

CentipedeManager.h

```
typedefs
std::array<uint16_t, N_CP_PORTS>: CP_Masks

const N_CP_PORTS = 8: uint8_t
```

<struct> CP_Address

```
+port: uint8_t
+bit : uint8_t
```

CentipedeManager

```
-_cp      : Centipede
-_masks   : CP_Masks
+CentipedeManager()
+begin()
+clear_masks()
+add_to_masks(CP_Address)
+set_masks(CP_Masks)
+get_masks(): CP_Masks
+report_masks(Stream &)
+send_masks()
```

translations.h

```
VALVE2P[][] : int8_t
p2valve(P)   : uint8_t
p2led(P)     : uint8_t
valve2p(uint8_t) : P
init_valve2p()
valve2cp(uint8_t) : CP_Address
```

constants.h

```
const PCS_X_MIN      = -7 : int8_t
const PCS_X_MAX      = 7  : int8_t
const PCS_Y_MIN      = -7 : int8_t
const PCS_Y_MAX      = 7  : int8_t
const NUMEL_PCS_AXIS =
PCS_X_MAX - PCS_X_MIN = 15 : uint8_t
const NUMEL_LED_AXIS = 16 : uint8_t
const N_VALVES        = 112 : uint8_t
```

```
const P2VALVE[][] : uint8_t
const P2LED[][]   : uint8_t
const VALVE2CP_PORT[] : uint8_t
const VALVE2CP_BIT[] : uint8_t
```

```
const N_LEDS : uint16_t
const PIN_LED_MATRIX : uint8_t
const PIN_R_CLICK_1 : uint8_t
const PIN_R_CLICK_2 : uint8_t
const PIN_R_CLICK_3 : uint8_t
const PIN_R_CLICK_4 : uint8_t
const R_CLICK_1_CALIB : RT_Click_Calibration
const R_CLICK_2_CALIB : RT_Click_Calibration
const R_CLICK_3_CALIB : RT_Click_Calibration
const R_CLICK_4_CALIB : RT_Click_Calibration
const DAQ_DT : uint32_t
const DAQ_LP : float
```

<struct> Omega_Calib

```
+balance_mA : float
+sensitivity_mA : float
+full_range_bar : float
```

```
const OMEGA_1_CALIB : Omega_Calib
const OMEGA_2_CALIB : Omega_Calib
const OMEGA_3_CALIB : Omega_Calib
const OMEGA_4_CALIB : Omega_Calib

inline mA2bar(float, Omega_Calib): float
```

ProtocolManager.h

```
typedefs
std::array<P, MAX_POINTS_PER_LINE> : Line
std::array<uint16_t, NUMEL_PCS_AXIS> : PackedLine
std::array<TimedPackedLine, MAX_LINES> : Program
```

```
const MAX_LINES = 5000 : uint16_t
(↑ make as large as free RAM allows)
const MAX_POINTS_PER_LINE =
NUMEL_PCS_AXIS * NUMEL_PCS_AXIS + 1 : uint16_t
const P_NULL_VAL = -128 : int8_t
```

P
("Point in the Protocol Coordinate System")

```
+x : int8_t
+y : int8_t
+P(int8_t = P_NULL_VAL, int8_t = P_NULL_VAL)
+set(int8_t, int8_t)
+set_null()
+is_null() : bool
+pack_into_byte() : uint8_t
+unpack_byte(uint8_t)
+print(Stream &)
```

<struct> TimedLine

```
+duration: uint16_t
+line : Line
```

<struct> TimedPackedLine

```
+duration: uint16_t
+packed : PackedLine
```

ProtocolManager (work in progress)

```
+timed_line_buffer : TimedLine
-_program : Program
-_N_lines : uint16_t
-_pos : uint16_t
+ProtocolManager()
+clear()
+restart()
+reached_end() : bool
+add_line(TimedLine) : bool
+add_line(uint16_t, Line) : bool
+transfer_next_line_to_buffer() : TimedLine
```