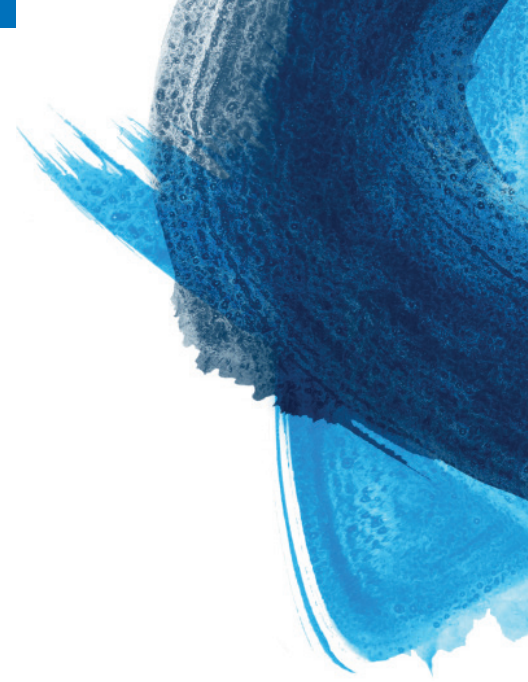




**FRESENIUS
KABI**

caring for life



Alerts & alarms

Agilia Connect VP MC volumetric infusion pump

Agilia Connect SP MC syringe infusion pump



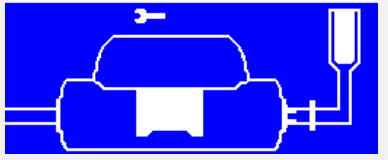

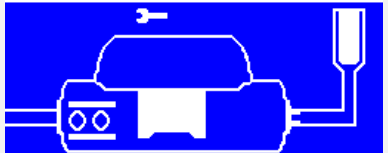
Agilia Connect SP TIVA syringe infusion pump

















Alarms and timers for Agilia VP MC, SP MC & SP TIVA pumps

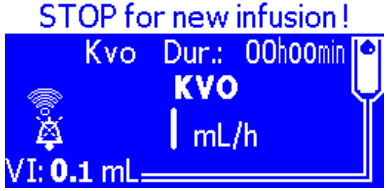
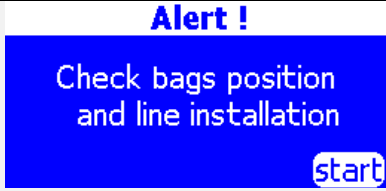

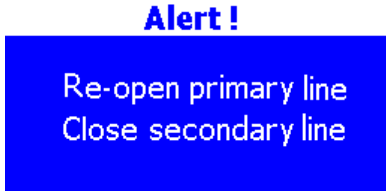


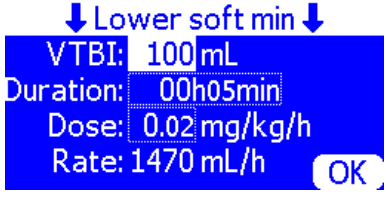
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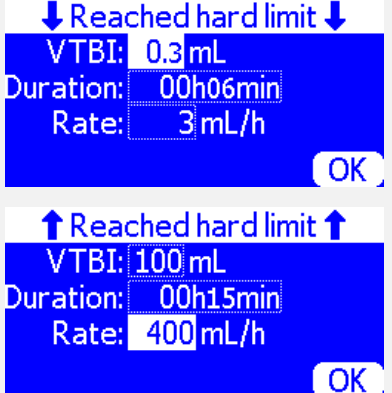
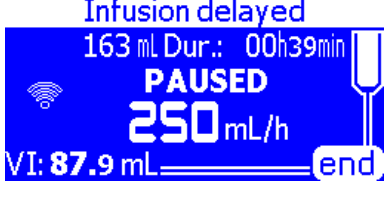


