

Figure 1

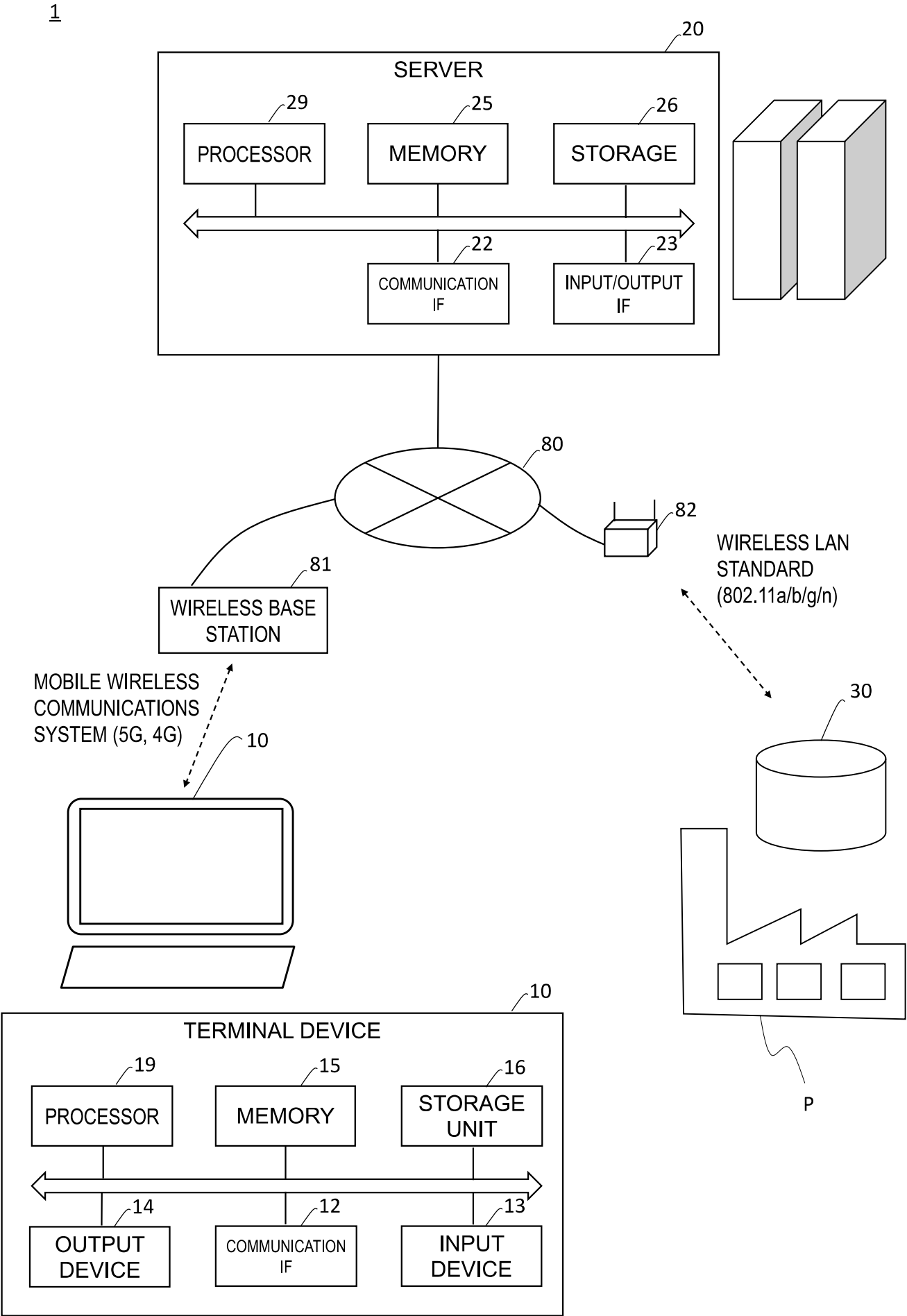


Figure 2

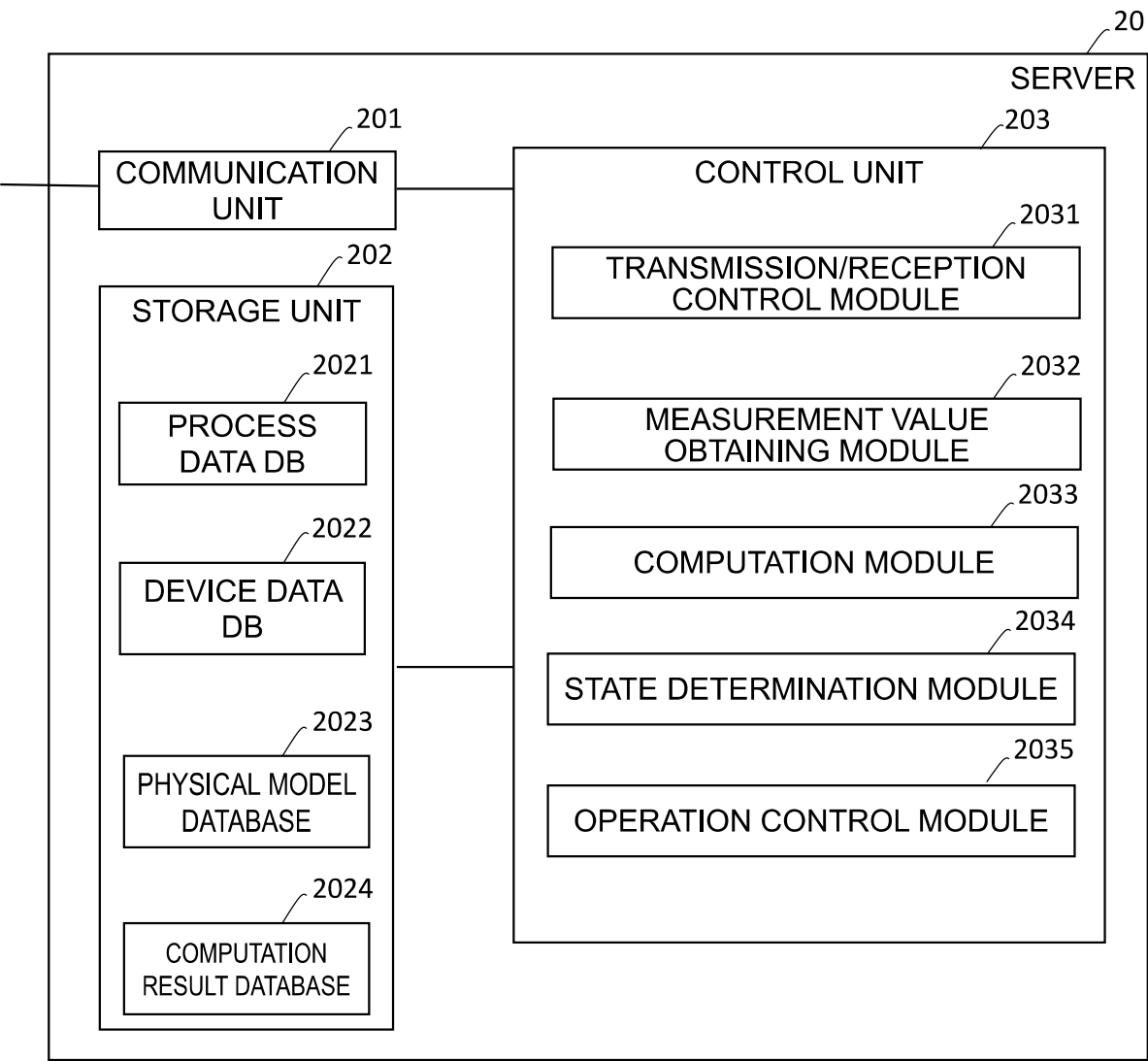


Figure 3

2021

| PROCESS DATA DB |                |               |                   |
|-----------------|----------------|---------------|-------------------|
| SENSOR ID       | DEVICE NAME    | SENSOR NAME   | MEASUREMENT VALUE |
| #10001          | PUMP A         | PRESSURE GAGE | ...               |
| #10002          | PUMP A         | FLOWMETER     | ...               |
| #10003          | PUMP A         | THERMOMETER   | ...               |
| ...             | PUMP B         | PRESSURE GAGE | ...               |
| ...             | PUMP B         | FLOWMETER     | ...               |
| ...             | PUMP B         | THERMOMETER   | ..                |
| ...             | HEAT EXCHANGER | ...           | ..                |
| ...             | ...            | ...           | ..                |
| ...             | ...            | ...           | ..                |
| ...             | ...            | ...           | ..                |

