

Installing LoopConnect Software 5	
Security	
Connecting to the Fisher FIELDVUE [™] DPC2K	
Digital Process Controller 6	
Verify IP Address 5	
LoopConnect	
Dashboard Overview	
Instrument Setup 10	
I/O Configuration 13	
Loop Configuration	
Control Operation 24	



This quick start guide provides configuration and setup for the DPC2K digital process controller using Fisher LoopConnect software



FISHER



Do not install, operate, or maintain a DPC2K controller without being fully trained and qualified in valve, actuator, and accessory installation, operation, and maintenance. To avoid personal injury or property damage, it is important to carefully read, understand, and follow all contents of this quick start guide, including all safety cautions and warnings. If you have any questions about these instructions, contact your <u>Emerson sales office</u> before proceeding.

Refer to the DPC2K Quick Start Guide (D104559X012) for information on installing the DPC2K digital process controller.

Related Documents

The following documents include DPC2K installation information, product specifications, reference materials, custom setup information, maintenance procedures, and replacement part details. If a copy of any of these documents is needed scan or click the QR code below, contact your <u>Emerson sales office</u>, or visit our website at Fisher.com.

- Bulletin 34.7:DPC2K Fisher FIELDVUE DPC2K Digital Process Controller (D104561X012)
- Fisher FIELDVUE Digital Valve Controller Quick Start Guide (D104559X012)
- Fisher FIELDVUE DPC2K Digital Process Controller Instruction Manual (D104786X012)



Scan or click for Installation Documents & Field Support

emrsn.co/FieldSupportDPC2K

Security

NOTICE

Physical security is an important part of any security program and is fundamental to protecting your system. Unauthorized personnel may potentially cause significant damage to and/or misconfiguration of end users' equipment. This could be intentional or unintentional and must be protected against by restricting access of unauthorized personnel in your facility.

- The DPC2K Single Loop Controller has several security capabilities:
 - System stores configuration and log data.
 - DPC2K Signed Firmware prevents the downloading of corrupted or unauthorized firmware.
 - The DPC2K has the capability to enable or disable the provided communication channels as well as enabling or disabling various types of communication on those channels.
 - The Write Protect switch, located under the terminal cover, when enabled, helps prohibit unintentional configuration and calibration changes over all interfaces.
- If unsecured, any device in the field is vulnerable to a physical attack; safety and security procedures must include mitigation by physical security controls.
- By default the instrument is shipped from the factory with all the communication channels disabled. The following are unsecured, unencrypted inputs and outputs used by the DPC2K single loop controller:
 - AI1: Analog input capable of reading a 4-20 mA signal and communicating HART FSK as a secondary device.
 - AI2: Analog input capable of reading a 4-20 mA signal.
 - AO: Analog output capable of driving a 4-20 mA signal.
 - Communication Channels:

RS-485 – In normal operation, this channel is used to communicate Modbus.

HART-FSK – The DPC2K will be a secondary HART communicating device on AI1.

LUI – Local user interface provides ethernet configuration options and monitoring.

LAN/TCP – Supports user defined HART-IP port and a Modbus defined TCP port.

LAN/UDP – Supports up to four UDP sessions over HART-IP.

- The DPC2K uses LoopConnect software for device configuration, including enabling communication protocols used and data monitoring. It is expected that LoopConnect software is installed and run on a computer that is configured and operated according to local security policies.
- Product Operation Best Practices:
 - Ensure that operation personnel are trained both on local security policies and the secure operation of the DPC2K and LoopConnect software.

- It is recommended that you set the Write Lock switch in the enabled position after configuration is complete.
- Operate the device within a controlled and secured physical environment.
- When connected to a network, operate the DPC2K and LoopConnect software within a controlled and secured network environment.
- Configure security settings of the DPC2K, providing access to only what is absolutely required to perform configuration and operational functions.
- Apply security patches and updates as they are released.

Note

Work with your <u>Emerson sales office</u> to stay informed and obtain access to security patches and updates.

- Report security incidents and potential product vulnerabilities at: https://go.emersonautomation.com/reportvulnerability_en
- Product Disposal Guidelines

When the device needs to be disposed of consider the following aspects of device removal:

- Identify whether the device can be reused in another part of the process or for testing or training purposes.
- Identify what data is stored on the device and sanitize this data with the latest industry recommended methods. To restore the device back to factory defaults:
- 1. Using LoopConnect navigate to the Device Data Tab.
- 2. Select "Restore Factory Defaults" and follow on screen instructions.

If the device will not be reused, follow local disposal policy.

To uninstall LoopConnect software from your computer go to Start > Settings > Apps > Apps & features and select LoopConnect.

