



Certificate of Compliance

Certificate: 80022351

Master Contract: 151079

Project: 80203728

Date Issued: 2024-05-07

Issued To: Endress+Hauser SE+Co. KG
Hauptstrasse 1
Maulburg, Baden-Württemberg, 79689
Germany

Attention: Emil Remolana

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: *Anil Sodhi*
Anil Sodhi

PRODUCTS

- CLASS 2258 02** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations
- CLASS 2258 82** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations– Certified to U.S. Standards

Class I, Division 2, Groups A, B, C and D, T6...T1:

Product	Liquiphant, series FTL41-CC bbcddefghiijjkkk + mmnnooqrrss where bb (output) = A2, A4, A8 c (display; operation) = A d (housing; material) = B e (electrical conn.) = B, F, I f (application) = A g (surface finish) = A h (probe version) = 1, 2, 3
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	<p>ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (process conn. size) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) qq (accessories mounted) = 2 alphanumeric characters (not relevant for safety) rr (accessories enclosed) = PB; or 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating (bb)	<p>Dependent on Output option, bb: A2 (FEL42): 10...55Vdc, 350 mA; A4 (FEL44): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A8 (FEL48): 8.2Vdc, NAMUR</p>
Enclosure Rating	Type 4X/6P, IP66/68
Temp. code and ambient/process temperature	T6...T3 with standard Ta of -40°C to +70°C and process temperature -40°C to +150°C; refer to installation drawing for specific T-code and limitations of temperature ranges
MWP/Process Seal	580 psi (40 bar) Single Seal
Installation Drawing	XA01804F

Product	<p>Liquiphant, series FTL51B-aabbcddefghiijjkkk + yllmmnnooppqrrzzss Liquiphant, series FTL63-aabbcddefghiijjkkk + yllmmnnooppqrrzzss</p> <p>where</p> <p>aa (approval) = CC, CD bb (output) = A1, A2, A3, A4, A7, A8, BA, GA, 9Y c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = B, C, and F (aa=CC only), H and I (aa=CC and CD) f (application) = A, B, C g (surface finish) = A, Y (FTL51B) = A, B, C, D, E, F, Y (FTL63) h (probe version) = 1, 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety)</p>
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	<p>+ (additional options; any number of each of the following options may be chosen)</p> <p>yy (operating lang.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety)</p> <p>mm (services) = 2 alphanumeric characters (not relevant for safety)</p> <p>nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety)</p> <p>oo (additional approvals) = 2 alphanumeric characters (not relevant for safety)</p> <p>pp (sensor design) = MR, MS, M9</p> <p>qq (accessories mounted) = NA, NF, NG, O9</p> <p>rr (accessories enclosed) = PA, PB, R6, R9</p> <p>zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>											
Electrical Rating	<p>Dependent on option bb (output):</p> <p>A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz</p> <p>A2 (FEL62): 10...55Vdc, 350 mA</p> <p>A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A</p> <p>A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A</p> <p>A7 (FEL67): 9.5...12.5 Vdc, 100mW</p> <p>A8 (FEL68): 8.2Vdc, NAMUR</p> <p>BA (FEL60H): 10.5...35Vdc, 4...20mA</p> <p>GA (FEL60D): 21...26Vdc, 150mW</p>											
Enclosure Rating	Type 4X/6P, IP66/68											
Temp. code and ambient/process temperature	<table border="1"> <thead> <tr> <th>Temperature Code and Ambient Temperature Range</th> <th colspan="2">Extensions/Limitations based on options:</th> </tr> </thead> <tbody> <tr> <td rowspan="3">T6...T3 -40°C to + 70°C</td> <td>nn=JL</td> <td>min. temp = -50°C</td> </tr> <tr> <td>nn=JN</td> <td>min. temp = -52°C</td> </tr> <tr> <td>nn=JT</td> <td>min. temp = -60°C</td> </tr> </tbody> </table> <p>Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.</p>	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:		T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C	nn=JN	min. temp = -52°C	nn=JT	min. temp = -60°C	
Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:											
T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C										
	nn=JN	min. temp = -52°C										
	nn=JT	min. temp = -60°C										
MWP/Process seal	<p>Dependent on option f (application):</p> <p>A: 928 psi (64 bar)</p> <p>B: 1450 psi (100 bar)</p> <p>C: 362 psi (25 bar)</p> <p>Single Seal</p>											
Installation Drawing	<p>XA01814F (aa = CC; bb ≠ BA) or XA01815F (aa = CD; bb ≠ BA)</p> <p>XA03124F (aa = CC; bb = BA) or XA03125F (aa = CD; bb = BA)</p>											



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Product	<p>Liquiphant, series FTL62-aabbccdefghiijjkkk + yyllmmnnooppqrrzzss where</p> <p>aa (approval) = CC, CD bb (output) = A1, A2, A3, A4, A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = B, C and F (aa=CC only), H and I (aa=CC and CD) f (application) = C, N, P, T g (surface refinement) = N, P, Q, R, T, Y h (probe version) = 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = MR, MS, M9 qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	<p>Dependent on option bb (output):</p> <p>A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz A2 (FEL62): 10...55Vdc, 350 mA A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...35Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW</p>
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Temp. code and ambient/process temperature	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:	
	T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C
		nn=JN	min. temp = -52°C
		nn=JT	min. temp = -60°C
	Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.		
MWP/Process seal	Dependent on option f (application): C: 362 psi (25 bar) N: 580 psi (40 bar) P: 580 psi (40 bar) T: 362 psi (25 bar) Single Seal		
Installation Drawing	XA02038F (aa = CC; bb ≠ BA) or XA02039F (aa = CD; bb ≠ BA) XA03127F (aa = CC; bb = BA) or XA03128F (aa = CD; bb = BA)		

