FA 100
ASPIRATING SMOKE DETECTOR

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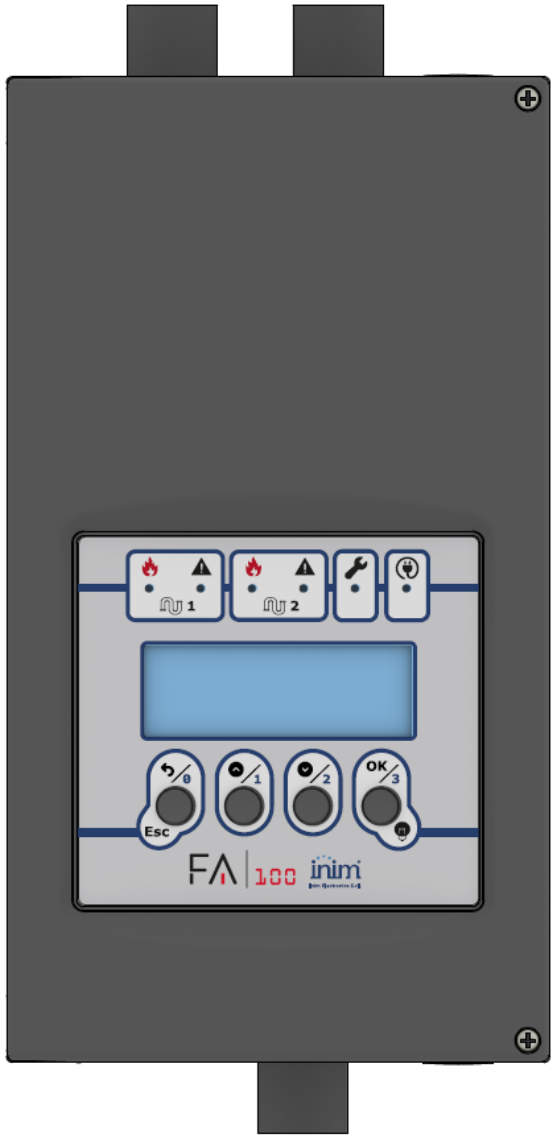
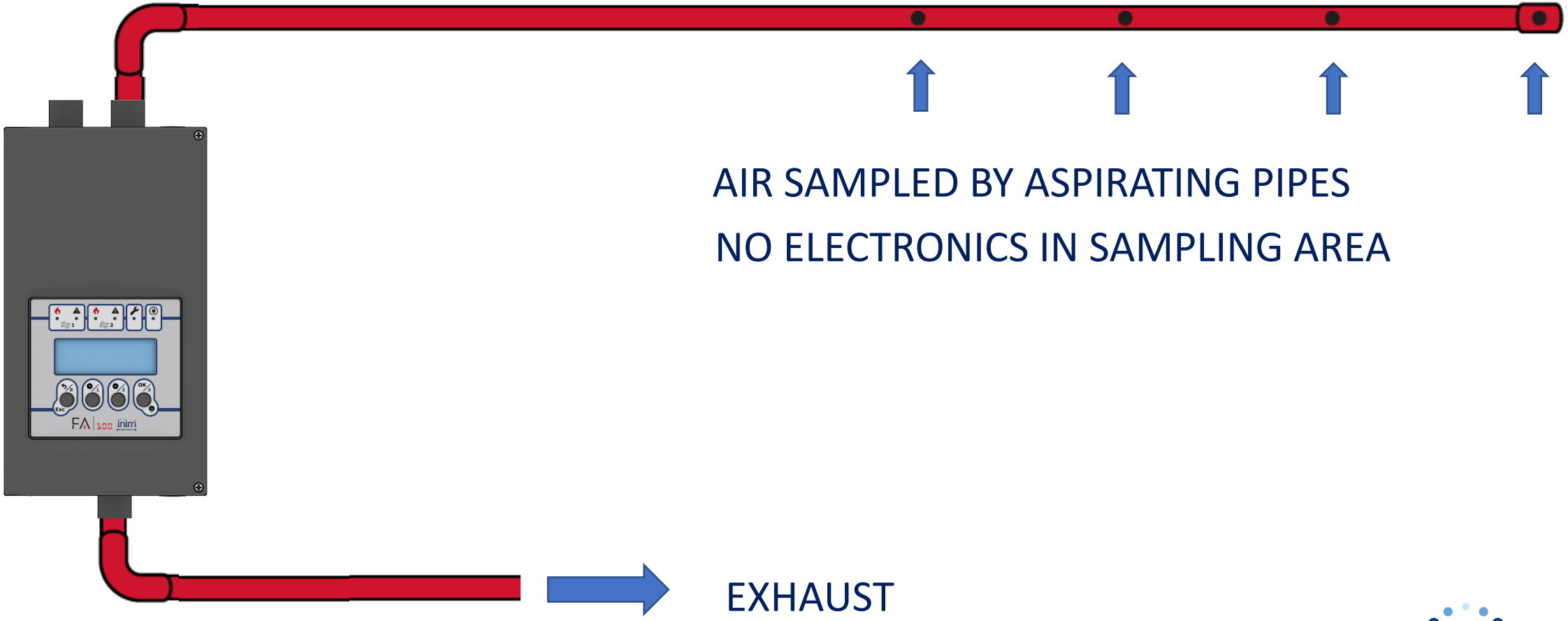
FA100 OVERVIEW

