

Zakresy dopuszczalnych wartości mierzonych/Permissible measurements ranges

				Alarm	Horn	Display/control		SMS for technical department	SMS for BSL-3 management	SMS for biosafety officer
		Set values and limits	BSL-3 laboratory status			PLC	CS			
Pressure monitoring <i>Monitorowanie ciśnienia</i>	Set value	room dependent								
	Error	$E =  MV - SP  \text{ [Pa]}$								
	Allowed range	$E \leq 5$	Normal operation	green	NO	NO	NO			
	Short-time small deviation	$5 < E \leq 10, t < 60s$	Normal operation	no light	NO	NO	NO			
	Long-time small deviation	$5 < E \leq 10, t \geq 60s$	Partial failure; 2nd priority alarm	yellow	NO	YES	YES	YES		
	Incidental large deviation	$E > 10, t < 10s$	Partial failure; 2nd priority alarm	yellow	NO	YES	YES	YES		
	Large deviation	$E > 10, t \geq 10s$	Total failure; 1st priority alarm	red	YES	YES	YES	YES	YES	YES
	Very large deviation	$E > 20, t \geq 5s$	Total failure; 1st priority alarm	red	YES	YES	YES	YES	YES	YES
Temperature in BSL-3 zone (except 3.69 and 3.4) Temperatura w strefie BSL-3 (z wyjątkiem 3.69 i 3.4)	Set value (SP)	$21^{\circ}\text{C} (19^{\circ}\text{C} \div 23^{\circ}\text{C})$	Normal operation	green	NO	NO	NO			
	Short-time deviation	$ MV-SP  > 1^{\circ}\text{C}, t \leq 10 \text{ min}$	Normal operation	green	NO	NO	NO			
	Long-time deviation	$ MV-SP  > 1^{\circ}\text{C}, t > 10 \text{ min}$	Partial failure; 3rd priority alarm	green	NO	NO	YES			
	High limit	$MV \geq 25^{\circ}\text{C}$	Partial failure; 2nd priority alarm	green	NO	NO	YES	YES		
	Low limit	$MV \leq 17^{\circ}\text{C}$	Partial failure; 2nd priority alarm	green	NO	NO	YES	YES		
	High safety limit	$MV \geq 30^{\circ}\text{C}$	Total failure; 1st priority alarm	yellow	YES	YES	YES	YES	YES	YES
	Low safety limit	$MV \leq 12^{\circ}\text{C}$	Total failure; 1st priority alarm	yellow	YES	YES	YES	YES	YES	YES
Temperature in 3.69 (animal room) Temperatura w 3.69 (zwierzętarnia)	Set value (SP)	$21^{\circ}\text{C} (20^{\circ}\text{C} \div 24^{\circ}\text{C})$	Normal operation	green	NO	NO	NO			
	Short-time deviation	$ MV-SP  > 1^{\circ}\text{C}, t \leq 5 \text{ min}$	Normal operation	green	NO	NO	NO			
	Long-time deviation	$ MV-SP  > 1^{\circ}\text{C}, t > 5 \text{ min}$	Partial failure; 2nd priority alarm	green	NO	NO	YES	YES		
	High safety limit	$MV \geq 25^{\circ}\text{C}$	Total failure; 1st priority alarm	yellow	YES	YES	YES	YES	YES	YES
	Low safety limit	$MV \leq 19^{\circ}\text{C}$	Total failure; 1st priority alarm	yellow	YES	YES	YES	YES	YES	YES
Temperature in 3.4 (storage room) Temperatura w 3.4 (bank)	Set value (SP)	$21^{\circ}\text{C} (19^{\circ}\text{C} \div 23^{\circ}\text{C})$	Normal operation	green	NO	NO	NO			
	Short-time deviation	$ MV-SP  > 1^{\circ}\text{C}, t \leq 10 \text{ min}$	Normal operation	green	NO	NO	NO			
	Long-time deviation	$ MV-SP  > 1^{\circ}\text{C}, t > 10 \text{ min}$	Partial failure; 3rd priority alarm	green	NO	NO	YES			
	High limit	$MV > 25^{\circ}\text{C}$	Partial failure; 2nd priority alarm	green	NO	NO	YES	YES		
	Low limit	$MV < 17^{\circ}\text{C}$	Partial failure; 2nd priority alarm	green	NO	NO	YES	YES		
	High safety limit	$MV > 30^{\circ}\text{C}$	Total failure; 1st priority alarm	yellow	YES	YES	YES	YES	YES	YES
	Low safety limit	$MV < 12^{\circ}\text{C}$	Total failure; 1st priority alarm	yellow	YES	YES	YES	YES	YES	YES
Humidity in 3.69 (animal room) Wilgotność w 3.69 (zwierzętarnia)	Set value (SP)	$55\%rH (50\% \div 60\%)$	Normal operation	green	NO	NO	NO			
	Short-time deviation	$ MV-SP  > 5\%, t \leq 10 \text{ min}$	Normal operation	green	NO	NO	NO			
	Long-time deviation	$ MV-SP  > 5\%, t > 10 \text{ min}$	Partial failure; 2nd priority alarm	yellow	NO	NO	YES	YES		
	High limit	$MV > 65 \%rH, t > 60s$	Total failure; 1st priority alarm	yellow	NO	YES	YES	YES	YES	YES
	Low limit	$MV < 45 \%rH, t > 60s$	Total failure; 1st priority alarm	red	YES*	YES	YES	YES	YES	YES
Humidity in BSL-3 containment (except 3.69) Wilgotność w BSL-3 (z wyjątkiem 3.69)	Permissive range	$45 \%rH \div 65 \%rH$	Normal operation	green	NO	NO	NO			
	High limit	$65\%, t > 10 \text{ min}$	Partial failure; 2nd priority alarm	green	NO	NO	YES	YES		
	Low limit	$55\%, t > 10 \text{ min}$	Partial failure; 2nd priority alarm	green	NO	NO	YES	YES		
Flow rate Prędkość przepływu	Set value	room state dependent								
	Error	$E =  MV - SP  / SP \text{ [%]}$	Normal operation	green	NO	NO	NO			
	Allowed range	$E \leq +5\%$	Normal operation	green	NO	NO	NO			
	Short-time small deviation	$5\% < E \leq 15\%, t < 60s$	Normal operation	no light	NO	NO	NO			
	Long-time small deviation	$5\% < E \leq 15\%, t \geq 60s$	Partial failure; 2nd priority alarm	yellow	NO	YES	YES	YES		
	Incidental large deviation	$E > 15\%, t < 10s$	Partial failure; 2nd priority alarm	yellow	NO	YES	YES	YES		
	Large deviation	$E > 15\%, t \geq 10s$	Total failure; 1st priority alarm	red	YES	YES	YES	YES	YES	YES
	Very large deviation	$E > 30\%, t \geq 5s$	Total failure; 1st priority alarm	red	YES	YES	YES	YES	YES	YES
	Low safety limit	room dependent	Total failure; 1st priority alarm	red	YES	YES	YES	YES	YES	YES

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Gas detection system System detekcji gazu)	CO2 pre-alarm	> 0,5 %V/V	Partial failure; 2nd priority alarm	yellow	YES	YES	YES	YES	YES	
	CO2 alarm	> 1,5 %V/V	Total failure; 1st priority alarm	red	YES	YES	YES	YES	YES	YES
	O2 (N2) pre-alarm	< 19,5 %V/V	Partial failure; 2nd priority alarm	yellow	YES	YES	YES	YES	YES	
	O2 (N2) alarm	< 18 %V/V	Total failure; 1st priority alarm	red	YES	YES	YES	YES	YES	YES