# PICK-IQ™ Device Register Map

## Holding Registers

### Holding Registers for Device Information

| Address without Offset | Address with Offset | Description | Holding Register Representation |
|---|---|---|---|
| 1000 | 1001 | Low word model number | Example: 0x0002A734 (hex) = 173876 (dec)<br>High word = 0x0002<br>Low word = 0xA734 |
| 1001 | 1002 | High word model number | |
| 1002 | 1003 | Model version (BCD) | |
| 1003–1018 | 1004–1019 | Model name, string | |
| 1019 | 1020 | Low word configuration number | Example: 0x00016D43 (hex) = 93507 (dec)<br>High word = 0x0001<br>Low word = 0x6D43 |
| 1020 | 1021 | High word configuration number | |
| 1021 | 1022 | Configuration version (BCD) | |
| 1022–1037 | 1023–1038 | Serial number/date code, string | |
| 1038–1053 | 1039–1054 | Serial number, string | |

### Holding Registers for Outputs

Use these registers to differentiate sensor outputs or turn them off.

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6000 | 6001 | PTL110: Touch sensor output (if present)<br>K50 Display: Touch zone 1 output<br>K50 and K30 Touch: Only output | 0 = Disabled<br>1 = Primary<br>2 = Secondary | 1 | Yes |
| 6001 | 6002 | PTL110: Touch sensor on delay (ms)<br>K50 Display: Touch zone 1 on delay (ms)<br>K50 and K30 Touch: On delay (ms) | 0–65535 | 0 | Yes |
| 6002 | 6003 | PTL110: Optical sensor output (if present)<br>K50 Display: Touch zone 2 output<br>K50 and K30 Touch: N/A | 0 = Disabled<br>1 = Primary<br>2 = Secondary | 1 | Yes |
| 6003 | 6004 | PTL110: Optical sensor on delay (ms)<br>K50 Display: Touch zone 2 on delay (ms)<br>K50 and K30 Touch: N/A | 0–65535 | 0 | Yes |

### Holding Registers to Configure Modbus Communication

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6100 | 6101 | Device ID: the Modbus individual node ID | 1–247 | 1 | Always |
| 6101 | 6102 | Baud rate | 12 = 1200<br>24 = 2400<br>48 = 4800<br>96 = 9600<br>192 = 19200<br>384 = 38400 | 192 | Always |
| 6102 | 6103 | Parity | 0 = none<br>1 = odd<br>2 = even | 0 | Always |
| 6103 | 6104 | Stop Bits | 1 = 1<br>2 = 2<br>3 = 1.5 | 1 | Always |

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## Holding Registers to Configure Save Characteristics

Controls when certain registers save their value changes to non-volatile memory. The affected registers are those whose Saved column is True.

Refer to the PICK-IQ Devices Instruction Manual for additional information on non-volatile registers.

Available on PTL110 devices with firmware version 4.3 (date code sticker 20281, date code register value 2020-10-07) or newer. Available on all K30 Pro Indicator and Touch devices.

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved [1] |
|---|---|---|---|---|---|
| 6120 | 6121 | Saving: When Saving value is 0, affected registers are saved immediately after every change. When Saving is set to 1 or 2, those registers are not saved until the Saving register is set to 0. | 0 = Registers are saved to non-volatile memory (including this register)<br>1 = Registers are not saved to non-volatile memory (including this register)<br>2 = Registers are not saved to non-volatile memory (excluding this register); not available on K30 Pro | K30 Pro = 0<br>K50 Display = 0<br>PTL110 prior to v4.3 = 0<br>PTL110 v4.3 and newer = 2<br>PTL110 Gen 2 = 0 | 0 = Yes<br>1 = No<br>2 = Yes |