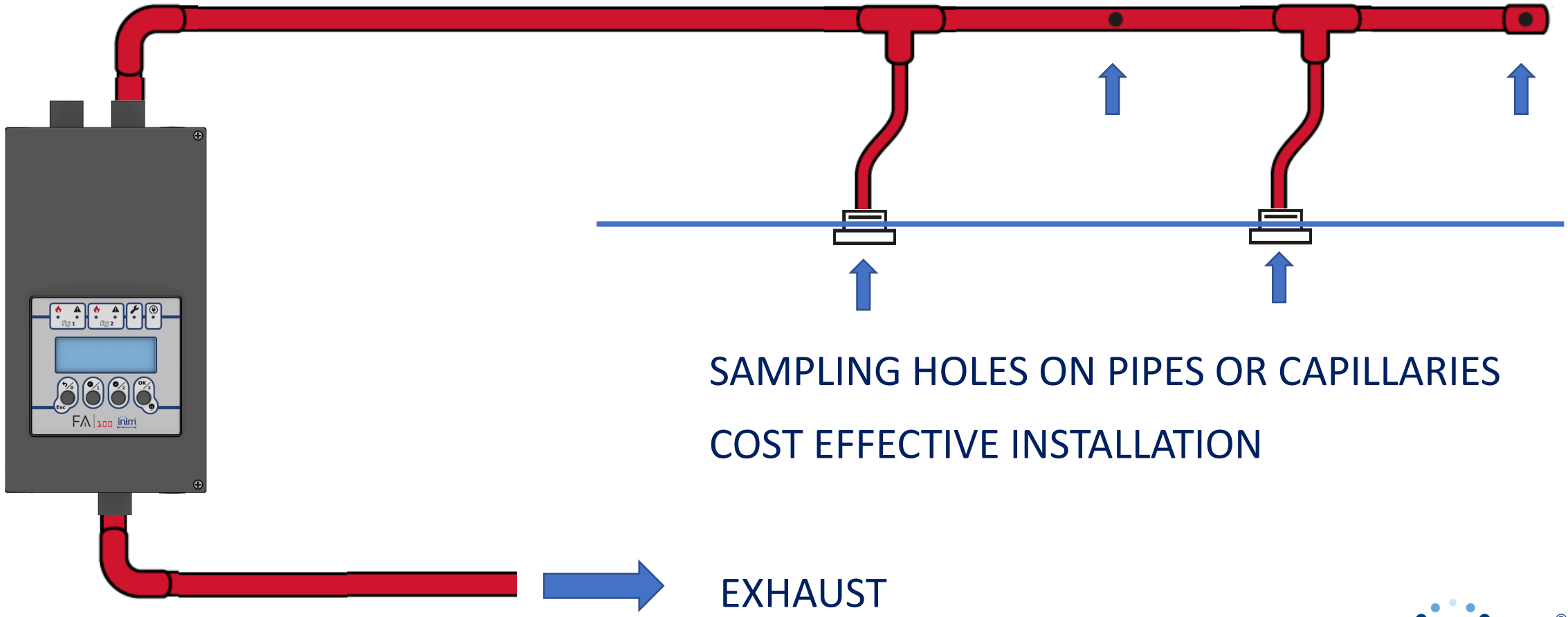
ASPIRATING SMOKE DETECTOR



FA100 OVERVIEW



FA100 OVERVIEW

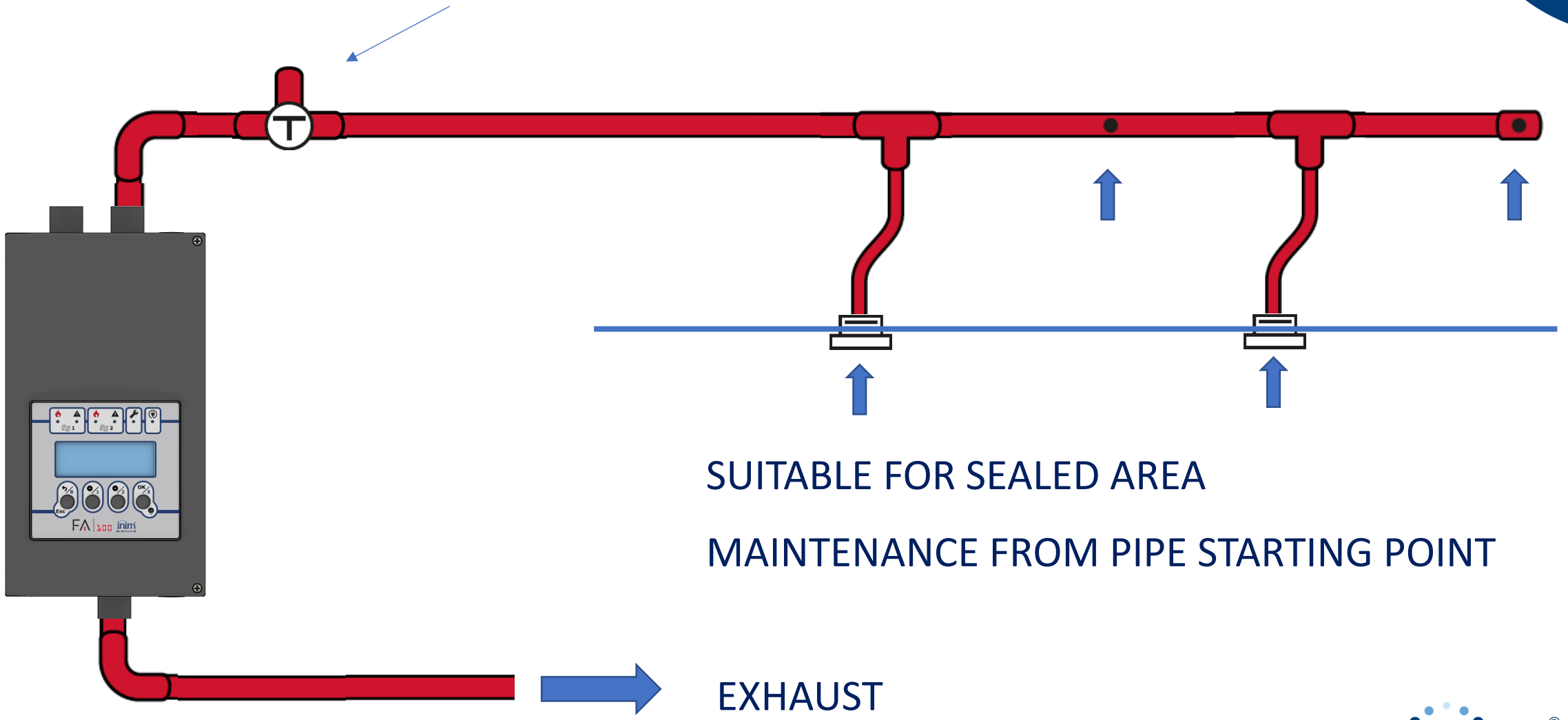


SAMPLING HOLES ON PIPES OR CAPILLARIES

COST EFFECTIVE INSTALLATION

EXHAUST

FA100 OVERVIEW



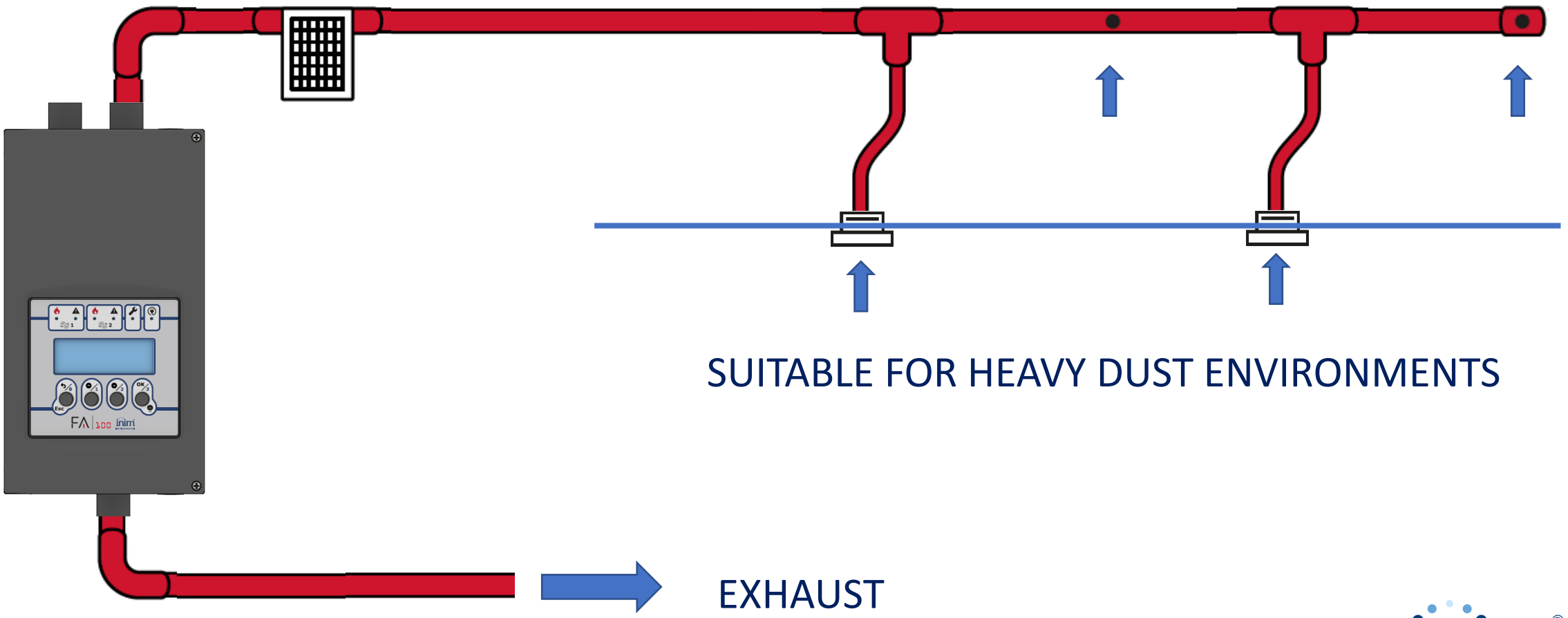
SUITABLE FOR SEALED AREA

MAINTENANCE FROM PIPE STARTING POINT

EXHAUST

FA100 OVERVIEW

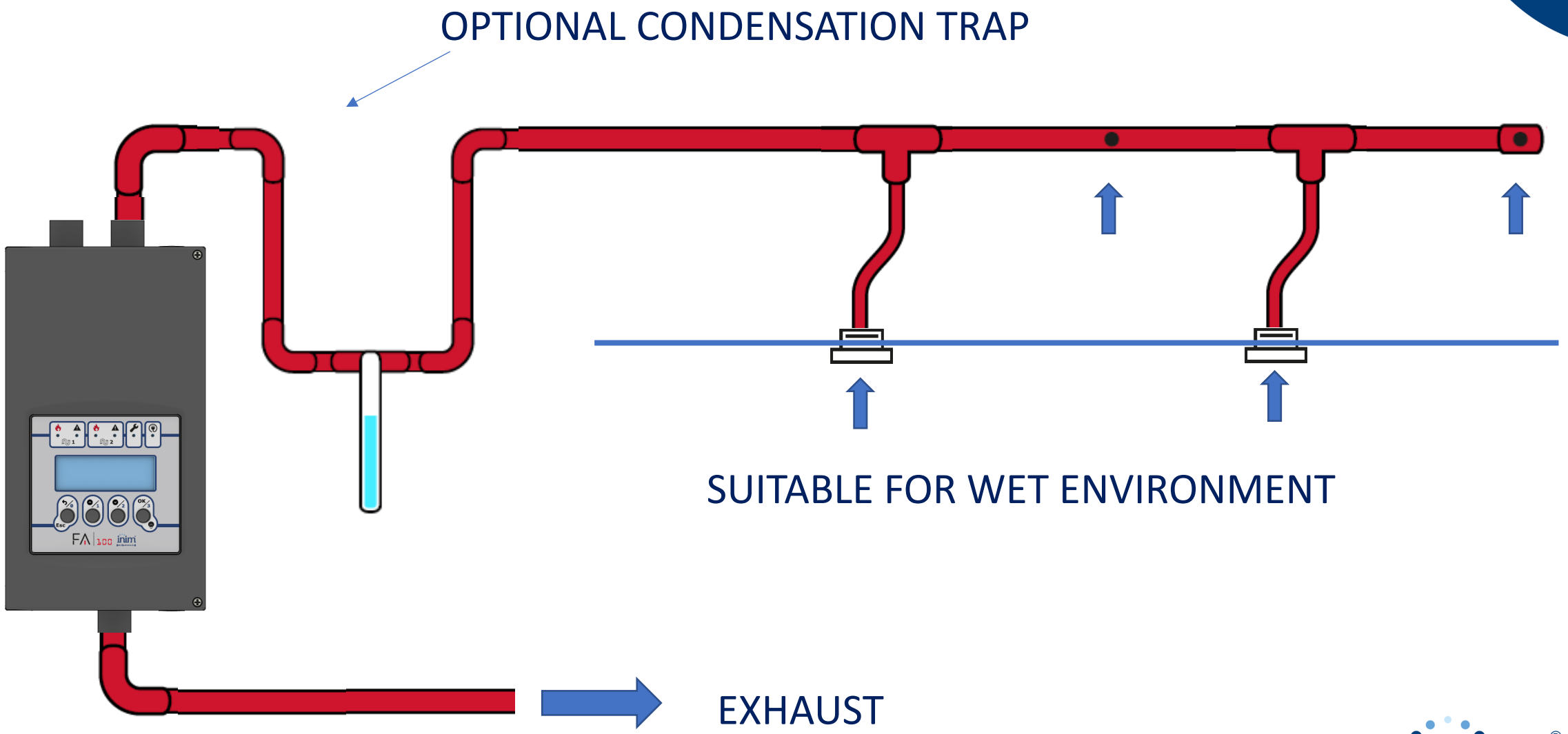
OPTIONAL FILTER WITH CARTRIDGE



SUITABLE FOR HEAVY DUST ENVIRONMENTS

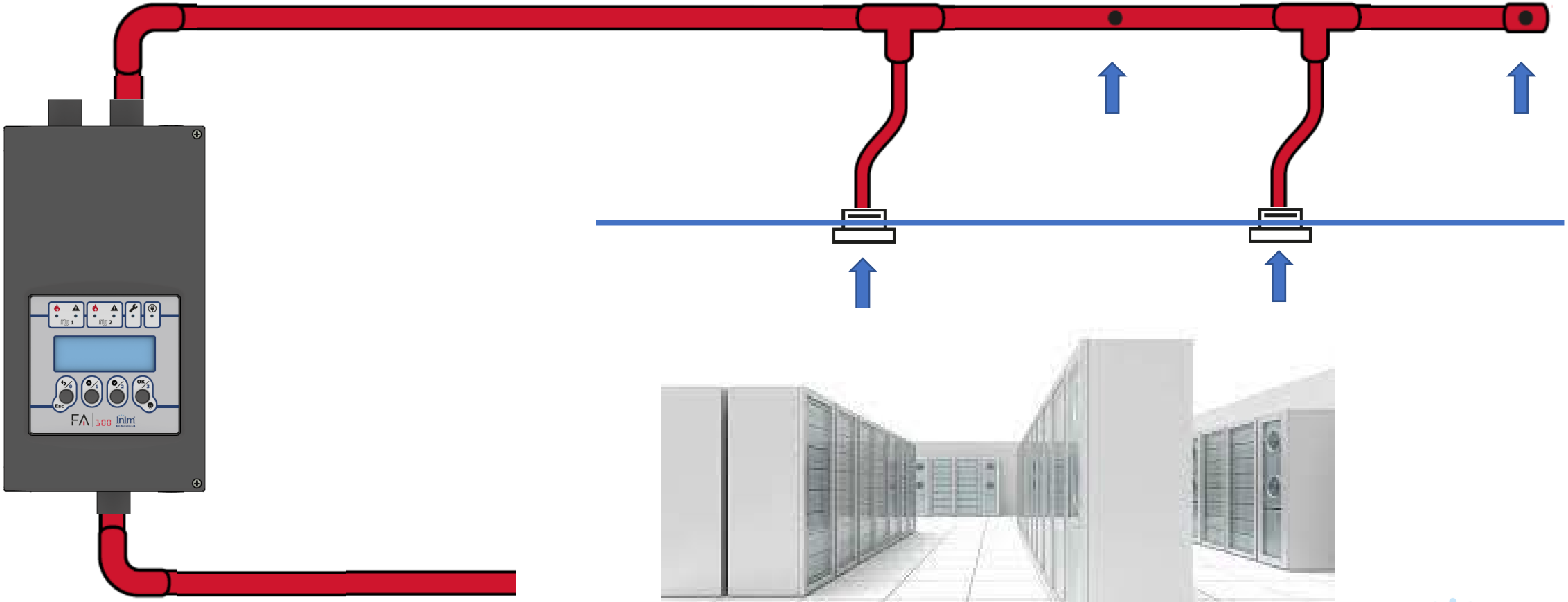
EXHAUST

FA100 OVERVIEW

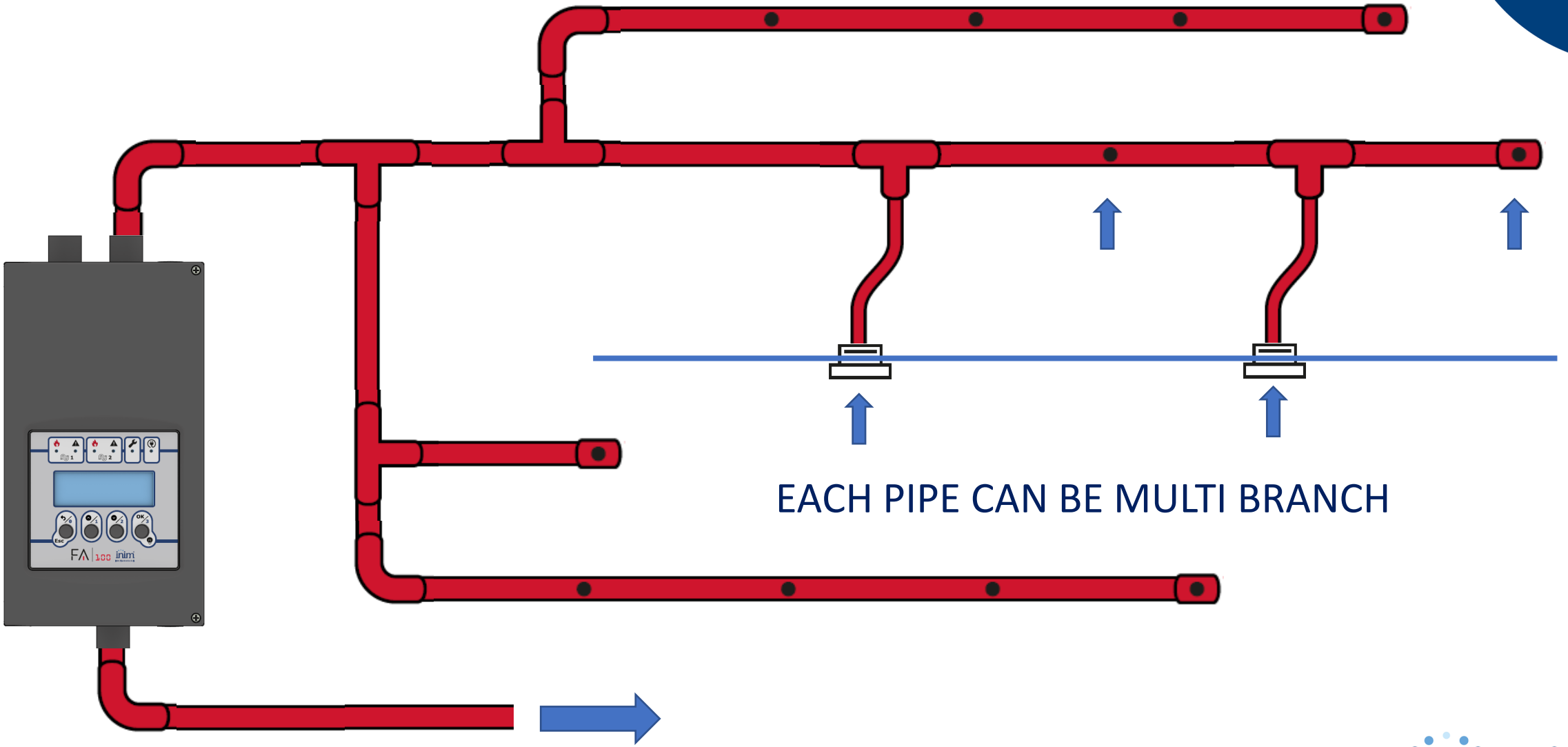


FA100 OVERVIEW

SUITABLE FOR HI VALUE ENVIRONMENT PROTECTION
THANKS TO ITS VERY HIGH SENSITIVITY



FA100 OVERVIEW

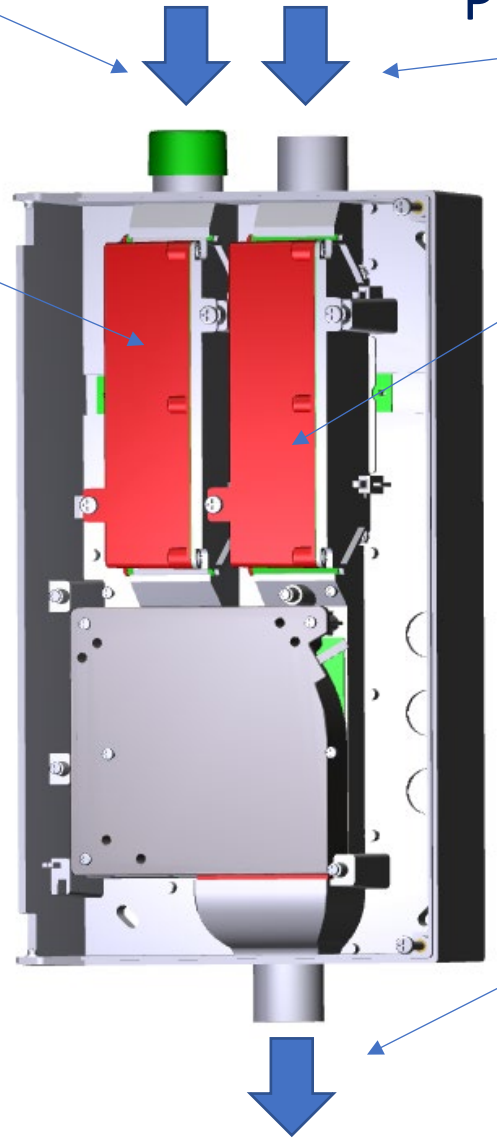


FA100 OVERVIEW

PIPE A INLET

PIPE B INLET

PIPE A DETECTOR
(DEDICATED FOR PIPE A)



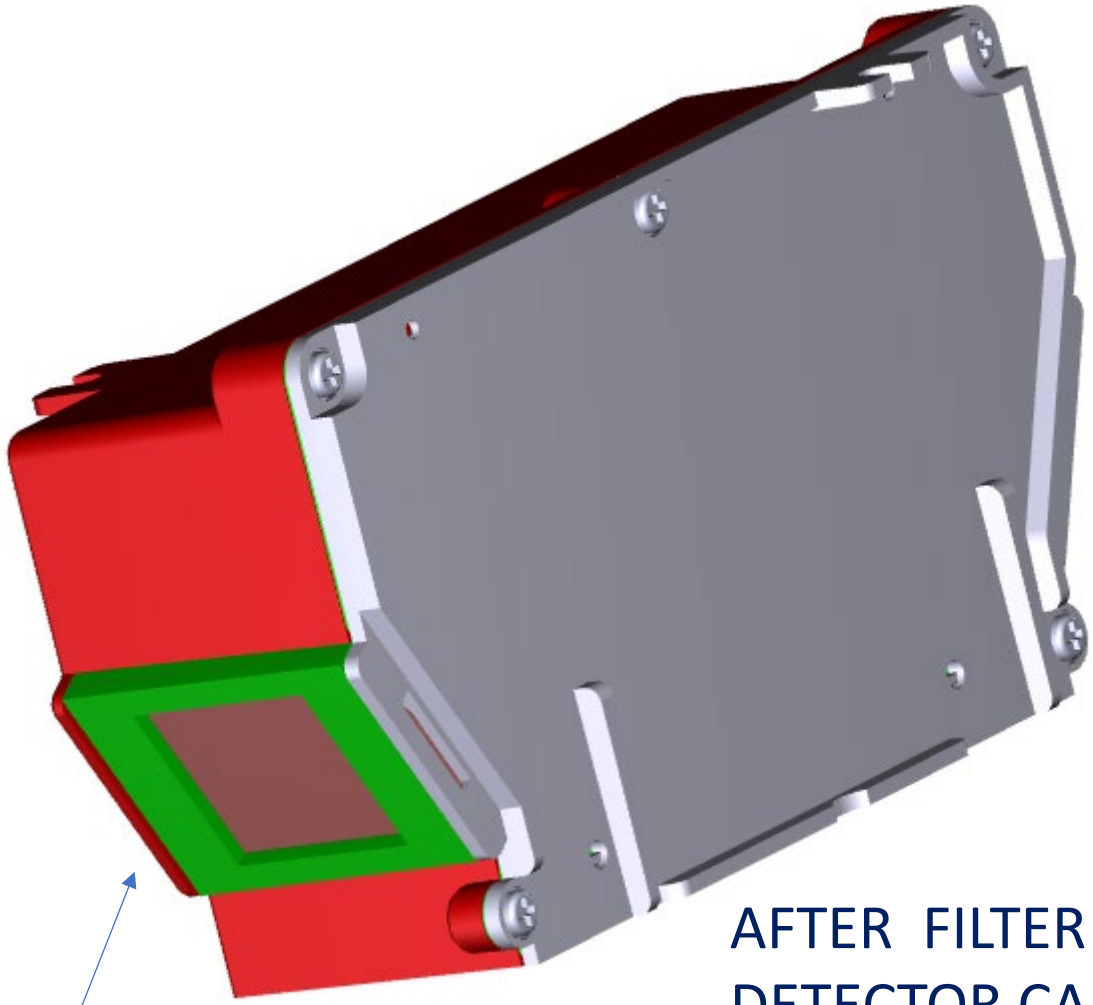
PIPE B OPTIONAL DETECTOR
(DEDICATED FOR PIPE B)