Installing LoopConnect Software

The complete LoopConnect software installation process includes several steps. In order to successfully install and run LoopConnect software, it is important that you follow all of the steps below.

Note

LoopConnect software is available from your <u>Emerson sales office</u>. Contact your Emerson sales office if a copy of this software is needed or to ensure you have the latest version installed.

Ensure you have Administrator rights on the computer the software is being installed.

- 1. Download LoopConnect Software.
- 2. Unzip the download file.
- 3. Open file and run setup.exe.
- 4. Click Next to install the software.
- 5. Read license agreement and accept by selecting Next.
- 6. Click Finish once the install is complete.

Verify IP Address

Note

This procedure is performed using the Local User Interface (LUI) on the DPC2K digital process controller.

From the HOME SCREEN press the right arrow to advance to the MAIN MENU.

From the the MAIN MENU, use the up, down, or right navigation buttons to advance through the selections. The left arrow takes you back to the HOME SCREEN or a previous screen.

Note

Navigate to Setup > Communication Settings > LAN if connecting to a network with settings other than the default of 192.168.1.9.

LAN Settings may be viewed and modified through the Local User Interface (LUI), including:

- IP Address and Network configurations
- DHCP Enable, to connect to an existing network that supports DHCP and NTP Servers

When DHCP is enabled, the IP address, Net Mask, and Gateway information are displayed. Make note of the HOSTNAME and IP address for connection by a host or configuration software.

LoopConnect Software also provides a simple method for network setup. Once connected, use either the IP Address assigned if static or the HOSTNAME if DHCP to connect.

Connecting to the DPC2K Digital Process Controller

Use a standard Ethernet cable to connect the DPC2K to a computer for configuration and monitoring.

Notes

When DHCP is not enabled, the factory default IP address and subnet mask is 192.168.1.9, 255.255.255.0.

If you need to verify the IP Address of the DPC2K, use the DPC2K Local User Interface (LUI) to view or change the IP Address:

- a. Ensure the DPC2K is powered up.
- b. Press any button on the LUI to view the Main menu.
- c. Use down arrow to Setup.
- d. Use right arrow or Select to view the Setup menu.
- e. Use down arrow to Communication Settings.
- f. Use right arrow or Select to access LAN.
- g. The LAN Menu shows the current (default) IP Address, and allows you to make changes, depending upon the network architecture.

Figure 1. Ethernet Cable Connection



The computer will need to be configured to from a private network before communicating with the Gateway. The network settings can be found in the control panel of the computer running a Microsoft platform based operating system.

To configure these settings:

- 1. Find and open the Control Panel (generally accessed from the Start Menu).
- 2. Open Network and Sharing Center.
- 3. Select Change Adapter Settings.
- 4. Click on desired Network Adapter (See Figure 2).

Figure 2. Network Connections



Note

If using a USB network adapter, ensure it is plugged in and recognized as a network connection.

- 5. Right click and select Properties.
- 6. Select Internet Protocol (TCP/IP), then Properties (see Figure 3).
- 7. From the General tab, select Use the following IP address button.
- 8. Set the IP Address to 192.168.1.XX (where XX range is from 2 to 255) then tab on the keyboard (See Figure 4).

Note

The XX cannot be 9 or 1.

- 9. Select OK to close the Internet Protocol (TCP/IP) window.
- 10. Select Close on the Local Area Connection window.

Figure 4. IP Address Configuration

Figure 3. Ethernet Properties

2	Internet Protocol Version 4 (TCP)	/IPv4) Properties
nect using:	General	
Intel(R) Ethemet Connection (5) I219-LM Configure connection uses the following items: Client for Microsoft Networks GoS Packet Scheduler Internet Protocol Version 4 (TCP/IPv4) Microsoft LLDP Protocol Driver Internet Protocol Version 6 (TCP/IPv6) Install Uninstall Properties secreption Transmission Control Protocol/Internet Protocol. The default ide area network protocol Intal provides communication cross diverse interconnected networks.	You can get IP settings assigned this capability. Otherwise, you n for the appropriate IP settings. Obtain an IP address auton Obtain an IP address auton Use the following IP address IP address: Subnet mask: Default gateway: Obtain DNS server address Obtain DNS server address Use the following DNS server Preferred DNS server: Alternate DNS server:	l automatically if your network support eed to ask your network administrator natically s: 192 . 168 . 1 . 50 255 . 255 . 255 . 0 192 . 168 . 1 . 1 automatically er addresses: Advanced

LoopConnect Software

To connect to a DPC2K digital process controller using LoopConnect click CONNECT and navigate to your instrument.