## Holding Registers for Device-Specific Configuration

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6200 | 6201 | Indicator intensity, basic mode only | 0 = Low<br>1 = Standard<br>2 = High | 1 | Yes |
| 6201 | 6202 | Device orientation (if display is present in the device) | 0 = Standard (touch sensor/ indicator located on the right)<br>1 = Inverted (touch sensor/ indicator located on the left) | 0 | Yes |
| 6202 | 6203 | Touch sensor sensitivity (if touch sensor is present in the device) | 0 = Low<br>1 = Standard<br>2 = High | 1 | Yes |
| 6203 | 6204 | Scrolling display settings (if display is present in the device) | 0 = Off<br>1 = Enabled, slow speed<br>2 = Enabled, standard speed<br>3 = Enabled, high speed | 2 | Yes |
| 6204 | 6205 | Display startup message (if display is present in the device) | 0 = None<br>1 = Show Modbus settings (device ID, baud, data bits, parity bit, stop bit)<br>2 = Show custom message (6400-6409) | 1 | Yes |
| 6205 | 6206 | Custom startup message display time (ms) (if display is present in the device) | 0 through 65535 (65535 value is infinite) | 2000 | Yes |
| 6206 | 6207 | First decimal place function (if display is present in the device) | 0 = Off<br>1 = Steady on<br>2 = Flashing<br>3 = Communication<br>4 = Power+Communication<br>5 = Activation | 0 | Yes |
| 6207 | 6208 | Second decimal place function (if display is present in the device) | 0 = Off<br>1 = Steady on<br>2 = Flashing<br>3 = Communication<br>4 = Power+Communication<br>5 = Activation | 0 | Yes |
| 6208 | 6209 | Third decimal place function (if display is present in the device) | 0 = Off<br>1 = Steady on<br>2 = Flashing<br>3 = Communication<br>4 = Power+Communication<br>5 = Activation | 4 | Yes |
| 6209 | 6210 | Display encoding for register 8703 (if display is present in the device) | 0 = ASCII<br>1 = Decimal Numeric | 0 | Yes |

[1] K50 Display and PTL110 Gen 2 only have values 0 and 1.

## Holding Registers to Configure State Mode

Refer to the Instruction Manual for a description of these settings.

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6300 | 6301 | Enable state mode | 0 = Disabled<br>1 = Enabled | 0 | Yes |
| 6301 | 6302 | Waiting State: Animation | 0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = Half/Half Top/Bottom<br>5 = Half/Half Left/Right<br>6 = Half/Half Rotate<br>7 = Chase<br>8 = Intensity Sweep | 0 | Yes |
| 6302 | 6303 | Waiting State: Color 1 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | Yes |
| 6303 | 6304 | Waiting State: Color 2 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | Yes |
| 6304 | 6305 | Waiting State: Intensity for color 1 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6305 | 6306 | Waiting State: Intensity for color 2 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6306 | 6307 | Waiting State: Animation speed | 0 = Slow<br>1 = Standard<br>2 = Fast | 1 | Yes |
| 6307 | 6308 | Waiting State: Animation pattern | 0 = Normal<br>1 = Strobe<br>2 = 3-Pulse<br>3 = SOS<br>4 = Random | 0 | Yes |
| 6308 | 6309 | Waiting State: Animation direction | 0 = Clockwise<br>1 = Counterclockwise | 0 | Yes |
| 6309 | 6310 | Waiting State: Visual on delay (ms) | 0–65535 | 0 | Yes |
| 6310 | 6311 | Waiting State: Visual off delay (ms) | 0–65535 | 0 | Yes |
| 6311 | 6312 | Reserved | - | | Yes |

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6312 | 6313 | Mispick State: Animation | 0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = Half/Half Top/Bottom<br>5 = Half/Half Left/Right<br>6 = Half/Half Rotate<br>7 = Chase<br>8 = Intensity Sweep | 2 | Yes |
| 6313 | 6314 | Mispick State: Color 1 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | Yes |
| 6314 | 6315 | Mispick State: Color 2 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | Yes |
| 6315 | 6316 | Mispick State: Intensity for color 1 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 0 | Yes |
| 6316 | 6317 | Mispick State: Intensity for color 2 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 0 | Yes |
| 6317 | 6318 | Mispick State: Animation speed | 0 = Slow<br>1 = Standard<br>2 = Fast | 2 | Yes |
| 6318 | 6319 | Mispick State: Animation pattern | 0 = Normal<br>1 = Strobe<br>2 = 3-Pulse<br>4 = SOS<br>5 = Random | 2 | Yes |
| 6319 | 6320 | Mispick State: Animation direction | 0 = Clockwise<br>1 = Counterclockwise | 0 | Yes |
| 6320 | 6321 | Mispick State: Visual on delay (ms) | 0–65535 | 0 | Yes |
| 6321 | 6322 | Mispick State: Visual off delay (ms) | 0–65535 | 3000 | Yes |
| 6322 | 6323 | Reserved | - | | Yes |
| 6323 | 6324 | Job State: Animation | 0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = Half/Half Top/Bottom<br>5 = Half/Half Left/Right<br>6 = Half/Half Rotate<br>7 = Chase<br>8 = Intensity Sweep | 1 | Yes |

