

# VeriFast LVDT Integrator Guide for Controls Solutions

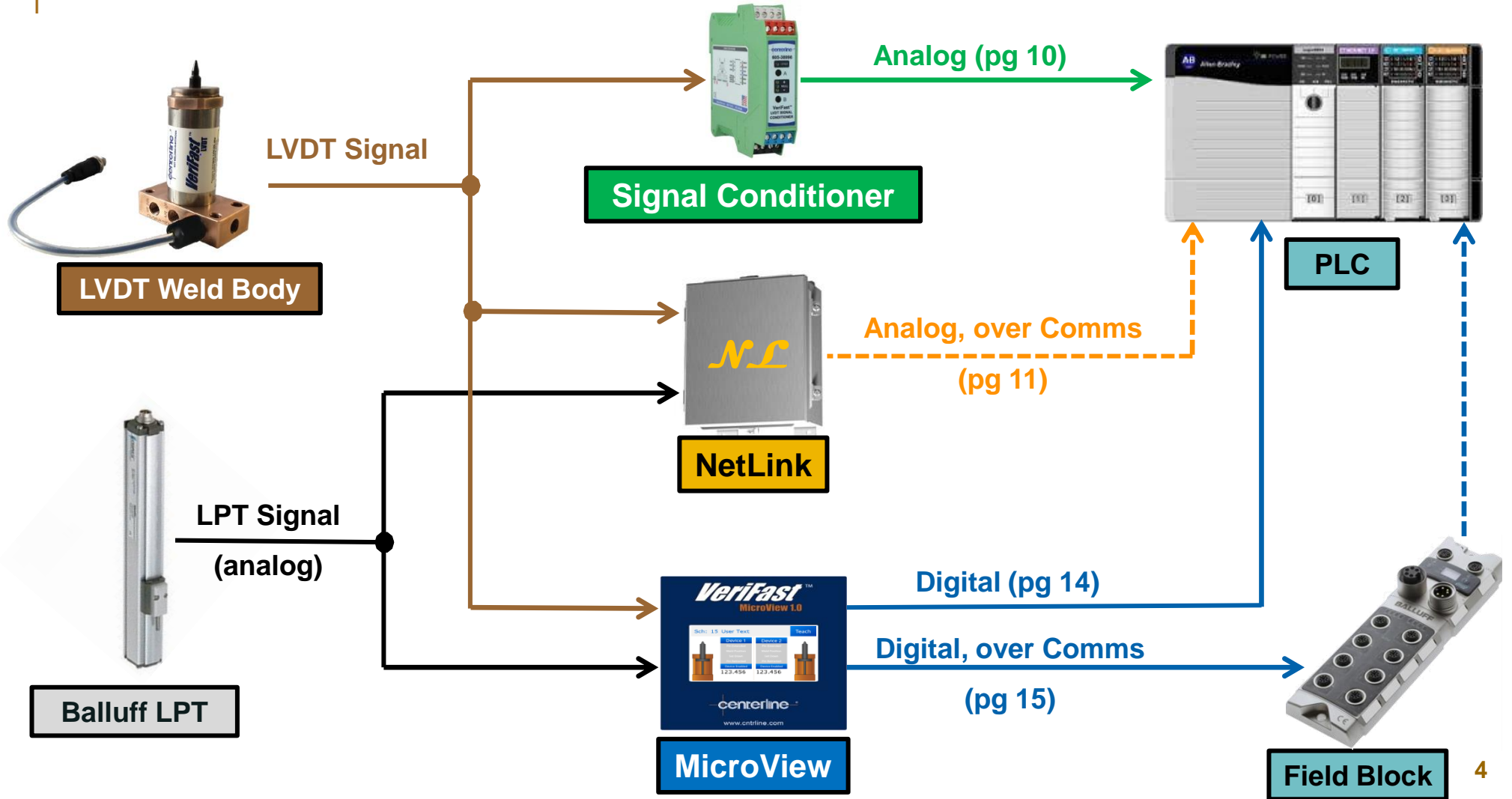
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- Consider the 'big picture'. If there are multiple machines, or a large line, the controls solutions should be common across all operations. CenterLine can help if we are aware of the *entire* process. Remember that this may involve multiple integrators.
- Decide if an analog or digital solution is desired. Each has its advantages and disadvantages. These are further explained later in this document.
- Be sure there are enough of the correct I/O, either discrete or analog, for the installation. For analog (Signal Conditioner): 1 input channel is required for each weld body. For digital (MicroView): 4 outputs and 12 inputs are required if all I/O will be used.
- Remember all valves, and outputs for them: Each retractable pin typically uses a double solenoid valve. A single solenoid valve is sufficient for blow off, for each weld body.
- After the controls solution has been selected, be sure to order the correct number and type of cables necessary for complete connectivity. (e.g., 4, 5 or 8 pin tool cords, power cords.) Again, CenterLine can be help with this.