ASPIRATING FAN
(COMMON FOR PIPE A AND PIPE B)

EXHAUST
(COMMON FOR PIPE A AND PIPE B)

FA100 OVERVIEW

REPLACEABLE DETECTOR



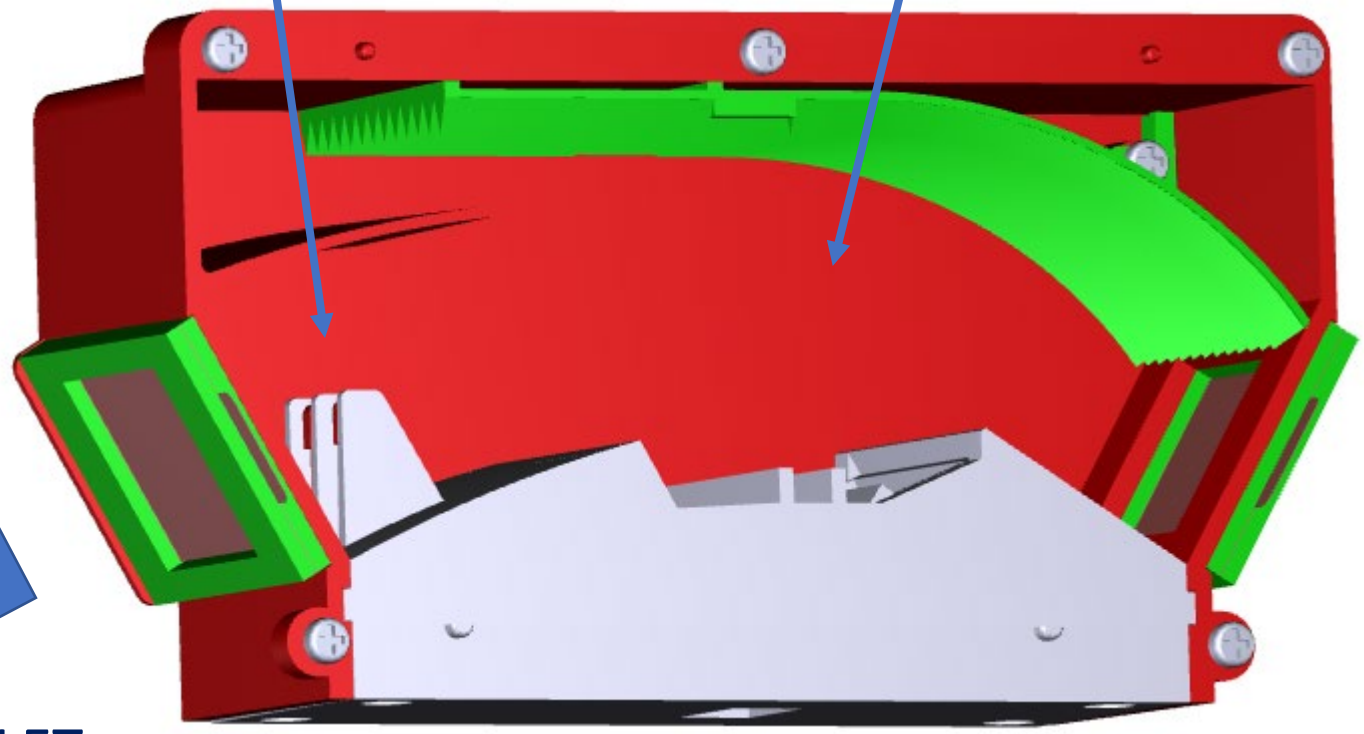
AFTER FILTER REMOVAL
DETECTOR CAN BE CLEANED
UP WITH BLOWER

MICRO-PERFORATED NET FILTER

FA100 OVERVIEW

SAMPLING CHAMBER FOR PARTICLE ANALYSIS

AIRFLOW MEASUREMENT

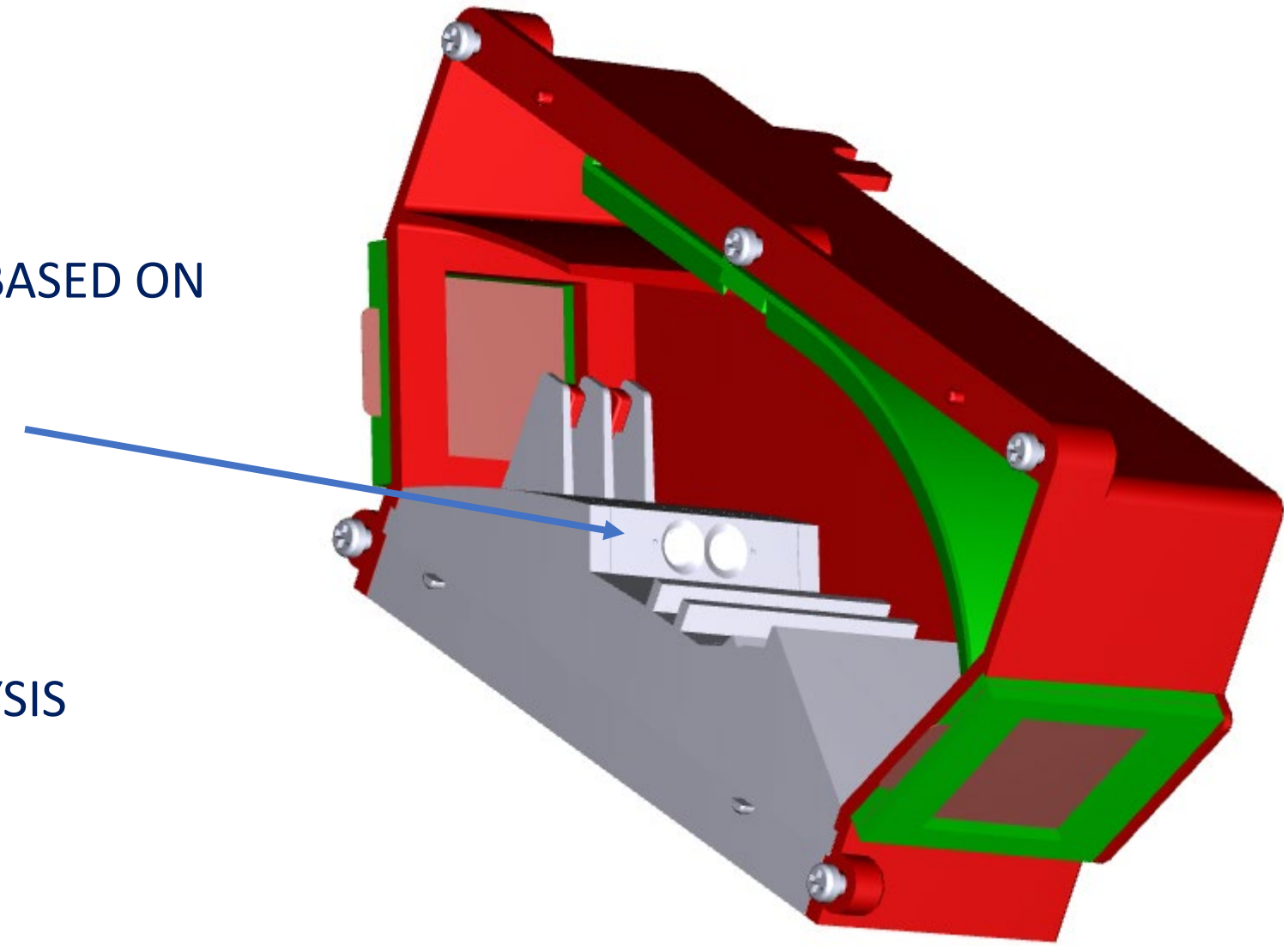


AIRFLOW OUTLET

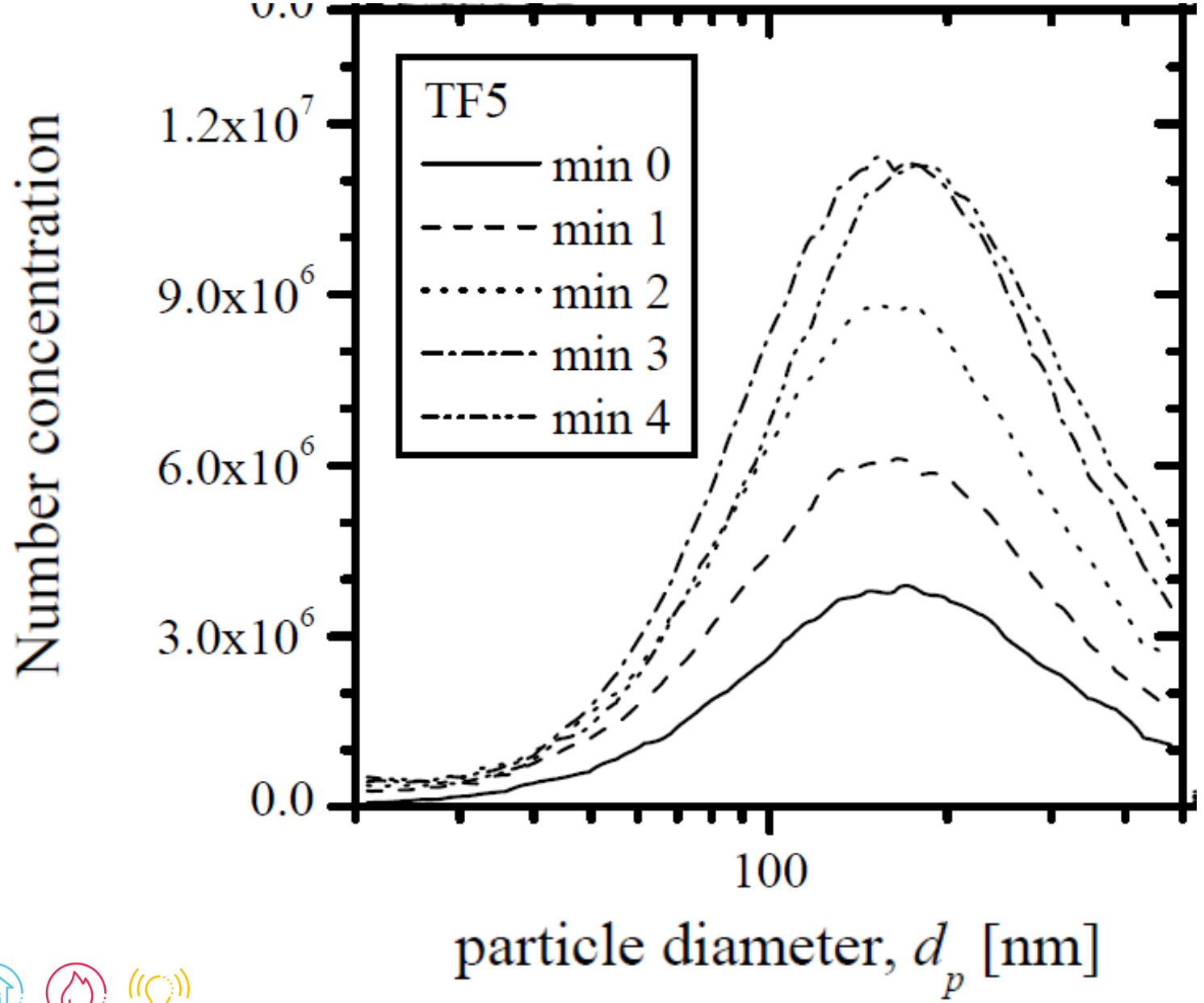
AIRFLOW INLET

FA100 OVERVIEW