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6324 | 6325 | Job State: Color 1 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 1 | Yes |
| 6325 | 6326 | Job State: Color 2 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | Yes |
| 6326 | 6327 | Job State: Intensity for color 1 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6327 | 6328 | Job State: Intensity for color 2 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6328 | 6329 | Job State: Animation speed | 0 = Slow<br>1 = Standard<br>2 = Fast | 1 | Yes |
| 6329 | 6330 | Job State: Animation pattern | 0 = Normal<br>1 = Strobe<br>2 = 3-Pulse<br>3 = SOS<br>4 = Random | 0 | Yes |
| 6330 | 6331 | Job State: Animation direction | 0 = Clockwise<br>1 = Counterclockwise | 0 | Yes |
| 6331 | 6332 | Job State: Visual on delay (ms) | 0–65535 | 0 | Yes |
| 6332 | 6333 | Job State: Visual off delay (ms) | 0–65535 | 0 | Yes |
| 6333 | 6334 | Reserved | - | | Yes |
| 6334 | 6335 | Acknowledge State: Animation | 0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = Half/Half Top/Bottom<br>5 = Half/Half Left/Right<br>6 = Half/Half Rotate<br>7 = Chase<br>8 = Intensity Sweep | 1 | Yes |

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6335 | 6336 | Acknowledge State: Color 1 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 2 | Yes |
| 6336 | 6337 | Acknowledge State: Color 2 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | Yes |
| 6337 | 6338 | Acknowledge State: Intensity for color 1 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6338 | 6339 | Acknowledge State: Intensity for color 2 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6339 | 6340 | Acknowledge State: Animation speed | 0 = Slow<br>1 = Standard<br>2 = Fast | 1 | Yes |
| 6340 | 6341 | Acknowledge State: Animation pattern | 0 = Normal<br>1 = Strobe<br>2 = 3-Pulse<br>3 = SOS<br>4 = Random | 0 | Yes |
| 6341 | 6342 | Acknowledge State: Animation direction | 0 = Clockwise<br>1 = Counterclockwise | 0 | Yes |
| 6342 | 6343 | Acknowledge State: Visual on delay (ms) | 0–65535 | 0 | Yes |
| 6343 | 6344 | Acknowledge State: Visual off delay (ms) | 0–65535 | 1000 | Yes |
| 6344 | 6345 | Reserved | - | | Yes |
| 6345 | 6346 | Secondary Acknowledge State: Animation | 0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = Half/Half Top/Bottom<br>5 = Half/Half Left/Right<br>6 = Half/Half Rotate<br>7 = Chase<br>8 = Intensity Sweep | 1 | Yes |

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6346 | 6347 | Secondary Acknowledge State: Color 1 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 3 | Yes |
| 6347 | 6348 | Secondary Acknowledge State: Color 2 | 0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | Yes |
| 6348 | 6349 | Secondary Acknowledge State: Intensity for color 1 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6349 | 6350 | Secondary Acknowledge State: Intensity for color 2 | 0 = High<br>1 = Medium<br>2 = Low<br>3 = Off | 1 | Yes |
| 6350 | 6351 | Secondary Acknowledge State: Animation speed | 0 = Slow<br>1 = Standard<br>2 = Fast | 1 | Yes |
| 6351 | 6352 | Secondary Acknowledge State: Animation pattern | 0 = Normal<br>1 = Strobe<br>2 = 3-Pulse<br>3 = SOS<br>4 = Random | 0 | Yes |
| 6352 | 6353 | Secondary Acknowledge State: Animation direction | 0 = Clockwise<br>1 = Counterclockwise | 0 | Yes |
| 6353 | 6354 | Secondary Acknowledge State: Visual on delay (ms) | 0–65535 | 0 | Yes |
| 6354 | 6355 | Secondary Acknowledge State: Visual off delay (ms) | 0–65535 | 1000 | Yes |
| 6355 | 6356 | Reserved | - | Yes | |

