

# 3500 Series Monitoring System

## EU Declaration of Conformity

Bently Nevada Machinery Condition Monitoring

28364I Rev. W

### EU Declaration of Conformity – EMC/LVD/ATEX/ROHS Declaration

We:

Bently Nevada LLC.  
1631 Bently Parkway South  
Minden, NV 89423 U.S.A.

Declare in sole responsibility that the equipment to which this declaration applies; complies with:

**EMC Directive 2014/30/EU**  
**LV Directive 2014/35/EU**  
**ROHS Directive 2011/65/EU**

and, where the applicable dash option has been ordered, also complies with:

**ATEX Directive 2014/34/EU**

when installed in accordance with the installation instructions in the Installation and Maintenance Manuals.

### Equipment

Part No.	Module No.	Description
<b>3500/04</b>	136719-01	I.S. Earthing I/O Module
<b>3500/05</b>	138945-01	Standard Backplane
	144464-01	Mini-Rack Backplane
	138953-01	Bulkhead Backplane
	143728-01	Bulkhead Backplane MOD

Part No.	Module No.	Description
<b>3500/15</b>	129486-01	High Voltage DC Power Supply Module
	133292-01	Low Voltage DC Power Supply Module
	133300-01	Low Voltage DC Power Input Module (LVDC PIM)
	129478-01	High Voltage DC Power Input Module (HVDC PIM)
	106M1079-01	Universal AC Power Supply Module
	106M1081-01	Universal AC Power Input Module (AC PIM)
	114M5329-01	REFRESH HVDC POWER SUPPLY MODULE
	114M5330-01	REFRESH LVDC power supply module
	114M5335-01	REFRESH LVDC PIM
	115M7750-01	REFRESH HVDC PIM
<b>3500/22</b>	288055-01	Standard Transient Data Interface Monitor Module with USB cable (non-TMR)
	288055-02	TMR Transient Data Interface Module with USB cable
	146031-01	10Base-T/100Base-TX I/O Module
	146031-02	100Base-FX (Fiber Optic) I/O Module
	146031-03	10Base-T/100Base-TX I/O Module (GLD RLY)
	146031-04	100Base-FX (Fiber Optic) I/O Module (GLD RLY)
	147364-01**	Buffered Signal Output Module
<b>3500/25</b>	149369-01 SIL	Enhanced Keyphasor Monitor Module
	125800-01 SIL	Keyphasor I/O Module (Internal Terminations)
	125800-02 SIL	Isolated Keyphasor I/O Module (Internal Terminations)
	126648-01 SIL	Keyphasor I/O Module (External Terminations)
	126648-02 SIL	Isolated Keyphasor I/O Module (External Terminations)
	135473-01 SIL	Keyphasor I/O Module (Internal Barriers and Internal Terminations)
<b>3500/32</b> <b>3500/32M</b>	149986-02 SIL	4-Channel Relay Control Monitor Module
	125720-01	4-Channel Relay I/O Module
	125720-02 SIL	4 Channel Relay I/O Module
	125720-03	Low Current Relay I/O Module
<b>3500/33</b>	149986-01 SIL	16 Channel Relay Control Monitor Module
	149992-01 SIL	16 Channel Relay I/O Module
	149992-02 SIL	16 Channel FailSafe Relay I/O Module
	149992-03	16 Channel Relay I/O Module (GLD RLY)
	149992-04	16 Channel FailSafe Relay I/O Module (GLD RLY)
<b>3500/40</b> <b>3500/40M</b>	176449-01 SIL	Proximitior Monitor Module
	125680-01 SIL	Proximitior I/O Module with Internal Terminations
	126615-01 SIL	Proximitior I/O Module with External Terminations
	135489-04 SIL	Proximitior I/O Module with Internal Barriers and Internal Terminations