Note

If a message pops up indicating issues with screen resolution open the computer's Display Settings and change from Default (150%) to 125% or 100%. Re-open the software.

Note

Once a manual connection is made, it will stay live and active until manually disconnected or the application is closed.

Note

If a change is made to the DPC2K locally during start-up, you will need to apply that change through the LUI.

Dashboard Overview

When the software is connected to the DPC2K, the dashboards display information about the device. Status and troubleshooting assistance is displayed in the Now Viewing and DEVICE STATUS panels, as shown in Figure 5.

Note

You may also encounter popup messages noting configuration errors, along with suggestions for resolving the error. For example, there are several configuration changes that can only be performed when the Loop is in MANUAL operation.

Figure 5. LoopConnect Software Dashboards



Instrument Setup

Upon connection the display opens on the CONTROL dashboard.

Figure 6. CONTROL Dashboard

Device Map DP	C2K-30002E					🖉 LoopConnect	Help About LoopConnect
DPC2K-30002E	CONTROL		LOOP				
Now Viewing							DEVICE STATUS
CURRENT STATE							(1) Normal
PENDING CHIMGES	SP Source	SP	PV	SP : PV Data • SP • PV 100 100 100 100 100 100 100 10	Output	MANUAL	PROCESS ALARMS ~ DEVICE ALERTS ~ DEVICE VARIABLES ^
	REMOTE	40.00	40.31		29 <u>.</u> 57	АЛТО	AI 2 Bad
		1	1		+		AO Bad Constant
(APPLY)	ſ	AI 1	Process Pressure		Pneumatic Output		PV Target In Local
TIMPORT TOXOUL	Į	-25.03	40.31		30,69		SP Target in Local Local/Fixed Constant
FISHER							

Note

Configuration tasks generally start with the Instrument dashboard on the right and move left to the Loop dashboard.

Open the INSTRUMENT dashboard, shown in Figure 7, to:

- 1. Customize Security Settings and
- 2. Update the IP Address

Customizing Security Settings allows all configuration and writable parameters to be modified.

Customize Security Settings

The security settings can be modified to meet your company's security requirements.

Security Setting can be modified as follows:

- Open the Security Settings tab and enable only the communication port and type of communication needed.
- Select the port or protocol column heading to allow/disallow each column.
- Individual settings may also be modified by clicking on the individual item.

Note

Pending changes are indicated by the color goldenrod (yellow). An error, or other important message is indicated by the color red.

Once the Security Settings have been set as desired, apply the changes to enable the modified security settings.

Figure 7. Instrument Dashboard, Security Settings

Main divides Write Protect : Off Connection Types Allowed HART-FSK Modbus Peny Allowed Pen	ving ENT STATE	D	evice Data	Factory Information	tion Com	munication Settin	gs See	curity Settings			DEVICE STAT
Note: Image: Provide the p	IG CHANGES	Write P	rotect : Off	Connection Type	s				Allow All	Deny All	PROCESS A
Notes TCP Port 594 Custom TCP Port Setal Allowed Custom TCP Port Allowed Primary Master Allowed TCP Port Allowed Allowed Setal Allowed Primary Master Allowed TCP Port Master Allowed Primary Master Allowed					HART-IP		HAR	RT-FSK	Ma	dbus	DEVICE A
PO Write Remote SP PS SP Source to Local/Remote PS SP Source to Local/Remote PS SP Source to Local/Remote Clear fault State V PO Output PO Output Clear fault State V PO Output PO Output <td< th=""><th></th><th></th><th></th><th>TCP Port 5094 Allowed</th><th>Custom TCP Port Allowed</th><th>Custom UDP Port Allowed</th><th>Primary Master Allowed</th><th>Secondary Master Allowed</th><th>TCP Port Allowed</th><th>Serial Allowed</th><th>Pneumatic Out</th></td<>				TCP Port 5094 Allowed	Custom TCP Port Allowed	Custom UDP Port Allowed	Primary Master Allowed	Secondary Master Allowed	TCP Port Allowed	Serial Allowed	Pneumatic Out
0 REDO SP Source to Local/Remote Image: Constant Constant Constant APR/ Clear Fault State Image: Clear State <td< td=""><td></td><td></td><td>Write Remote SP</td><td>\checkmark</td><td></td><td></td><td></td><td></td><td></td><td>~</td><td>Output</td></td<>			Write Remote SP	\checkmark						~	Output
Clear Fault State Image: Specific Spec		SP	SP Source to Local/Remote Modify Local Value	~							Constant
APPY APPY APPY APPY APPY APPY APPY APPY	O REDO		Clear Fault State	~							Process Press
RT BROORT PID Output to Auto/Manual Modify Manual Values Image to in Loca Image to in Loca Image to in Loca Loca/Field Loca/Field Loca/Field Loca/Field Loca/Field Loca/Field Loca L	APPLY	M	Remote Write to PV	~							Bad
Image: Section of Sectio	T L EXPORT	but	PID Output to Auto/Manual Modify Manual Value	\checkmark							SP Target in Local
Write PID Tuning Values Image: Constraint of the pice write to A		Out	Clear Fault State	~							Local/Fixed Constant
Remote Write to AO Image: Control of the control o			Write PID Tuning Values	~							PV
V Alto Advid/Manual Modify Manual Value I I I I V Clear Statt State V I I I V Remote Write to Pneumatic V I I I V Pneumatic to Auto/Manual Modify Manual Value V I I I V Clear Statt State V I I I I			Remote Write to AO	~							Target In Local
Clear Fault State V Image: Clear State State Image: Clear State State State State Image: Clear State		VO	AO to Auto/Manual Modify Manual Value	~							
Y Remote Write to Pneumatic Image: Construction of the construc			Clear Fault State	~							
Peumatic fo Auto/Manual Value		Ę	Remote Write to Pneumatic	~							
		emn	Pneumatic to Auto/Manual Modify Manual Value	~							
		Pne	Clear Fault State	~							