PARTICLE ANALYSIS BASED ON DUAL WAVELENGTH

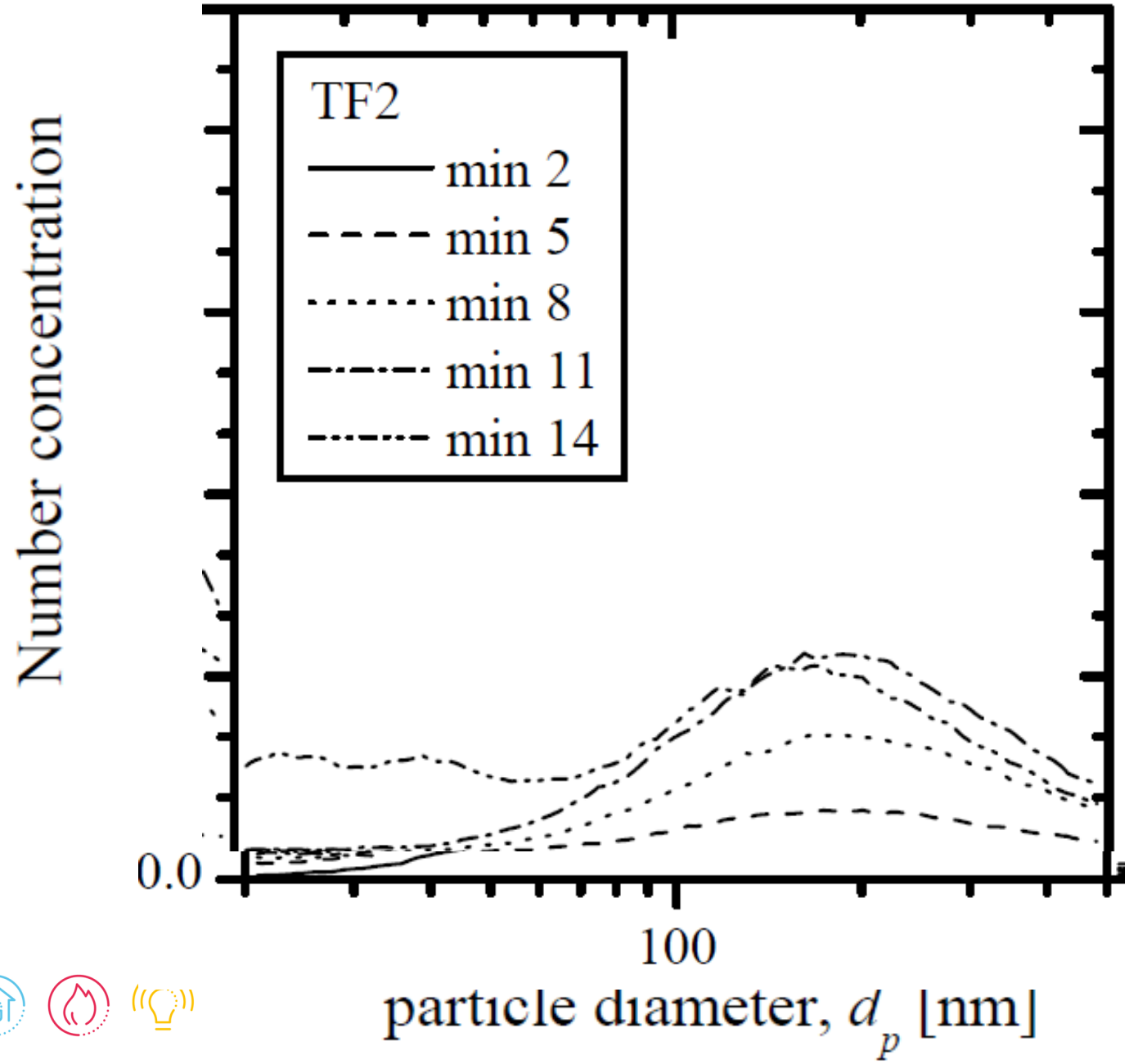


PARTICLE SIZE ANALYSIS



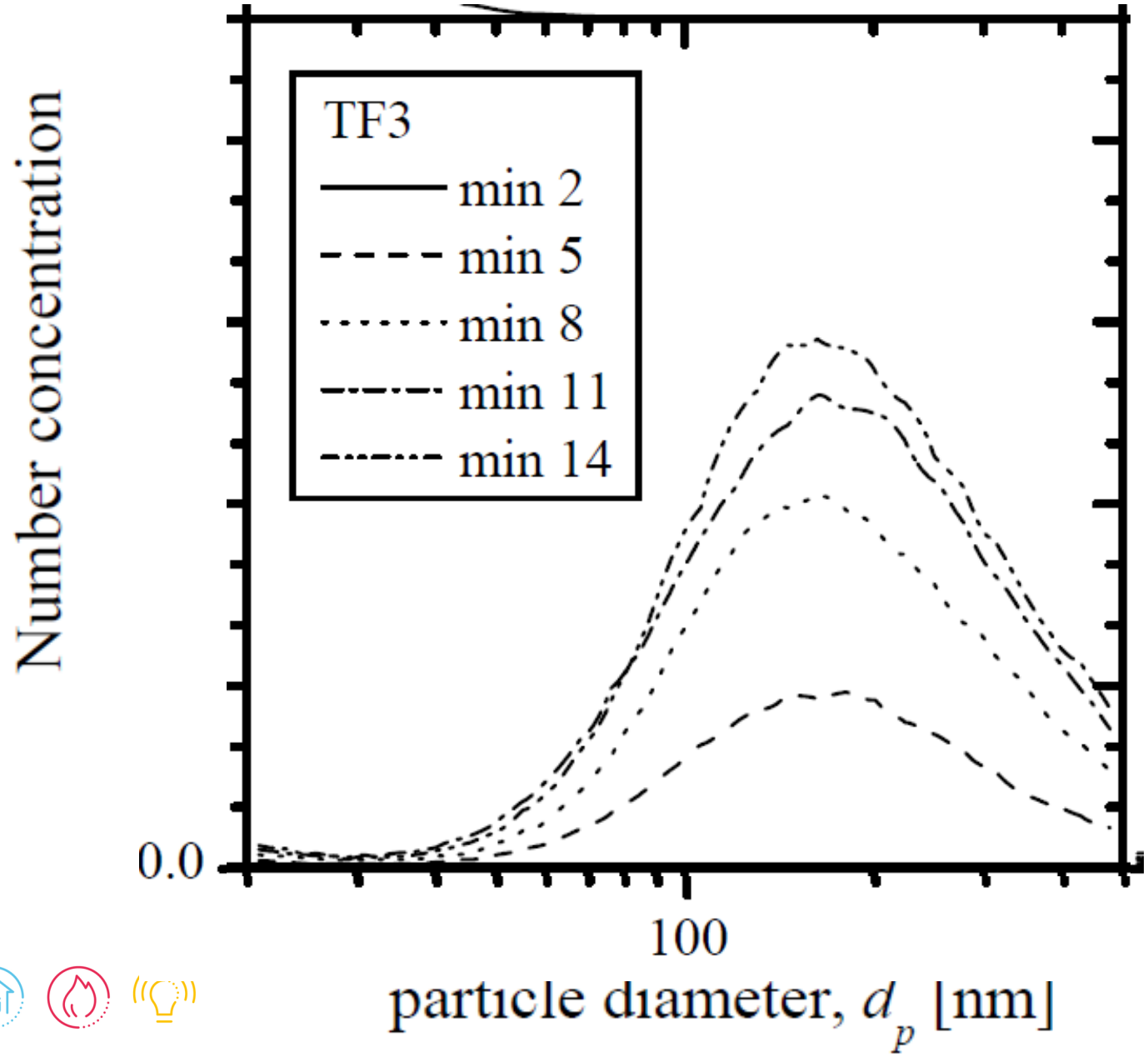
Flaming liquid (n-heptane) fire (TF5)

PARTICLE SIZE DISTRIBUTION DURING A FIRE TEST



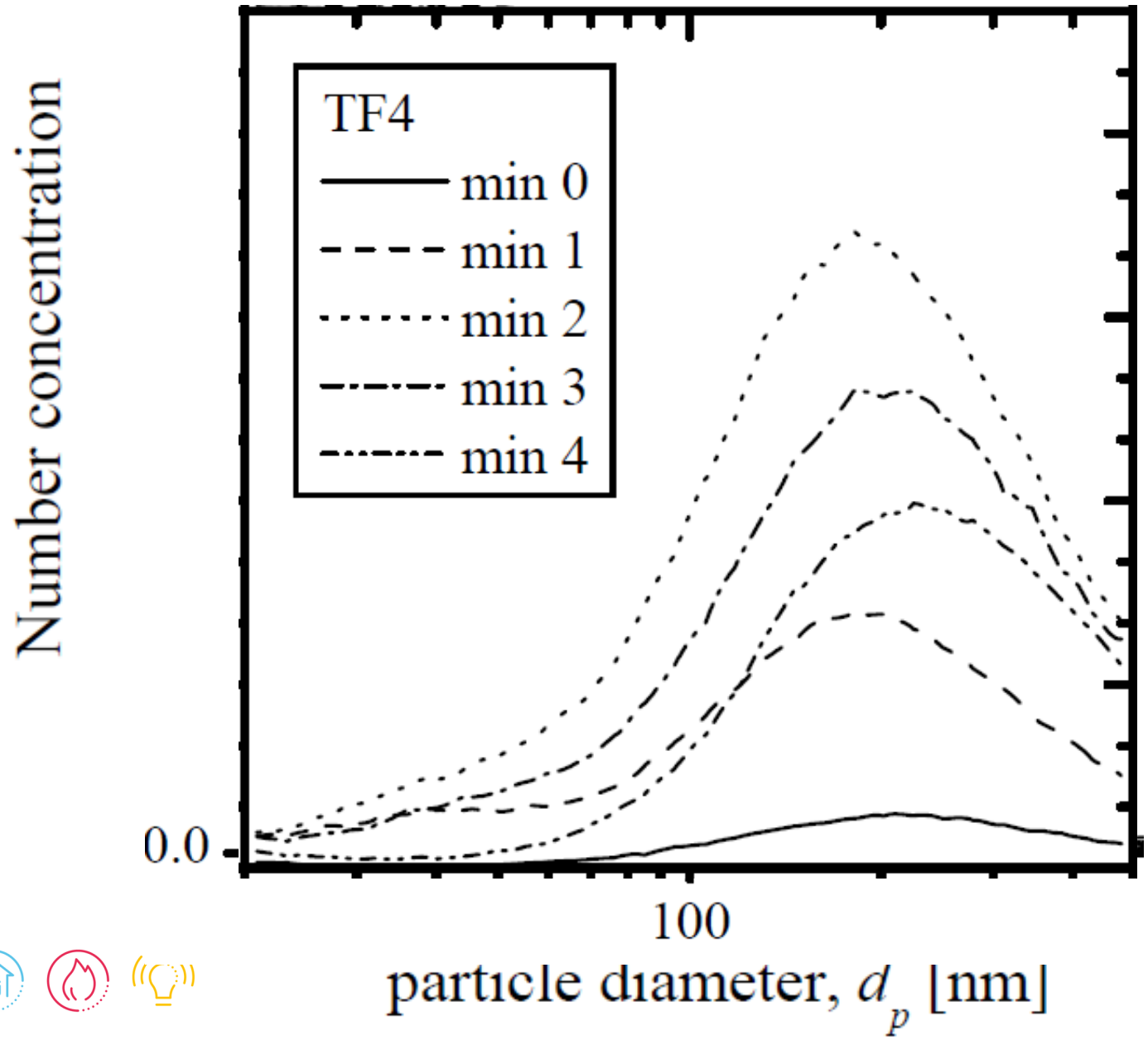
Smouldering (pyrolysis) wood fire (TF2)

PARTICLE SIZE DISTRIBUTION DURING A FIRE TEST



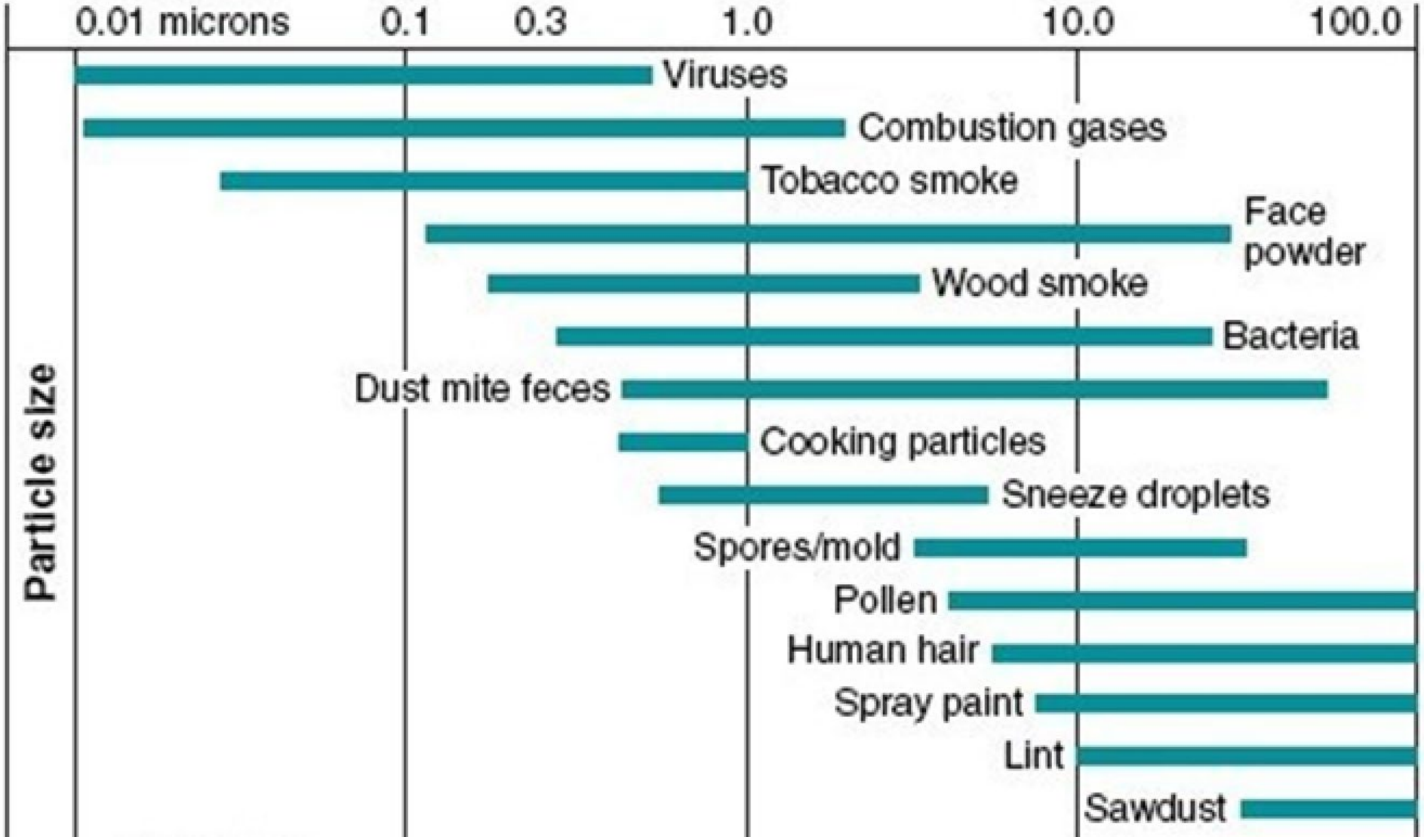
Glowing smouldering cotton fire (TF3)