Part No.	Module No.	Description
<b>3500/42</b> <b>3500/42M</b>	176449-02 SIL	Proximator/Seismic Monitor Module
	128229-01 SIL	Prox/Seismic I/O Module with Internal Terminations
	128240-01 SIL	Prox/Seismic I/O Module with External Terminations
	135489-01 SIL	I/O Module with Internal Barriers (Internal Terminations) (4 x Prox/Accel)
	135489-02 SIL	I/O Module with Internal Barriers (Internal Terminations) (2 x Prox/Accel + 2 x Velomitor)
	135489-03 SIL	I/O Module with Internal Barriers (Internal Terminations) (4 x Velomitor)
	138708-01	Shaft Absolute I/O Module with Internal Terminations
	138700-01	Shaft Absolute I/O Modules with External Terminations
	140471-01 SIL	Prox/Velom I/O Module with Internal Terminations
	140482-01	Prox/Velom I/O Module with External Terminations
	143729-01	Cylinder Pressure I/O with Internal Terminations
	143737-01	Cylinder Pressure I/O Module with External Terminations
	169715-01	Multimode Positive Input I/O Module with Internal Terminations
	140471-02	Dynamic Pressure I/O Module with Internal Terminations
	140482-02	Dynamic Pressure I/O Module with External Terminations
<b>3500/44</b> <b>3500/44M</b>	176449-03 SIL	Aeroderivative Monitor Module
	126559-01 SIL	Aero GT I/O Module Internal Terminations
	126623-01 SIL	Aero GT I/O Module External Terminations
	140471-01* SIL	Prox/Velom I/O Module with Internal Terminations
	140482-01* SIL	Prox/Velom I/O Module with External Terminations
	169459-01 SIL	Multimode Prox/Velom I/O Module with Internal Terminations
	169459-02 SIL	Multimode Prox/Velom I/O Module with External Terminations
	143729-01*	Cylinder Pressure I/O with Internal Terminations
	143737-01*	Cylinder Pressure I/O Module with External Terminations
	135489-01*	I/O Module with Internal Barriers (Internal Terminations) (4 x Prox/Accel)
	135489-03*	I/O Module with Internal Barriers (Internal Terminations) (4 x Velomitor)

Part No.	Module No.	Description
<b>3500/45</b>	176449-04	Position Monitor Module
	135137-01	Position I/O Module with Internal Terminations for use with Proximitys, RPTs or DC LVDTs
	135145-01	Position I/O Module with External Terminations for use with Proximitys, RPTs or DC LVDTs
	139554-01	AC LVDT Position I/O Module with Internal Terminations for use with AC LVDTs
	139567-01	AC LVDT Position I/O Module with External Terminations for use with AC LVDTs
	143729-01*	Cylinder Pressure I/O with Internal Terminations
<b>3500/46 3500/46M</b>	176449-06	Hydro Monitor Module
	140471-01*	Prox/Velom I/O Module with Internal Terminations
	140482-01*	Prox/Velom I/O Module with External Terminations
	169459-01*	Multimode Prox/Velom I/O Module with Internal Terminations
	169459-02*	Multimode Prox/Velom I/O Module with External Terminations
	169715-01*	Multimode Positive Input I/O Module with Internal Terminations
	169715-02	Multimode Positive Input I/O Module with External Terminations
	143729-01*	Cylinder Pressure I/O with Internal Terminations
	143737-01*	Cylinder Pressure I/O Module with External Terminations
	140471-02*	Dynamic Pressure I/O Module with Internal Terminations
	140482-02*	Dynamic Pressure I/O Module with External Terminations
	<b>3500/50 3500/50M</b>	288062-02
133442-01		Tach I/O Module with Internal Terminations
136703-01		Discrete Internal Barrier I/O Module with Internal Terminations
133434-01		Tach I/O Module with External Terminations
285212-01		Portable Core Module Card
286566-02		Tachometer Carrier
<b>3500/60</b>	163179-01 SIL	Temperature Monitor Module
	133819-01 SIL	RTD/TC Non-Isolated I/O Module Internal Terminations
	133827-01 SIL	RTD/TC Non-Isolated I/O Module External Terminations
	133835-01 SIL	TC Isolated I/O Module Internal Terminations
	133843-01 SIL	TC Isolated I/O Module External Terminations
	136711-01 SIL	RTD/TC I/O Module with Internal Barriers& Internal Terminations (Not-Isolated)
<b>3500/61</b>	163179-02 SIL	Temperature Monitor Module
	133819-02 SIL	RTD/TC Non-Isolated I/O Module Internal Terminations
	133827-02 SIL	RTD/TC Non-Isolated I/O Module External Terminations