Update the IP Address

Open the Communication Settings tab to access the IP Address.

Note

It is recommended that the IP Address, found under LAN Settings be changed from the default (192.168.1.9). This will allow multiple controllers to be accessed simultaneously through a simple network switch.

Figure 8. Instrument Dashboard, Communication Settings



Note

The DPC2K controller will restart, connection will be reestablished, and the Device Map will be updated with the new IP address. Once the IP Address has been modified each new controller you add will follow this same basic process.

I/O Configuration

Navigate to the I/O dashboard.

Note

Configuration Notices, found under the Now Viewing panel on the left side of the software, provide details about conditions required to complete configuration changes.

They are only visible when such conditions are present.

gure 9. I/O [Dashboard							
						K THE POP UP TO EXAND/O HIN THE DASH	PPEN CARDS IBOARDS	
DPC2K-30002E							(2) LoopConnect	t Help About LoopConnect
DPC2K-30002E	CONTROL			vo (INSTRUMENT)		2
Now Viewing	Inpu	uts			j	Ou	tputs	DEVICE STATUS
CURRENT STATE	ANALOG INPUT 1	AI 1				ANALOG OUTPUT	AO	() Normal
PENONG OWNIGES	RANGE 0.000 - 200.0 psi	75.00	5			RANGE 0.000 - 100.0 %	26.92 ©	PROCESS ALARMS ~ DEVICE ALERTS ~ DEVICE VARIABLES ^
	ANALOG INPUT 2	Process Press SP				PNEUMATIC OUTPUT	Pneumatic Output	Pneumatic Output
	RANGE 50.00 - 100.0 ps	37.52 _{psi}				RANGE 0.000 - 100.0%	21.56	Output Constant
(ONDO REDO O	PRESSURE SENSOR	Process Pressure						Process Press SP
LIMPORT LEXPORT	RANGE 0.000 - 100.0 psi	10.07 psi						SP Target in Local
								Local/Fixed Constant
								PV
Contract -								4

Expand each I/O point (see Figure 9) to access and configure :

- Point name
- Units
- Ranges
- Calibration

You can also view information regarding the triggers for status alerts.

Note

It is recommended that you modify the POINT NAME to be descriptive of the connection or Tag on a P&ID drawing. For example, change AI 1 to "Process Input" or AO to "Valve Output".

Select the engineering units and set the lower and upper range values.

If Calibration is required, connect a calibrated source to the Analog Inputs to verify the 4 and 20 mA points.

A WARNING

During calibration the valve will move full stroke. To avoid personal injury and property damage caused by the release of pressure or process fluid, isolate the valve from the process and equalize pressure on both sides of the valve or bleed off the process fluid.

Note

The Analog Output requires a calibrated measurement to verify the 4 and 20 mA outputs.

Note

The analog output is calibrated at the factory and should not need to be re-calibrated; however if adjustments are required perform the calibration procedure.

Configuring the Pneumatic Output

The Pneumatic Output must be set to Manual before you can make changes using LoopConnect software.

Note

Configuration Notices, found under the Now Viewing panel on the left side of the software (Figure 10), provide details about conditions required to complete configuration changes.

Configuration Notices are only visible when such conditions are present.

Figure 10. Configuration Notices



Note

Set the Output to MANUAL then VENT or SUPPLY prior to performing a Travel Calibration or AUTO CAL. Refer to Figure 11.