## Holding Registers to Define a Custom Startup Message

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6400–6409 | 6401–6410 | Custom display startup message (if display is present in the device) | | | Yes |

## Holding Registers for Test Mode

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6500 | 6501 | Enable test mode: indicator flashes blue and display shows Device ID | 0 = Off 1 = Enabled | 0 | No |

## Holding Registers to Restore Factory Defaults

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 6600 | 6601 | Restore factory defaults.<br>Set 6601 and 6602 to the correct key to initiate the selected factory reset type (hard or soft). | 0 = Disabled<br>1 = Enable a hard reset (restore all defaults)<br>2 = Enable a soft reset (restore all defaults except the Modbus communication settings in registers 6100-6103) | 0 | No |
| 6601 | 6602 | Restore factory defaults key 1 | 43690 = Enable | 0 | No |
| 6602 | 6603 | Restore factory defaults key 2 | 21845 = Enable | 0 | No |

## Holding Registers When Common ID is Active

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 7940 | 7941 | Modbus device ID of active device, same as register 6100 | | | Yes |
| 7941 | 7942 | Device output latch register: values in this register will latch until acknowledged and cleared by the master (either by changing the value in this register or by writing to any register 8700 through 8752) OR will clear after the timeout elapses as defined in register 8812 | 0 = None triggered<br>1 = Primary triggered<br>2 = Secondary triggered<br>3 = Both triggered | | No |
| 7942 | 7943 | Device output status: values in this register will reflect the real time status of the device's outputs | 0 = None triggered<br>1 = Primary triggered<br>2 = Secondary triggered<br>3 = Both triggered | | No |

## Main Holding Registers Used in Runtime

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 8700 | 8701 | Device Job state: used in State Mode to designate a device as active (moves devices from Waiting State to Job State and vice versa). Any write to this register resets the device latch in Register 7941. | 0 = Waiting State<br>1–65535 = Job State | 0 | No |
| | | | K30 Pro and K50 Pro indicator-only (K30PLS and K50PLS) models:<br>0 = Waiting State<br>1 = Job State<br>2 = Mispick State<br>3 = Acknowledge State | | |
| 8701 | 8702 | Job animation: primary enumeration is active when device is in Basic Mode (value in register 6300 is 0). Secondary enumeration is active when device is in State Mode (value in register 6300 is 1). This value will then overwrite the value in register 6323. | Primary Enumeration:<br>0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Strobe<br>11–20 N-Pulse (N = Index - 10) (e.g. 13 = 3 Pulse) | 0 | No |
| | | | Secondary Enumeration:<br>0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = Half/Half Top/Bottom<br>5 = Half/Half Left/Right<br>6 = Half/Half Rotate<br>7 = Chase<br>8 = Intensity Sweep | | |

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 8702 | 8703 | Job color: primary enumeration is active when device is in Basic Mode (value in register 6300 is 0). Secondary enumeration is active when device is in State Mode (value in register 6300 is 1). This value will then overwrite the value in register 6324. | Primary Enumeration:<br>0 = Off<br>1 = Red<br>2 = Green<br>3 = Yellow<br>4 = Blue<br>5 = Magenta<br>6 = Cyan<br>7 = White<br>8 = Amber<br>9 = Rose<br>10 = Lime Green<br>11 = Orange<br>12 = Sky Blue<br>13 = Violet<br>14 = Spring Green<br><br>Secondary Enumeration:<br>0 = Red<br>1 = Green<br>2 = Yellow<br>3 = Blue<br>4 = Magenta<br>5 = Cyan<br>6 = White<br>7 = Amber<br>8 = Rose<br>9 = Lime Green<br>10 = Orange<br>11 = Sky Blue<br>12 = Violet<br>13 = Spring Green | 0 | No |
| 8703–8752 | 8704–8753 | Characters for the display. Primary enumeration: null terminated ASCII string or numeric representation (defined in register 6209), each register holds 2 characters (i.e. 8703 holds values for characters 1 and 2 and 8752 holds values for characters 99 and 100 in the string). Secondary enumeration: decimal encoded, decimal value in the register will show on the display. | Primary Enumeration: ASCII encoded 65535 = Blank display<br><br>Secondary Enumeration: Decimal encoded 0–65534 = decimal shown on the display 65535 = Blank | | No |