1. AGILIA VP MC ALARMS

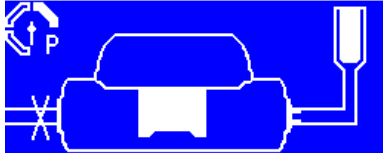

Message	Screenshot	Priority	Triggering conditions	Clear conditions	Time to trigger
Install Set Alarms					
Install set !!!	<p>Install set !!!</p>  <p>Door open condition</p> <p>Install set !!!</p>  <p>Other conditions</p>	High (!!!)	<p><u>Open door:</u> At startup door is open (see triggered condition below for "door opened" alarm)</p> <p><u>Clamp not detected:</u> Door is closed AND Clamp is not detected</p> <p><u>Pressure sensor:</u> Pressure detection outside correct range (set pressure sensors)</p> <p><u>Air sensor:</u> Air bubble detected (air sensor)</p>	<p><u>Open door:</u> Door is closed</p> <p><u>Clamp not detected:</u> Door is closed AND Clamp is detected</p> <p><u>Pressure sensor:</u> Pressure detection within correct range</p> <p><u>Air sensor:</u> No air bubble detected</p>	<p>0 seconds. On triggering conditions.</p> <p>Ⓜ key silences the alarm for 2 minutes.</p>
Check set installation !!!	<p>Check set installation !!!</p> 	High (!!!)	<p>Door is closed AND Clamp is detected AND No administration set detected in front of the upstream sensor AND/OR No administration set detected in front of the downstream sensor</p>	<p>Door is closed AND Clamp is detected AND No administration set detected in front of the upstream sensor AND No administration set detected in front of the downstream sensor</p>	<p>0 seconds. On triggering conditions.</p> <p>Ⓜ key silences the alarm for 2 minutes.</p>
Door opened !!!	<p>Door opened !!!</p> 	High (!!!)	<p>Open door (door pressure measurement)</p>	<p>Door is closed</p>	<p>0 seconds. On triggering conditions.</p> <p>Ⓜ key silences the alarm for 2 minutes.</p>
Set / air installation !!!	<p>Set / air installation !!!</p> 	High (!!!)	<p>The administration set is incorrectly positioned in front of the air sensor.</p>	<p>Door opened</p>	<p>0 seconds. On triggering conditions.</p> <p>Ⓜ key silences the alarm for 2 minutes.</p>

Air bubble !!!	<p style="text-align: center;">Air bubble !!!</p> 	High (!!!)	<p>At start-up, during the infusion, or while the infusion is Stopped. Air bubble detected (air sensor)</p>	No air bubble detected	<p>0 seconds. On triggering conditions.</p> <p>ⓘ key silences the alarm for 2 minutes.</p>
Air alarm !!!	<p style="text-align: center;">Air alarm !!!</p> 	High (!!!)	<p>During infusion, the volume of air is measured when condition of air alarm is met. This Volume (VolAir) is measured on a sliding window of 15 minutes.</p> <p>VolAir > Volume defined within the menu [Par27] OR Voltage of air sensor > 2500 mV (250 microLitres default)</p>	Door opened	<p>0 seconds. On triggering conditions.</p> <p>ⓘ key silences the alarm for no time limit.</p>
OCS Alarms					
OCS failure !!!	<p style="text-align: center;">OCS Failure !!!</p> 	High (!!!)	<p>During occlusivity check, the pump produces a pumping motion with clamp closed. The increase of pressure during this phase guarantees the correct occlusivity of the pumping mechanism. (downstream pressure measurement)</p> <p>Downstream pressure < 1140mmHg</p>	Door opened	<p>0 seconds. On triggering conditions.</p> <p>ⓘ key silences the alarm for 2 minutes.</p>
Open and close door for OCS test	<p style="text-align: center;">OCS TEST</p> <p style="text-align: center;">Open and close door for OCS test</p>	Information signal	<p>Clamp is open AND Pump needs to perform occlusivity test</p>	Door opened	<p>0 seconds. On triggering conditions.</p>
Infusion Alarms					
End of infusion !!!	<p style="text-align: center;">End of infusion !!!</p> 	<p>High (!!!) with KVO disabled</p> <p>Low (!) with KVO enabled</p>	<p>Infused volume reaches programmed VTBI OR KVO is running and alarm reminder timer (configurable) expires</p>	Silence key pressed	<p><u>If KVO disabled:</u></p> <p>ⓘ key silences the alarm</p> <p><u>If KVO enabled:</u></p> <p>ⓘ key silences the alarm for a time duration from 1 minute to 12 hours (configurable)</p>



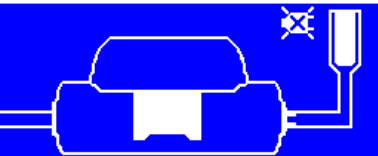

End secondary alarm !!!		High (!!!)	Secondary volume infused reaches programmed secondary VTBI → Only when manual return to primary infusion is configured	Silence key pressed	0 seconds. On triggering conditions.  key silences the alarm
Near end of infusion !!		Medium (!!)	Remaining VTBI ≤ Remaining volume to trigger pre-alarm (configurable from 0 to 50ml) OR Remaining VTBI ≤ percentage of VTBI to trigger pre-alarm (configurable from 0 to 15%)* VTBI OR Remaining duration to reach VTBI at current flow rate ≤ Duration before end of VTBI to trigger pre-alarm (configurable from 0 to 30min)	Infusion stopped OR "End of Infusion" alarm is triggered	0 seconds. On triggering conditions.  key silences the alarm for no time limit.
Check settings !!		Medium (!!)	One Infusion parameter is modified but not confirmed for 15 seconds	Setting is validated OR A key is pressed (except Silence or Bolus keys)	15 seconds.  key silences the alarm for 2 minutes.
Waiting settings !!		Medium (!!)	One Infusion parameter is selected but not modified for 30 seconds	Value is modified OR A key is pressed (except Silence or Stop keys)	30 seconds.  key silences the alarm for 2 minutes.
Waiting start !!		Medium (!!)	Infusion parameters are defined but infusion not launched for 30 seconds	User start(START) the infusion OR A key is pressed (except Silence or Stop keys)	30 seconds.  key silences the alarm for 2 minutes.

