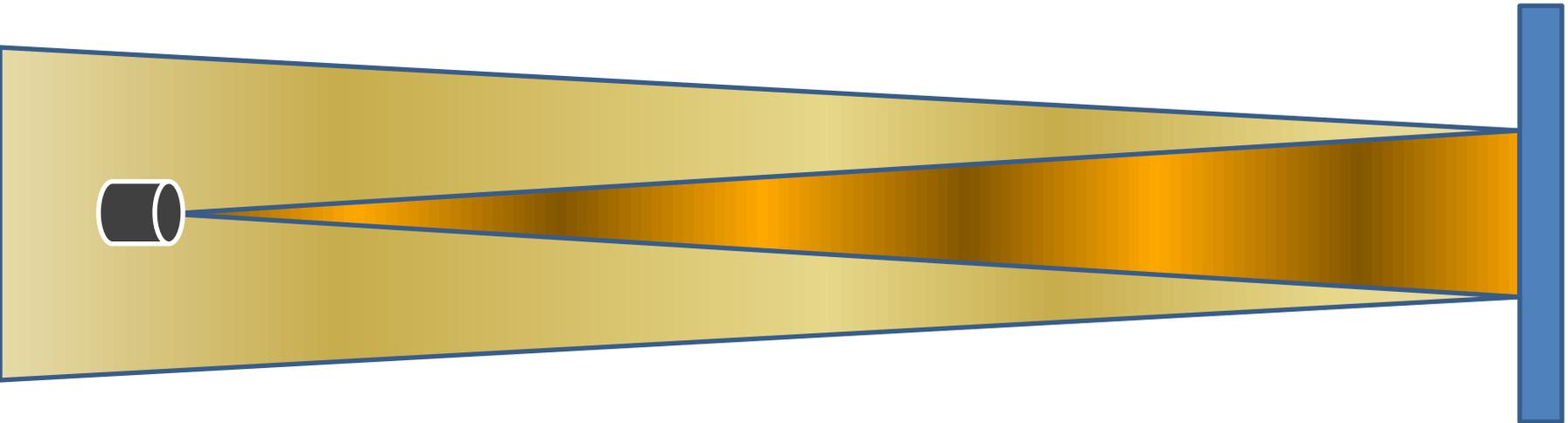


# *DESAC*<sub>4</sub> Sensor Discriminators

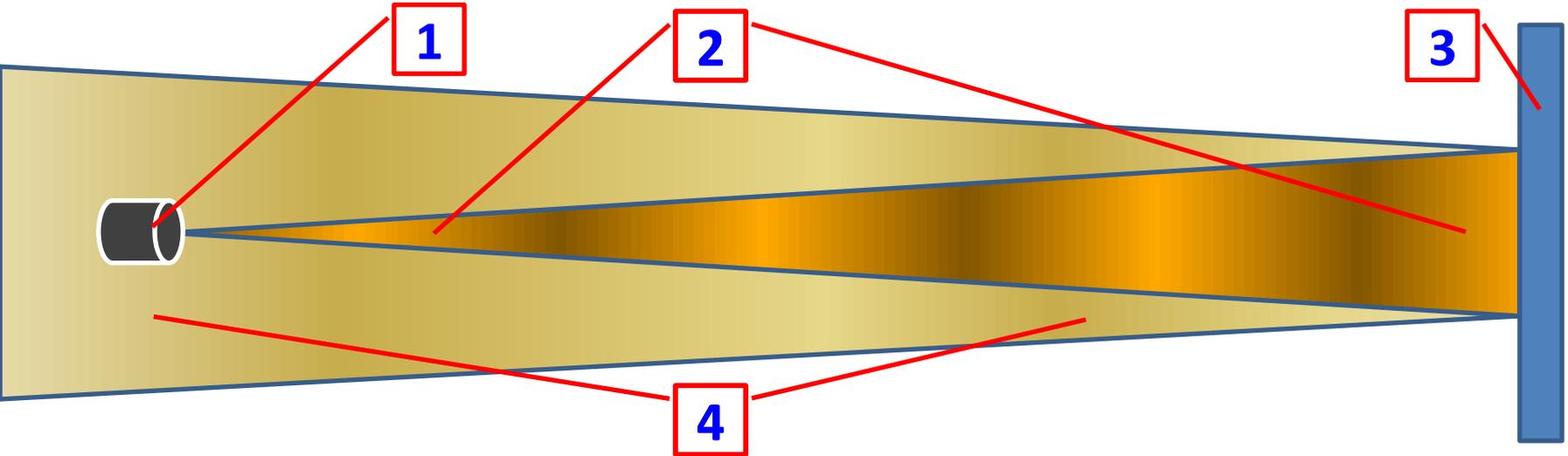
Sensor **RANGING** Operations with RANGE & SPEED Discriminators



This brief document presents an overview of how the *DESAC*<sub>4</sub> “senses” people and other objects in its narrow field of view and attempts to ascertain if the “blockages” that are detected warrant automatically “calling” for assistance. In the “Functional State Diagram” these discriminators are used in the “WATCHING”, “DURATION TEST”, and “STOPPED” states.