## Common ID Configuration Holding Registers

| Address without Offset | Address with Offset | Description | Holding Register Representation | Default Value | Saved |
|---|---|---|---|---|---|
| 8810 | 8811 | Common ID | 1–247 | 195 | Yes |
| 8811 | 8812 | Global on delay that applies to both inputs (touch and optical sensor) (stacks on top of on delays in registers 6001 and 6003) (ms) | 0–65535 (65535 value is infinite) | 0 | Yes |
| 8812 | 8813 | Latch timeout for 7941 (ms) | 0–65535 (65535 value is infinite) | 1000 | Yes |
| 8813 | 8814 | Minimum output on time for register 7942, off delay (ms) | 0–65535 (65535 value is infinite) | 1000 | Yes |



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# Input Registers

## Input Registers for Temperature

| Address | Description | Input Register Representation | Default Value |
|---|---|---|---|
| 300 | CPU Temperature C | | |
| 301 | Board Temperature C | | |

## Input Register for Firmware Application

| Address | Description | Input Register Representation | Default Value |
|---|---|---|---|
| 1000-1001 | Firmware application part number | 32-bit decimal number (little-endian byte swap) | |
| 1002 | Firmware application version and build number | High byte: build number<br>Low byte:<br>High nibble = firmware major version<br>Low nibble = firmware minor version | 0x3C43 (build 60, firmware version 4.3) |



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# Appendix A: Alternative Modbus Interface

In addition to the primary Modbus interface, the K30 Pro and K50 Pro Devices with PICK-IQ offer an additional Modbus interface. The register layout of this interface is similar to the index layout used in the K30 Pro and K50 Pro Devices with IO-Link. This alternative interface lacks the Common ID concept available in PICK-IQ, but it offers additional animation functionality not available in the primary interface – for example, the ability to control individual LEDs. The alternative interface is activated by changing the value in Operation Mode (holding register 3200). For further description on how these additional settings affect the K30 Pro and K50 Pro Devices, refer to the K30 Pro Devices with IO-Link datasheet (215851) and the K50 Pro Devices with IO-Link datasheet (208737). The primary interface and this additional interface are intended to be used separately, although some settings can be used together.

## Startup Grace Period

After power is applied, and during device startup, the device uses the fixed communication settings (Device ID=196, Baud rate=19200, Data bits=8, Parity=None, Stop bits=1) for a small time period. In the event that the device's configured communication settings are not known to the user, this period can be used to communicate with the device using the fixed settings. During this period, the user can read and write registers to reconcile the device's configured communication settings. After this period has elapsed, the device begins using its configured communication settings as normal.

The duration of the grace period is configured by holding register 6106 and defaults to 1000 ms.

## Process Data

| Modbus Register | IOL Process Data Type | Operation Mode Applicability | IOL Subindex | Name | Data Values |
|---|---|---|---|---|---|
| 3000 | In | all | 1 | Output Active | 0 = Inactive, 1 = Active |
| 3001 | In | Four State Full Logic, Multicolor | 2 | Device Animation State | 0 = State 1, 1 = State 2, 2 = State 3, 3 = State 4 |
| 3020 | Out | Multicolor | 1 | Multicolor Animation State | 0 = State 1, 1 = State 2, 2 = State 3, 3 = State 4 |
| 3040 | Out | Four State Full Logic | 1 | Job Input | 0 = Inactive, 1 = Active |
| 3060 | Out | Advanced | 1 | Animation Type | 0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = 50/50<br>5 = 50/50 Rotate<br>6 = Chase<br>7 = Intensity Sweep<br>8 = Color Sweep<br>9 = Sequence |
| 3061 | Out | Advanced | 2 | Animation Direction | 0 = CCW, 1 = CW |
| 3062 | Out | Advanced | 3 | Animation Pattern | 0 = Flash, 1 = Strobe, 2 - Three Pulse, 3 = SOS, 4 = Random |
| 3063 | Out | Advanced | 4 | Animation Speed | 0 = Slow, 1 = Medium, 2 = Fast, 3 = Custom |
| 3064 | Out | Advanced | 5 | reserved | N/A |
| 3065 | N/A | Advanced | N/A | reserved | N/A |
| 3066 | N/A | Advanced | N/A | reserved | N/A |
| 3067 | N/A | Advanced | N/A | reserved | N/A |
| 3068 | Out | Advanced | 6 | Dynamic Sequence Value | 0-255 |
| 3069 | Out | Advanced | 7 | Sequence Start Location | 0 = LED1<br>1 = LED2<br>2 = LED3<br>3 = LED4<br>4 = LED5 (K50 Pro Devices Only)<br>5 = LED6 (K50 Pro Devices Only)<br>6 = LED7 (K50 Pro Devices Only)<br>7 = LED8 (K50 Pro Devices Only) |