<p>End of infusion ! Stop for new infusion ! (KVO enabled)</p>		<p>Low (!)</p>	<p>Main infusion is ended (VTBI is reached) AND "End of infusion !!!" alarm is silenced AND KVO infusion is in progress</p>	<p>STOP key is pressed OR "End of infusion !!!" alarm is repeated (KVO alarm reminder timer is over → configurable within pump hidden menu)</p>	<p>0 seconds. On triggering conditions.</p>
<p>Primary started Check that primary clamp is open</p>		<p>Low (!)</p>	<p>"Automatic return to primary" is enabled AND "Alert when switching back to primary" is enabled AND Secondary VTBI is infused → primary infusion is resumed, and this alarm is triggered</p>	<p>Silence key pressed</p>	<p>0 seconds. On triggering conditions.  key silences the alarm</p>
<p>1- Re-open primary line 2- Close secondary line</p>		<p>Low (!)</p>	<p>"Manual return to primary" is enabled AND "Alert when switching back to primary" is enabled AND Secondary VTBI is infused AND User answers "no" to "Continue sec.?"</p>	<p>Silence key pressed</p>	<p>0 seconds. On triggering conditions.  key silences the alarm</p>
<p>Upper soft max</p>		<p>Information signal</p>	<p>One infusion parameter is over the Max soft limit defined for the drug</p>	<p>No Infusion parameters are over Max soft limit defined for the drug</p>	<p>0 seconds. On triggering conditions.</p>
<p>Lower soft min</p>		<p>Information signal</p>	<p>One infusion parameter is under the Min soft limit defined for the drug</p>	<p>No Infusion parameters are under Min soft limit defined for the drug</p>	<p>0 seconds. On triggering conditions.</p>

Reached hard limit		Information signal	One infusion parameter reached the hard limit defined for the drug or the pump and cannot be modified beyond this limit	Message cleared 3s after user tried to go over the limit OR Value is modified	3 seconds OR Until value is modified under the limits
Infusion delayed		Information signal	A pause is programmed with "Start infusion at pause end" set to "yes"	Pause cancelled by pressing either Start / Stop / Cancel key OR Pause timer has ended	0 seconds. On triggering conditions.
Call-back alert		Information Signal	Call-back alert timer expires	Silence key is pressed OR A new timer is set through call-back alert menu	0 seconds. On triggering conditions.
Ramp-down		Information signal	Ramp-down was forced by user in ramp mode	Infusion ends OR Infusion is stopped (in this case, this information signal is displayed again when infusion is resumed)	0 seconds. On triggering conditions.

<p>Alert Stop infusion before power off</p>	<p style="text-align: center;">Alert</p> <div style="background-color: blue; color: white; padding: 10px; text-align: center; font-weight: bold;"> Stop infusion before power off </div>	<p>Information Signal</p>	<p>ON/OFF key pressed while infusion is running</p>	<p>ON/OFF key released</p>	<p>0 seconds. On triggering conditions.</p>
<p>Pressure Alarms</p>					
<p>Downstream occlusion !!!</p>	<p style="text-align: center;">Downstream occlusion !!!</p> 	<p>High (!!!)</p>	<p>This alarm triggers only when the pressure in the line has reach the threshold level, and when the flow rate accuracy is impacted.</p> <p>Pressure measured by downstream pressure sensor > Occlusion pressure defined (by user, pump or drug)</p>	<p>Pressure measured by downstream pressure sensor under a specific threshold based on pump configuration AND Silence key pressed OR Door opened and closed, and OCS test is valid</p>	<p>0 seconds. On triggering conditions.</p> <p>Alarm sound triggers a few seconds after alarm screen.</p> <p>ⓘ key silences the alarm for 2 minutes if the pressure condition is still present.</p>
<p>Upstream occlusion !!!</p>	<p style="text-align: center;">Upstream occlusion !!!</p> 	<p>High (!!!)</p>	<p>This alarm triggers only when the pressure in the upstream line is too low.</p>	<p>Door opened OR Pressure measured by upstream pressure sensor is within a specific range of pressure based on pump configuration</p>	<p>0 seconds. On triggering conditions.</p> <p>ⓘ key silences the alarm for 2 minutes</p>
<p>Wait during pressure measurement checking !!!</p>	<p style="text-align: center;">Alert !!!</p> <div style="background-color: blue; color: white; padding: 10px; text-align: center; font-weight: bold;"> Wait during pressure measurement checking </div>	<p>High (!!!)</p>	<p>This alarm is triggered if pump is configured to restart automatically after occlusion. AND Pressure measured by downstream pressure sensor > Occlusion pressure defined (by user, pump or drug)</p>	<p>Time elapsed since alarm occurred < Waiting time before auto-restart configurable in basic profile menu (15 seconds by default) AND Downstream pressure below a specific threshold based on pump configuration</p> <p>OR</p> <p>Time elapsed > Waiting time AND Downstream pressure above a specific threshold based on pump configuration (in this case Occlusion alarm is triggered)</p>	<p>0 seconds. On triggering conditions.</p>