- Use di-electric grease in all electrical connectors.
- All electrical connectors must be properly tightened according to manufactures specifications. Compromised electrical connections can lead to variations in the system.
- When setting Weld Proceed or Set Down positions, the weld pin must **not** be at the top OR bottom of its stroke. The weld pin must move for proper fastener and set down detection.
- If using an OHMA cylinder, teach positions under close pressure, NOT intensify pressure.
- The LVDT coil is sealed inside the weld body and is not user serviceable. In the unlikely event that it fails, the weld body must be replaced. We offer a rebuild service. Contact CenterLine Service at: 519-734-0080 or 800-268-8184 or [service@cntrline.com](mailto:service@cntrline.com).

For more information:  
<https://www.cntrline.com/products/verifasttm-lvdt>



- 0 to 10V DC analog signal from each Signal Conditioner.
- 15 bit resolution is recommended.
- Proper programming is critical! Position windows must be user settable, with adjustable tolerance windows. Programming templates are available.
- Tolerance windows must be accurate. Too small and nuisance faults will occur. Too large and upside down, or wrong fasteners can be welded.
- Positions must be checked periodically to ensure they are properly set.  
(Red Rabbit routine.)



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## Panel Mounted Signal Conditioners

- Advantages:
- ✓ Very flexible. Customer has complete control over analog signals.
  - ✓ Easy to display data on an HMI.
  - ✓ Most cost effective hardware solution.
  - ✓ Not limited to a maximum number of Signal Conditioners.

- Disadvantages:
- ✗ Customer has to *process* analog signals. 'Teach' and 'Tolerance' functions required in both the PLC and HMI. Programming must be correct and consistent.
  - ✗ Requires panel space for Signal Conditioners.
  - ✗ Requires an analog card. 1 analog input per Signal Conditioner in the PLC.



Single or double ended cord  
Max. distance 150M (500')



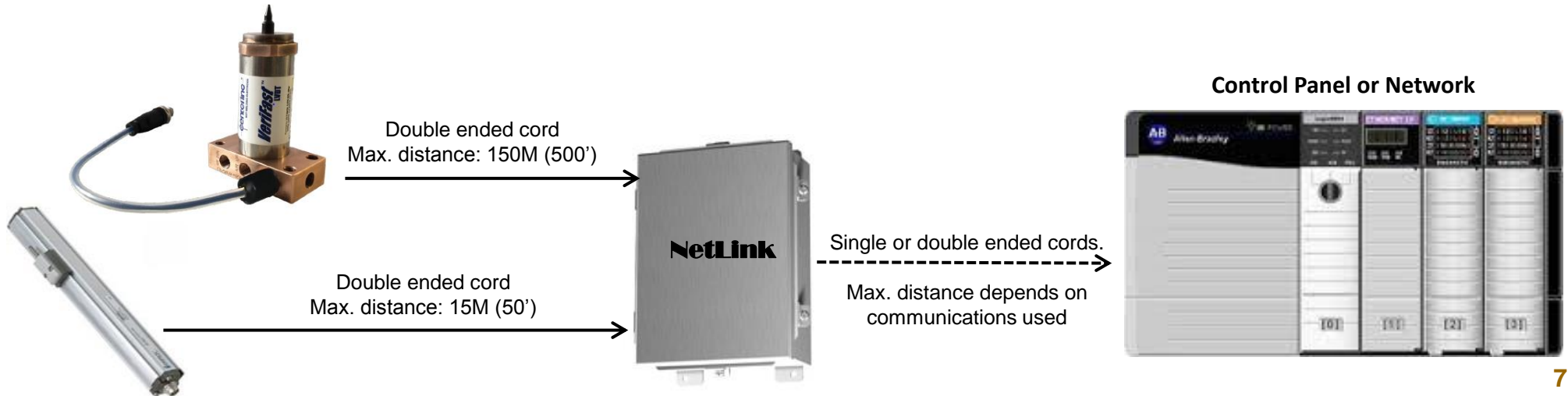
Control Panel



## NetLink (Connects LVDT Signals Conditioners and / or LPTs to a communications network)

- Advantages:
- ✓ Very flexible. Customer has complete control over analog signals.
  - ✓ Easy to display data on an HMI.
  - ✓ Easy to install. Does not require additional panel space for Signal Conditioners.
  - ✓ Available for: EtherNet, DeviceNet, ProfiNet, ProfiBus. Multiple versions available.

- Disadvantages:
- ✗ Customer has to *process* analog signals. ‘Teach’ and ‘Tolerance’ functions required in both the PLC and HMI. Programming must be correct and consistent.
  - ✗ Requires a communications network.
  - ✗ Additional hardware cost. (Offset by simplified wiring.)