# *DESAC*<sub>4</sub> Sensor Discriminators

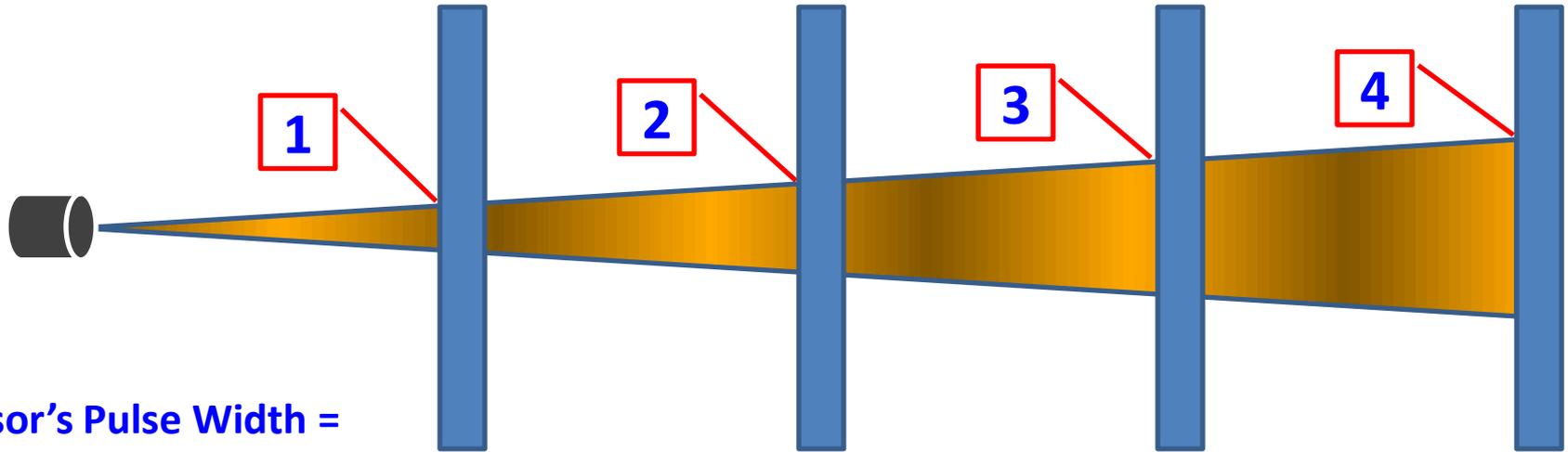
“normal” Sensor **RANGING** Operations *without Discriminators*