2022

| DEVICE DATA DB |             |                         |                   |
|----------------|-------------|-------------------------|-------------------|
| SENSOR ID      | DEVICE NAME | SENSOR NAME             | MEASUREMENT VALUE |
| #20001         | VALVE A     | VALVE OPENING INDICATOR | ...               |
| #20002         | VALVE B     | VALVE OPENING INDICATOR | ...               |
| #20003         | VALVE C     | VALVE OPENING INDICATOR | ...               |
| ...            | VALVE D     | VALVE OPENING INDICATOR | ...               |
| ...            | ...         | ...                     | ...               |
| ...            | ...         | ...                     | ..                |
| ...            | ...         | ...                     | ..                |
| ...            | ...         | ...                     | ..                |
| ...            | ...         | ...                     | ..                |
| ...            | ...         | ...                     | ..                |

Figure 4

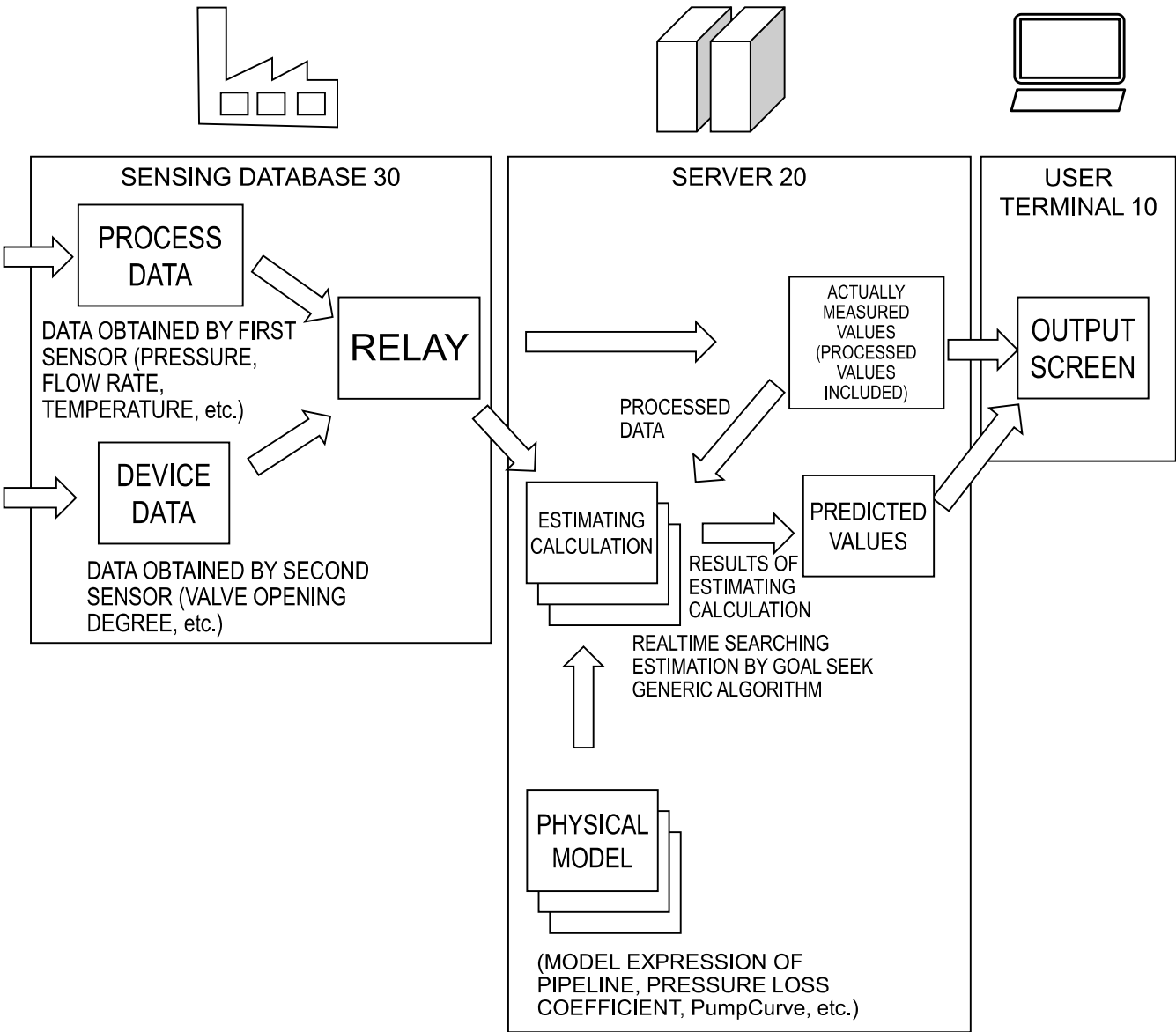


Figure 5

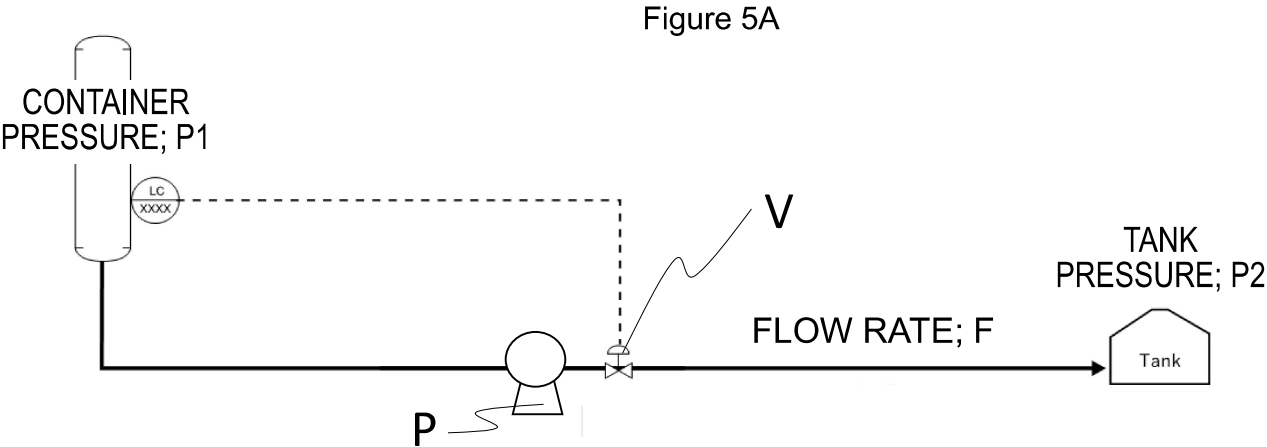


Figure 5B

| CONTAINER PRESSURE<br>(ACTUALLY MEASURED VALUE) | VALVE OPENING DEGREE<br>(ACTUALLY MEASURED VALUE) | FLOW RATE<br>(ACTUALLY MEASURED VALUE) |    | TANK PRESSURE<br>(PREDICTED VALUE) |   | TANK PRESSURE<br>(ACTUALLY MEASURED VALUE) |
|-------------------------------------------------|---------------------------------------------------|----------------------------------------|----|------------------------------------|---|--------------------------------------------|
| P1                                              |                                                   |                                        |    | PREDICTED P2                       |   | P2                                         |
| kPaG                                            | %                                                 | m3/h                                   |    | kPa                                |   | kPaG                                       |