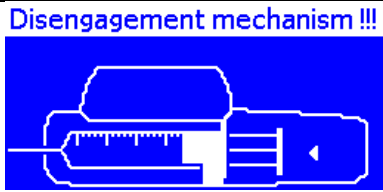

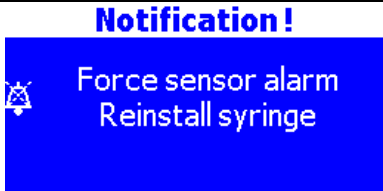
<p>Occlusion pre alarm !!</p>		<p>Medium (!!)</p>	<p>Downstream pressure sensor detects a slight pressure increase</p>	<p>Downstream pressure goes back to accepted range of pressure OR "Downstream occlusion !!!" alarm is triggered</p>	<p>0 seconds. On triggering conditions. ⓘ key silences the alarm for no time limit.</p>
<p>Pressure increase !</p>		<p>Low (!)</p>	<p>The Pressure increase DPS alarm triggers when the algorithm detects a slight increase of pressure. This alarm is triggered only if configured in pressure settings AND If current flowrate < 150 mL/h AND Detects slight increase in pressure</p>	<p>Silence key pressed OR Pressure goes back to normal pressure after 2 minutes OR Infusion stopped OR DPS function disabled</p>	<p>0 seconds. On triggering conditions. ⓘ key silences the alarm.</p>
<p>Drop in pressure !</p>		<p>Low (!)</p>	<p>The Drop of pressure DPS alarm triggers when the algorithm detects a slight decrease of pressure. If the user does not react, it will be covered by the downstream occlusion pre alarm then by the downstream occlusion alarm. This alarm is triggered only if configured in pressure settings AND Detects slight decrease in downstream pressure</p>	<p>Silence key pressed OR Downstream pressure goes back to normal pressure after 2 minutes OR Infusion stopped OR DPS function disabled</p>	<p>0 seconds. On triggering conditions. ⓘ key silences the alarm.</p>
<p>Battery Alarms</p>					
<p>Alert !!! Very low battery Connect to AC power and wait</p>		<p>High (!!!)</p>	<p>Pump is connected to power AND Battery voltage is lower than 6400mV</p>	<p>Pump is connected to power AND battery voltage is higher than 6500mV</p>	<p>0 seconds. On triggering conditions. ⓘ key silences the alarm for 2 minutes.</p>
<p>Battery alarm !!!</p>		<p>High (!!!)</p>	<p>Triggers 5 min before the pump powers OFF automatically Power disconnected AND Battery voltage is lower than 6800mV</p>	<p>Connected to power supply AND Silence key pressed → A reminder banner will be displayed until Start key is pressed</p>	<p>0 seconds. On triggering conditions. ⓘ key silences the alarm for 2 minutes.</p>