Once the conditions are enabled and the Output is at vent (fail condition) a Manual Travel Calibration or Auto Cal. may be performed.

Note

During this process, the valve will move through its full stroke using the VENT and SUPPLY buttons.

Figure 11. Setting the Output

Device Map	DPC2K-30002E			🖉 LoopCor	nect Help About LoopConnect
DPC2K-30002E				г	
Now Viewing		Pneumatic Output	Advanced ®	Outputs	DEVICE STATUS
	POINT NAME Pneumatic Output Action Increase To Open OUTPUT/OURY RESSURE UNITS psi - Pounds per Square Inch V Increase To Open UNLOCK OUTPUT/AUB MANUALI 30.01	Fault State VALUE State VALUE State VALUE 0.000 % SHED THE 0 Seconds RECOVERY	State FAULT STATE CONDITIONS Off Preumatic Status Boor Off Preumatic Status Bad Off Preumatic State Off Device Marlunction Off Low Supply Voltage Warning Off Ortical Power Failure	ANALOG OUTPUT A RANGE 0.000 4.000 - 20.00 mA mA PNEUMATIC OUTPUT Pneumatic Outp RANGE 30.01 0.000 - 100.0 % %	Processing Normal PROCESSALARMS DEVICE ALERTS DEVICE VARIABLES Procenatic Output Manual/Fixed Constant Output Manual/Fixed
	VENT SUPPLY READBACK VALUE READBACK SOURCE	Cutoffs ENABLED	Off Env. Condition out of Range Off Device Restart		Al 2 Bad
Configuration Notices Some Elements are disabled Unless Pneumatics Output is in Vent or Supply.	30.76 % Travel REATTINE Direct Low Bleed Manual Travel Calibration Colorudan Data B/2/2023 11:12:22 AM S	UPPER 99.50 % 0.500 %	HIGH HIGH OH		986 Constant PV Target In Local SP Target In Local Local/Fixed Constant
FISHER	LAST AUTO CAL 8/2/2023 11:12:5	i1 AM	Off 0.000 % DEADBAND 0.000 %		EMERSON.

Device Map DPC2K-3000					🖉 LoopConnect	Help About LoopConnect
DPC2K-30002E	TTROL EVENTS	LOOP Pneumatic Output Fault State VOP No Fault State V VALUE 0.000 % SHED TIME 0 Seconds RECOVERY Automatic Ves UPSER 99.50 % 1 AM	V0 INSTRUMENT Advanced Image: Constraint of the second se	O ANALOG OUTPUT RANGE 4.000 - 20.00 mA PINEUMATIC OUTPUT RANGE 0.000 - 100.0 %	utputs 0.000 mA CO Preumatic Output VENT % CO	DEVICE STATUS C Normal PROCESS ALARMS C DEVICE VARIABLES ~ DEVICE VARIABLES ~ DEVICE VARIABLES ~ DEVICE VARIABLES ~ Devine Variable of the output Manual/Fixed Constant PV Target in Local Constant PV Target in Local Local/Fixed Constant

Auto Calibration

The DPC2K is calibrated at the factory and should not need to be re-calibrated. However, if adjustments are needed, perform the following calibration procedure.

A WARNING

During calibration the valve will move full stroke. To avoid personal injury and property damage caused by the release of pressure or process fluid, isolate the valve from the process and equalize pressure on both sides of the valve or bleed off the process fluid.

Auto Cal, found on the bottom left of the of the Pneumatic Output card, adjusts the performance of the pneumatic output.

Figure 12. Auto Cal: Pneumatic Output

Device Map	DPC2K-30002E				🕜 LoopConnect Help	About LoopConnect
DPC2K-30002E	CONTROL	Auto Cal. : Pneumatic Output		Pneumatic Output		
Now Viewing CURRENT STATE PENDING CHANGES	POINT NAME Preumatic Output Artion Control States Pounds per 2 Control States Vent Readsacco vulse Readsacco v	 Tuning Options Calibration Options Supply Pressure Actuator Custom Calibration In Progress Complete 	Tuning Parameters MANUFACTURE Fisher ● MOBE 657 & €67 SIZE	PROPORTIONAL CAN 8.400 Tawle I INSER 0.000 Tawle INTEGRAL DAOBAND 0.500 Tawle INTEGRAL UMIT HOH 3.000 Takle INTEGRAL UMIT HOH 3.000 WEDOTY DAN 4.200 MIDRI LOOP REEDRACK GAN 3.100	AO 0.000 mA C Preumatic Output VENT %	DEVICE STATUS C Normal PROCESS ALARMS DEVICE ALARMS DEVICE VARIABLES CONSTANT CONTACT Manual/Trade Manual/Trade Manual/Trade AI2 Bad Constant PV Parget In Local SP Target In Local Local Constant
FISHER						EMERSON

Step 1: Tuning Options

Select from the following drop downs:

- 1. Actuator Manufacturer (or closest match)
- 2. Actuator Model
- 3. Actuator Size

Note

Actuator Manufacturer, Actuator Model, and Actuator Size are optional if the Tuning Set is known.