| 500                                             | 55                                                | 120                                    | => | 195                                | ⇔ | 200                                        |

Figure 5C

| CONTAINER PRESSURE<br>(ACTUALLY MEASURED VALUE) | TOLERABLE MAX DEGREE OF OPENING | <u>VARIABLE</u> |    | TANK PRESSURE<br>(PREDICTED VALUE) |   | TANK PRESSURE<br>(ACTUALLY MEASURED VALUE) |
|-------------------------------------------------|---------------------------------|-----------------|----|------------------------------------|---|--------------------------------------------|
| P1                                              | VALVE OPENING DEGREE            | FLOW RATE       |    | PREDICTED P2                       |   | P2                                         |
| kPaG                                            | %                               | m3/h            |    | kPa                                |   | kPaG                                       |
| 500                                             | 85%                             | 140             | => | 300                                | ⇔ | 200                                        |
| 500                                             | 85%                             | 160             | => | 250                                | ⇔ | 200                                        |
| 500                                             | 85%                             | 180             | => | 200                                | ⇔ | 200                                        |
| 500                                             | 85%                             | 200             | => | 150                                | ⇔ | 200                                        |
| 500                                             | 85%                             | 220             | => | 100                                | ⇔ | 200                                        |
| 500                                             | 85%                             | 240             | => | 50                                 | ⇔ | 200                                        |

