter and/or number combination
c = Power Supply: D; E; I; X
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA; XX
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J; X
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J; X
g = Output; Input 4: A; B; C; D; E; G; H; I; J; X
h = Display; Operation: F; G; X
i = Integrated ISEM Electronic: A; B
j = Transmitter Housing: A; L; X
k = Sensor Junction Housing: A; B; C; L
l = Cable, Sensor Connection: A; B; E; F; 1; 2; 3
m = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5;
nn = Meas. Tube Mat., Wetted Parts Surface: FA
ooo = Process Connection: Any triple letter and/or number combination
p = Calibration Flow: A; B; C; D; K; L; M; 8; 9

Promass X 300
8X3B aa – bb c dd e f g h i jj kkk l
aa = Nominal Diameter: 3R; 3F; 3E
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Power Supply: D; E; I
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J
g = Display; Operation: A; F; G; M; O
h = Housing: A; L
i = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
jj = Meas. Tube Mat., Wetted Parts Surface: SA
kkk = Process Connection: Any triple letter and/or number combination
l = Calibration Flow: A; B; C; D; 8; 9

Promass X 500
8X5B aa – bb c dd e f g h i j k l m nn ooo p
aa = Nominal Diameter: 3R; 3F; 3E
bb = Approval; Transmitter; Sensor: two letter and/or number combination
c = Power Supply: D; E; I; X
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J

g = Output; Input 4: A; B; C; D; E; G; H; I; J
h = Display; Operation: F; G
i = Integrated ISEM Electronic: A; B
j = Transmitter Housing: A; L
k = Sensor Junction Housing: L
l = Cable, Sensor Connection: A; B; E; F; 1; 2; 3
m = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5;
nn = Meas. Tube Mat., Wetted Parts Surface: SA
ooo = Process Connection: Any triple letter and/or number combination
p = Calibration Flow: A; B; C; D; 8; 9

Promag W 300
5W3B aa – bb c d ee f g h i j k lll m n
aa = Nominal Diameter: 25; 32; 40; 50; 65; 80; 1H; 1Z; 1F; 2H;2F; 3H; 3F; 3S; 4H; 4F; 5H; 6H; 7H; 7F; 8H; 9H; T0; V0; T2; V3; T4; V5; T6; V6; T8; V9; E0; E1; E2; E3; E4
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Design: C; D; E; F; G
d = Power Supply: D; E; I
ee = Output; Input 1: BA; BB; CA; CB; CC; GA; HA; LA; MA; NA; RA; SA; TA
f = Output; Input 2: A; B; C; D; E; F; G; H; I; J; K; L
g = Output; Input 3: A; B; C; D; E; F; G; H; I; J
h = Display; Operation: A; F; G; M; O
i = Housing: A
j = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
k = Liner: H; U; Q
lll = Process Connection: Any triple letter and/or number combination
m = Electrodes: G; H; 0; 1; 2
n = Calibration Flow: A; B; D; E; F; G; M; N; 8; 9

Promag W 500
5W5B aa – bb c d ee f g h i j k l m n o ppp q r
aa = Nominal Diameter: 25; 32; 40; 50; 65; 80; 1H; 1Z; 1F; 2H;2F; 3H; 3F; 3S; 4H; 4F; 5H; 6H; 7H; 7F; 8H; 9H; T0; V0; T2; V3; T4; V5; T6; V6; T8; V9; E0; E1; E2; E3; E4
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Design: C; D; E; F; G
d = Power Supply: D; E; I; X
ee = Output; Input 1: BA; BB; CA; CB; CC; GA; HA; LA; MA; NA; RA; SA; TA ; XX
f = Output; Input 2: A; B; C; D; E; F; G; H; I; J; K; L; X
g = Output; Input 3: A; B; C; D; E; F; G; H; I; J; X
h = Output; Input 4: A; B; C; D; E; F; G; H; I; J; X
i = Display; Operation: F; G; X
j = Integrated ISEM Electronic: A; B

k = Housing: A; L; X
l = Sensor Housing: A
m = Cable, Sensor Connection: A; B; E; F; 1; 2; 3; 4; 5; 6; 7
n = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
o = Liner: H; U; Q
ppp = Process Connection: Any triple letter and/or number combination
q = Electrodes: G; H; 0; 1; 2
r = Calibration Flow: A; B; D; E; F; G; M; N; 8; 9