PARTICLE SIZE DISTRIBUTION DURING A FIRE TEST

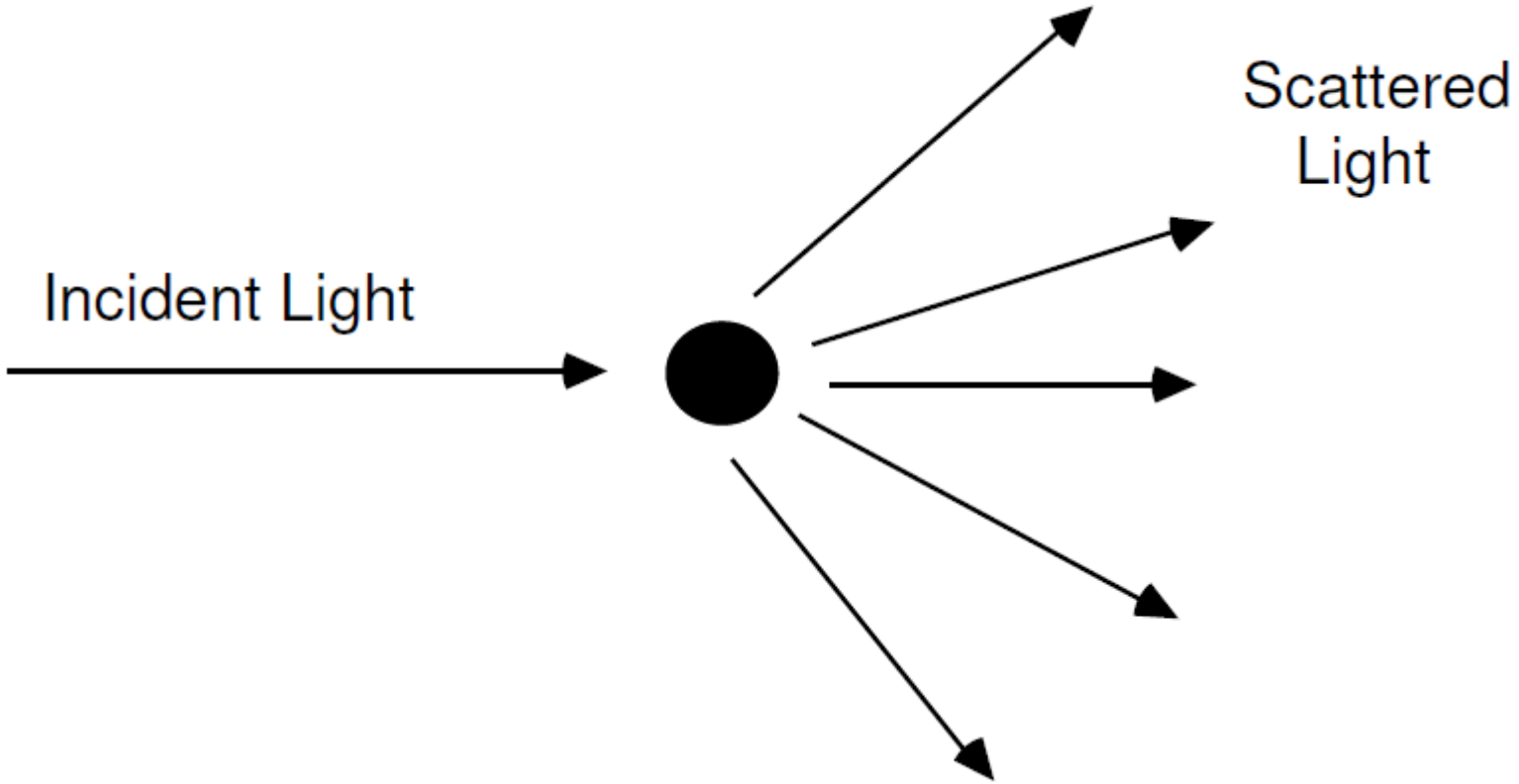


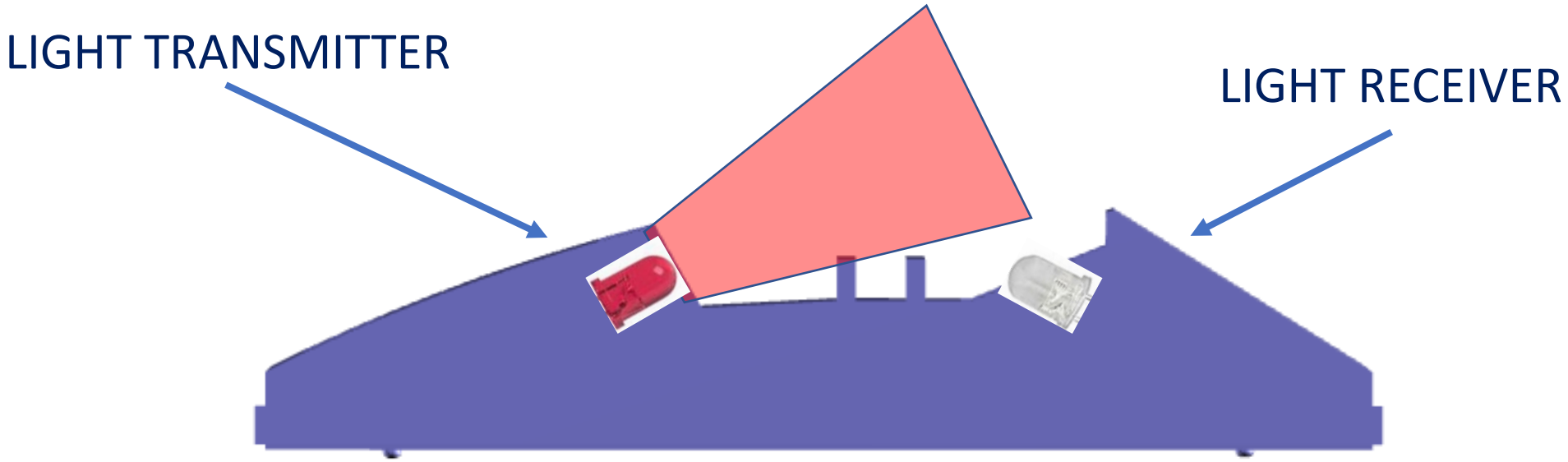
Flaming plastics (polyurethane) fire (TF4)

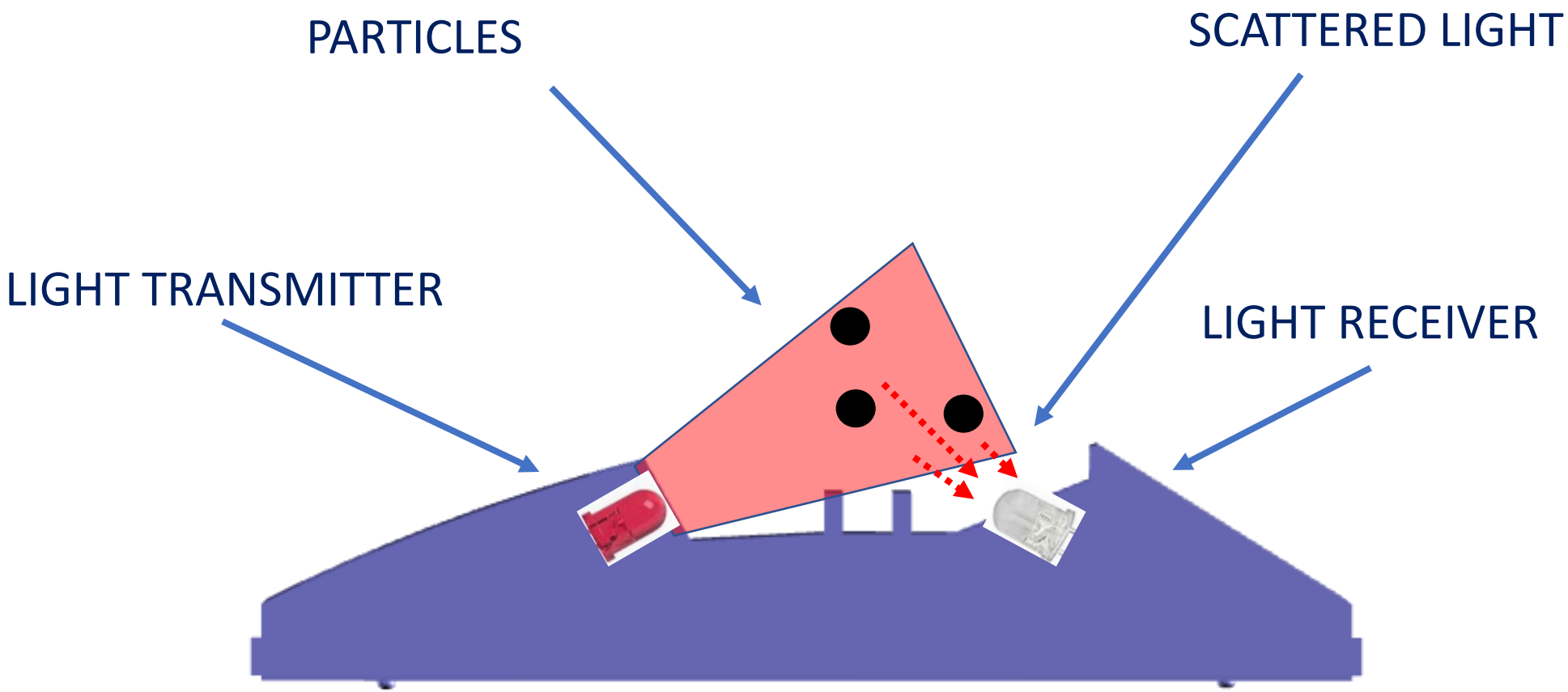
PARTICLE SIZE DISTRIBUTION DURING A FIRE TEST


0.01 microns
0.1
0.3
1.0
10.0
100.0
Particle size
Viruses
Combustion gases
Tobacco smoke
Face powder
Wood smoke
Bacteria
Dust mite feces
Cooking particles
Sneeze droplets
Spores/mold
Pollen
Human hair
Spray paint
Lint
Sawdust
REAL FIRE
FALSE ALARM

SMOKE DETECTORS ARE BASED ON SCATTERING LIGHT THEORY (THYNDALL EFFECT)