Product	<p>Liquiphant, series FTL64-aabbccdefghiijjkkk + yyllmmnnooppqrrzzss where</p> <p>aa (approval) = CC, CD bb (output) = A1, A2, A3, A4, A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = B, C and F (aa=CC only), H and I (aa=CC and CD) f (application) = D, E, R, 9 g (surface finish) = A, R, Y h (probe version) = 1, 2 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = no options available qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p>
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	Note: Some option codes may be restricted for certain model types.							
Electrical Rating	Dependent on option bb (output): A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz A2 (FEL62): 10...55Vdc, 350 mA A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...35Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW							
Enclosure Rating	Type 4X/6P, IP66/68							
Temp. code and ambient/process temperature	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:						
	T6...T1 -40°C to + 70°C	<table border="1"> <tr> <td>nn=JL</td> <td>min. temp = -50°C</td> </tr> <tr> <td>nn=JN</td> <td>min. temp = -52°C</td> </tr> <tr> <td>nn=JT</td> <td>min. temp = -60°C</td> </tr> </table>	nn=JL	min. temp = -50°C	nn=JN	min. temp = -52°C	nn=JT	min. temp = -60°C
	nn=JL	min. temp = -50°C						
	nn=JN	min. temp = -52°C						
nn=JT	min. temp = -60°C							
Process temperature -60°C to +300°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.								
MWP/Process seal	Dependent on option f (application): D: 1450 psi (100 bar) E: 1450 psi (100 bar) R: 580 psi (40 bar) 9: 1450 psi (100 bar) Single Seal							
Installation Drawing	XA02041F (aa = CC; bb ≠ BA) or XA02042F (aa = CD; bb ≠ BA) XA03130F (aa = CC; bb = BA) or XA03131F (aa = CD; bb = BA)							

Class I, Division 1, Groups A, B, C, D T6...T3
Ex db IIC T6...T3 Ga/Gb
Class I, Zone 0/1, AEx db IIC T6...T3 Ga/Gb

Product	Liquiphant, series FTL41-CI bbcd efghijjkkk + mmnnooqqrrss where bb (output) = A2, A4, A8 c (display; operation) = A d (housing; material) = B e (electrical conn.) = I f (application) = A
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	<p>g (surface finish) = A, Y h (probe version) = 1, 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (process conn. size) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) qq (accessories mounted) = 2 alphanumeric characters (not relevant for safety) rr (accessories enclosed) = PB; or 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	<p>Dependent on Output option, bb: A2 (FEL42): 10...55Vdc, 350 mA; A4 (FEL44): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A8 (FEL48): 8.2Vdc, NAMUR</p>
Enclosure Rating	Type 4X/6P, IP66/68
Temp. code and ambient/process temperature	T6...T3 with standard Ta of -40°C to +70°C and process temperature -40°C to +150°C; refer to installation drawing for specific T-code and limitations of temperature ranges
MWP/Process Seal	580 psi (40 bar) Single Seal
Installation Drawing	XA01805F

Class I, Division 1, Groups A,B,C,D; Class II, Division 1, Groups E,F,G: Class III T6...T1
Ex db IIC T6...T1 Ga/Gb
Class I, Zone 0/1, AEx db IIC T6...T1 Ga/Gb

Product	<p>Liquiphant, series FTL51B-CDbbcddefghiijjkkk + yllmmnnooppqrrzzss Liquiphant, series FTL63-CDbbcddefghiijjkkk + yllmmnnooppqrrzzss where bb (output) = A1, A2, A4, A7, A8, BA, GA, 9Y c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = H, I f (application) = A, B, C g (surface finish) = A, Y (FTL51B) = A, B, C, D, E, F, Y (FTL63)</p>
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	<p>h (probe version) = 1, 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = MR, MS, M9 qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>												
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Enclosure Rating	Type 4X/6P, IP66/68												
Temp. code and ambient/process temperature	<table border="1"> <thead> <tr> <th data-bbox="500 1482 1024 1556">Temperature Code and Ambient Temperature Range</th> <th colspan="2" data-bbox="1024 1482 1500 1556">Extensions/Limitations based on options:</th> </tr> </thead> <tbody> <tr> <td data-bbox="500 1556 1024 1675">T6...T3 -40°C to + 70°C</td> <td data-bbox="1024 1556 1219 1598">nn=JL</td> <td data-bbox="1219 1556 1500 1598">min. temp = -50°C</td> </tr> <tr> <td data-bbox="500 1598 1024 1640"></td> <td data-bbox="1024 1598 1219 1640">nn=JN</td> <td data-bbox="1219 1598 1500 1640">min. temp = -52°C</td> </tr> <tr> <td data-bbox="500 1640 1024 1682"></td> <td data-bbox="1024 1640 1219 1682">nn=JT</td> <td data-bbox="1219 1640 1500 1682">min. temp = -60°C</td> </tr> </tbody> </table> <p>Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.</p>	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:		T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C		nn=JN	min. temp = -52°C		nn=JT	min. temp = -60°C
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MWP/Process seal	<p>Dependent on option f (application): A: 928 psi (64 bar) B: 1450 psi (100 bar) C: 362 psi (25 bar)</p>												