4. Tuning Set

Note

The Tuning Set selection will populate the parameters required to tune the pneumatic output to match.

Select APPLY & CONTINUE

Step 2: Calibration Options

Note

The Supply and Output A are calibrated at the factory and should not need to be re-calibrated.

Select the Calibration you wish to run upon startup.

- Calibrate Supply
- Calibrate Output A
- Custom Auto Cal.

Step 3: Supply Pressure

Note

Pressure Sensor Calibrations require a calibrated gauge on the supply to match with the supply and actuator pressure sensors.

After Supply Pressure is calibrated, the matched actuator pressure sensor will automatically update to match the supply pressure calibration.

Step 4: Actuator

The firmware needs to know where the initial position of the valve is at: 0% relates to a fully closed valve, 100% relates to the valve being fully opened.

Step 5: Custom Calibration (if selected in Step 2)

Note

Custom Auto Cal is appropriate in cases where prior selections either fail or timeout due to accessories or non-standard conditions and should only be selected by advanced users or as guided by factory support.

A WARNING

All safety precautions need to be in place before initiating Step 6. Failure to follow the necessary safety precautions may result in personal injury or property damage.

D104558X012

Step 6: In Progress

Note

During this process the valve will move through its full range before settling at a 50% bias point.

Step 7: Complete

Return to the Output card.

Once the I/O is configured, navigate to the LOOP dashboard (Figure 13).

Loop Configuration

In the default state:

Inputs: AI2 is configured as the Process Variable Source unless there is a Process Pressure Sensor installed. When installed the Process Pressure Sensor is the default PV input.

Outputs: AO as the PID output (Manipulated Variable). However, when there is a Pneumatic Output module installed, the Pneumatic Output will default to the OUTPUT.

The LOOP dashboard uses a drag and drop method to configure the PID Control Loop.

To configure the Process Variable, drag the correct input to the PV Source and drop, then select APPLY in the Now Viewing panel on the left hand side of the screen (see Figure 14).

CONTROL ACTION, as shown in Figure 15, is also set in the PID Loop configuration.

Note

Control Action selection is dependent upon the action taken by the output with respect to the error between the setpoint and the process variable.

Choices are direct- or reverse-acting. In direct-acting, the output of the controller output rises if the process variable increases. Reverse-acting (default) means that the controller output drops when the process variable rises.

The process configuration determines whether a controller is direct- or reverse-acting.

The CONTROL ACTION is dependent of the method of control in a control valve actuator. Pneumatically actuated valves may be defined as air-to-open or air-to-close.

Figure 13. Loop Dashboard

Device Map	DPC2K-30002E ®	
DEVICE NAME DPC2K-30002E		
Now Viewing CURRENT STATE PENDING CHANGES	DESCRIPTOR CONTROL TYPE LOOP TYPE CONTROL ACTION Loop Continuous Single Feedback Loop Reverse Acting	DEVICE STATUS
	Sr Pr ADD CONFORM UNITS CASSECATION Pressure UNITS UNITS	DEVICE ALERTS DEVICE VARIABLES Pneumatic Output Target in Manual Manual/Fixed Constant
	REMOTE SP SOURCE PV SOURCE PV SOURCE PU OUTPUT INPUT : Al 1 INPUT : Process Pressure SAVGE SAVGE SAVGE SAVGE SAVGE SAVGE	Output Manua/Fixed AI 2 Bad AO Bad Constant PV
	Inputs Outputs	Target In Local SP Target In Local Local/Fixed Constant
FISHER	INPUT: Command OUTPUT: AO BANGE 4.000 - 20.00 (mA	EMERSON

Quick Start Guide

D104558X012

Figure 14. Process Variable Configuration

Device Map	DPC2K-30002E 8 @ LoopConnect	
DPC2K-30002E	CONTROL EVENTS LOOP VO INSTRUMENT	
Now Viewing CURRENT STATE	DESCRIPTOR CONTROL.TYPE LOOP THE CONTROLACTION Loop Continuous Single Feedback Loop Reverse Acting	DEVICE STATUS
	SP PV PID OUTPUT VNITS (CASSIFICATION (CASSIFICATION	PROCESS ALARMS > DEVICE ALERTS > DEVICE VARIABLES ^ Device VARIABLES ^ Manual/Tixed ^ Manual/Tixed ^ Manual/Tixed ^ Bad ^ AO > Bad ^ Preget in Local *
	Inputs Outputs	Target In Local Local/Fixed
FISHER	INPUT : Command INPUT : Process Pressure PANCE 0,000 - 100.0 pl DOUTPUT : AO RANCE 4,000 - 20.00 mA	EMERSON