Part No.	Module No.	Description
	133835-02 SIL	TC Isolated I/O Module Internal Terminations
	133843-02 SIL	TC Isolated I/O Module External Terminations
	136711-02 SIL	RTD/TC I/O Module with Internal Barrier and Internal Termination (Not-Isolated)
<b>3500/62</b>	163179-03 SIL	Process Variable Monitor Module
	136491-01 SIL	-10 Vdc to +10 Vdc I/O Module with Internal Terminations
	136499-01 SIL	-10 Vdc to +10 Vdc I/O Module with External Terminations
	136294-01 SIL	Isolated +4 to +20 mA I/O Module with Internal Terminations
	136483-01 SIL	Isolated +4 to +20 mA I/O Module with External Terminations
	137110-01 SIL	4 to 20 mA Barrier I/O Module with Internal Terminations
<b>3500/64</b> <b>3500/64M</b>	176449-05	Dynamic Pressure Monitor Module
	140471-02*	Dynamic Pressure I/O Module with Internal Terminations
	140482-02*	Dynamic Pressure I/O Module with External Terminations
	143729-01*	Cylinder Pressure I/O with Internal Terminations
	141670-01*	3500/44 Internal Barrier I/O Module
<b>3500/65</b>	145988-02	16 Channel Temperature Monitor Module
	172103-01	RTD/Isolated Tip TC I/O Module, Internal Terminations
	172109-01	RTD/ Isolated Tip TC I/O Module, External Terminations
<b>3500/70</b> <b>3500/70M</b>	176449-09 SIL	Impulse/Velocity Monitor Module
	135489-01* SIL	I/O Module with Internal Barriers (Internal Terminations) (4 x Prox/Accel)
	135489-02* SIL	I/O Module with Internal Barriers (Internal Terminations) (2 x Prox/Accel + 2 x Velomitor)
	135489-03* SIL	I/O Module with Internal Barriers (Internal Terminations) (4 x Velomitor)
	140471-01* SIL	Prox/Velom I/O Module with Internal Terminations
	140482-01* SIL	Prox/Velom I/O Module with External Terminations
	143729-01*	Cylinder Pressure I/O with Internal Terminations
	143737-01*	Cylinder Pressure I/O Module with External Terminations
<b>3500/72</b> <b>3500/72M</b>	176449-08 SIL	Rod Position Monitor Module
	140471-01* SIL	Prox/Velom I/O Module with Internal SIL Terminations
	140482-01* SIL	Prox/Velom I/O Module with External Terminations
	135489-01* SIL	I/O Module with Internal Barriers (Internal Terminations) (4 x Prox/Accel)
	143729-01*	Cylinder Pressure I/O with Internal Terminations
	143737-01*	Cylinder Pressure I/O Module with External Terminations

Part No.	Module No.	Description
<b>3500/77</b> <b>3500/77M</b>	176449-07 SIL	Cylinder Pressure Monitor Module
	143729-01*	Cylinder Pressure I/O Module with Internal Terminations
	143737-01*	Cylinder Pressure I/O Module with External Terminations
<b>3500/91</b> <b>3500/91M</b>	161204-01	EGD Communication Gateway Module
	161216-01	Ethernet 10BASE-T/100BASE-TX I/O Module
	161216-02	Ethernet 100BASE-T/100BASE-TX I/O Module
	190809-01	EGD Communication Gateway Module
	190809-02	Ethernet 10BASE-T/100BASE-TX I/O Module
<b>3500/92</b>	136180-01	Communication Gateway Monitor Module
	125736-01	ModbusRS232/RS422 I/O Module
	133323-01	ModbusRS485 I/O Module
	136188-01	Ethernet/RS232 Modbus I/O Module
	136188-02	Ethernet/RS485 Modbus I/O Module
<b>3500/94</b> <b>3500/94M</b>	184826-01	Display Monitor Module
	190214-01	Display I/O Module w/ Rear Connection & Router Box Support
	190214-02	Display I/O Module w/ Ext. Power Input & Face Mount Support
	149356-01	VGA Display Router Box
	120M8155-01	ANA-D3510-100-A1 Touch Panel LCD Display
<b>Internal Barriers</b>	135470-01	Generic Barrier Module
	135471-01	Velomitor Barrier Module
	137101-01	Process Variable Barrier Module
	135472-01	Temperature Barrier Module

1. Several I/O modules in the table above have been repeated as they are used with multiple monitor modules. All subsequent iterations have been assigned a "\*" at the end of Module No.
2. Modules identified with "\*\*\*" are not ATEX approved.
3. Modules identified with "SIL" are SIL certified.

## Environmental and Use Conditions: Industrial Applications

### EMC

Standards	Accredited Test Lab	Test Reports	Technical File
EN 61000-6-2:2005	CKC Laboratories	98381-10	285197
EN 61000-6-4:2007	5046 Sierra Pines Drive	98381-12	285198
+A1:2011	Mariposa, CA, USA 95338	98381-17A	
EN 61326-1:2013			

Standards	Accredited Test Lab	Test Reports	Technical File
EN 61000-3-2:2014 EN 61000-3-3:2013 EN 61326-3-1:2008	ITC Engineering Services, Inc. 9959 Calaveras Road Sunol, CA USA 94586 0543	20161205-01 20170113-01 20170424-01 20171009-01	
<b>Note:</b> Compliance to EN 61326-3-1:2008 is only applicable for SIL certified modules.			