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	Single Seal
Installation Drawing	XA01815F (bb ≠ BA) or XA03125F (bb = BA)

Product	<p>Liquiphant, series FTL62-CDbbcddefghiijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A1, A2, A3, A4, A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = H, I f (application) = C, N, P, T g (surface refinement) = N, P, Q, R, T, Y h (probe version) = 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = MR, MS, M9 qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	<p>Dependent on option bb (output):</p> <p>A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz A2 (FEL62): 10...55Vdc, 350 mA A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...35Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW</p>
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Temp. code and ambient/process temperature	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:	
	T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C
		nn=JN	min. temp = -52°C
		nn=JT	min. temp = -60°C
	Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.		
MWP/Process seal	Dependent on option f (application): C: 362 psi (25 bar) N: 580 psi (40 bar) P: 580 psi (40 bar) T: 362 psi (25 bar) Single Seal		
Installation Drawing	XA02039F (bb ≠ BA) or XA03128F (bb = BA)		

Product	<p>Liquiphant, series FTL64-CDbbcbdefghiijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A1, A2, A3, A4, A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = H, I f (application) = D, E, R, 9 g (surface finish) = A, R, Y h (probe version) = 1, 2 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = no options available qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
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Electrical Rating	Dependent on option bb (output): A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz A2 (FEL62): 10...55Vdc, 350 mA A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...35Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW		
Enclosure Rating	Type 4X/6P, IP66/68		
Temp. code and ambient/process temperature	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:	
	T6...T1 -40°C to + 70°C	nn=JL	min. temp = -50°C
		nn=JN	min. temp = -52°C
		nn=JT	min. temp = -60°C
	Process temperature -60°C to +300°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.		
MWP/Process seal	Dependent on option f (application): D: 1450 psi (100 bar) E: 1450 psi (100 bar) R: 580 psi (40 bar) 9: 1450 psi (100 bar) Single Seal		
Installation Drawing	XA02042F (bb ≠ BA) or XA03131F (bb = BA)		

Conditions of Acceptability:

- The flameproof joints are not intended to be repaired.
- The Liquid Level Switches Liquiphant shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.
- Limit switches with the following modules, to be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12: FEL42, FEL48, FEL62, FEL64DC, FEL67, FEL68, FEL60D and FEL60H.

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations
CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations- Certified to U.S. Standards

Class I, Division 1, Groups A, B, C and D T6...T1
Ex ia IIC T6...T1 Ga
Class I, Zone 0 AEx ia IIC T6...T1 Ga



Certificate: 80022351
Project: 80203728

Master Contract: 151079
Date Issued: 2024-05-07

Product	<p>Liquiphant, series FTL41-CHbbcbdefghiijjkkk + mmmnooqqrrss where</p> <p>bb (output) = A8 c (display; operation) = A d (housing; material) = A, B e (electrical conn.) = A, B, F, H, I, M f (application) = A g (surface finish) = A h (probe version) = 1, 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (process conn. size) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) qq (accessories mounted) = 2 alphanumeric characters (not relevant for safety) rr (accessories enclosed) = PB; or 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	<p>Dependent on Output option, bb: I.S. connection parameters are defined in the below table</p> <p>A8 (FEL48): 8.2Vdc, NAMUR</p>
Enclosure Rating	Type 4X/6P, IP66/68
Temp. code and ambient/process temperature	T6...T3 with standard Ta of -40°C to +70°C; (0°C to +70°C, where option d = A) and process temperature -40°C to +150°C; refer to installation drawing for specific T-code and limitations of temperature ranges
MWP/Process Seal	580 psi (40 bar) Single Seal
Installation Drawing	Intrinsically safe when installed per XA01803F

I.S. Connections Parameters for FTL41-CH:

Output code “bb”	A8 (FEL48)
Input X100 (Power)	<p>Ui = 16 V Ii = 52 mA Pi = 170 mW Ci = 30 nF Li = N/A μH</p>



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Product	<p>Liquiphant, series FTL51B-CHbbcbdefghiijjkkk + yllmmnnooppqrrzzss Liquiphant, series FTL63-CHbbcbdefghiijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = A, B, C, M, N e (electrical conn.) = A, B, C, F, H, I, M f (application) = A, B, C g (surface finish) = A, Y (FTL51B) = A, B, C, D, E, F, Y (FTL63) h (probe version) = 1, 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (proc. conn. seal surf.) = 2 alphanumeric characters (not relevant for safety) kkk (proc. Conn. size) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy(operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = MR, MS, M9 qq (accessories mounted) = NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	<p>Dependent on option bb (output): I.S. connection parameters are defined in the below table</p> <p>A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...30Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW</p>
Enclosure Rating	Type 4X/6P, IP66/68



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Temp. code and ambient/process temperature	Order code	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:	
	d = A	T6...T3 0°C to + 70°C	qq=NF, NG	max. temp = +65 °C
	d = B, C, M, N	T6...T3 -40°C to + 70°C	qq=NG	T-code = T4...T3
			nn=JL	min. temp = -50°C
			nn=JN	min. temp = -52°C
			bb=BA or qq=NF, NG	max. temp = +65 °C
		qq=NG	T-code = T4...T3	
Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.				
MWP/Process seal	Dependent on option f (application): A: 928 psi (64 bar) B: 1450 psi (100 bar) C: 362 psi (25 bar) Single Seal			
Installation Drawing	Intrinsically safe when installed per XA01813F (bb ≠ BA) or XA03123F (bb = BA).			