LIGHT TRANSMITTER
LIGHT RECEIVER

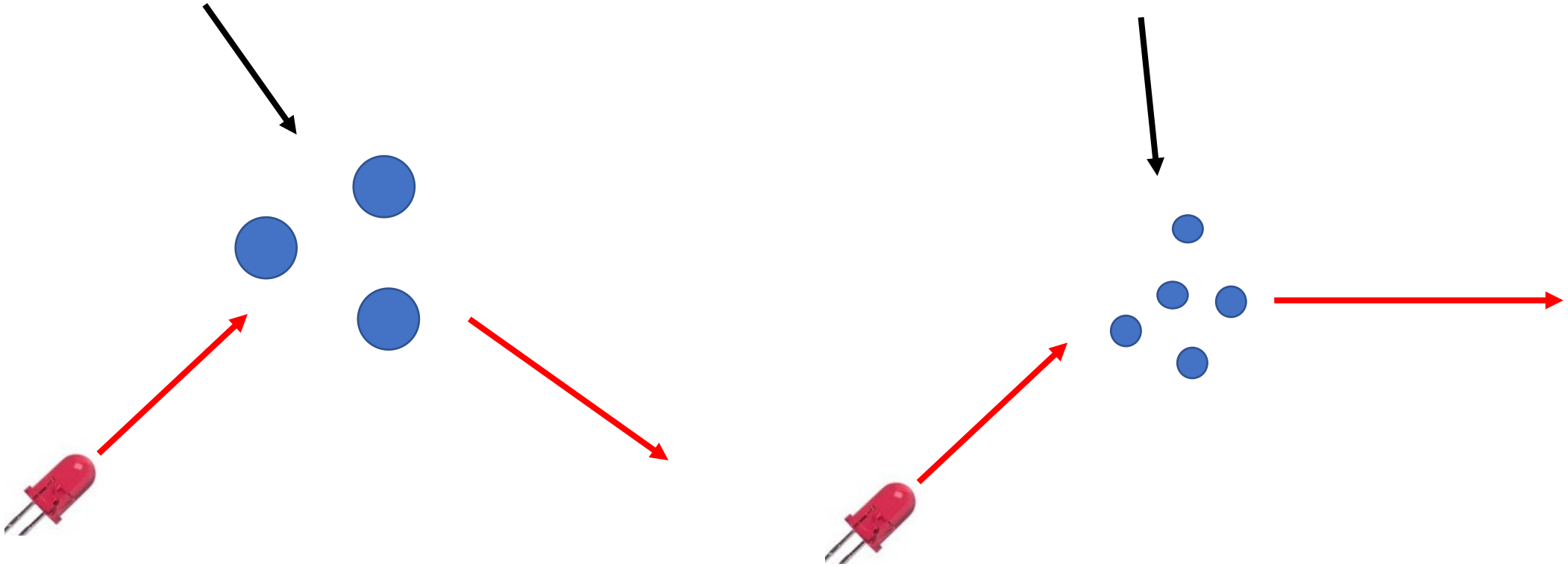

PARTICLES
SCATTERED LIGHT
LIGHT TRANSMITTER
LIGHT RECEIVER

LIGHT SCATTERING THEORY

PARTICLES SCATTERS LIGHT WITH A SPECIFIC ANGLE DEPENDING ON PARTICLE SIZE

LARGER PARTICLES

SMALLER PARTICLES

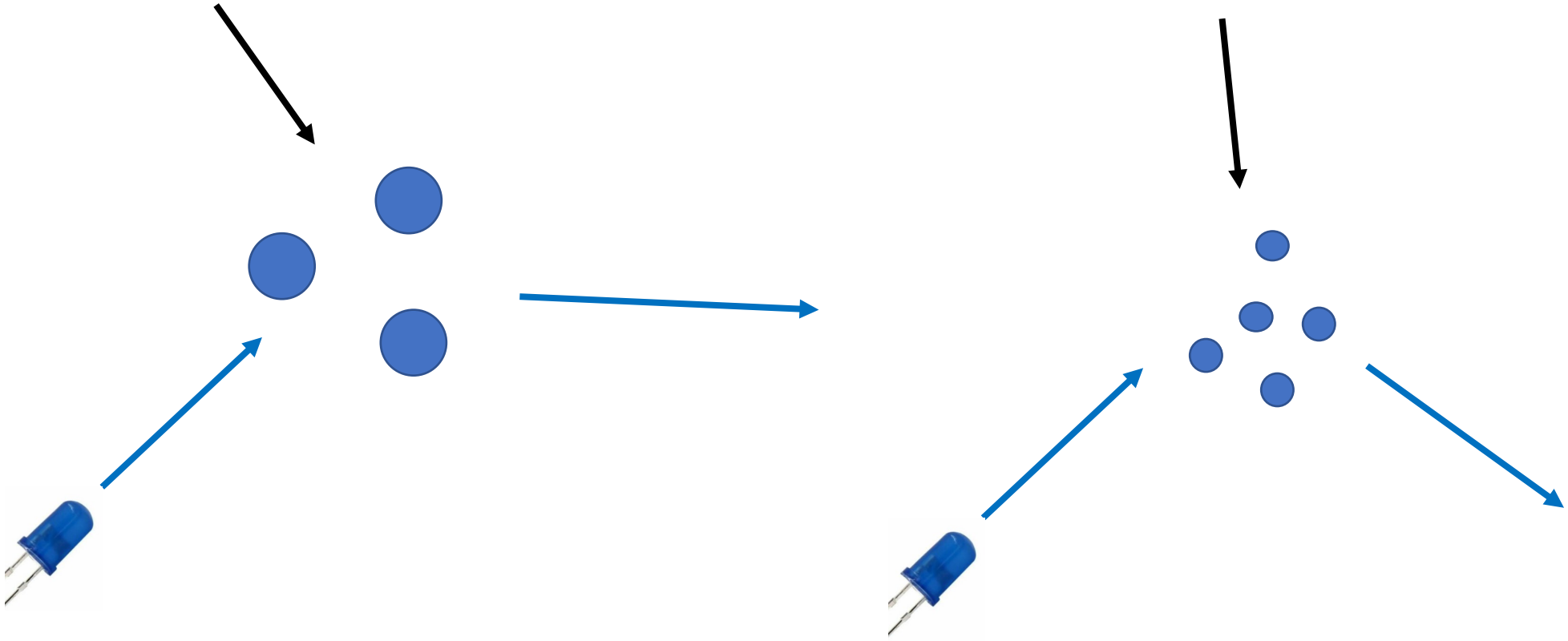


LIGHT SCATTERING THEORY

THIS ANGLE CHANGES DEPENDING ON LIGHT WAVELENGTH

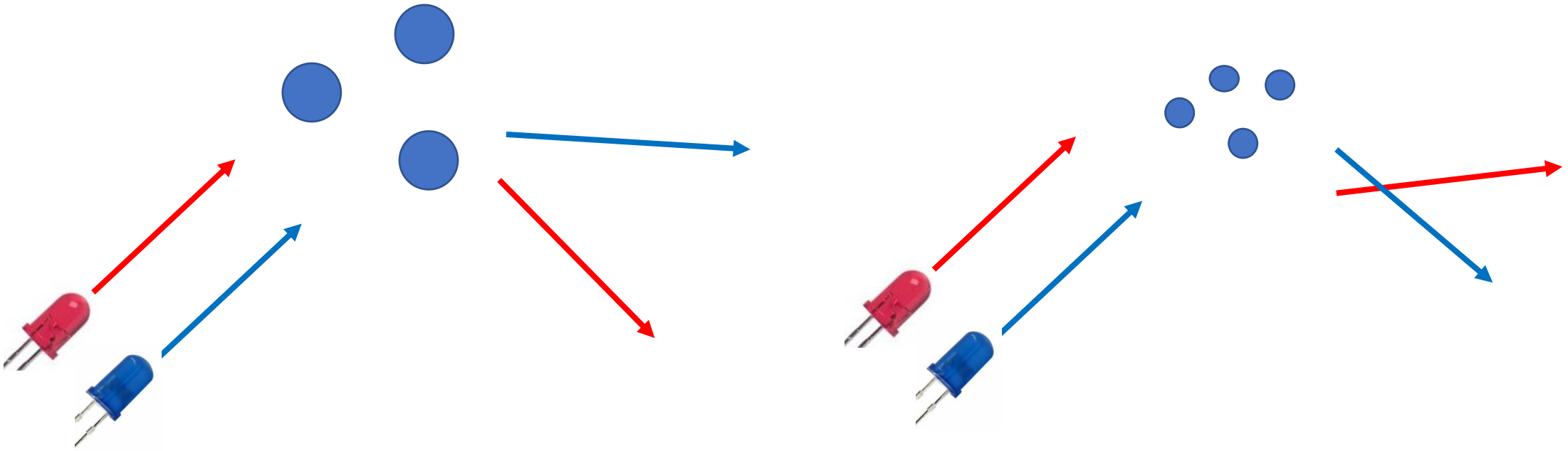
LARGER PARTICLES

SMALLER PARTICLES



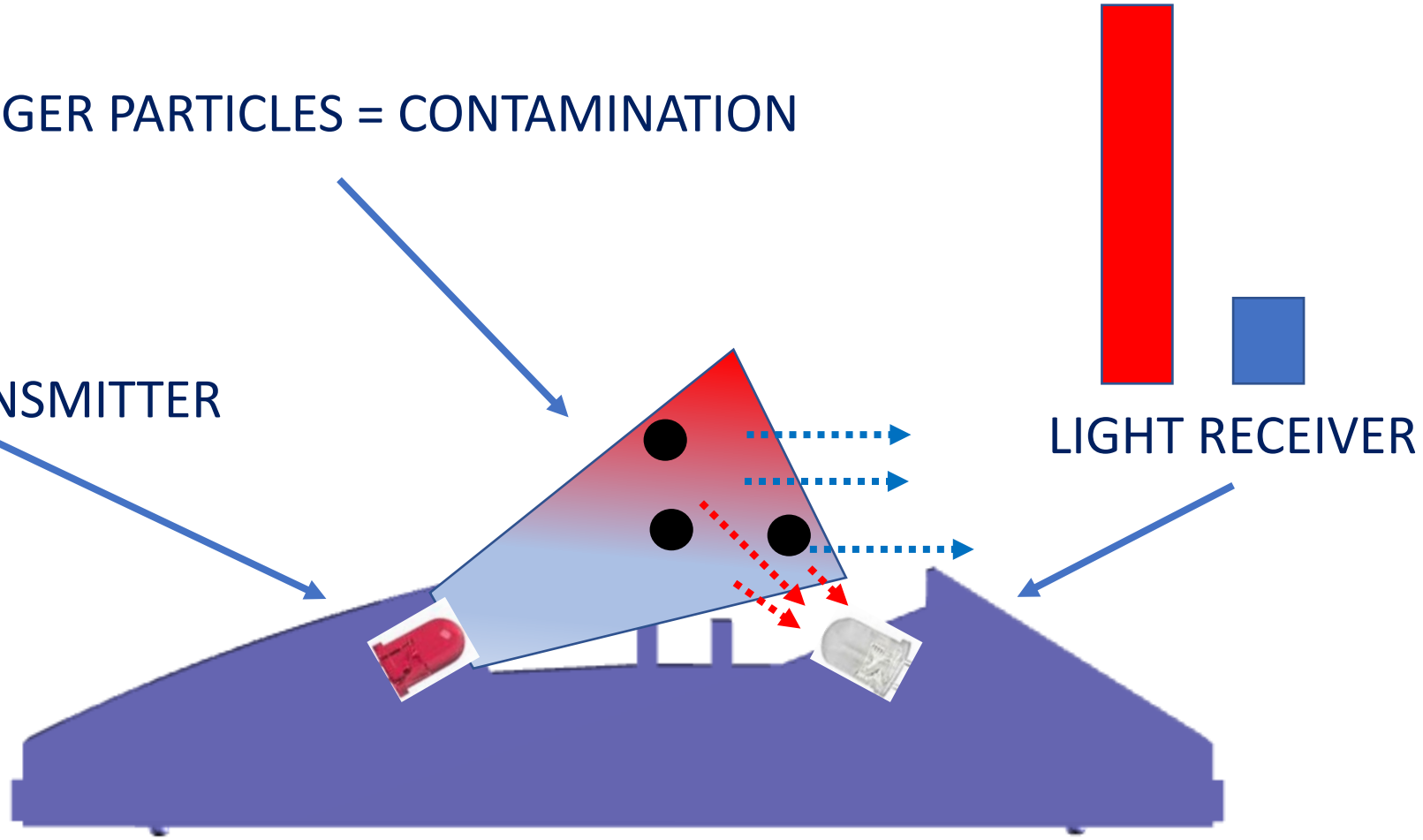
LIGHT SCATTERING THEORY

USING TWO DIFFERENT LIGHT SOURCES IT IS POSSIBLE TO DETECT THE PARTICLE SIZE



LARGER PARTICLES = CONTAMINATION

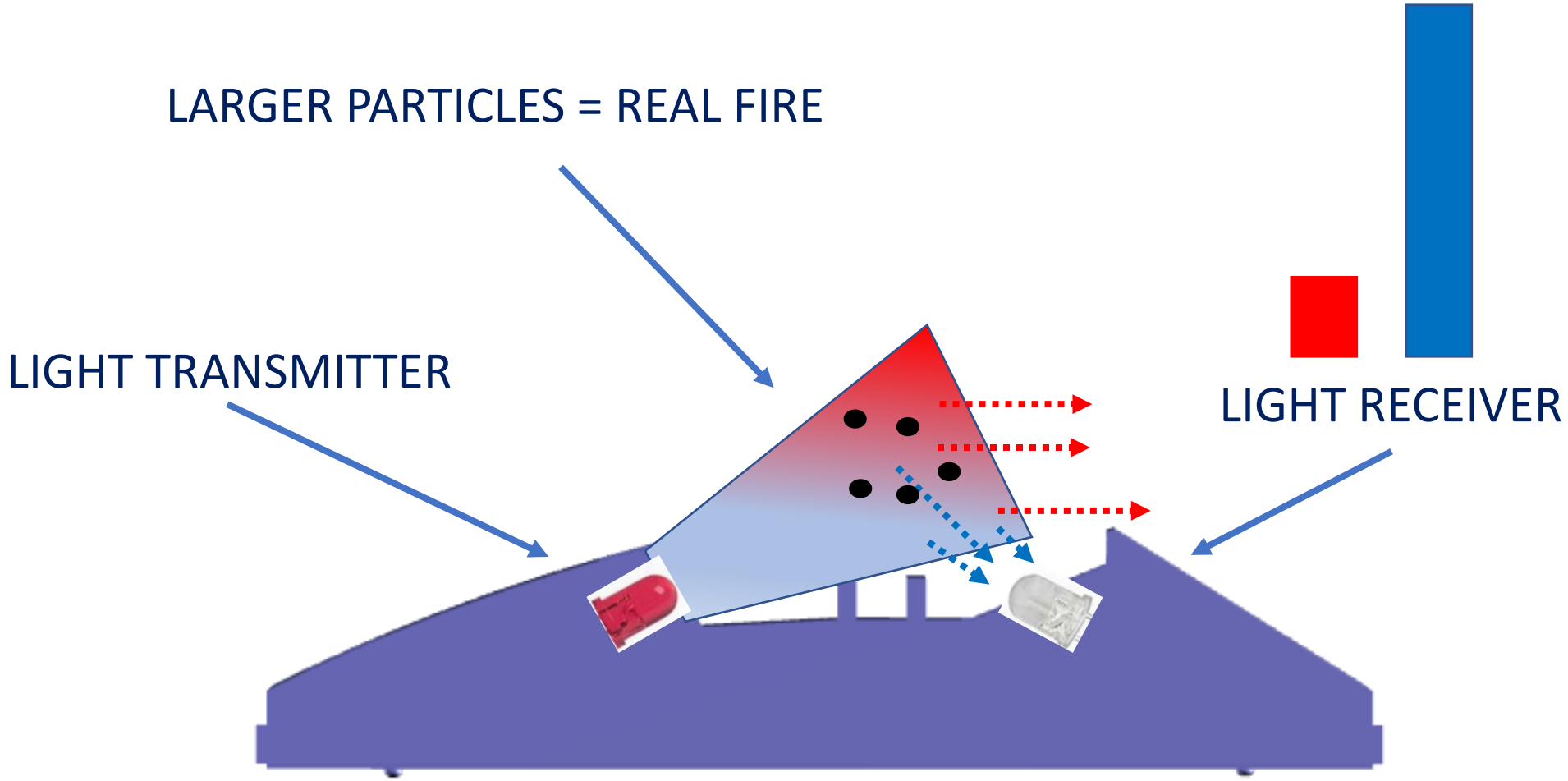
LIGHT TRANSMITTER



LIGHT RECEIVER

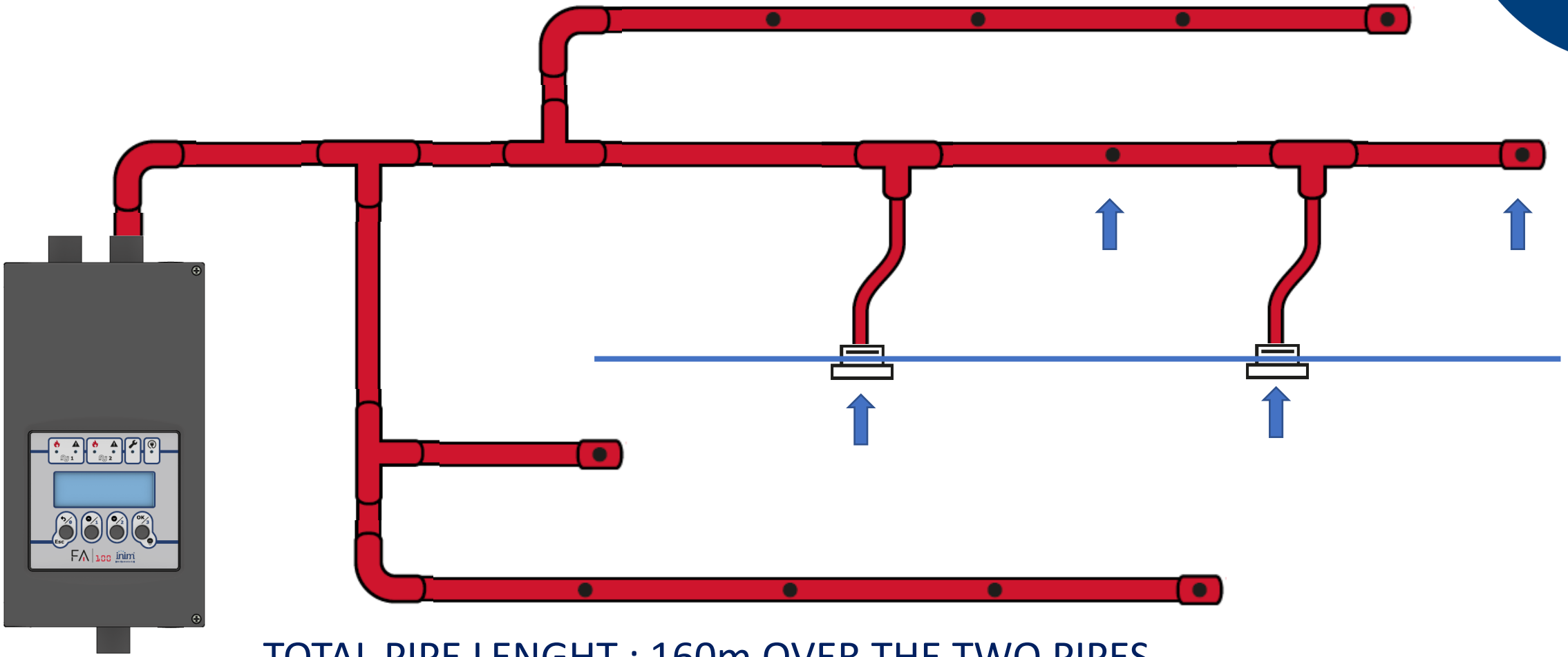
VERY SLOW REACTION

LARGER PARTICLES = REAL FIRE



VERY FAST REACTION

HOW TO DIMENSION PIPES

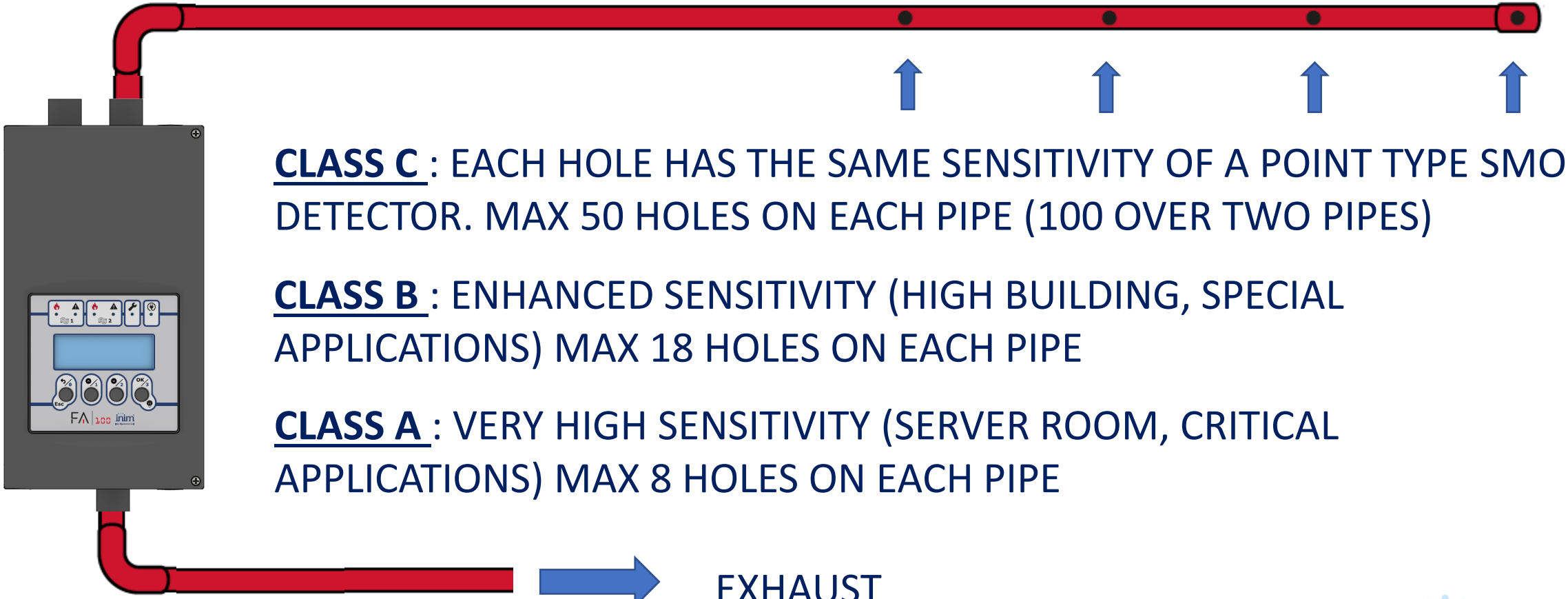


TOTAL PIPE LENGHT : 160m OVER THE TWO PIPES

MAX DISTANCE OF FARTHEST HOLE: 100m

HOW TO DIMENSION PIPES

3 SENSITIVITY LEVELS AVAILABLE :



CLASS C : EACH HOLE HAS THE SAME SENSITIVITY OF A POINT TYPE SMOKE DETECTOR. MAX 50 HOLES ON EACH PIPE (100 OVER TWO PIPES)