Figure 15. Control Action/Action Selection

Device Map DEVICE NAME DPC2K-30002E	DPC2K 30002E CONTROL EVENTS LOOP VO INSTRUMENT	Connect Help About LoopConnect
Now Viewing CURRENT STATE PENDING CHANCES MUNDO REDO APRY LIMPORT L DEPORT	DESCRIPTOR CONTROL TYPE Loop Continuous Single Feedback Loop Reverse Acting Direct Acting Direct Acting Direct Acting UNITS Psi Pounds per Square Inch Stroker LMITS Dood pil DOOD - 100.0 pil Reverse Acting OUTPUT Ant LMIT DOOD - 100.0 pil Reverse Acting OUTPUT Ant LMIT DOOD - 100.0 pil Reverse Acting OUTPUT Ant LMIT DOOD - 100.0 pil PV SOURCE PV SOURCE INPUT : Process Pressure Revers Revers Cool - 100.0 pil	DEVICE STATUS Mormal PROCESS ALARMS PROCESS ALARMS DEVICE VARIABLES PROCESS ALARMS DEVICE VARIABLES PROCESS ALARMS PROCESS ALARMS PROCESS ALARMS AU
Fisher	Inputs Outputs INPUT: Command INPUT:	EMERSON

Note

Pay attention to any configuration notices in the left-hand navigation column.

Select Apply to make any changes.

Note

The example in Figure 16 shows the configuration of a remote setpoint; the Configuration Notices advise that the units for Setpoint and Process Variable must match.

You can open the I/O card from this dashboard to modify the units if needed.

Figure 16. LOOP Dashboard, Configuration Notices

Device Map	DPC2K-30002E 8 @ LoopConnect	Help About LoopConnect
DPC2K-30002E		
Now Viewing CURRENT STATE	DESCRIPTOR CONTROL TYPE LOOP TYPE CONTROL ACTION Loop Continuous Single Feedback Loop Reverse Acting	DEVICE STATUS
PENDING CHANGES CONFIG NOTICE LOOP	SP PV PID OUTPUT UNITS CLASSRCATION CP Increase Output to Open C UNITS % - Percent Pressure CUTPUT RATELIMIT C UNITS % - Percent C UNITS UNITS UNITS UNITS UNITS UNITS UNITS UNITS 0 UNITS 0 UNITS UNITS 0 UNITS UNITS UNITS UNITS UNITS 0 0 UNITS 0	PROCESS ALARMS DEVICE ALERTS DEVICE VARIABLES AI 2 Bad AO Bad
Configuration Notices	REMOTE SP SOURCE PV SOURCE	Constant Output Manual/Fixed Pneumatic Output Target in Manual Manual/Fixed Constant PV Target in Local
No Conversions Will be Performed for the Pending Unit Change	Inputs Outputs INPUT : Command INPUT : Command INPUT : Process Pressure RANGE	SP Target in Local Local/Fixed Constant
FISHER		EMERSON

Quick Start Guide

Figure 17. I/O Dashboard, I/O Card

DPC2K-30002E DEVICE NAME DPC2K-30002E	CONTROL	EVENTS	(LOOP	INSTRUMENT	🕜 LoopConner	t Help About LoopConnect
Now Viewing CURRENT STATE PENDING CHANGES PENDING CHANGES PENDING CHANGES CHAN	Ing ANALOG INPUT 1 RANGE 0.000 - 200.0 psi ANALOG INPUT 2 RANGE 50.00 - 100.0 psi PRESSURE SENSOR RANGE 0.000 - 100.0 psi	All 75.00 psi Process Press SI 37.52 psi Process Pressur 10.06 psi		Al 1 POINT NAME Al 1 CLASSFIGATION Pressure IPSI psi - Pounds per Square Inch 2000 psi 2000 psi LOWER RAINEE VALUE (dma) 0.000 psi UVE VALUE VALUE (dma) 0.000 psi UVE VALUE 75.00 psi	Alarms HIGH HIGH OF HIGH OF HIGH HIG	Outputs DG OUTPUT AO - 100.0 % % C AATIC OUTPUT Pneumatic Output AATIC OUTPUT Pneumatic Output - 100.0 % % C C	DEVICE STATUS (2) Normal PROCESS ALARMS UDVICE ALERTS DEVICE VARIABLES OF DEVICE VARIABLES OF DEVICE VARIABLES OF DEVICE VARIABLES OF DEVICE ALERTS DEVICE OF DEVICE OF D
Бієнгр				UNE mA VALUE 10.00 mA 0.0016 Seconds CALIBRATE LAST CALIBRATION CALIBRATE CALIBRATE	Alerts UPPER 21.50 mA LOWEE 3.600 mA DEADBAID 0.010 mA		Constant PV Target In Local