Product	<p>Liquiphant, series FTL62-CHbbcbdefghijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = A, B, C, M, N e (electrical conn.) = A, B, C, F, H, I, M f (application) = C, N, P, T g (surface finish) = N, P, Q, R, T, Y h (probe version) = 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (proc. conn. seal surf.) = 2 alphanumeric characters (not relevant for safety) kkk (proc. Conn. size) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = MR, MS, M9 qq (accessories mounted) = NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety)</p>
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	<p>ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>																				
Electrical Rating	<p>Dependent on option bb (output): I.S. connection parameters are defined in the below table</p> <p>A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...30Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW</p>																				
Enclosure Rating	Type 4X/6P, IP66/68																				
Temp. code and ambient/process temperature	<table border="1"> <thead> <tr> <th>Order code</th> <th>Temperature Code and Ambient Temperature Range</th> <th colspan="2">Extensions/Limitations based on options:</th> </tr> </thead> <tbody> <tr> <td rowspan="2">d = A</td> <td rowspan="2">T6...T3 0°C to + 70°C</td> <td>qq=NF, NG</td> <td>max. temp = +65 °C</td> </tr> <tr> <td>qq=NG</td> <td>T-code = T4...T3</td> </tr> <tr> <td rowspan="4">d = B, C, M, N</td> <td rowspan="4">T6...T3 -40°C to + 70°C</td> <td>nn=JL</td> <td>min. temp = -50°C</td> </tr> <tr> <td>nn=JN</td> <td>min. temp = -52°C</td> </tr> <tr> <td>bb=BA or qq=NF, NG</td> <td>max. temp = +65 °C</td> </tr> <tr> <td>qq=NG</td> <td>T-code = T4...T3</td> </tr> </tbody> </table> <p>Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.</p>	Order code	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:		d = A	T6...T3 0°C to + 70°C	qq=NF, NG	max. temp = +65 °C	qq=NG	T-code = T4...T3	d = B, C, M, N	T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C	nn=JN	min. temp = -52°C	bb=BA or qq=NF, NG	max. temp = +65 °C	qq=NG	T-code = T4...T3
Order code	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:																			
d = A	T6...T3 0°C to + 70°C	qq=NF, NG	max. temp = +65 °C																		
		qq=NG	T-code = T4...T3																		
d = B, C, M, N	T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C																		
		nn=JN	min. temp = -52°C																		
		bb=BA or qq=NF, NG	max. temp = +65 °C																		
		qq=NG	T-code = T4...T3																		
MWP/Process seal	<p>Dependent on option f (application):</p> <p>C: 362 psi (25 bar) N: 580 psi (40 bar) P: 580 psi (40 bar) T: 362 psi (25 bar) Single Seal</p>																				
Installation Drawing	Intrinsically safe when installed per XA02037F (bb ≠ BA) or XA03126F (bb = BA).																				
Product	<p>Liquiphant, series FTL64-CHbbcddefghiijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = A, B, C, M, N e (electrical conn.) = A, B, C, F, H, I, M f (application) = D, E, R, 9 g (surface finish) = A, R, Y h (probe version) = 1, 2 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (proc. conn. seal surf.) = 2 alphanumeric characters (not relevant for safety) kkk (proc. Conn. size) = 3 alphanumeric characters (not relevant for safety)</p>																				



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	<p>+ (additional options; any number of each of the following options may be chosen)</p> <p>yy (operating lang.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety)</p> <p>mm (services) = 2 alphanumeric characters (not relevant for safety)</p> <p>nn (test; Certificate) = 2 alphanumeric characters (not relevant for safety)</p> <p>oo (additional approvals) = 2 alphanumeric characters (not relevant for safety)</p> <p>pp (sensor design) = no option available</p> <p>qq (accessories mounted) = NF, NG, O9</p> <p>rr (accessories enclosed) = PA, PB, R6, R9</p> <p>zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>		
Electrical Rating	<p>Dependent on option bb (output): I.S. connection parameters are defined in the below table</p> <p>A7 (FEL67): 9.5...12.5 Vdc, 100mW</p> <p>A8 (FEL68): 8.2Vdc, NAMUR</p> <p>BA (FEL60H): 10.5...30Vdc, 4...20mA</p> <p>GA (FEL60D): 21...26Vdc, 150mW</p>		
Enclosure Rating	Type 4X/6P, IP66/68		
Temp. code and ambient/process temperature	Order code	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:
	d = A	T6...T1 0°C to + 70°C	qq=NF, NG max. temp = +65 °C qq=NG T-code = T4... T1
	d = B, C, M, N	T6...T1 -40°C to + 70°C	nn=JL min. temp = -50°C nn=JN min. temp = -52°C qq=NF, NG max. temp = +65 °C qq=NG T-code = T4... T1
	Process temperature -60°C to +300°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.		
MWP/Process seal	<p>Dependent on option f (application):</p> <p>D: 1450 psi (100 bar)</p> <p>E: 1450 psi (100 bar)</p> <p>R: 580 psi (40 bar)</p> <p>9: 1450 psi (100 bar)</p> <p>Single Seal</p>		
Installation Drawing	Intrinsically safe when installed per XA02040F (bb ≠ BA) or XA03129F (bb = BA).		