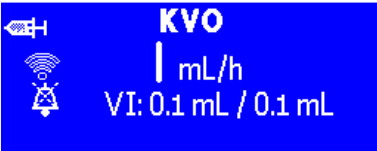


Battery pre alarm !!	<p>Battery pre alarm !!</p> <p>Very low battery Connect to AC power and wait</p>	Medium (!!)	<p>Triggers when the battery charge level has reached a voltage threshold corresponding to 30 min before battery exhaustion.</p> <p>Pump is not connected to main power AND Battery voltage is lower than 7100mV</p>	<p>Connected to power supply OR Battery alarm is triggered</p>	<p>0 seconds. On triggering conditions.</p> <p>ⓘ key silences the alarm for no time limit.</p>
		Low (!)	<p>Triggers at start-up when the device has not been used for a long period of time and is connected to the main power supply. The battery is so low that the device can only display the discharged battery symbol and could not generate an auditory alarm signal.</p> <p>Pump is connected to main power AND Pump is switched on AND Pump cannot communicate with smart battery</p>	<p>Pump can communicate with smart battery for a period of 30s</p>	<p>0 seconds. On triggering conditions.</p> <p>ⓘ key silences the alarm</p>
Power Alarms					
AC power failure !	<p>Notification!</p> <p>AC power failure Battery charge disabled</p>	Low (!)	<p>This alarm is triggered when the pump switch from battery to mains and reversely mains to battery 150 times over 15 minutes.</p> <p>Power supply is inconsistent.</p>	<p>Silence key pressed</p>	<p>On triggering conditions.</p> <p>ⓘ key silences the alarm</p>
Power disconnection	<p>Power disconnection</p> 	Information signal	<p>This information signal is triggered when the main power is disconnected</p>	<p>Silence key pressed</p>	<p>0 seconds. On triggering conditions.</p> <p>ⓘ key silences the alarm</p>
Keypad Alarms					
Keypad lock status	<p>🔒 Keypad lock status</p> 	Information signal	<p>The keypad is locked AND A locked key is pressed</p>	<p>Alarm cleared after 3s OR STOP key pressed while infusion is running</p>	<p>3 seconds.</p>



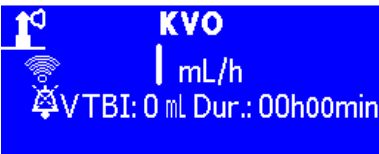
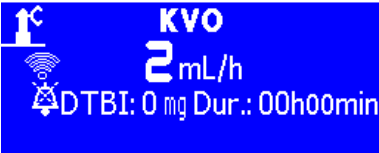

Keypad locked Unlock keypad to continue	Keypad locked Unlock keypad to continue	Information signal	The keypad is locked AND Infusion is stopped AND The door has just been opened and closed	Keypad is unlocked	0 seconds. On triggering conditions.
Miscellaneous Alarms					
High internal temperature !	Notification ! High internal temperature. Disconnect AC Power	Low (!)	Pump internal temperature >= 65 °C	Pump internal temperature < 63 °C	Wait until pump reaches 63°C

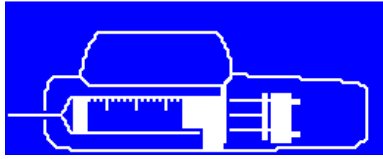



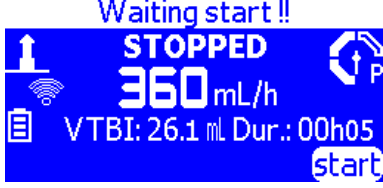
Timers			
Conditions	Details	Timer	
Start screen	Display time	3 seconds	
Dataset screen at start up	Display time	3 seconds	
Maintenance screen	Display time	2 seconds	
User menu	Exit the menu if there is no user action	14 seconds without any action	
Silence alarm	Duration of silence mode when <Silence> key is pressed over a low, medium or high priority alarm	2 minutes	
Silence technical alarm	Duration of silence mode when <Silence> key is pressed over a technical alarm	30 minutes	
Pressure measurement for auto restart	Waiting time for pressure reduction before automatic restart	Configurable within 5 to 30 seconds	
Pressure rise or pressure drop alarm	Time to automatically acknowledged pressure rise or pressure drop alarm when the pressure goes back to normal	2 minutes	
Keyboard relocking when automatic lock is enabled	Time for the pump to go under automatic keyboard lock when the automatic keypad lock function is activated, and there is no user action	Configurable within 15 to 60 seconds	
KVO silence alarm	Time before "End of infusion" alarm is repeated when KVO is enabled.	Configurable within 1 minute to 12 hours	
Night/Day mode	Time before the screen goes back to night mode after pressing a button or stopping an alarm sound (low medium high and technical)	30 seconds	
Programming a value	Time before the value of the selected infusion parameter starts flashing	1.5 seconds	
Hard limits reached	Display time of the "reached hard limit" banner when user goes above the maximum or below the minimum (hard limit)	3 seconds	
"Automatic" stop in ramp mode	Time before the infusion automatically stops when <STOP> key is pressed, and user stays on the "force descent/stop" screen	30 seconds	
Battery alarm	In the case of a battery alarm (main power disconnected), the pump switches off after 5 minutes (if the mains is not connected in the meantime). When the user presses <Silence> key, if the voltage is too low then the pump turns off after 15 seconds (even if the 5 minutes have not elapsed).	5 minutes to 15 seconds in case of very low battery	
Drop sensor when not mandatory	If the drop sensor is connected after the OCS test when it is not mandatory, then the "drop detector present" indication is triggered, if it is not disconnected after 4 minutes the drop detector present alarm is triggered.	4 minutes	
Time to resume Direct Bolus	When delivering a direct bolus, when the button is released, the user has 3 seconds to press the bolus key button again to resume the bolus (during this time the bolus volume infused is displayed). Beep sounds for each mL of bolus infused	3 seconds	
Time to resume priming	When priming, when the button is released, the user has 3 seconds to press the bolus key again to resume priming (during this time the primed volume infused is displayed).	3 seconds	