Figure 6

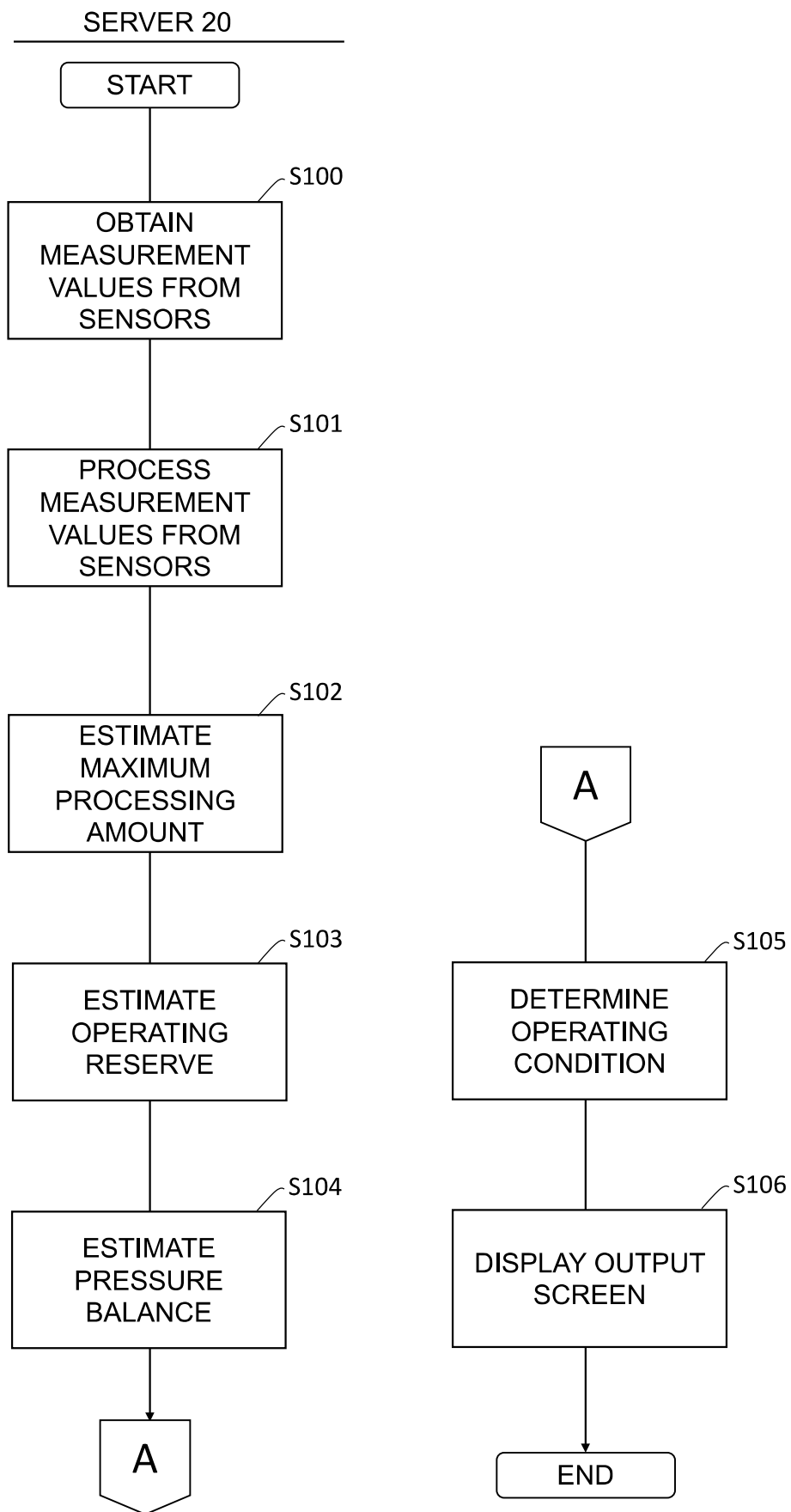


Figure 7

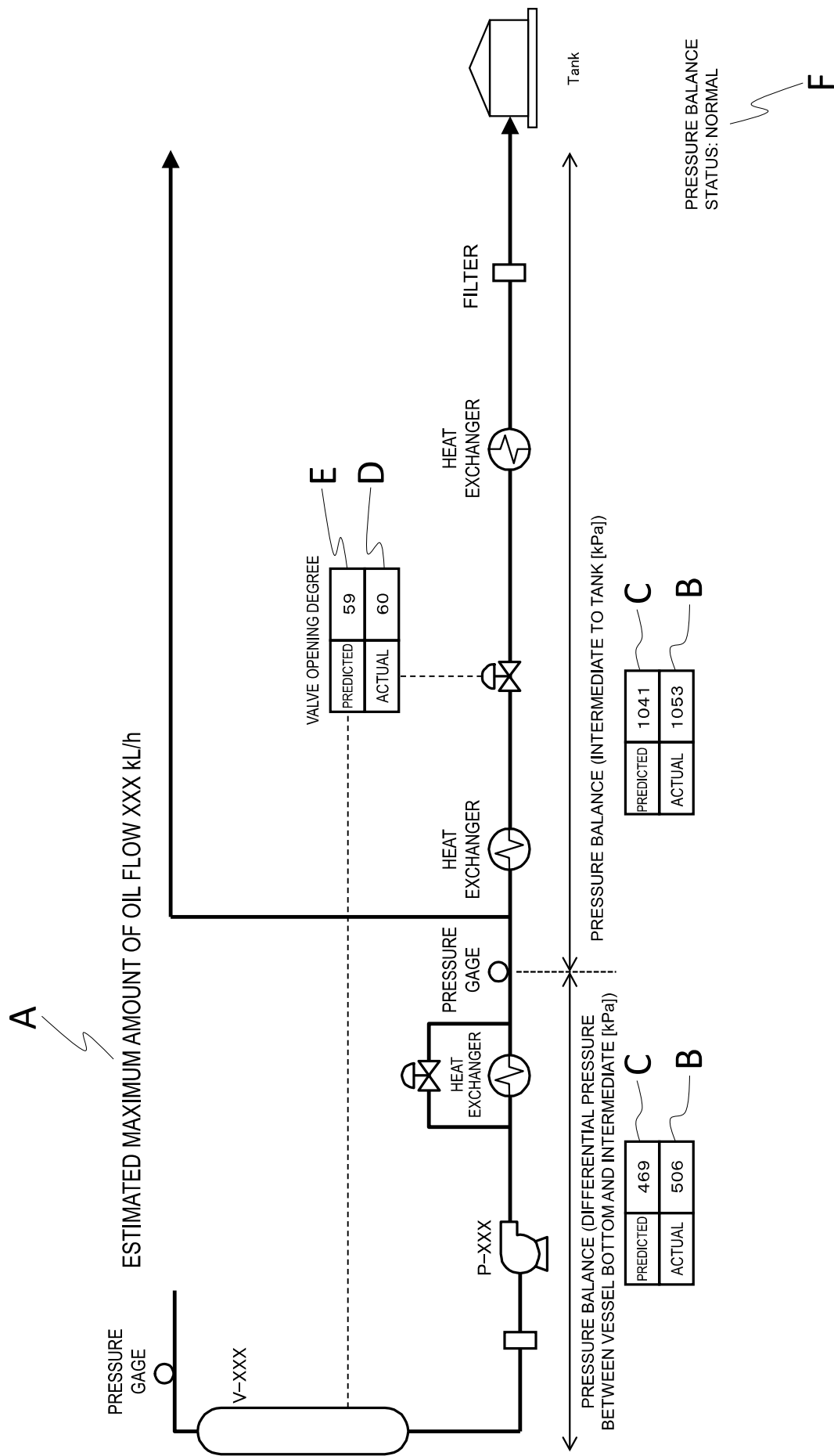


Figure 8

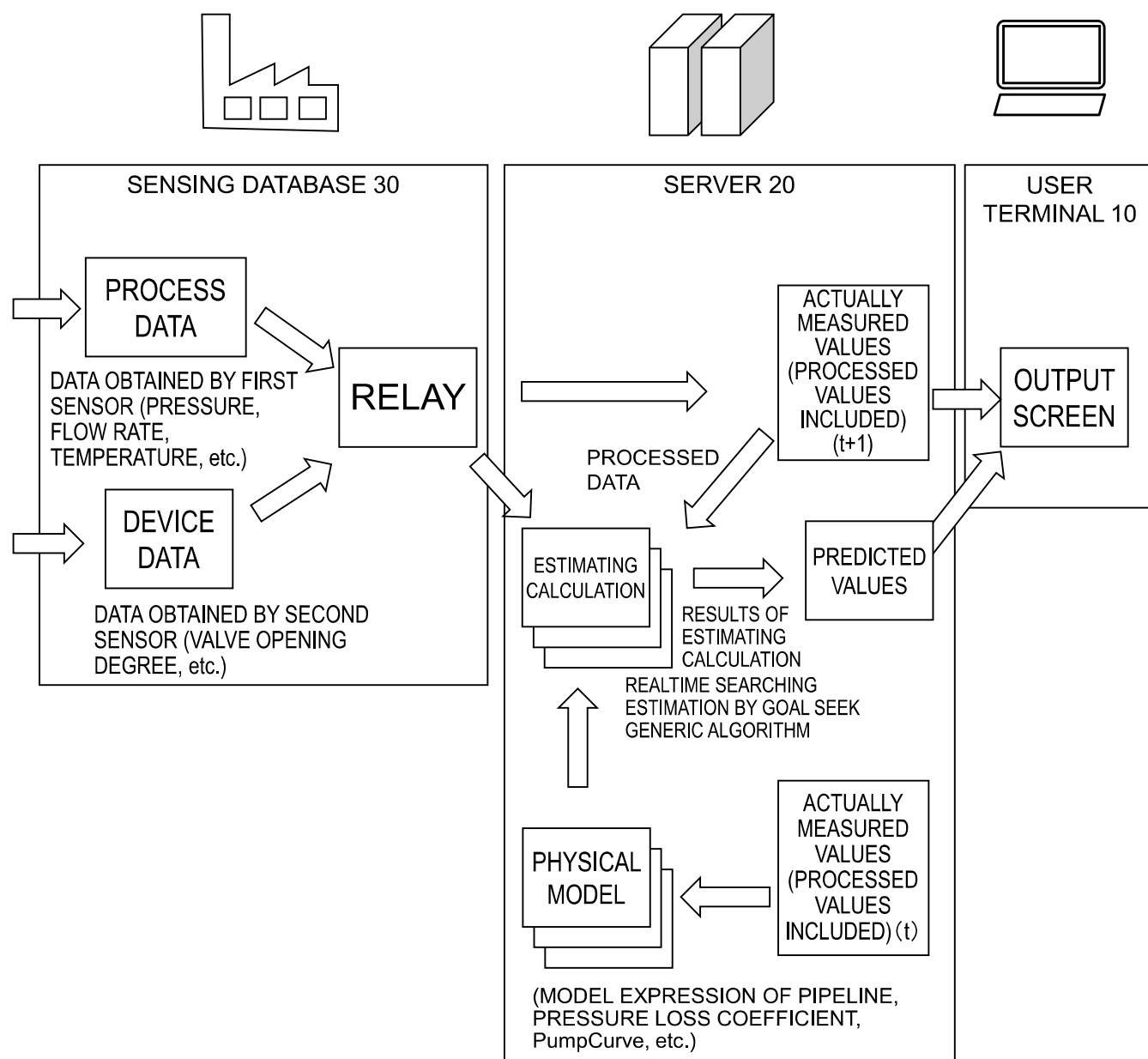


Figure 9

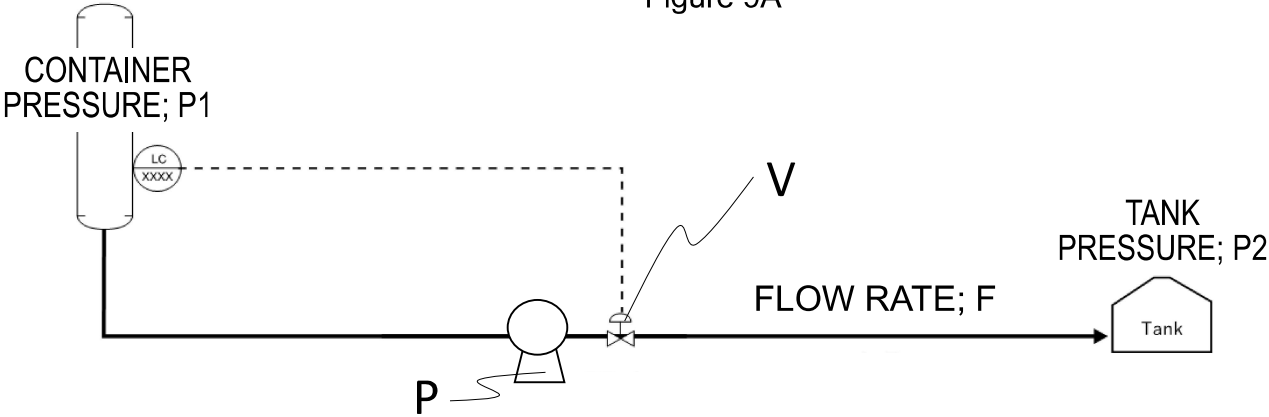


Figure 9B

| CONTAINER PRESSURE (ACTUALLY MEASURED VALUE)<br>P1 | ACTUALLY MEASURED VALUE OF VALVE OPENING DEGREE | ACTUALLY MEASURED VALUE OF FLOW RATE | Kpipe1 (VARIABLE) | Δ Ppipe1 | Kpipe2 (VARIABLE) | Δ Ppipe2 | Δ Pcv |    | TANK PRESSURE (PREDICTED VALUE) |   | TANK PRESSURE (ACTUALLY MEASURED VALUE) |
|----------------------------------------------------|-------------------------------------------------|--------------------------------------|-------------------|----------|-------------------|----------|-------|----|---------------------------------|---|-----------------------------------------|
|                                                    |                                                 |                                      |                   |          |                   |          |       |    | PREDICTED P2                    |   | P2                                      |
|                                                    |                                                 |                                      |                   |          |                   |          |       |    | kPa                             |   | kPaG                                    |