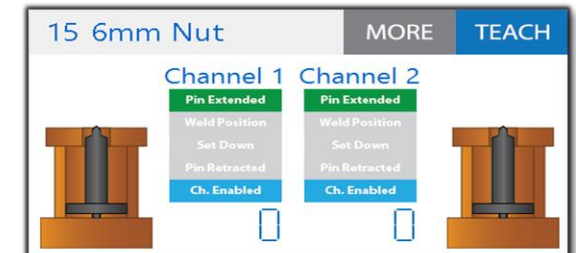


## MicroView

- Converts 1 or 2 analog devices (0 to 10 V) to digital PLC inputs.
- Presets for LVDT, LPT or generic.
- 2 types: V1 and V2. Both available with any combination of the previously mentioned 2 analog inputs.
- 4.3" Resistive Touch HMI.
- Uses standard tool cords. (4, 5 or 8 pin, depending on version)
- Onboard storage for Weld Position and Set Down data for over 500,000 welds, per channel, downloadable to USB flash drive.
- Metal enclosure measures about 6" wide, 7.5" tall, 4" deep

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CH 1	Master Settings		RUN
∧ ∨	01 6mm Nut		EDIT SCHEDULE
P1: Pin Extended	0	± 100	Teach
P2: Weld Position	32767	±	Teach
P3: Set Down	32767	±	Teach
P4: Pin Retracted	32767	±	Teach
P3 Enabled	LVDT	LPT	Laser Other



- MicroView *requires* 1 to 4 PLC outputs for schedule selection (15 schedules available)
- MicroView provides digital PLC input bits for:
  - a) Teach Mode
  - b) Run Mode
  - c) 4 Position bits, plus bypass for *each* device. (10 total)

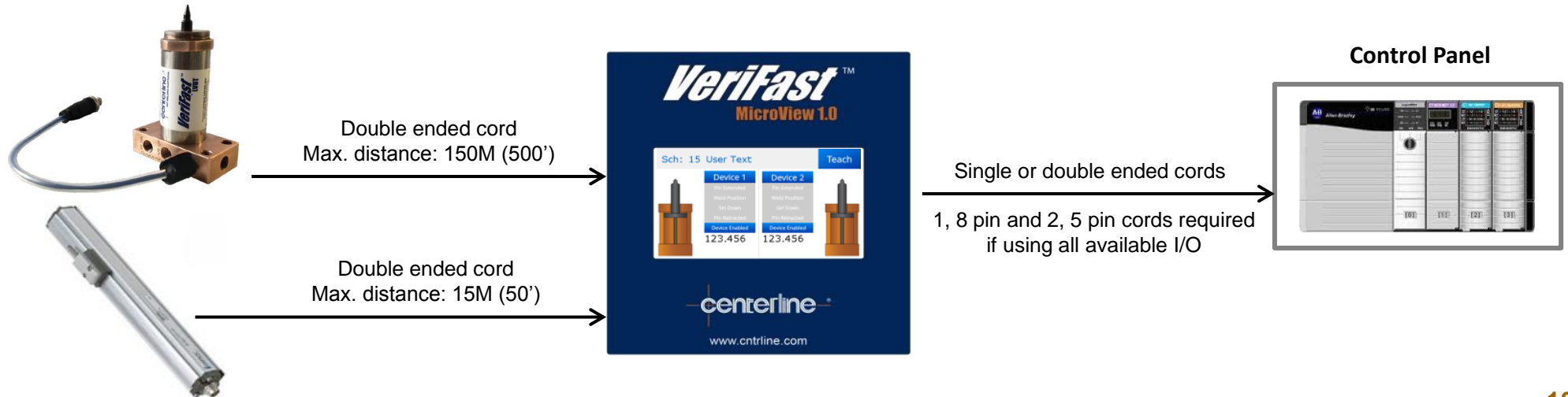
	LVDT	GUN
P1	Pin Extended	Gun Open
P2	Weld Position	Weld Position
P3	Set Down	No Nut
P4	Pin Retracted	Double Nut

- All position bits are teachable, each with an adjustable tolerance window.
- Tolerance windows must be accurate. Too small and nuisance faults will occur. Too large and upside down, or wrong fasteners can be welded.
- Positions must be checked periodically to ensure they are properly set. (Red Rabbit routine.)
- Programming templates are available.
- All PLC inputs are instant on. Dwell timers must be done in the PLC.

## MicroView, Standard (5 Port, Dual Device, or V1)

- Advantages:
- ✓ Easily added to existing equipment, in some cases even without a PLC.
  - ✓ Consistent programming / processing methodology– no processing of analog signals.
  - ✓ Digital signal processing is much easier.

- Disadvantages:
- ✗ Must be accessible to maintenance personnel.
  - ✗ 5 and 8 pin tool cords are not as common as 4 pin tool cords.
  - ✗ Additional hardware cost. (Offset with simplified programming.)



## MicroView, Connectorized (10 Port, Dual Device, or V2)

- Advantages:
- ✓ Easy to add to existing equipment, in some cases even without a PLC.
  - ✓ Consistent programming / processing methodology– no processing of analog signals.
  - ✓ Digital signal processing is much easier.
  - ✓ Direct replacement for SE-01, using standard, 4 pin tool cords.

- Disadvantages:
- ✗ Must be accessible to maintenance personnel.
  - ✗ Requires Field Block(s) and a communications network.
  - ✗ Additional hardware costs. (Offset with simplified programming and wiring.)