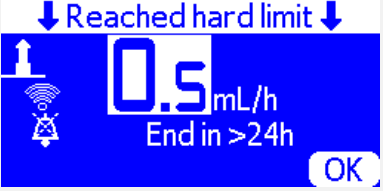


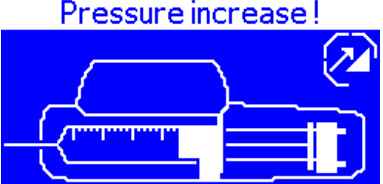
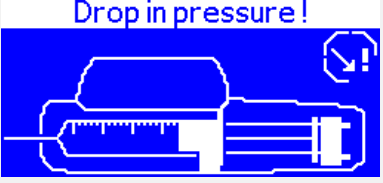
2. AGILIA SP MC & SP TIVA ALARMS



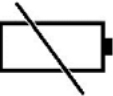
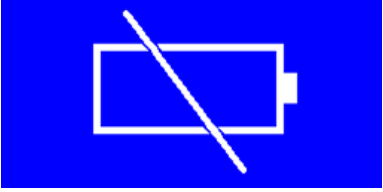
Message	Screenshot	Priority	Triggering conditions	Clear conditions	Time to trigger
Syringe Alarms					
Syringe installation !!!		High (!!!)	<p><u>Syringe not detected:</u> Barrel diameter not in acceptable diameter range (detected by syringe barrel clasp) OR Barrel flange not detected syringe flange cradle OR Plunger head not detected by plunger driver</p>	<p><u>Syringe detected:</u> Barrel detected AND Barrel flange detected AND Plunger detected</p>	0 seconds, on triggering conditions.
Plunger head alarm !!!		High (!!!)	Plunger head not detected when a syringe has been detected	Plunger head detected	0 seconds, on triggering conditions.
Disengagement mechanism !!!		High (!!!)	Disengagement switch detects the opening of the disengagement lever	Disengagement switch detects the closing of the disengagement lever	0 seconds, on triggering conditions.
Remove completely syringe !		Low (!)	At start up, if pump detects that plunger head is still in contact with the pump plunger driver after 5 start ups	Plunger head is not detected by plunger driver anymore	0 seconds, on triggering conditions.
Notification ! Force sensor alarm Reinstall syringe		Low (!)	<p>If force sensor automatic adjustment is needed AND (VForceSensor < 150 mV OR VForceMeasured < - 700g)</p>	<p>Force sensor automatic adjustment ended OR (VForceSensor >= 150 mV AND VForceMeasured >= - 700g)</p>	0 seconds, on triggering conditions.




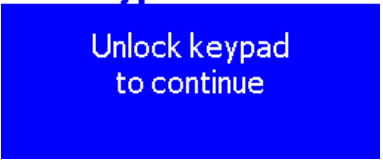
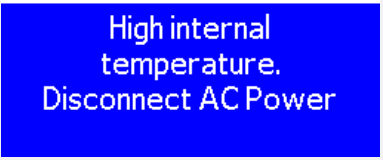
Volume Limit Alarms					
End of volume limit !!!		High (!!!)	Infused volume reaches programmed limit volume OR KVO is running and alarm reminder timer (configurable within pump hidden menu) expires	Silence key pressed	<u>If KVO disabled:</u> (A) key silences the alarm <u>If KVO enabled:</u> (A) key silences the alarm for a time duration from 1 minute to 12 hours (configurable within pump hidden menu).
Near end of volume limit !!		Medium (!!)	Remaining volume is lower than 10% of syringe capacity AND Remaining duration is lower than the duration before end of VTBI to raise pre-alarm (configurable from 1 to 30min)	Infusion stopped OR "End of Volume limit" alarm is triggered	0 seconds, on triggering conditions
Stop for new infusion !		Low (!)	Main infusion is ended (VTBI is reached) AND "End of volume limit !!!" alarm is silenced AND KVO infusion is in progress	STOP key pressed OR "End of volume limit !!!" alarm is repeated	0 seconds, on triggering conditions
Volume/Time & Dose/Time Alarms					
End of volume/time !!! End of dose/time !!!	 	High (!!!)	Infused volume (or dose) reaches programmed VTBI (or DTBI) OR KVO is running and alarm reminder timer (configurable within pump hidden menu) expires	Silence key pressed	<u>If KVO disabled:</u> (A) key silences the alarm <u>If KVO enabled:</u> (A) key silences the alarm for a time duration from 1 minute to 12 hours (configurable within pump hidden menu).

