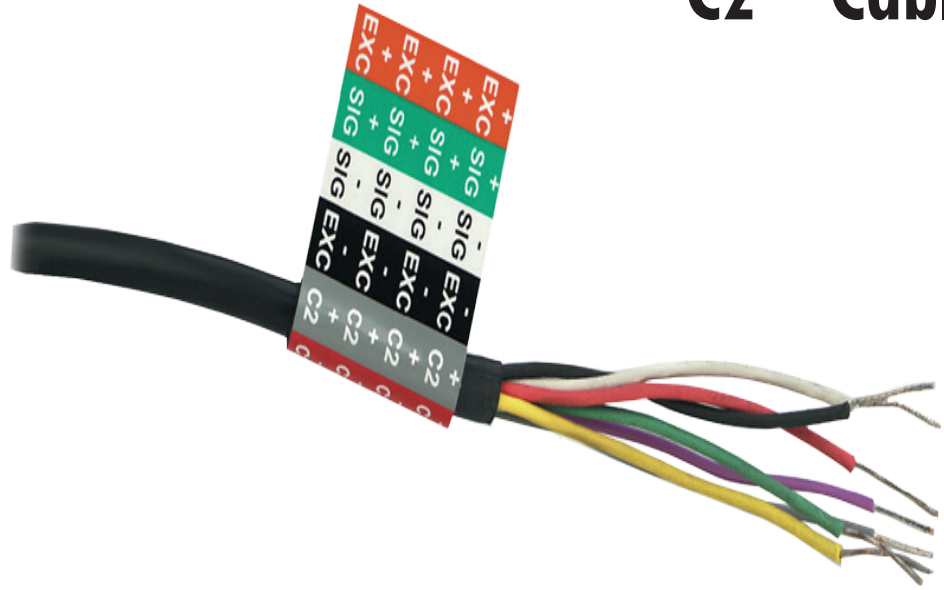


**Applications**

**PROCESS WEIGHING**

- *Batching/Blending*
- *Filling/Dispensing*
- *Level-by-Weight*
- *Check Weighing*



**Features**

**C2<sup>®</sup> Electronic Calibration**

- Electronic calibration without test weights



**INTEGRATED TECHNICIAN<sup>®</sup> (IT)**

- Weighing system monitoring and troubleshooting



**Hardy High Performance C2<sup>®</sup> Cable**

C2<sup>®</sup> electronic calibration reduces the risk of accidents or contamination from test weights. Hardy C2<sup>®</sup> Certified Cable has been designed specifically for the electrically and mechanically harsh environments found in Process Weighing applications. While many process variables are transmitted at a 0-10 volt or 4-20 milliamp level, signals from load or force sensors are typically one thousand times smaller, or 0-0.010 volts. A ten pound change on a 100,000 pound scale would correspond to a signal change of 0.000001 volts (1 micro volt). Therefore, cabling must protect against electrical noise common in the plant environment.

For continued high performance, it is imperative that moisture not enter the cable as it would increase capacitance and allow coupling of voltage from the excitation wires to the signal wires. The coupling of voltage causes "drifting" weight indications. Use of improper cable between even the finest load sensors and instrumentation will yield poor weighing results. The costs and time delays of removing and replacing improper weighing system cable are prohibitive. To insure an effective weighing system, always specify Hardy C2 Certified Cable.

Weighing systems with C2 load points, instruments, junction boxes and C2 cable support INTEGRATED TECHNICIAN (IT) complete weighing system monitoring and troubleshooting.

**Calibration Using C2<sup>®</sup> Cable**

A Hardy C2 system includes load points, junction box, cabling and instrumentation, and is designed to make calibration easier than ever before. Upon installation or re-calibration, your Hardy instrument automatically searches for C2 certified load points and records their performance characteristics.