Proline Promag P 100
5P1B aa – bb c d e f g h iii j k
aa = for dimensions 15 to 600 (DN15 – DN600)
bb = Approval: two letter and/or number combination
c = Power supply: D
d = Output / input: B, M, N, L, R
e = Display / communication: A, B
f = Housing: A
g = Electrical connection: A, B, C, D, L, N, P, Q, U
h = Liner: A, B, E
iii = Process connection: Any triple letter and/or number combination
j = Electrode: 0, 1, 2, 3, 4, 5, 8, 9, G, H
k = Calibration: 9, A, B, D, E, M, N

Promag P 300
5P3B aa – bb c dd e f g h i j kkk l m
aa = Nominal Diameter: 15; 25; 32; 40; 50; 65; 80; 1H; 1Z; 1F; 2H; 2F; 3H; 3F; 4H; 4F; 5H; 6H
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Power Supply: D; E; I
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J
g = Display; Operation: A; F; G; M; O
h = Housing: A
i = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
j = Liner: A; B; E
kkk = Process Connection: Any triple letter and/or number combination
l = Electrodes: G; H; 0; 1; 2; 3; 4; 5; 8
m = Calibration Flow: A; B; D; E; M; N; 9

Promag P 500
5P5B aa – bb c dd e f g h i j k l m n ooo p q
aa = Nominal Diameter: 15; 25; 32; 40; 50; 65; 80; 1H; 1Z; 1F; 2H; 2F; 3H; 3F; 4H; 4F; 5H; 6H

bb = Approval; Transmitter; Sensor: two letter and/or number combination
c = Power Supply: D; E; I; X
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA; XX
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J; X
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J; X
g = Output; Input 4: A; B; C; D; E; G; H; I; J; X
h = Display; Operation: F; G; X
i = Integrated ISEM Electronic: A; B
j = Transmitter Housing: A; L; X
k = Sensor Junction Housing: A; L
l = Cable, Sensor Connection: A; B; E; F; 1; 2; 3; 4; 5; 6 ;7
m = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
n = Liner: A; B; E; 9
ooo = Process Connection: Any triple letter and/or number combination
p = Electrodes: G; H; 0; 1; 2; 3; 4; 5; 8
q = Calibration Flow: A; B; D; E; M; N; 9

Promag H 300
5H3B aa – bb c dd e f g h i j kkk l m
aa = Nominal Diameter: 02; 04; 08; 15; 22; 26; 40; 50; 65; 80; 1H; 1Z; 1F
bb = Approval; Transmitter + Sensor: two letter and/or number combination
c = Power Supply: D; E; I
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J
g = Display; Operation: A; F; G; M; O
h = Housing: A; B
i = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
j = Seal: A; B; C; F; G; H; 0
kkk = Process Connection: Any triple letter and/or number combination
l = Electrodes: A; B; D; G; 0; 1; 2; 5
m = Calibration Flow: A; B; D; E; M; N; 9

Promag H 500
5H5B aa – bb c dd e f g h i j k l m n ooo p q
aa = Nominal Diameter: 02; 04; 08; 15; 22; 26; 40; 50; 65; 80; 1H; 1Z; 1F
bb = Approval; Transmitter; Sensor: two letter and/or number combination
c = Power Supply: D; E; I; X
dd = Output; Input 1: BA; BB; CA; CB; GA; HA; LA; MA; NA; RA; SA; TA; XX
e = Output; Input 2: A; B; C; D; E; F; G; H; I; J; X
f = Output; Input 3: A; B; C; D; E; F; G; H; I; J; X
g = Output; Input 4: A; B; C; D; E; G; H; I; J; X

h = Display; Operation: F; G; X
i = Integrated ISEM Electronic: A; B
j = Transmitter Housing: A; X
k = Sensor Junction Housing: A; B; C
l = Cable, Sensor Connection: A; B; E; F; 1; 2; 3; 4; 5
m = Electrical Connection: A; B; C; D; L; M; N; P; R; S; T; U; V; 3; 4; 5
n = Seal: A; B; C; F; G; H; 0
ooo = Process Connection: Any triple letter and/or number combination
p = Electrodes: A; B; D; G; 0; 1; 2; 5
q = Calibration Flow: A; B; D; E; M; N; 9