### LVD

Standards	Accredited Test Lab	Test Report	Technical File
EN 61010-1:2010	CSA Group 2805 Barranca Parkway Irvine, CA 92606-5114	2742274	285197 285198

### ATEX

(Where the applicable dash option has been ordered)

Equipment	Standards	Notified Body	Test Report	Certificate No.
3500 Modules, excluding 120M8155-01	EN 60079-0: 2012/A11: 2013 EN 60079-11: 2012 EN 60079-15: 2010 EN 60079-7: 2015	Sira Certification Unit 6, Hawarden Industrial Park, Hawarden, Deeside CH5 3US, United Kingdom Registration Number: 0518	R70180771A	Sira 15 ATEX4198X
120M8155-01	EN 60079-0 : 2012/A11: 2013 EN 60079-11: 2012 EN 60079-15: 2010	Intertek Testing & Certification Limited Intertek House, Cleeve Road, Leatherhead, Surrey, KT22 7SB Registration Number: 3272281	102729140CRT-001a- d	ITS16ATEX401429X

## Markings and Temperature Constraints

Equipment	Marking	Temperature Ratings
3500 Modules, excluding 120M8155-01	$\text{Ex}$ II 3(1) G, II 3 G Ex nA nC ic [ia Ga] IIC T4 Gc With Internal Barriers Ex nA nC ic IIC T4 Gc Without Internal Barriers Ex ec nC ic [ia Ga] IIC T4 Gc With Internal Barriers Ex ec nC ic IIC T4 Gc Without Internal Barriers	T4 @ Ta = -20°C to 65°C
120M8155-01	$\text{Ex}$ II 3 G Ex ic nA IIC T4 Gc; IP54	T4 @ Ta = -20°C to 65°C

## Electrical Data

Relay Contact Rating (when installed in hazardous areas):

3500/32 Relay Rated:	30 V, 2 A
All Other Relays Rated:	30 V, 5 A

## Entity Parameters

### Zone 0/1 Entity Parameters (Internal Barriers only)

Internal Barriers	Barrier Part Number	Circuit	U <sub>o</sub> (V)	R <sub>min</sub> (Ω)	I <sub>o</sub> (mA)
Proximitor & Accelerometer	135470-01	Power	26.25	237.6	110.48
		Signal	13.65	4985	2.74
Velomitor	135471-01	B	26.25	297	88.39
Process Variable	137101-01	Power	26.78	297	90.17
		Signal	9.56	50.58	189.01
Temperature	135472-01	B	5.36	133.25	40.23
		C	6.51	133.25	48.86

### Combined Entity Parameters for Gas Group IIC, Internal Barriers

Internal Barriers	Barrier Part Number	U <sub>o</sub> (V)	I <sub>o</sub> (mA)	P <sub>o</sub> (mW)	C <sub>o</sub> (μF)	L <sub>o</sub> (mH)
Proximitor & Accelerometer	135470-01	27.45	113.24	726.96	0.086	2.77
Velomitor	135471-01	26.25	88.39	580.02	0.097	4.55



Internal Barriers	Barrier Part Number	U <sub>o</sub> (V)	I <sub>o</sub> (mA)	P <sub>o</sub> (mW)	C <sub>o</sub> (μF)	L <sub>o</sub> (mH)
Process Variable	137101-01	27.98	279.34	842.89	0.083	0.455
Temperature	135472-01	7.71	89.17	132.41	9.3	4.55

### ATEX Special Conditions of Safe Use

3500 Modules, excluding 120M8155-01	<ul style="list-style-type: none"> <li>The Model 3500 (both the rack itself and any included displays) must be housed in a suitable enclosure that provides a degree of protection of at least IP54 and meets the relevant enclosure requirements of EN 60079-0.</li> <li>For units with internal barriers: Because the barrier circuits are referenced to earth, they do not meet the dielectric strength requirement specified in EN 60079-15: 2010. This shall be considered during final installation.</li> <li>For units with internal barriers: Installation is to be in accordance with control drawing I38547.</li> <li>Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment.</li> <li>The equipment shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.</li> </ul>
120M8155-01	<ul style="list-style-type: none"> <li>The final display installation must meet IP54 rated enclosure per IEC 60079-0.</li> </ul>

### Signatory



4/2/2020

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4/2/2020

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