CLASS B : ENHANCED SENSITIVITY (HIGH BUILDING, SPECIAL APPLICATIONS) MAX 18 HOLES ON EACH PIPE

CLASS A : VERY HIGH SENSITIVITY (SERVER ROOM, CRITICAL APPLICATIONS) MAX 8 HOLES ON EACH PIPE

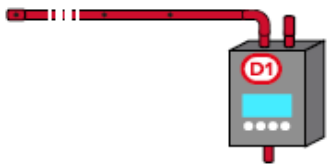
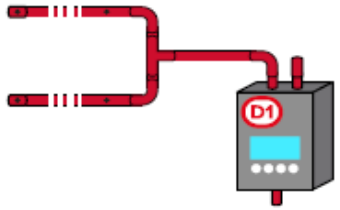
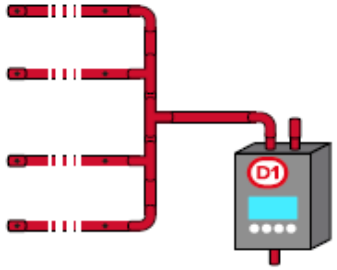
EXHAUST

WITHOUT SOFTWARE

Table	detection class	number of detectors	anti-dust filter	condensation trap
A1	A	1	No	No
A2	A	2	No	No
B1	B	1	No	No
B2	B	2	No	No
C1	C	1	No	No
C2	C	2	No	No
A1_DF	A	1	Yes	No
A2_DF	A	2	Yes	No
B1_DF	B	1	Yes	No
B2_DF	B	2	Yes	No
C1_DF	C	1	Yes	No
C2_DF	C	2	Yes	No
A1_CT	A	1	No	Yes
A2_CT	A	2	No	Yes
B1_CT	B	1	No	Yes
B2_CT	B	2	No	Yes
C1_CT	C	1	No	Yes
C2_CT	C	2	No	Yes
A1_DF_CT	A	1	Yes	Yes
A2_DF_CT	A	2	Yes	Yes
B1_DF_CT	B	1	Yes	Yes
B2_DF_CT	B	2	Yes	Yes
C1_DF_CT	C	1	Yes	Yes
C2_DF_CT	C	2	Yes	Yes

I.E. THIS

STEP 1: SELECT A TABLE ON INSTRUCTION MANUAL ACCORDING TO YOUR SCENARIO

1 ramo	2 rami	4 rami
		

Numero di rami	Lunghezza rami (m)	parametri	Numero dei fori per ogni ramo							
			1	2	3	4	5	6	7	8
1	60 ÷ 90	Ø	Ø 1: 10	Ø 1: 5 Ø 2: 10	Ø 1: 4 Ø 2: 4.5 Ø 3: 7	Ø 1: 3.5 Ø 2: 4 Ø 3: 4.5 Ø 4: 6.5	Ø 1..2: 3 Ø 3..4: 3.5 Ø 5: 4.5	Ø 1..3: 3 Ø 4..5: 3.5 Ø 6: 4.5	Ø 1..2: 3 Ø 3..4: 3.5 Ø 5..6: 4 Ø 7: 5	
		S	2500	940	659	509	399	331	311	
		V	3000	3000	3250	3750	4250	4250	4500	
		F	23.6	30	34	38.5	39.6	43.1	51	
		B	100	60	57	56	57	56	67	
		T	57	59	60	59	65	64	61	
1	30 ÷ 60	Ø	Ø 1: 10	Ø 1: 5.5 Ø 2: 10	Ø 1: 4 Ø 2: 4.5 Ø 3: 6	Ø 1..2: 4 Ø 3: 4.5 Ø 4: 6	Ø 1..3: 3.5 Ø 4: 4 Ø 5: 5	Ø 1..2: 3 Ø 3..5: 3.5 Ø 6: 4.5	Ø 1: 3 Ø 2..4: 3.5 Ø 5..6: 4 Ø 7: 4.5	Ø 1..2: 3 Ø 3..5: 3.5 Ø 6..8: 4
		S	2500	1013	707	518	399	348	313	273
		V	2000	2000	2250	2250	2500	2500	2750	3000
		F	17.1	22.2	23.9	27.7	30.7	30.3	37.1	41.4
		B	100	68	66	63	59	60	78	80
		T	47	49	53	53	51	55	53	53
1	15 ÷ 30	Ø	Ø 1: 5	Ø 1: 3.5 Ø 2: 4.5	Ø 1..2: 3.5 Ø 3: 4.5	Ø 1..3: 3 Ø 4: 4	Ø 1..4: 3 Ø 5: 4	Ø 1..5: 3 Ø 6: 4	Ø 1..6: 3 Ø 7: 3.5	Ø 1..8: 2.5
		S	2500	994	686	510	412	344	311	296
		V	1500	1500	1500	1500	1500	1500	1500	2000
		F	7.2	9.6	12.8	12.6	14.8	16.9	18.2	20.4
		B	100	66	64	58	58	58	75	87
		T	56	56	50	56	52	50	55	56
2	30 ÷ 60	Ø	Ø 1: 10	Ø 1: 4.5 Ø 2: 7	Ø 1..2: 4 Ø 3: 5.5	Ø 1: 3.5 Ø 2..3: 4 Ø 4: 4.5				
		S	1250	464	327	283				
		V	2000	2250	2500	2750				
		F	31.7	39.7	46.8	55.4				
		B	100	59	61	81				
		T	51	53	55	57				
2	15 ÷ 30	Ø	Ø 1: 5	Ø 1: 3.5 Ø 2: 4.5	Ø 1..2: 3.5 Ø 3: 4.5	Ø 1..3: 3.5 Ø 4: 4				
		S	1250	498	343	278				
		V	1500	1500	1500	1500				
		F	14.3	18.6	24.2	27.8				
		B	100	66	65	80				
		T	57	58	53	58				
4	20 ÷ 40	Ø	Ø 1: 6	Ø 1: 3.5 Ø 2: 4						
		S	625	280						
		V	1750	2500						
		F	37.4	52.1						
		B	100	81						
		T	58	58						
4	5 ÷ 20	Ø	Ø 1: 4	Ø 1: 3 Ø 2: 3.5						
		S	625	269						
		V	1500	1500						
		F	20.2	26.2						
		B	100	76						
		T	44	47						

I.E. THIS

STEP 2: CHOOSE NUMBER OF BRANCHES

I.E. THIS

Numero di rami	Lunghezza rami (m)	parametri	Numero dei fori per ogni ramo							
			1	2	3	4	5	6	7	8
1	60 ÷ 90	Ø	Ø 1: 10	Ø 1: 5 Ø 2: 10	Ø 1: 4 Ø 2: 4.5 Ø 3: 7	Ø 1: 3.5 Ø 2: 4 Ø 3: 4.5 Ø 4: 6.5	Ø 1..2: 3 Ø 3..4: 3.5 Ø 5: 4.5	Ø 1..3: 3 Ø 4..5: 3.5 Ø 6: 4.5	Ø 1..2: 3 Ø 3..4: 3.5 Ø 5..6: 4 Ø 7: 5	
		S	2500	940	659	509	399	331	311	
		V	3000	3000	3250	3750	4250	4250	4500	
		F	23.6	30	34	38.5	39.6	43.1	51	
		B	100	60	57	56	57	56	67	
		T	57	59	60	59	65	64	61	
1	30 ÷ 60	Ø	Ø 1: 10	Ø 1: 5.5 Ø 2: 10	Ø 1: 4 Ø 2: 4.5 Ø 3: 6	Ø 1..2: 4 Ø 3: 4.5 Ø 4: 6	Ø 1..3: 3.5 Ø 4: 4 Ø 5: 5	Ø 1..2: 3 Ø 3..5: 3.5 Ø 6: 4.5	Ø 1: 3 Ø 2..4: 3.5 Ø 5..6: 4 Ø 7: 4.5	Ø 1..2: 3 Ø 3..5: 3.5 Ø 6..8: 4
		S	2500	1013	707	518	399	348	313	273
		V	2000	2000	2250	2250	2500	2500	2750	3000
		F	17.1	22.2	23.9	27.7	30.7	30.3	37.1	41.4
		B	100	68	66	63	59	60	76	80
		T	47	49	53	53	51	55	53	53
1	15 ÷ 30	Ø	Ø 1: 5	Ø 1: 3.5 Ø 2: 4.5	Ø 1..2: 3.5 Ø 3: 4.5	Ø 1..3: 3 Ø 4: 4	Ø 1..4: 3 Ø 5: 4	Ø 1..5: 3 Ø 6: 4	Ø 1..6: 3 Ø 7: 3.5	Ø 1..8: 2.5
		S	2500	994	686	510	412	344	311	296
		V	1500	1500	1500	1500	1500	1500	1500	2000
		F	7.2	9.6	12.8	12.6	14.8	16.9	18.2	20.4
		B	100	66	64	58	58	58	75	87
		T	56	56	50	56	52	50	55	56

STEP 3: CHOOSE PIPE LENGHT

I.E. THIS

Numero di rami	Lunghezza rami (m)	parametri	Numero dei fori per ogni ramo							
			1	2	3	4	5	6	7	8
1	60 ÷ 90	Ø	Ø 1: 10	Ø 1: 5 Ø 2: 10	Ø 1: 4 Ø 2: 4.5 Ø 3: 7	Ø 1: 3.5 Ø 2: 4 Ø 3: 4.5 Ø 4: 6.5	Ø 1..2: 3 Ø 3..4: 3.5 Ø 5: 4.5	Ø 1..3: 3 Ø 4..5: 3.5 Ø 6: 4.5	Ø 1..2: 3 Ø 3..4: 3.5 Ø 5..6: 4 Ø 7: 5	
		S	2500	940	659	509	399	331	311	
		V	3000	3000	3250	3750	4250	4250	4500	
		F	23.6	30	34	38.5	39.6	43.1	51	
		B	100	60	57	56	57	56	67	
		T	57	59	60	59	65	64	61	