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	A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...30Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW									
Enclosure Rating	Type 4X/6P, IP66/68									
Temp. code and ambient/process temperature	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:								
	T6...T3 -40°C to +70°C	<table border="1"> <tr> <td>nn=JL</td> <td>min. temp = -50°C</td> </tr> <tr> <td>nn=JN</td> <td>min. temp = -52°C</td> </tr> <tr> <td>bb=BA or qq=NF, NG</td> <td>max. temp = +65 °C</td> </tr> <tr> <td>qq=NG</td> <td>T-code = T4...T3</td> </tr> </table>	nn=JL	min. temp = -50°C	nn=JN	min. temp = -52°C	bb=BA or qq=NF, NG	max. temp = +65 °C	qq=NG	T-code = T4...T3
	nn=JL	min. temp = -50°C								
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bb=BA or qq=NF, NG	max. temp = +65 °C									
qq=NG	T-code = T4...T3									
Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.										
MWP/Process seal	Dependent on option f (application): A: 928 psi (64 bar) B: 1450 psi (100 bar) C: 362 psi (25 bar) Single Seal									
Installation Drawing	Intrinsically safe when installed per XA01813F (bb ≠ BA) or XA03123F (bb = BA).									

Product	<p>Liquiphant, series FTL62-CBbbcd efgh iijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = A, B, C, F, H, I f (application) = C, N, P, T g (surface finish) = N, P, Q, R, T, Y h (probe version) = 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (proc. conn. seal surf.) = 2 alphanumeric characters (not relevant for safety) kkk (proc. Conn. size) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = MR, MS, M9</p>
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	qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety) Note: Some option codes may be restricted for certain model types.												
Electrical Rating	Dependent on option bb (output): I.S. connection parameters are defined in the below table A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...30Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW												
Enclosure Rating	Type 4X/6P, IP66/68												
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	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:											
T6...T3 -40°C to + 70°C	nn=JL	min. temp = -50°C											
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Process temperature -50°C to +150°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.													
MWP/Process seal	Dependent on option f (application): C: 362 psi (25 bar) N: 580 psi (40 bar) P: 580 psi (40 bar) T: 362 psi (25 bar) Single Seal												
Installation Drawing	Intrinsically safe when installed per XA02037F (bb ≠ BA) or XA03126F (bb = BA).												
Product	Liquiphant, series FTL64-CB bbcd efgh ijkkk + yllmmnnooppqrrzzss where bb (output) = A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = B, C, M, N e (electrical conn.) = A, B, C, F, H, I f (application) = D, E, R, 9 g (surface finish) = A, R, Y h (probe version) = 1, 2 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (proc. conn. seal surf.) = 2 alphanumeric characters (not relevant for safety) kkk (proc. Conn. size) = 3 alphanumeric characters (not relevant for safety)												



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	<p>+ (additional options; any number of each of the following options may be chosen)</p> <p>yy (operating lang.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety)</p> <p>mm (services) = 2 alphanumeric characters (not relevant for safety)</p> <p>nn (test; Certificate) = JL, JN; or 2 alphanumeric characters (not relevant for safety)</p> <p>oo (additional approvals) = 2 alphanumeric characters (not relevant for safety)</p> <p>pp (sensor design) = no option available</p> <p>qq (accessories mounted) = NA, NF, NG, O9</p> <p>rr (accessories enclosed) = PA, PB, R6, R9</p> <p>zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>													
Electrical Rating	<p>Dependent on option bb (output): I.S. connection parameters are defined in the below table</p> <p>A7 (FEL67): 9.5...12.5 Vdc, 100mW</p> <p>A8 (FEL68): 8.2Vdc, NAMUR</p> <p>BA (FEL60H): 10.5...30Vdc, 4...20mA</p> <p>GA (FEL60D): 21...26Vdc, 150mW</p>													
Enclosure Rating	Type 4X/6P, IP66/68													
Temp. code and ambient/process temperature	<table border="1"> <thead> <tr> <th>Temperature Code and Ambient Temperature Range</th> <th colspan="2">Extensions/Limitations based on options:</th> </tr> </thead> <tbody> <tr> <td rowspan="4">T6...T1 -40°C to + 70°C</td> <td>nn=JL</td> <td>min. temp = -50°C</td> </tr> <tr> <td>nn=JN</td> <td>min. temp = -52°C</td> </tr> <tr> <td>qq=NF, NG</td> <td>max. temp = +65 °C</td> </tr> <tr> <td>qq=NG</td> <td>T-code = T4...T1</td> </tr> </tbody> </table> <p>Process temperature -60°C to +300°C; refer to installation drawing for specific T-code and additional derating of temperature ranges.</p>	Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:		T6...T1 -40°C to + 70°C	nn=JL	min. temp = -50°C	nn=JN	min. temp = -52°C	qq=NF, NG	max. temp = +65 °C	qq=NG	T-code = T4...T1	
Temperature Code and Ambient Temperature Range	Extensions/Limitations based on options:													
T6...T1 -40°C to + 70°C	nn=JL	min. temp = -50°C												
	nn=JN	min. temp = -52°C												
	qq=NF, NG	max. temp = +65 °C												
	qq=NG	T-code = T4...T1												
MWP/Process seal	<p>Dependent on option f (application):</p> <p>D: 1450 psi (100 bar)</p> <p>E: 1450 psi (100 bar)</p> <p>R: 580 psi (40 bar)</p> <p>9: 1450 psi (100 bar)</p> <p>Single Seal</p>													
Installation Drawing	Intrinsically safe when installed per XA02040F (bb ≠ BA) or XA03129F (bb = BA).													