Control Operation

The CONTROL dashboard is the primary operational dashboard and provides you with the data and controls to perform tasks associated with the control loop. It updates live values approximately every 1-2 seconds and lets you verify your I/O connections and values. Connectivity lines indicate the relationships between the I/O points and the Control Loop parameters.

At-a-glance information provides insight into the performance of the loop.

From left to right viewable parameters are:

- Setpoint (SP)
- Process Variable (PV)
- Output value (Output)

The far left and right ends of the loop displays information regarding the source of the Setpoint (Local/Remote), and the setting for the Output (Manual/Auto).

Figure 18. Control Dashboard

Device Map	DPC2K-30002E	elp About LoopConnect
DEVICE NAME DPC2K-30002E		
Now Viewing CURRENT STATE PENDING CHANGES PENDING CHANGES MUNDOR REDOR APPLY LIMPORT LEXFORT	Image: construction of the second of the	DEVICE STATUS (C) Normal PROCESS ALARMS · DEVICE VARIABLES · DEVICE VARIABLES · DEVICE VARIABLES · Output Manual/Fixed Constant Al 2 Bad Constant PV Target In Local Local/Fixed Constant
	I/O Monitor ^	

When the loop is in Local, the SP Value may be highlighted, and the value changed.

To control the output manually, highlight the Output value to write a new value to the Output (Manipulated Variable).

Note

The highlighted fields change color prior to the new values being written.

Note

At this point, LoopConnect Software has control of these variables for operational safety reasons. The SP and Output are LOCKED when the change is applied and can be UNLOCKED to allow other connections access for control.

Figure 19. Control Dashboard

DPC2K-30002E 8	(i) LoopConnect Hei	p About LoopConnect
DPC2K-30002E		
Now Viewing CURRENT STATE PENDING CHANGES INNOOR REDO APPLY LINFORT LEXPORT	Image: Spearce Spearc	DEVICE STATUS C Normal PROCESS ALARMS DEVICE ALERTS DEVICE VARIABLES Process Press SP Bad Process Press SP Bad SP Target In Local Local/Fixed Constant PV Target In Local
FISHER	VO Monitor	EMERSON

Notes

The same logic is applied if there is an onsite operator doing service work and needs to be safe from remote operation. When LOCK is initiated using the LUI, a LOCK icon will be displayed.

An LUI LOCK can only be unlocked by the LUI.

The I/O Monitor at the bottom of the screen, shown in Figure 20, provides a view of the I/O points not used in the PID control.

When the loop is connected, Select TUNE PID (Figure 21) to bring up a larger graphic display to aid in tuning the loop.

Note

When this graph is active, data is collected for each data point with a sampling rate of 50 msec.

Figure 20. I/O Monitor



Figure 21. Tune PID



The CONTROL dashboard allows you to enter a manual output value to observe the response (Figure 22) and enter a setpoint while in local setpoint.

Figure 22. Enter a Manual Output Value



Note

The controller by default performs output tracking to avoid output jumps when switching between Manual and Auto operating modes.

Note

For slower process loops the TUNE PID graph has a slider that allows up to 10 minutes of data to be shown.

You can also enable the remote setpoint, enter a new value from this screen, or use the LUI to manually enter a new setpoint.

In order to troubleshoot the DPC2K controller, use the Device Status monitor (Figure 23) to view the device variables, alerts and status for the PID, I/O and the Event log. The status monitor can be setup according to the level of detail you wish using NAMUR NE107 priority coding.

Note

Refer to the DPC2K Instruction Manual (D104786X012) for NE10 priority and status messages.

Figure 23. Device Status Monitor



Neither Emerson, nor any of its affiliated entities assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Fisher, LoopConnect, and FIELDVUE are marks owned by one of the companies in the Emerson business unit of Emerson Electric Co. Emerson and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Marshalltown, Iowa 50158 USA Sorocaba, 18087 Brazil Cernay, 68700 France Dubai, United Arab Emirates Singapore 128461 Singapore

www.Fisher.com