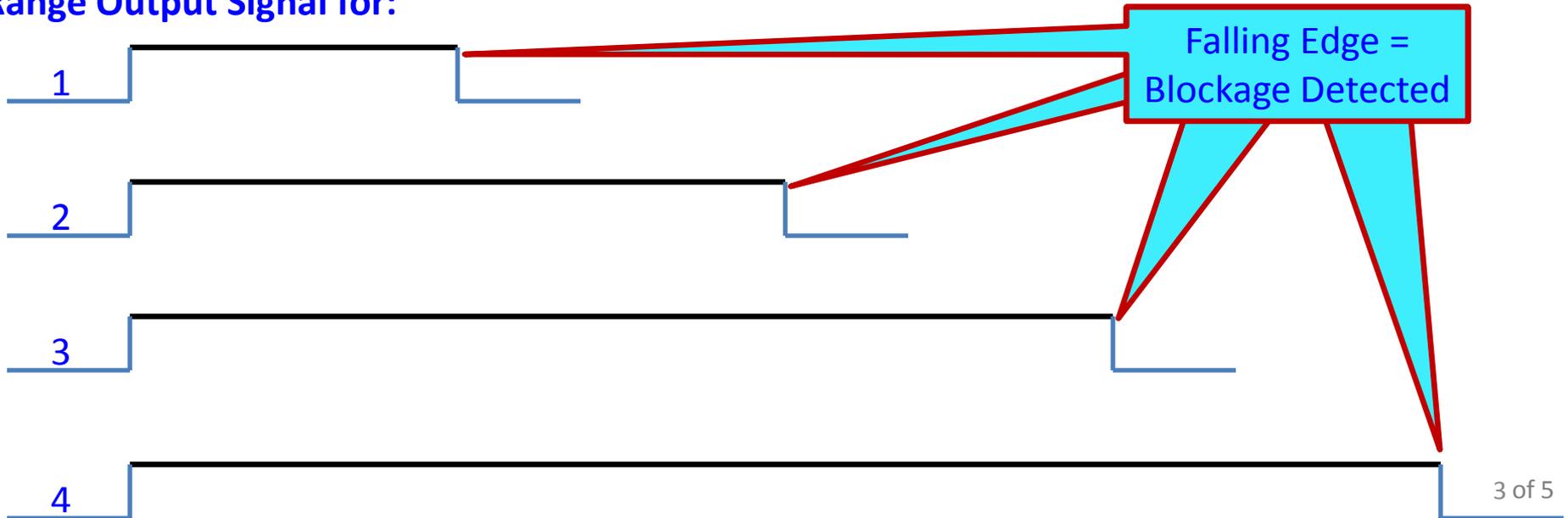
1. Ultrasonic Ranging Sensor that:
  - A. Transmits a Brief narrow beam Ultrasonic Wave
  - B. Starts a Transmit-to-Receive Timer
  - C. Switches to “listen” for returning Echo Wave
  - D. Creates a “timed” output equivalent to range
2. Transmitted (idealized) Waveform
3. Surface that causes a wave reflection “echo”
4. Returning “echo” wave to be received by Sensor