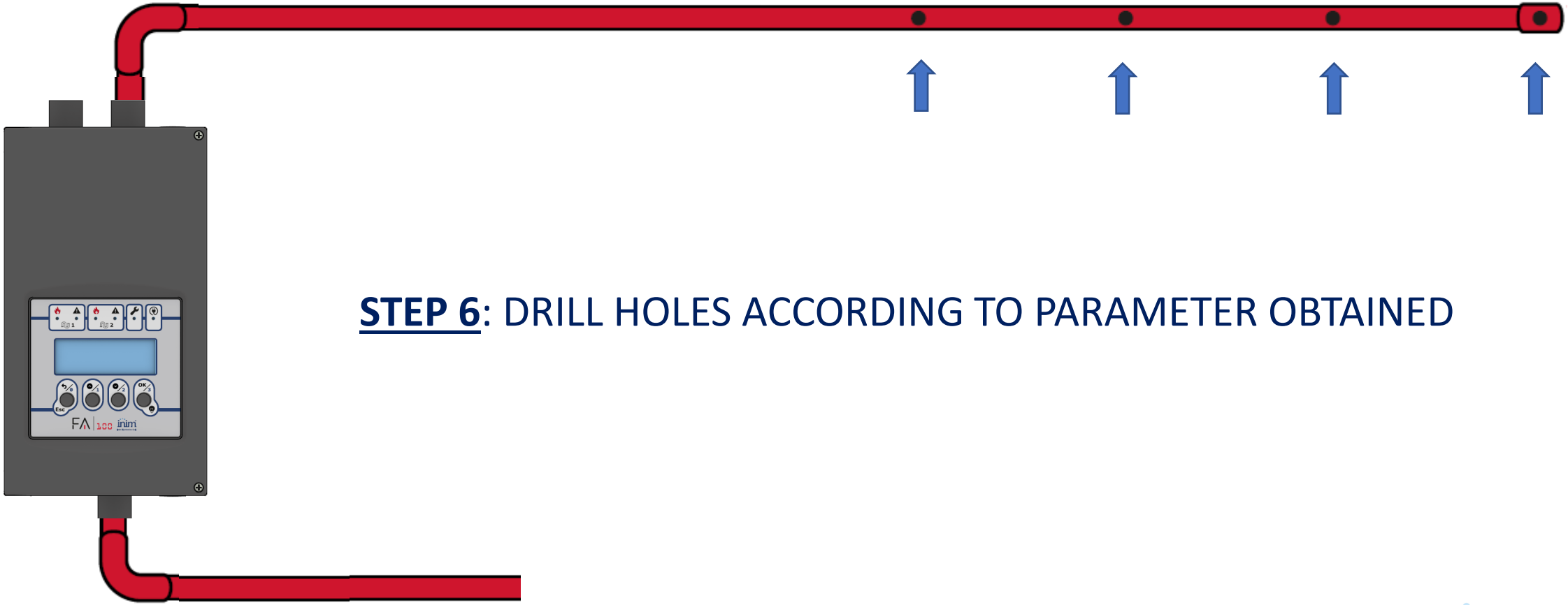
STEP 4: CHOOSE NUMBER OF HOLES

I.E. THIS

	4
Ø	Ø 1: 3.5 Ø 2: 4 Ø 3: 4.5 Ø 4: 6.5
S	509
V	3750
F	38.5
B	56
T	59

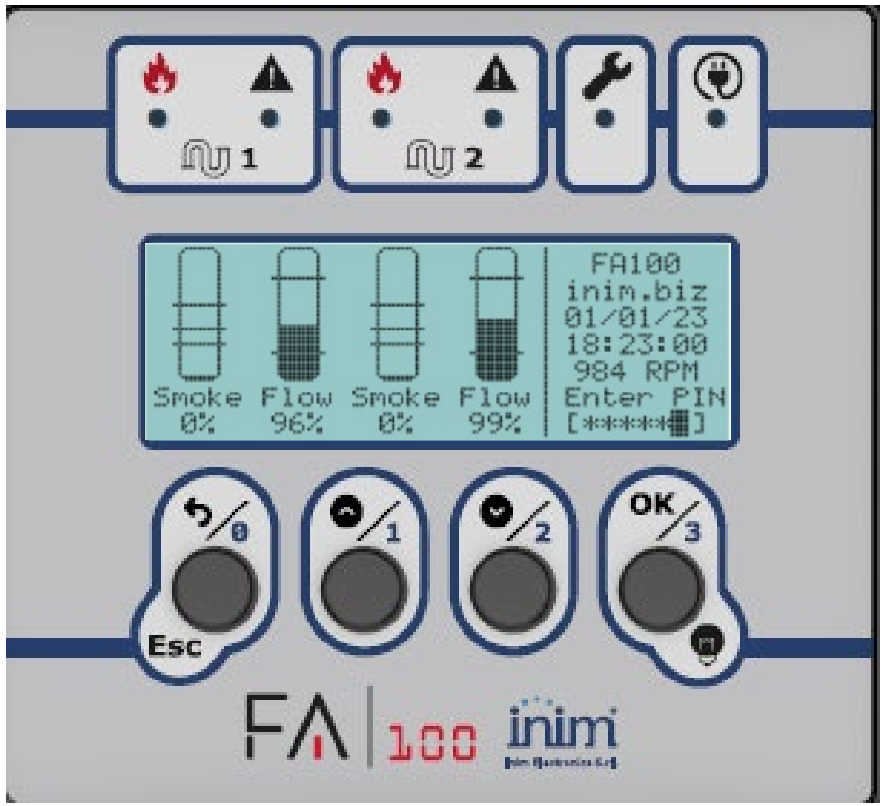
Øn	diametro del foro "n" (mm)
S	sensibilità di rilevazione
V	velocità di apirazione (RPM)
F	flusso dell'aria atteso (l/min)
B	bilanciamento dell'aria aspirata tra i fori (%)
T	tempo di transito del fumo

STEP 5: READ SUGGESTED PARAMETERS



STEP 6: DRILL HOLES ACCORDING TO PARAMETER OBTAINED

STEP 7: ON FRONT PANEL ENTER :



OBTAINED DETECTOR SENSITIVITY :
(IN OUR EXAMPLE 509)

OBTAINED FAN SPEED (IN OUR EXAMPLE 3750)

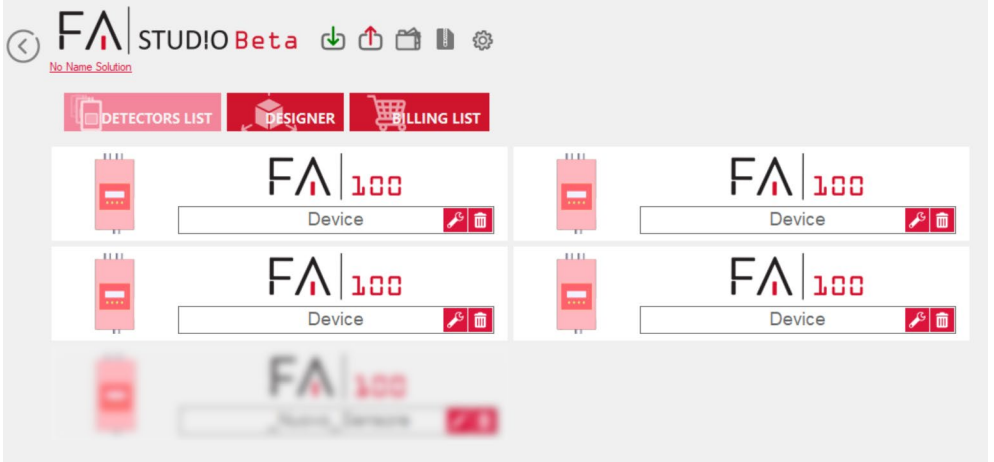
CHECK AIRFLOW MEASURED AND COMPARE WITH OBTAINED ONE (IN OUR EXAMPLE 38.5 l/m), IF IT IS TOO DIFFERENT ADJUST FAN SPEED

SET CURRENT AIRFLOW AS REFERENCE ONE, IF NECESSARY ADJUST FAULT THRESHOLD (DEFAUL SET TO +/- 20% ACCORDING TO STANDARD REQUIREMENT)

SYSTEM IS READY

SYSTEM DIMENSIONING USING FA-STUDIO

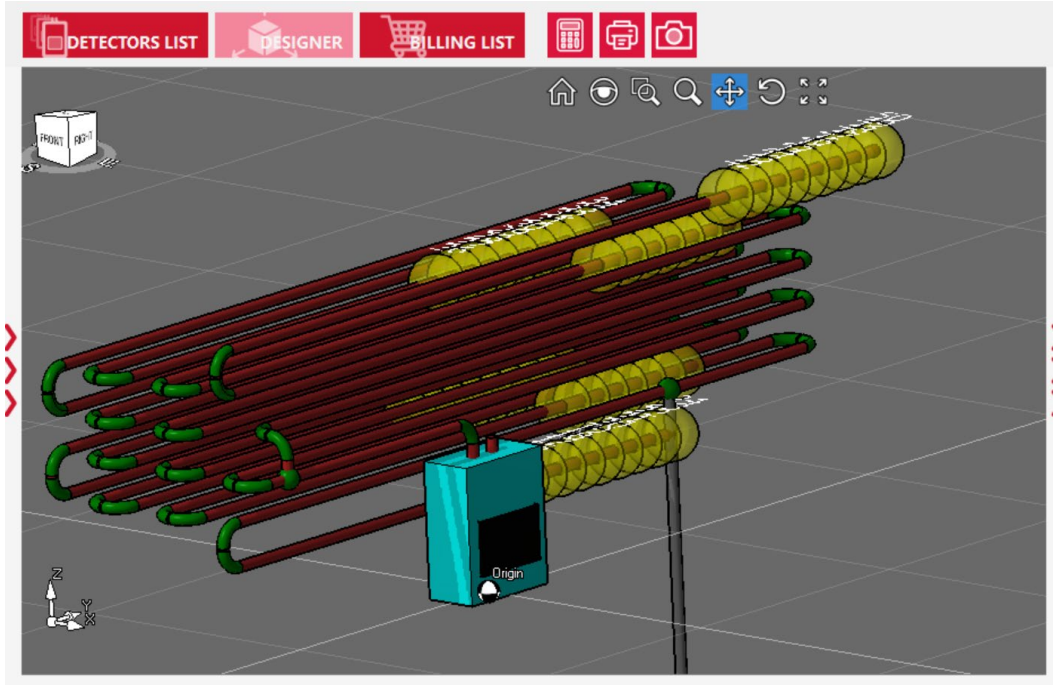
1: PLAN ALL DEVICES TO INSTALL ON SITE

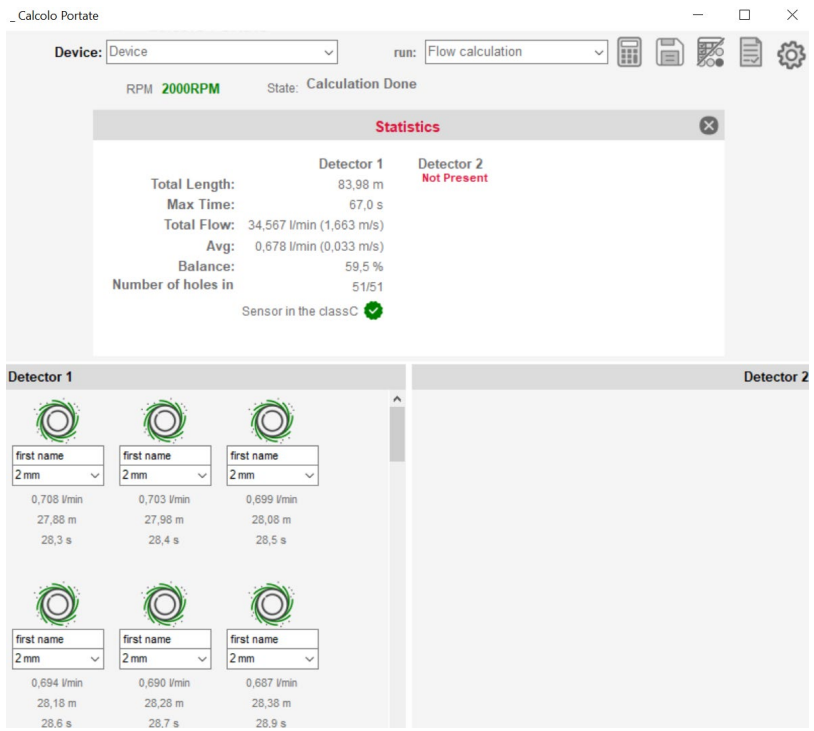


2: ENTER ALL AUTOCAD MAPS OF THE SITE

SYSTEM DIMENSIONING USING FA-STUDIO

3: DRAW YOUR PIPEWORK ON 3D CAD OVER YOUR SITE MAP

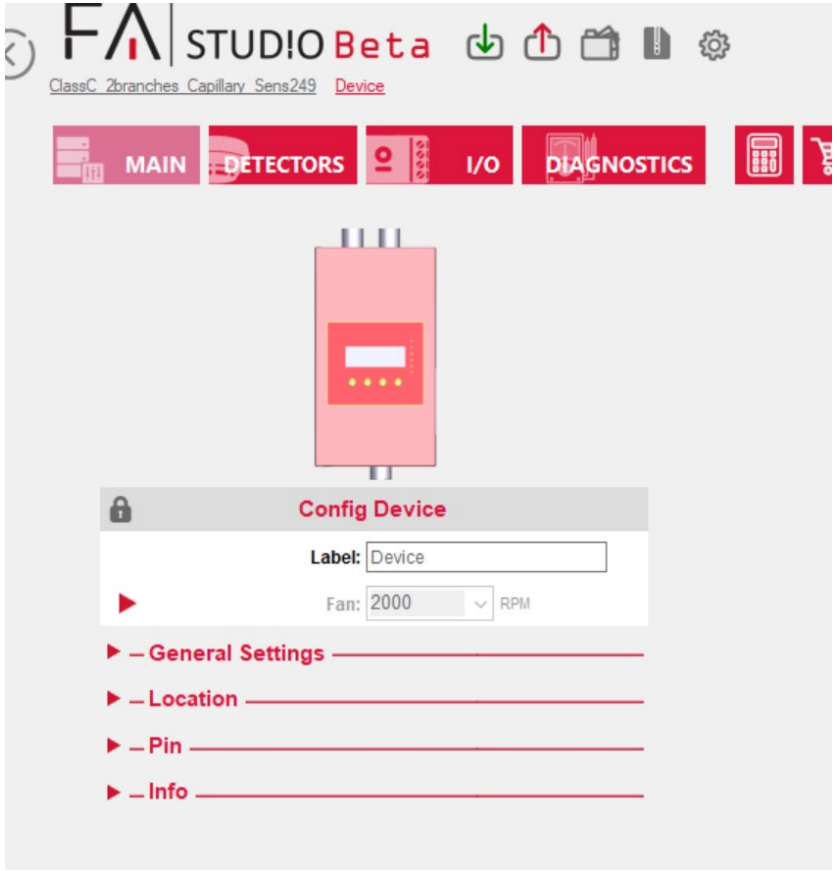




4 : LET SOFTWARE CALCULATE YOUR PIPEWORK

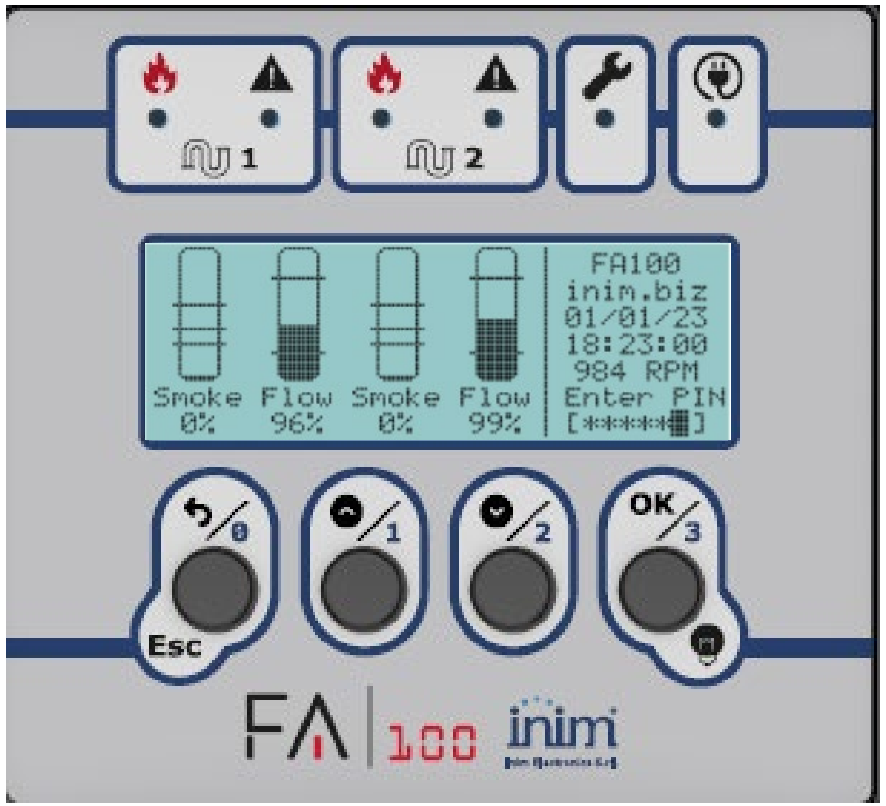
SYSTEM DIMENSIONING USING FA-STUDIO

5: DOWNLOAD CALCULATED DATA TO DEVICE



SYSTEM DIMENSIONING USING FA-STUDIO

ON FRONT PANEL CHECK :



6: CHECK AIRFLOW MEASURED AND COMPARE WITH OBTAINED ONE IN FA-STUDIO, IF IT IS TOO DIFFERENT ADJUST FAN SPEED

7: SET CURRENT AIRFLOW AS REFERENCE ONE, IF NECESSARY ADJUST FAULT THRESHOLD (DEFAUL SET TO +/- 20% ACCORDING TO STANDARD REQUIREMENT)

SYSTEM IS READY

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