| Modbus Register | IOL Process Data Type | Operation Mode Applicability | IOL Subindex | Name | Data Values |
|---|---|---|---|---|---|
| 3070 | Out | Advanced | 8 | Color 1 | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3071 | Out | Advanced | 9 | Color 1 Intensity | 0 = High, 1 = Medium, 2 = Low, 3 = Off, 4 = Custom |
| 3072 | Out | Advanced | 10 | Color 2 | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3073 | Out | Advanced | 11 | Color 2 Intensity | 0 = High, 1 = Medium, 2 = Low, 3 = Off, 4 = Custom |
| 3080 | Out | LED Control | 1 | LED 1 Color | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3081 | Out | LED Control | 2 | LED 1 Intensity | 0-10 = 0-100% |

| Modbus Register | IOL Process Data Type | Operation Mode Applicability | IOL Subindex | Name | Data Values |
|---|---|---|---|---|---|
| 3082 | Out | LED Control | 3 | LED 2 Color | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3083 | Out | LED Control | 4 | LED 2 Intensity | 0-10 = 0-100% |
| 3084 | Out | LED Control | 5 | LED 3 Color | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3085 | Out | LED Control | 6 | LED 3 Intensity | 0-10 = 0-100% |
| 3086 | Out | LED Control | 7 | LED 4 Color | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3087 | Out | LED Control | 8 | LED 4 Intensity | 0-10 = 0-100% |

| Modbus Register | IOL Process Data Type | Operation Mode Applicability | IOL Subindex | Name | Data Values |
|---|---|---|---|---|---|
| 3088 | Out | LED Control | 9 | LED 5 Color (K50 Pro Devices Only) | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3089 | Out | LED Control | 10 | LED 5 Intensity | 0-10 = 0-100% |
| 3090 | Out | LED Control | 11 | LED 6 Color (K50 Pro Devices Only) | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3091 | Out | LED Control | 12 | LED 6 Intensity | 0-10 = 0-100% |
| 3092 | Out | LED Control | 13 | LED 7 Color (K50 Pro Devices Only) | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3093 | Out | LED Control | 14 | LED 7 Intensity | 0-10 = 0-100% |

| Modbus Register | IOL Process Data Type | Operation Mode Applicability | IOL Subindex | Name | Data Values |
|---|---|---|---|---|---|
| 3094 | Out | LED Control | 15 | LED 8 Color (K50 Pro Devices Only) | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 |
| 3095 | Out | LED Control | 16 | LED 8 Intensity | 0-10 = 0-100% |
| 3096 | Out | LED Control | 17 | reserved | N/A |
| 3097 | Out | LED Control | 18 | reserved | N/A |
| 3098 | Out | LED Control | 19 | reserved | N/A |

## Parameter Data

| Modbus Register | Index | Subindex | Name | Value Range | Default |
|---|---|---|---|---|---|
| 3200 | 80 | N/A | Operation Mode | 0 = Multicolor<br>1 = Four State Full Logic<br>2 = Advanced<br>3 = LED Control<br>4 = Demo<br>**5 = PICK-IQ** | 5 |
| 3300 | 84 | 1 | State 1 Animation Type | 0 = Off<br>1 = Steady<br>2 = Flash<br>3 = Two Color Flash<br>4 = 50/50<br>5 = 50/50 Rotate<br>6 = Chase<br>7 = Intensity Sweep<br>8 = Color Sweep<br>9 = Sequence | 1 |
| 3301 | 84 | 2 | State 1 Animation Direction | 0 = CCW, 1 = CW | false |
| 3302 | 84 | 3 | State 1 Animation Pattern | 0 = Flash, 1 = Strobe, 2 - Three Pulse, 3 = SOS, 4 = Random | 0 |
| 3303 | 84 | 4 | State 1 Animation Speed | 0 = Slow, 1 = Medium, 2 = Fast, 3 = Custom | 1 |
| 3304 | 84 | 5 | State 1 Haptic Feedback | N/A | 0 |
| 3305 | 84 | 6 | State 1 Off Delay Type | 0 = Leading Edge, 1 = Trailing Edge | false |
| 3306 | 84 | 7 | State 1 Off Delay (ms) | 0-65535 | 0 |
| 3307 | not available | not available | State 1 On Delay (ms) | N/A | N/A |
| 3308 | 84 | 8 | State 1 Static Sequence Value (0-225) | 0-225 | 0 |