<p>Near end of volume/time !! Near end of dose/time !!</p>	<p>Near end of volume/time !!</p>  <p>Near end of dose/time !!</p> 	<p>Medium (!!)</p>	<p>Remining volume is lower than 10% of syringe capacity AND Remaining duration is lower than the duration before end of VTBI to raise pre-alarm (configurable from 1 to 30min)</p>	<p>Infusion stopped OR "End of Volume-Dose/Time" alarm is triggered</p>	<p>0 seconds, on triggering conditions.</p>
<p>Stop for new infusion !</p>	<p>STOP for new infusion!</p>  <p>STOP for new infusion!</p> 	<p>Low (!)</p>	<p>Main infusion is ended (VTBI is reached) AND "End of volume /time !!!" alarm is silenced OR "End of dose /time !!!" alarm is silenced AND KVO infusion is in progress</p>	<p>STOP key is pressed OR "End of volume /time !!!" alarm is repeated OR "End of dose /time !!!" alarm is repeated</p>	<p>0 seconds, on triggering conditions.</p>
<p>Infusion Alarms</p>					
<p>End of infusion !!!</p>	<p>End of infusion !!!</p> 	<p>High (!!!)</p>	<p><u>If empty syringe mode enabled:</u> Plunger head position is below the predefine value for plunger head position at end of infusion. <u>If empty syringe mode disabled:</u> Plunger head position is below the predefine value for plunger head position at end of infusion minus 2mm OR Force sensor in contact with the plunger head gets to threshold value.</p>	<p>Syringe replaced OR If empty syringe mode is activatable (and not yet activated), another way to clear alarm is to press start button to continue infusion until syringe is empty</p>	<p>0 seconds, on triggering conditions.</p>

Near end of infusion !!		Medium (!!)	Remining volume is lower than 10% of syringe capacity AND Remaining duration is lower than the duration before end of VTBI to raise pre-alarm (configurable from 1 to 30min)	Infusion stopped OR "End of infusion" alarm is triggered	0 seconds, on triggering conditions.
Empty syringe mode		Information signal	OK(START) key pressed after "Near end of infusion !!!" alarm silencing OR OK(START) key pressed to resume infusion after "End of infusion !!!" alarm silencing	Syringe replaced OR <STOP> key pressed	0 seconds, on triggering conditions.
Check settings !!		Medium (!!)	One Infusion parameter is modified but not confirmed for 15 seconds	Setting is validated OR A key is pressed (except SILENCE or BOLUS keys)	15 seconds
Waiting settings !!		Medium (!!)	One Infusion parameter is selected but not modified for 30 seconds	Value is modified OR A key is pressed (except SILENCE or STOP keys)	30 seconds
Waiting start !!		Medium (!!)	Infusion parameters are defined but infusion not launched for 30 seconds	start(START) OR A key is pressed (except SILENCE or STOP keys)	30 seconds

Reached hard limit		Information signal	One infusion parameter reached the hard limit defined for the drug or the pump and cannot be modified beyond this limit	Message cleared 3s after user tried to go over the limit OR value is modified	3 seconds OR Until value is modified under the limits
Pressure Alarms					
Occlusion alarm !!!		Low	This alarm triggers only when the pressure in the line has reach the threshold level, and when the flow rate accuracy is impacted. Pressure measured by pressure sensor > Occlusion pressure defined (by user, pump or drug)	Pressure measured by pressure sensor under a specific threshold based on pump configuration AND Silence key pressed	0 seconds. On triggering conditions. Alarm sound triggers a few seconds after alarm screen. ⓘ key silences the alarm for 2 minutes if the pressure condition is still present.
Occlusion pre alarm !!		Low	Downstream pressure sensor detects a slight pressure increase	Downstream pressure goes back to accepted range of pressure OR "Downstream occlusion !!!" alarm is triggered	0 seconds. On triggering conditions. ⓘ key silences the alarm for no time limit.
Pressure increase !		Low	The Pressure increase DPS alarm triggers when the algorithm detects a slight increase of pressure. This alarm is triggered only if configured in pressure settings AND If current flowrate < 20 mL/h AND Detects slight increase in pressure	Silence key pressed OR Pressure goes back to normal pressure after 2 minutes OR Infusion stopped OR DPS function disabled	0 seconds. On triggering conditions. ⓘ key silences the alarm.
Drop in pressure !		Low	The Drop of pressure DPS alarm triggers when the algorithm detects a slight decrease of pressure. If the user does not react, it will be covered by the downstream occlusion pre alarm then by the downstream occlusion alarm. This alarm is triggered only if configured in pressure settings AND Detects slight decrease in downstream pressure	Silence key pressed OR Downstream pressure goes back to normal pressure after 2 minutes OR Infusion stopped OR DPS function disabled	0 seconds. On triggering conditions. ⓘ key silences the alarm.

