

C501 and C505 Custom Configuration

1 Introduction

ABB can supply custom configurations for the C501 and C505 Process Controllers on request.

Enter the required setting or place a check mark (✓) against the relevant parameters in the following tables and return this document to the Global Sales office at Stonehouse.

2 Basic Configuration

Referring to Section 4.2 of the relevant User Guide (IM/C501 or IM/C505 respectively), complete the following tables:

Template Application (✓ the required template on which all other settings will be based)

| | |
|---|--|
| Single Loop with Local Set Point | |
| Single Loop with Remote Set Point | |
| Auto/Manual Station with Low Signal Selection | |
| Auto/Manual Station with Digital Selection | |
| Analog Backup with Low Signal Selection | |
| Analog Backup with Digital Selection | |
| Single Indicator/Manual Loader | |
| Double Indicator/Manual Loader | |

The following parameters are applicable only to the C505

| | |
|---|--|
| Single Loop with Feedforward and Local Set Point | |
| Single Loop with Feedforward and Remote Set Point | |
| Cascade with Local Set Point | |
| Cascade with Remote Set Point | |
| Cascade with Feedforward and Local Set Point | |
| Ratio Controller | |
| Ratio Controller with External Ratio | |
| Ratio Station | |
| Ratio Station with External Ratio | |

Control Output Type (✓ the output type required)

| | |
|--|--|
| None | |
| Analog Output | |
| Relay Output | |
| Digital Output | |
| Motorized Valve with Feedback | |
| Motorized Valve without Feedback | |
| Heat/Cool (Output 1 = Relay, Output 2 = Relay) | |
| Heat/Cool (Output 1 = Relay, Output 2 = Digital) | |
| Heat/Cool (Output 1 = Digital, Output 2 = Relay) | |
| Heat/Cool (Output 1 = Digital, Output 2 = Digital) | |
| Heat/Cool (Output 1 = Analog, Output 2 = Relay) | |
| Heat/Cool (Output 1 = Analog, Output 2 = Digital) | |
| Heat/Cool (Output 1 = Analog, Output 2 = Analog) | |

Control Action Output 1 (✓ the control action required)

| | |
|---------|--|
| Reverse | |
| Direct | |

Control Action Output 2 – Heat/Cool only
(✓ the control action required)

| | |
|---------|--|
| Reverse | |
| Direct | |

Mains Rejection Frequency (✓ the frequency required)

| | |
|-------|--|
| 50 Hz | |
| 60 Hz | |

3 Analog Inputs

Referring to Section 4.3 of the relevant User Guide (IM/C501 or IM/C505 respectively), enter the settings required for each of the analog inputs:

3.1 Analog Input 1

Input Type (✓ the input type required)

| | |
|--------------------------|--|
| Not Used | |
| THC Type B | |
| THC Type E | |
| THC Type J | |
| THC Type K | |
| THC Type L | |
| THC Type N | |
| THC Type R | |
| THC Type S | |
| THC Type T | |
| PT100 RTD | |
| 0 to 20 mA | |
| 4 to 20 mA | |
| 0 to 5 V | |
| 1 to 5 V | |
| 0 to 50 mV | |
| 4 to 20 mA (Square Root) | |
| 4 to 20 mA (Power 3/2) | |
| 4 to 20 mA (Power 5/2) | |
| Custom | |

Input Type – Custom Options (✓ the input type required)

| | |
|------------|--|
| Millivolts | |
| Milliamps | |
| Volts | |
| Resistance | |

Linearizer Type (✓ the linearizer type required)

| | |
|------------|--|
| THC Type B | |
| THC Type E | |
| THC Type J | |
| THC Type K | |
| THC Type L | |
| THC Type N | |
| THC Type R | |

| | |
|-------------|--|
| THC Type S | |
| THC Type T | |
| PT100 RTD | |
| Square Root | |
| Power 3/2 | |
| Power 5/2 | |

Custom Linearizers

(provide details of the curve required)

| | |
|---|--|
| 1 | |
| 2 | |

Electrical Range

(enter the electrical range values required)

| | |
|------|--|
| Low | |
| High | |

Fault Detect Level

(enter the value of the level of fault detection required)

| |
|--|
| |
|--|

The following parameters are applicable to all input types:

Engineering Range

(enter the engineering range values required)

| | |
|------|--|
| Low | |
| High | |

Decimal Places (✓ the number of decimal places required)

| | |
|---|--|
| 0 | |
| 1 | |
| 2 | |
| 3 | |

Broken Sensor Drive (✓ the direction for the input in the event of a broken sensor)

| | |
|------|--|
| None | |
| Up | |
| Down | |

Input Filter Time Constant (enter the time period in seconds over which the input values are to be averaged)

| |
|--|
| |
|--|

3.2 Analog Input 2

Input Type (✓ the input type required)

| | |
|--------------------------|--|
| Not Used | |
| THC Type B | |
| THC Type E | |
| THC Type J | |
| THC Type K | |
| THC Type L | |
| THC Type N | |
| THC Type R | |
| THC Type S | |
| THC Type T | |
| PT100 RTD | |
| 0 to 20 mA | |
| 4 to 20 mA | |
| 0 to 5 V | |
| 1 to 5 V | |
| 0 to 50 mV | |
| 4 to 20 mA (Square Root) | |
| 4 to 20 mA (Power 3/2) | |
| 4 to 20 mA (Power 5/2) | |
| Custom | |

Input Type – Custom Options (✓ the input type required)

| | |
|------------|--|
| Millivolts | |
| Milliamps | |
| Volts | |
| Resistance | |

Linearizer Type (✓ the linearizer type required)

| | |
|------------|--|
| THC Type B | |
| THC Type E | |
| THC Type J | |
| THC Type K | |
| THC Type L | |
| THC Type N | |
| THC Type R | |

| | |
|-------------|--|
| THC Type S | |
| THC Type T | |
| PT100 RTD | |
| Square Root | |
| Power 3/2 | |
| Power 5/2 | |

Custom Linearizers

(provide details of the curve required)

| | |
|---|--|
| 1 | |
| 2 | |

Electrical Range

(enter the electrical range values required)

| | |
|------|--|
| Low | |
| High | |

Fault Detect Level

(enter the value of the level of fault detection required)

| |
|--|
| |
|--|

The following parameters are applicable to all input types:

Engineering Range

(enter the engineering range values required)

| | |
|------|--|
| Low | |
| High | |

Decimal Places (✓ the number of decimal places required)

| | |
|---|--|
| 0 | |
| 1 | |
| 2 | |
| 3 | |

Broken Sensor Drive (✓ the direction for the input in the event of a broken sensor)

| | |
|------|--|
| None | |
| Up | |
| Down | |

Input Filter Time Constant (enter the time period in seconds over which the input values are to be averaged)

| |
|--|
| |
|--|

3.3 Analog Input 3

Input Type (✓ the input type required)

| | |
|--------------------------|--|
| Not Used | |
| THC Type B | |
| THC Type E | |
| THC Type J | |
| THC Type K | |
| THC Type L | |
| THC Type N | |
| THC Type R | |
| THC Type S | |
| THC Type T | |
| PT100 RTD | |
| 0 to 20 mA | |
| 4 to 20 mA | |
| 0 to 5 V | |
| 1 to 5 V | |
| 0 to 50 mV | |
| 4 to 20 mA (Square Root) | |
| 4 to 20 mA (Power 3/2) | |
| 4 to 20 mA (Power 5/2) | |
| Custom | |

Input Type – Custom Options (✓ the input type required)

| | |
|------------|--|
| Millivolts | |
| Milliamps | |
| Volts | |
| Resistance | |

Linearizer Type (✓ the linearizer type required)

| | |
|------------|--|
| THC Type B | |
| THC Type E | |
| THC Type J | |
| THC Type K | |
| THC Type L | |
| THC Type N | |
| THC Type R | |

| | |
|-------------|--|
| THC Type S | |
| THC Type T | |
| PT100 RTD | |
| Square Root | |
| Power 3/2 | |
| Power 5/2 | |

Custom Linearizers

(provide details of the curve required)

| | |
|---|--|
| 1 | |
| 2 | |

Electrical Range

(enter the electrical range values required)

| | |
|------|--|
| Low | |
| High | |

Fault Detect Level

(enter the value of the level of fault detection required)

| |
|--|
| |
|--|

The following parameters are applicable to all input types:

Engineering Range

(enter the engineering range values required)

| | |
|------|--|
| Low | |
| High | |

Decimal Places (✓ the number of decimal places required)

| | |
|---|--|
| 0 | |
| 1 | |
| 2 | |
| 3 | |

Broken Sensor Drive (✓ the direction for the input in the event of a broken sensor)

| | |
|------|--|
| None | |
| Up | |
| Down | |

Input Filter Time Constant (enter the time period in seconds over which the input values are to be averaged)

| |
|--|
| |
|--|

4 Alarm Configuration

Referring to Sections 4.4 of the relevant User Guide (IM/C501 or IM/C505 respectively), enter the settings required for each of the alarms.