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I.S. Connections Parameters for FTL51B-CB..., FTL62-CB...,FTL63-CB... and FTL64-CB...:

Output code "bb"	A7 (FEL67)	A8 (FEL68)	BA (FEL60H)	GA (FEL60D)
Input X100 (Power)	Ui =14.6V Ii =100mA Pi =633mW Ci =3nF Li =0μH	Ui = 16 V Ii = 52 mA Pi =170 mW Ci = 30 nF Li = N/A μH	Ui = 30 V Ii = 300 mA Pi =1 W Ci = 10 nF Li = N/A μH	Ui = 27.6 V Ii = 93 mA Pi = 640 mW Li = 3 μH Ci = 3 nF

Conditions of Acceptability:

- The Liquid Level Switches Liquiphant shall be installed and maintained such that hazards caused by electrostatic discharge are excluded.
- For Liquid Level Switches Liquiphant with an aluminium enclosure, when used as EPL Ga equipment, shall be installed in such a way that, even in the event of rare incidents, ignition sources due to impact and friction between the enclosure and iron or steel are excluded.

- CLASS 2252 06** - PROCESS CONTROL EQUIPMENT
CLASS 2252 86 - PROCESS CONTROL EQUIPMENT (Certified to U.S. Standards)

Product	<p>Liquiphant, series FTL41-CAbbcdefghijjkkkk + mmmnooqqrrss where</p> <p>bb (output) = A2, A4, A8 c (display; operation) = A d (housing; material) = A, B e (electrical conn.) = A, B, F, G, H, I, M f (application) = A g (surface finish) = A h (probe version) = 1, 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (process conn. size) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) qq (accessories mounted) = 2 alphanumeric characters (not relevant for safety) rr (accessories enclosed) = PB; or 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	Dependent on Output option, bb:



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	A2 (FEL42): 10...55Vdc, 350 mA; A4 (FEL44): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A8 (FEL48): 8.2Vdc, NAMUR
Enclosure Rating	Type 4X/6P, IP66/68
Ambient/process temperature	Standard Ta of -40°C to +70°C. ; (0°C to +70°C, where option d = A) Process temperature -40°C to +150°C;
MWP	580 psi (40 bar)

Product	<p>Liquiphant, series FTL51B-CAbbccdefghijjkkk + yllmmnnooppqrrzzss Liquiphant, series FTL63-CAbbccdefghijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A1, A2, A3, A4, A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = A, B, C, M, N e (electrical conn.) = A, B, C, F, G, H, I, M f (application) = A, B, C g (surface finish) = A, Y (FTL51B) = A, B, C, D, E, F, Y (FTL63) h (probe version) = 1, 2, 3 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = MR, MS, M9 qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9 zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	<p>Dependent on option bb (output): A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz A2 (FEL62): 10...55Vdc, 350 mA A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A</p>



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	<p>A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A</p> <p>A7 (FEL67): 9.5...12.5 Vdc, 100mW</p> <p>A8 (FEL68): 8.2Vdc, NAMUR</p> <p>BA (FEL60H): 10.5...35Vdc, 4...20mA</p> <p>GA (FEL60D): 21...26Vdc, 150mW</p>
Enclosure Rating	Type 4X/6P, IP66/68
Ambient/process temperature	<p>Standard Ta of -40°C to +70°C; -50°C to +70°C, where option nn=JL; -52°C to +70°C, where option nn=JN; -60°C to +70°C, where option nn=JT ; 0°C to +70°C, where option d = A</p> <p>Process temperature -50°C to +150°C.</p>
MWP	<p>Dependent on option f (application):</p> <p>A: 928 psi (64 bar)</p> <p>B: 1450 psi (100 bar)</p> <p>C: 362 psi (25 bar)</p>