All that's left is to verify your scale. Entering a reference point is all that's needed to bring your system on-line within seconds. This is done by carefully distributing one or two small weights (25 to 100 lbs.) on to the scale so they are shared by all the load sensors. The scale reading should equal the value of the test weight/s applied. Remove the weight/s and the scale reading should return to its original value. If both of these are true then the scale is calibrated, verified and ready for use. If the values are not true, then there are mechanical problems with the scale that need to be corrected.

# COMPONENTS TO COMPLETE YOUR HARDY SYSTEM

## Hardy Bench Scales, Floor Scales and Load Points

Hardy carries a wide variety of strain gauge load points, scales and instruments to accommodate your application requirements.



ADVANTAGE Series Load Point with C2 Calibration



Hardy Bench or Floor Scales

Allen-Bradley® Compatible Plug-in Weigh Scale Modules



HI 3000 Series HI 4050 Controllers and HI 6000 Series Weight Processors



## C2 Cable Specifications

- Eight, 22 AWG Conductors In a 0.40" Diameter Shielded Cable.
- Vinyl Outer Jacket Rated At 105 Degrees C, Meeting MIL-I-631 Class F.
- 36 AWG, Braided Tinned Copper Shield, Meeting MIL-C-7078.
- Mylar Barrier Tape Wrap Meeting MIL-I-631.
- Twisted Pair Color Coded as Gray and Violet.
- Individual Conductors Color Coded Green, Blue, Red, White, Brown, Black.
- Wire To Wire Insulation Resistance Minimum 2,500 Ohms 50 VDC.
- Operationally Tested For Lengths Up To 1,000 Ft. Without Intrinsic Safety Barriers And 250 Feet With Intrinsic Safety Barriers.

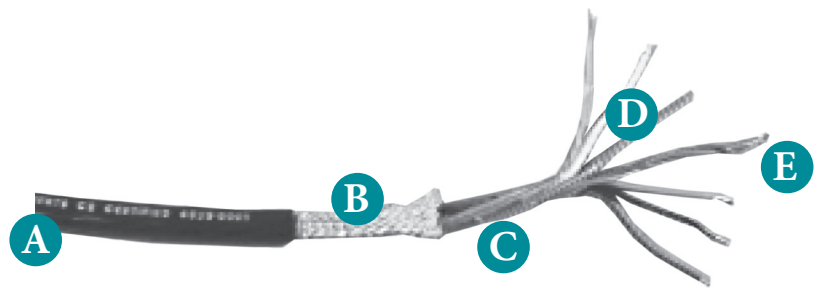
## Ordering Information

Part Number: 6020-0001-0

## C2 Cable Color Coding

Recommended wiring for color code cabling between the junction box and instrumentation when using ADVANTAGE™ line and all other load points.

+ Excitation	Red
+ Sense	Blue
+ Signal	Green
- Signal	White
- Sense	Brown
- Excitation	Black
+ C2	Gray
- C2	Violet



**A** The thick (0.060") outer jacket protects signal leads from minor nicks and cuts, and helps keep moisture and contaminants out. The vinyl material used is flexible for conduit bends and slides more easily in long conduit runs. Additionally, this material resists many corrosive substances.

**B** A 36 gauge braided tinned copper shield provides better than 85% coverage and tight braid angles to reduce the chance of outside electrical noise reaching the signal leads. Unlike other process measurements, incremental changes in weight correspond to signal changes typically in the range of 0.0000001 volts (0.1 micro volt). Without proper shielding, common plant electrical noise can cause fluctuation and incorrect weight readings.

**C** A mylar barrier reduces the chance of moisture reaching the signal leads should the cable be nicked. Moisture between signal leads increases the capacitance between signals and results in cross coupling of voltages and incorrect weight readings.

**D** The 22 gauge wire is stranded for reliability in bends and is color coded for easy installation.

**E** Two wires make up a twisted pair to reduce capacitance for C2 signals and provide a constant cable impedance.

## Hardy Process Solutions

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