| 500                                                | 55                                              | 120                                  | 1.75              | -52.5    | 0.84              | -58.8    | -155  | => | 233.7                           | ⇔ | 200                                     |
| 500                                                | 55                                              | 120                                  | 1.9               | -57      | 1.03              | -72.1    | -155  | => | 215.9                           | ⇔ | 200                                     |
| 500                                                | 55                                              | 120                                  | 1.94              | -58.2    | 0.95              | -66.5    | -155  | => | 220.3                           | ⇔ | 200                                     |
| 500                                                | 55                                              | 120                                  | 2.12              | -63.6    | 1.54              | -107.8   | -155  | => | 173.6                           | ⇔ | 200                                     |
| 500                                                | 55                                              | 120                                  | 1.83              | -54.9    | 1.23              | -86.1    | -155  | => | 204                             | ⇔ | 200                                     |

=> Determine to use this k1

=> Determine to use this k2

G

G

Figure 9C

| CONTAINER PRESSURE (ACTUALLY MEASURED VALUE)<br>P1 | TOLERABLE MAX DEGREE OF OPENING | VARIABLE | Kpipe1 | Δ Ppipe1 | Kpipe2 | Δ Ppipe2 | Δ Pcv |    | TANK PRESSURE (PREDICTED VALUE) |   | TANK PRESSURE (ACTUALLY MEASURED VALUE) |
|----------------------------------------------------|---------------------------------|----------|--------|----------|--------|----------|-------|----|---------------------------------|---|-----------------------------------------|
|                                                    |                                 |          |        |          |        |          |       |    | PREDICTED P2                    |   | P2                                      |
|                                                    |                                 |          |        |          |        |          |       |    | kPa                             |   | kPaG                                    |
| 500                                                | 85%                             | 140      | 1.83   | -90      | 1.23   | -100     | -10   | => | 300                             | ⇔ | 200                                     |
| 500                                                | 85%                             | 160      | 1.83   | -110     | 1.23   | -120     | -20   | => | 250                             | ⇔ | 200                                     |
| 500                                                | 85%                             | 180      | 1.83   | -130     | 1.23   | -140     | -30   | => | 200                             | ⇔ | 200                                     |
| 500                                                | 85%                             | 200      | 1.83   | -150     | 1.23   | -160     | -40   | => | 150                             | ⇔ | 200                                     |
| 500                                                | 85%                             | 220      | 1.83   | -170     | 1.23   | -180     | -50   | => | 100                             | ⇔ | 200                                     |
| 500                                                | 85%                             | 240      | 1.83   | -190     | 1.23   | -200     | -60   | => | 50                              | ⇔ | 200                                     |

Figure 10