Battery Alarms					
Alert !!! Very low battery Connect to AC power and wait	Alert !!! Very low battery Connect to AC power and wait	High (!!!)	Pump is connected to power AND Battery voltage is lower than 6400mV	Pump is connected to power AND battery voltage is higher than 6500mV	0 seconds. On triggering conditions. ⓘ key silences the alarm for 2 minutes.
Battery alarm !!!	Battery alarm !!! 	High	Triggers 5min before the pump powers OFF automatically Power disconnected AND Battery voltage is lower than 6800mV	Connected to power supply AND Silence key pressed → A reminder banner will be displayed until Start key is pressed	0 seconds. On triggering conditions. ⓘ key silences the alarm for 2 minutes.
Battery pre alarm !!	Battery pre alarm !! 	Medium	Triggers when the battery charge level has reached a voltage threshold corresponding to 30min before battery exhaustion. Pump is not connected to main power AND Battery voltage is lower than 7100mV	Connected to power supply OR Battery alarm is triggered	0 seconds. On triggering conditions. ⓘ key silences the alarm for no time limit.
		Low	Triggers at start-up when the device has not been used for a long period of time and is connected to the main power supply. The battery is so low that the device can only display the discharged battery symbol and could not generate an auditory alarm signal. Pump is connected to main power AND Pump is switched on AND Pump cannot communicate with smart battery	Pump can communicate with smart battery during 30s	0 seconds. On triggering conditions. ⓘ key silences the alarm
Power Alarms					
AC power failure !	Notification ! AC power failure Battery charge disabled	Low (!)	This alarm is triggered when the pump switch from battery to mains and reversely mains to battery 150 times over 15 minutes. Power supply is inconsistent.	Silence key pressed	On triggering conditions. ⓘ key silences the alarm

Power disconnection		Information signal	This information signal is triggered when the main power is disconnected	Silence key pressed	0 seconds. On triggering conditions.  key silences the alarm
Keypad Alarms					
Keypad lock status		Information signal	The keypad is locked AND A locked key is pressed	Alarm cleared after 3s OR STOP key pressed while infusion is running	3 seconds.
Keypad locked Unlock keypad to continue		Information signal	The keypad is locked AND Infusion is stopped AND The door has just been opened and closed	Keypad is unlocked	0 seconds. On triggering conditions.
Miscellaneous Alarms					
High internal temperature !		Low (!)	Pump internal temperature ≥ 65 °C	Pump internal temperature < 63 °C	Wait until pump reaches 63°C

Timers		
Conditions	Details	Timer
Start screen	Display time	3 seconds
Dataset screen at start up	Display time	3 seconds
Maintenance screen	Display time	2 seconds
User menu	Exit the menu if there is no user action	14 seconds without any action
Silence alarm	Duration of silence mode when <Silence> key is pressed over a low, medium or high priority alarm	2 minutes
Silence technical alarm	Duration of silence mode when <Silence> key is pressed over a technical alarm	30 minutes
Pressure rise or pressure drop alarm	Time to automatically acknowledged pressure rise or pressure drop alarm when the pressure goes back to normal	2 minutes
Keyboard relocking when automatic lock is enabled	Time for the pump to go under automatic keyboard lock when the automatic keypad lock function is activated, and there is no user action	Configurable within 15 to 60 seconds
KVO silence alarm	Time before "End of infusion" alarm is repeated when KVO is enabled.	Configurable within 1 minute to 12 hours
Night/Day mode	Time before the screen goes back to night mode after pressing a button or stopping an alarm sound (low medium high and technical)	30 seconds
Programming a value	Time before the value of the selected infusion parameter starts flashing	1.5 seconds
Hard limits reached	Display time of the "reached hard limit" banner when user goes above the maximum or below the minimum (hard limit)	3 seconds
Battery alarm	In the case of a battery alarm (main power disconnected), the pump switches off after 5 minutes (if the mains is not connected in the meantime). When the user presses <Silence> key, if the voltage is too low then the pump turns off after 15 seconds (even if the 5 minutes have not elapsed).	5 minutes to 15 seconds in case of very low battery
Time to resume Direct Bolus	When delivering a direct bolus, when the button is released, the user has 3 seconds to press the bolus key button again to resume the bolus (during this time the bolus volume infused is displayed). Beep sounds for each mL of bolus infused	3 seconds
Time to resume priming	When priming, when the button is released, the user has 3 seconds to press the bolus key again to resume priming (during this time the primed volume infused is displayed).	3 seconds
Same infusion screen	When displaying the same infusion screen, if no response from user, then the screen is exited as if the user had pressed "no"	30 seconds
Syringe auto validation	If syringe auto-validation is activated (and the keypad is not locked), then the screen displays the selected syringe for 2 seconds	2 seconds