Global Alarm Acknowledge Source (enter a digital input source to acknowledge all alarms)

| |
|--|
| |
|--|

4.1 Alarm 1

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 1 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

4.2 Alarm 2

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 2 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

4.3 Alarm 3

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 3 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

4.4 Alarm 4

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 4 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

4.5 Alarm 5

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 5 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

4.6 Alarm 6

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 6 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

4.7 Alarm 7

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 7 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

4.8 Alarm 8

Alarm Type (✓ the alarm type required)

| | |
|----------------------|--|
| None | |
| High Process PV | |
| Low Process PV | |
| High Latch PV | |
| Low Latch PV | |
| High Deviation | |
| Low Deviation | |
| High Process Input 1 | |
| Low Process Input 1 | |
| High Process Input 2 | |
| Low Process Input 2 | |
| High Process Input 3 | |
| Low Process Input 3 | |
| High Output | |
| Low Output | |
| Math Block 1 High | |
| Math Block 1 Low | |
| Math Block 2 High | |
| Math Block 2 Low | |
| Math Block 3 High | |
| Math Block 3 Low | |
| Math Block 4 High | |
| Math Block 4 Low | |

Alarm Trip (enter the alarm trip point value)

| | |
|--------------|--|
| Alarm 8 Trip | |
|--------------|--|

Alarm Hysteresis (enter the alarm hysteresis value)

| | |
|------------------|--|
| Alarm Hysteresis | |
|------------------|--|

5 Set Point Configuration

Referring to Sections 4.5 of the relevant User Guide (IM/C501 or IM/C505 respectively), enter the settings required for each of the following parameters:

Set Point Tracking (✓ the mode required)

| | |
|----------------|--|
| Off | |
| Local | |
| Remote | |
| Local + Remote | |

Set Point Limits (enter the values required)

| | |
|------|--|
| High | |
| Low | |

Multiple Local Set Points (enter each set point value and its respective source as required)

| | | | |
|--------------------------|--|---------------|--|
| Local Set Point 1 | | Source | |
| Local Set Point 2 | | Source | |
| Local Set Point 3 | | Source | |
| Local Set Point 4 | | Source | |

Local/Remote Set Point Source (enter the source required)

| |
|--|
| |
|--|

6 Output Assignment Configuration

Referring to Sections 4.8 of the relevant User Guide (IM/C501 or IM/C505 respectively), enter the settings required for each of the following parameters:

Digital Output 1 Polarity (✓ the required polarity)

| | |
|----------|--|
| Positive | |
| Negative | |

Analog Output 1 Electrical Range

(enter the electrical range values required)

| | |
|------|--|
| High | |
| Low | |

Analog Output 1 Retransmission Engineering Range

(enter the engineering range values required)

| | |
|------|--|
| High | |
| Low | |

Analog Output 2 Electrical Range

(enter the electrical range values required)

| | |
|------|--|
| High | |
| Low | |

Analog Output 2 Retransmission Engineering Range

(enter the engineering range values required)

| | |
|------|--|
| High | |
| Low | |

Relay Outputs (enter each source and ✓ required polarity)

| | | | | |
|--------------------------|----------|--|----------|--|
| Output 1 Source | | | | |
| Output 1 Polarity | Positive | | Negative | |
| Output 2 Source | | | | |
| Output 2 Polarity | Positive | | Negative | |
| Output 3 Source | | | | |
| Output 3 Polarity | Positive | | Negative | |
| Output 4 Source | | | | |
| Output 4 Polarity | Positive | | Negative | |

7 Serial Communications Configuration

Referring to Sections 4.9 of the relevant User Guide (IM/C501 or IM/C505 respectively), enter the settings required for each of the following parameters:

Serial Configuration (✓ the connection type required)

| | |
|-------------------------|--|
| Off | |
| 2 Wire, 2400 Baud Rate | |
| 4 Wire, 2400 Baud Rate | |
| 2 Wire, 9600 Baud Rate | |
| 4 Wire, 9600 Baud Rate | |
| 2 Wire, 19200 Baud Rate | |
| 4 Wire, 19200 Baud Rate | |

Parity (✓ the parity required)

| | |
|------|--|
| None | |
| Odd | |
| Even | |

Modbus Address (enter a value between 1 and 99 to identify the controller on a Modbus link)

| |
|--|
| |
|--|

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ABB Limited
Oldends Lane, Stonehouse
Gloucestershire
GL10 3TA
UK
Tel: +44 (0)1453 826661
Fax: +44 (0)1453 829671

ABB Inc.
125 E. County Line Road
Warminster
PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183