# DESAC<sub>4</sub> Sensor Discriminators

“normal” Sensor **RANGING** Operations *without Discriminators*

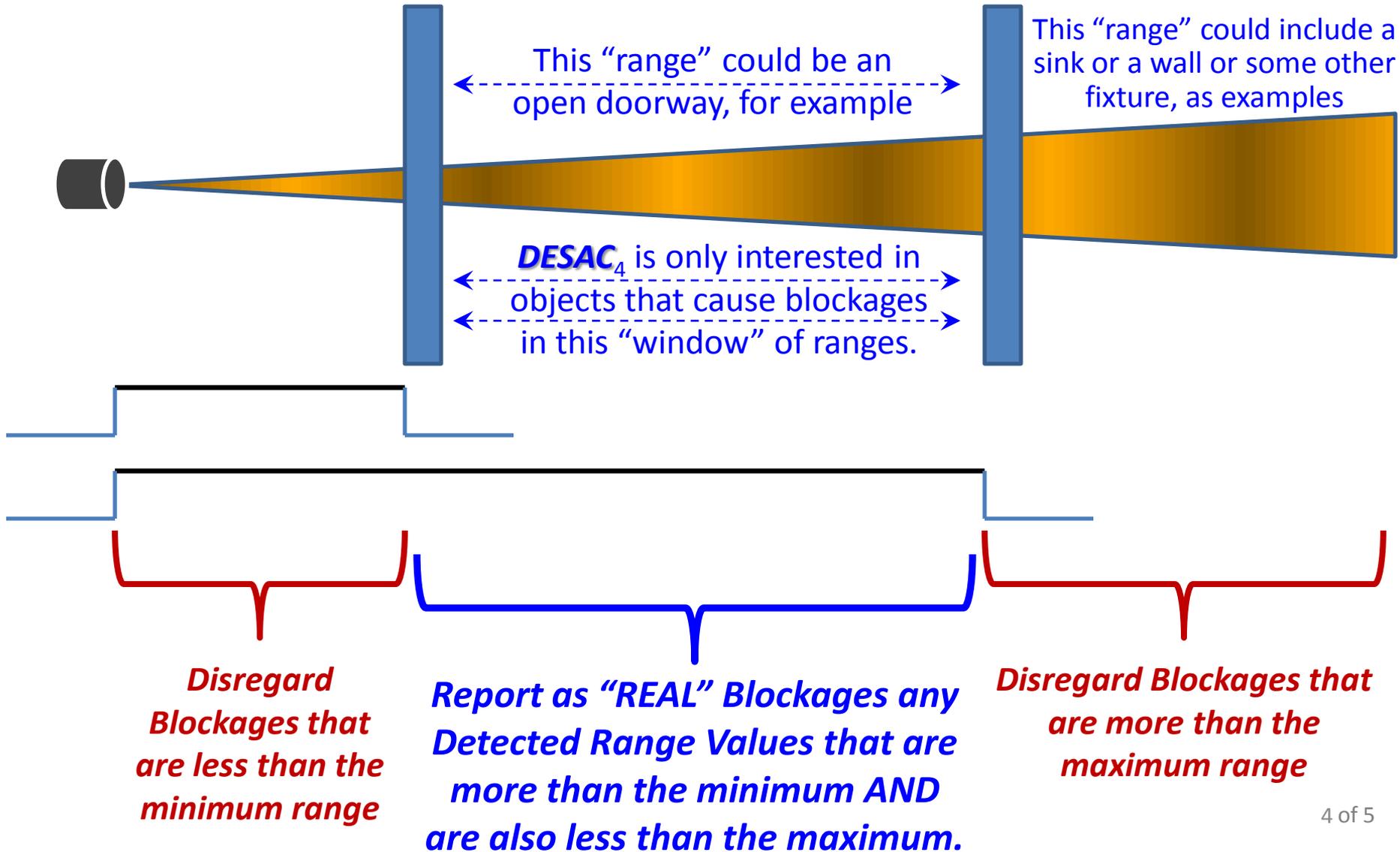


Sensor's Pulse Width =  
Range Output Signal for:



# *DESAC*<sub>4</sub> Sensor Discriminators

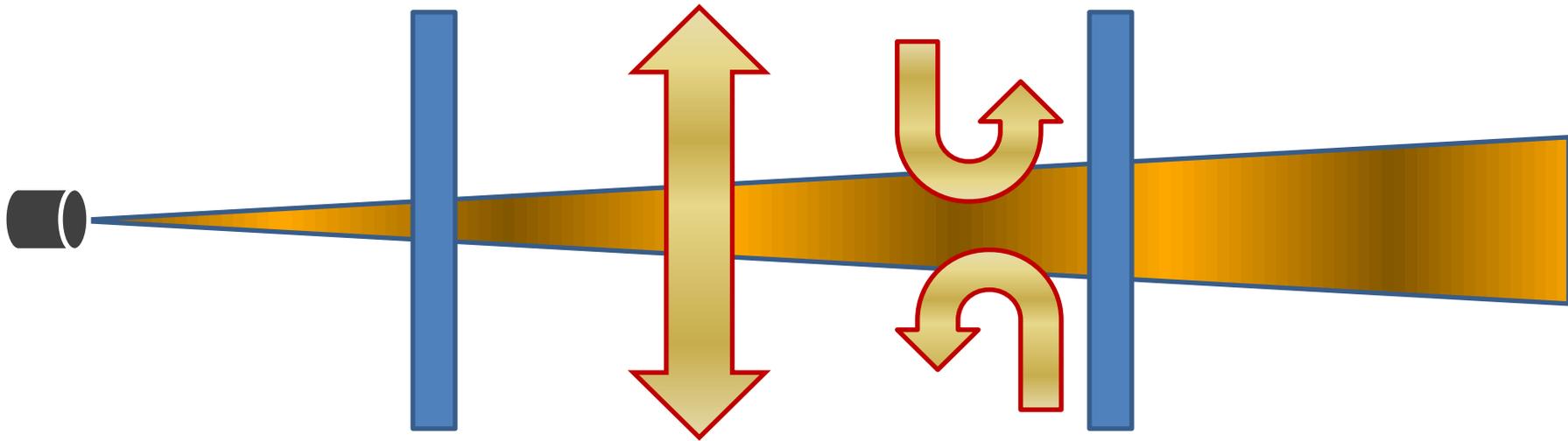
## *DESAC*<sub>4</sub>'s Sensor **RANGING** Operations with a **RANGE** Discriminator



# *DESAC<sub>4</sub>* Sensor Discriminators

## *DESAC<sub>4</sub>*'s Sensor **RANGING** Operations with a **SPEED** Discriminator

*DESAC<sub>4</sub>* “times” the amount of time that there are consecutive blockages, whether passing through the area being “watched” or briefly entering from one side or the other and subsequently retreating.



If the blockages are caused by an able-bodied person walking through, the blockages may only last 2 or 3 seconds. If the blockages are caused by a semi-mobile person, say in a wheelchair or using a walker, then the consecutive time of blockages will be much more, 5⇒10 seconds, and even longer. The “SPEED” Discriminator attempts to ascertain if the blockages are caused by “slow motion” of a body passing through the detection zone.