| Modbus Register | Index | Subindex | Name | Value Range | Default |
|---|---|---|---|---|---|
| 3309 | 84 | 9 | State 1 Sequence Start Location | 0 = LED1<br>1 = LED2<br>2 = LED3<br>3 = LED4<br>4 = LED5<br>5 = LED6<br>6 = LED7<br>7 = LED8 | 0 |
| 3310 | 84 | 10 | State 1 Color 1 | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 | 0 |
| 3311 | 84 | 11 | State 1 Color 1 Intensity | 0 = High, 1 = Medium, 2 = Low, 3 = Off, 4 = Custom | 0 |
| 3312 | 84 | 12 | State 1 Color 2 | 0 = Green<br>1 = Red<br>2 = Orange<br>3 = Amber<br>4 = Yellow<br>5 = Lime Green<br>6 = Spring Green<br>7 = Cyan<br>8 = Sky Blue<br>9 = Blue<br>10 = Violet<br>11 = Magenta<br>12 = Rose<br>13 = White<br>14 = Custom1<br>15 = Custom2 | 0 |
| 3313 | 84 | 13 | State 1 Color 2 Intensity | 0 = High, 1 = Medium, 2 = Low, 3 = Off, 4 = Custom | 0 |
| 3320-3333 | 85 | State 2 Parameters (same structure as Index 84) | | | |
| 3340-3353 | 86 | State 3 Parameters (same structure as Index 84) | | | |
| 3360-3373 | 87 | State 4 Parameters (same structure as Index 84) | | | |
| 3400 | 88 | 2-1 | Custom Color 1 Green and Red | 0-255 | 255 |
| 3401 | 88 | 3 | Custom Color 1 Blue | 0-255 | 255 |
| 3410 | 89 | 2-1 | Custom Color 2 Green and Red | 0-255 | 255 |
| 3411 | 89 | 3 | Custom Color 2 Blue | 0-255 | 255 |
| 3420 | 81 | 1 | Custom Intensity (0-100%) | 0-100 | 100 |
| 3421 | 81 | 2 | Custom Flash Rate (0.5-25.5 Hz) | 5-255 | 15 |
| 3422 | 81 | 3 | Restrict to Gamut | 0 = Off, 1 = On | 0 |
| 3430 | 82 | 1 | Touch Sensitivity | 0 = Low, 1 = Standard, 2 = High | 1 |
| 3431 | 82 | 2 | Touch Function | 0 = Momentary, 1 = Latched | 0 |

| Modbus Register | Index | Subindex | Name | Value Range | Default |
|---|---|---|---|---|---|
| 3432 | 82 | 3 | Touch Mute Enable | 0 = Off, 1 = On | 0 |
| 3433 | 82 | 4 | Touch On-Delay (ms) | 0-65535 | 0 |
| 3440 | 83 | 1 | Output State | 0 = Normally Closed, 1 = Normally Open | true |
| 3441 | 83 | 2 | Output Off-Delay Type | 0 = Leading Edge, 1 = Trailing Edge | 0 |
| 3442 | 83 | 3 | Output Off-Delay (ms) | 0-65,535 | 0 |

## Miscellaneous

| Modbus Register | Name | Value | Access Type |
|---|---|---|---|
| 3900 | High temperature | 0 = normal temperature, 1 = high temperature condition | r |
| 3901 | LED0 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 3902 | LED1 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 3903 | LED2 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 3904 | LED3 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 3905 | LED4 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 3906 | LED5 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 3907 | LED6 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 3908 | LED7 Open/Short | Bitfield: (short) xxxxBGR (open) xxxxBGR | r |
| 6106 | Startup grace period | milliseconds | rw |



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