Product	<p>Liquiphant, series FTL62-CAbbcbdefghiijjkkk + yllmmnnooppqrrzzss where</p> <p>bb (output) = A1, A2, A3, A4, A7, A8, BA, GA</p> <p>c (display; operation) = A, B, E, F</p> <p>d (housing; material) = A, B, C, M, N</p> <p>e (electrical conn.) = A, B, C, F, G, H, I, M</p> <p>f (application) = C, N, P, T</p> <p>g (surface finish) = N, P, Q, R, T, Y</p> <p>h (probe version) = 2, 3</p> <p>ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety)</p> <p>jj (process conn.) = 2 alphanumeric characters (not relevant for safety)</p> <p>kkk (seal) = 3 alphanumeric characters (not relevant for safety)</p> <p>+ (additional options; any number of each of the following options may be chosen)</p> <p>yy (operating lang.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety)</p> <p>mm (services) = 2 alphanumeric characters (not relevant for safety)</p> <p>nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety)</p> <p>oo (additional approvals) = 2 alphanumeric characters (not relevant for safety)</p> <p>pp (sensor design) = MR, MS, M9</p> <p>qq (accessories mounted) = NA, NF, NG, O9</p> <p>rr (accessories enclosed) = PA, PB, R6, R9</p> <p>zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety)</p> <p>ss (marking) = 2 alphanumeric characters (not relevant for safety)</p> <p>Note: Some option codes may be restricted for certain model types.</p>
Electrical Rating	Dependent on option bb (output):



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	A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz A2 (FEL62): 10...55Vdc, 350 mA A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...35Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW
Enclosure Rating	Type 4X/6P, IP66/68
Ambient/process temperature	Standard Ta of -40°C to + 70°C; -50°C to + 70°C, where option nn=JL; -52°C to + 70°C, where option nn=JN; -60°C to + 70°C, where option nn=JT ; 0°C to + 70°C, where option d = A Process temperature -50°C to +150°C.
MWP	Dependent on option f (application): C: 362 psi (25 bar) N: 580 psi (40 bar) P: 580 psi (40 bar) T: 362 psi (25 bar)

Product	Liquiphant, series FTL64-C bbcddefghijjkkk + yllmmnnooppqrrzzss where bb (output) = A1, A2, A3, A4, A7, A8, BA, GA c (display; operation) = A, B, E, F d (housing; material) = A, B, C, M, N e (electrical conn.) = A, B, C, F, G, H, I, M f (application) = D, E, R, 9 g (surface finish) = A, R, Y h (probe version) = 1, 2 ii (probe length; mat.) = 2 alphanumeric characters (not relevant for safety) jj (process conn.) = 2 alphanumeric characters (not relevant for safety) kkk (seal) = 3 alphanumeric characters (not relevant for safety) + (additional options; any number of each of the following options may be chosen) yy (operating lang.) = 2 alphanumeric characters (not relevant for safety) ll (Applic. Package) = 2 alphanumeric characters (not relevant for safety) mm (services) = 2 alphanumeric characters (not relevant for safety) nn (test; Certificate) = JL, JN, JT; or 2 alphanumeric characters (not relevant for safety) oo (additional approvals) = 2 alphanumeric characters (not relevant for safety) pp (sensor design) = no options available qq (accessories mounted) = NA, NF, NG, O9 rr (accessories enclosed) = PA, PB, R6, R9
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	zz (firmware vers.) = 2 alphanumeric characters (not relevant for safety) ss (marking) = 2 alphanumeric characters (not relevant for safety) Note: Some option codes may be restricted for certain model types.
Electrical Rating	Dependent on option bb (output): A1 (FEL61): 19...253 Vac, 2VA, 50/60Hz A2 (FEL62): 10...55Vdc, 350 mA A3 (FEL64DC): 9...20Vdc, 1W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A4 (FEL64): 19...253 Vac, 25VA, 50/60Hz or 19...55Vdc, 1.3W; contacts rated 253Vac/2A, 500VA (pf=1) / 250VA (pf = 0.7), or 125Vdc/0.2A A7 (FEL67): 9.5...12.5 Vdc, 100mW A8 (FEL68): 8.2Vdc, NAMUR BA (FEL60H): 10.5...35Vdc, 4...20mA GA (FEL60D): 21...26Vdc, 150mW
Enclosure Rating	Type 4X/6P, IP66/68
Ambient/process temperature	Standard Ta of -40°C to +70°C; -50°C to +70°C, where option nn=JL; -52°C to +70°C, where option nn=JN; -60°C to +70°C, where option nn=JT ; 0°C to +70°C, where option d = A. Process temperature -60°C to +300°C.
MWP	Dependent on option f (application): D: 1450 psi (100 bar) E: 1450 psi (100 bar) R: 580 psi (40 bar) 9: 1450 psi (100 bar)

Conditions of Acceptability:

- Limit switches with the following modules, to be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12: FEL48, FEL64DC, FEL67, FEL68, FEL60D and FEL60H.
- Rated: Pollution Degree 2, Overvoltage Category I (limited energy modules, FEL42, FEL48, FEL62, FEL64DC, FEL67, FEL68, FEL60D and FEL60H) or Overvoltage Category II
- Environmental Conditions: 3000 m max
- Ambient temperature: -40°C for FTL41, FTL51B, FTL62 and FTL64 (optional for FTL51B, FTL62 and FTL64 -50°C/ -52°C/-60°C, only when using metallic enclosure and voltage is <35Vdc) to +70°C max. Minimum ambient temperature for models with polymeric enclosure (option d = A) is limited to 0 °C. For devices with a temperature spacer, the following ambient temperatures apply across the entire process temperature range: A: +70 °C; B: +60 °C.
 Low-temperature electronic inserts are marked LT (-50°C/-52°C/-60°C).
 - Bluetooth module (non-Ex): -40 to +70 °C
 - Bluetooth module (Ex ia): -40 to +65 °C
 - LED module: -40 to +60 °C
- Complete device may have optional LED module in addition to FEL62, FEL64, or FEL64DC insert. LED module is supplied at the same voltage as the insert; 6VA max for ac, 0.7W max for dc.
- Complete device may have optional Bluetooth module in addition to FEL61, FEL62, FEL64, FEL64DC, FEL67, or FEL68 inserts. Bluetooth module is supplied either by battery (only FEL68) or at 30Vdc max., by the insert; 0.1A max.



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APPLICABLE REQUIREMENTS

C22.2 No. 25-17	Enclosures for use in Class II, Division 1, Groups E, F, and G hazardous locations
C22.2 No. 30-M1986 (r2016)	Explosion-proof enclosures for use in Class I hazardous locations
C22.2 No. 30-20 ¹⁾	Explosion-proof Equipment
CSA C22.2 No. 94.2-15	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA-C22.2 No. 61010-1-12	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
CAN/CSA-C22.2 No. 60079-0:19	Explosive atmospheres – Part 0: Equipment – General requirements
CAN/CSA-C22.2 No. 60079-1:16	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures “d”
CAN/CSA-C22.2 No. 60079-11:14	Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”
CAN/CSA-C22.2 No. 60079-26:16	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
CAN/CSA C22.2 No. 213-17	Non-incendive Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations
UL 61010-1-Third Edition	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
FM3600-2022	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations - General Requirements
FM3610-2021	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II and III, Division 1, Hazardous (Classified) Locations
FM3615-2018	Approval Standard for Explosionproof Electrical Equipment General Requirements
FM3616-2022	Approval Standard for Dust-Ignitionproof Electrical Equipment General Requirements
UL 50E-15, Second Edition	Enclosures for Electrical Equipment, Environmental Considerations
UL 60079-0-2019, Seventh Edition	Explosive atmospheres – Part 0: Equipment – General requirements
UL 60079-1-2015, Seventh Edition	Explosive Atmospheres – Part 1: Equipment Protection by Flameproof Enclosures “d”
UL 60079-11-2014, Sixth Edition	Explosive Atmospheres – Part 11: Equipment Protection by Intrinsic Safety “i”
UL-60079-26: Third Edition	Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga
UL 121201-2017, Ninth Edition	Non-incendive Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations
ANSI/UL 122701- 2017, Third Edition	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids

¹⁾ This standard is applicable for the new XP model FTL64 probe only

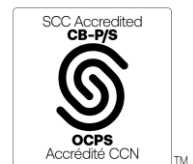


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Notes:

Products certified under Class C225803, C225883 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca





Supplement to Certificate of Compliance

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Master Contract: 151079

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80203728	2024-05-07	Update cCSAus certification report 80022351 for Liquiphant ES and HART series FTLxx device for minor corrections to the temperature ranges of metallic enclosure housing order code option "d " for FTLxx-CH model.
80173643	2023-08-14	Update cCSAus certification report 80022351 for Liquiphant ES and HART series FTLxx device for the following scope: Addition of Liquiphant model FTL63 Hygienic Version; Addition of new approval code CH applicable for CID1/Ex "ia" only; Variations to Liquiphant ES electronic inserts applicable for Foam detection feature; Revised safety instructions for IS to include temperature tables; Addition of metallic coating for Liquiphant model FTL62; Addition of coatings for Liquiphant model FTL64; Alternative M12 connector for Liquiphant ES; New nameplate drawings created for Liquiphant HART (L+P) devices
80157302	2023-06-07	Update cCSAus report 80022351 for Liquiphant ES series FTLxx device for the following scope: 1. Addition of Liquiphant HART 4-20mA I/O option applicable for models FTL51B, FTL62 & FTL64. This option is based on MA10 main board which was previously been certified under CSA project 80126806 2. Addition of new module FEL60H using SA10 electronics for sensor in combination with MA10 component module 3. Addition of L&P platform housing applicable for the new combination of MA10 module and SA10 electronic. The L&P platform enclosure housing has been previously certified under CSA project 80141544.
80144776	2023-01-13	Update cCSAus certification report 80022351 (last project 80086222) for Liquiphant ES series FTLxx device to consider a minor design change to the internal PTFE filling material which resulted in revised reference pressure values for FTL64 probe.
80086222	2021-09-29	Update of CSA report 80022351 for Liquiphant series FTLxx for the following changes: <ul style="list-style-type: none">Introduction of two new models FTL62 and FTL64



- Introduction of optional Bluetooth variant module VA-013-02 type VU121
- Introduction of new potting material SEMICOSIL920LT for electronic modules
- Addition of applicable std. CSA No. 30:20 applicable for new Liquiphant model FTL64 Probe only
- Update of applicable std. FM3615 and ANSI UL 122701 to latest edition. Included std. 3610:2018
- Minor revision to the components of FEL61 electronic module
- Update of applicable documents to introduce the above changes and editorial corrections

80022351

2019-12-02

Prime certification to issue cCSAus report for Liquiphant, types FTL41 and FTL51B with electronic inserts FEL4x and FEL6x with various combination of housings. The electrical ratings are applicable depending upon various electronic inserts, BT module and LED module.