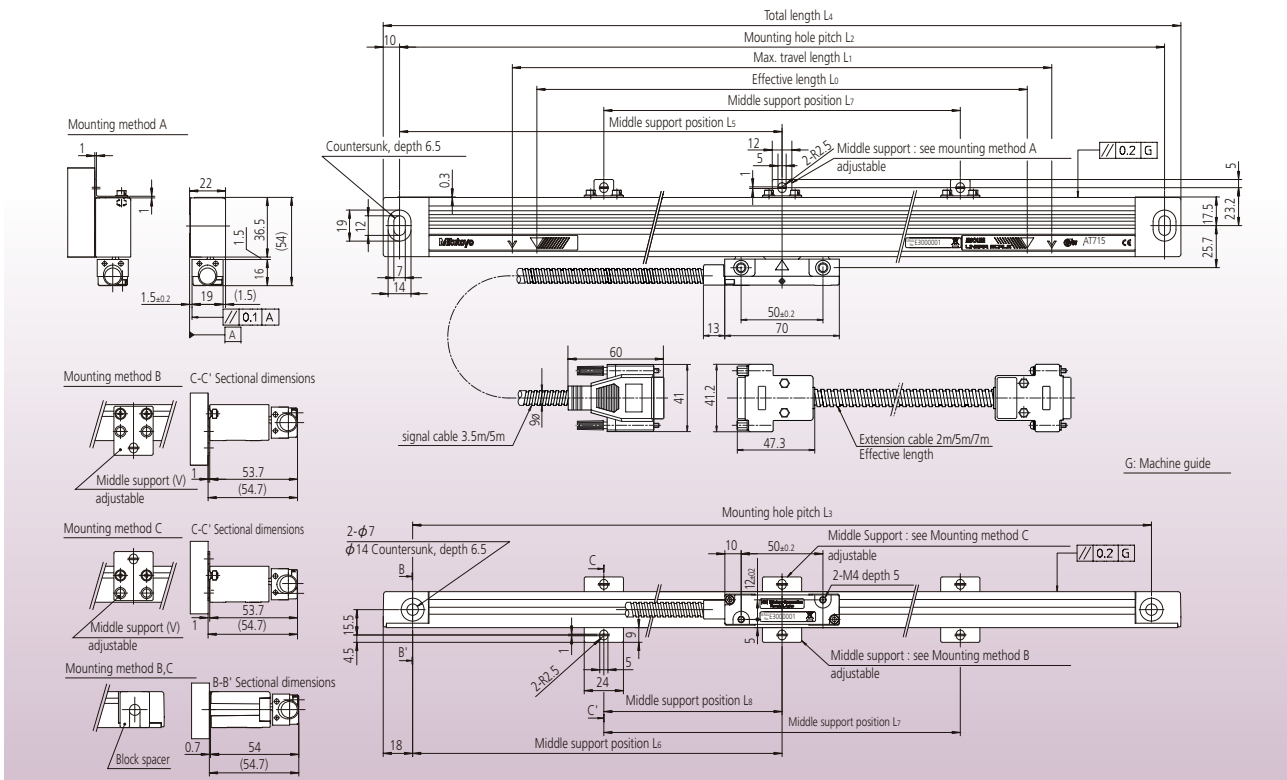


AT715, ABSOLUTE and High Environmental Resistance Type Using ABSOLUTE® Electromagnetic Induction System



Order No. and mounting dimensions

mm (inch)

Order No. / Model No.	Effective length L ₀	Maximum travel length L ₁	Mounting hole pitch L ₂	Mounting hole pitch L ₃	Overall length L ₄	Middle support positions			Signal cable length
						L ₅	L ₆	L ₇	
539-801 / AT715-100	100(4")	120(4.72")	258(10.16")	242(9.53")	278(10.94")	—	—	—	3500 (137.80)
539-802 / AT715-150	150(6")	170(6.69")	308(12.13")	292(11.50")	328(12.91")	—	—	—	
539-803 / AT715-200	200(8")	220(8.66")	358(14.09")	342(13.46")	378(14.88")	—	—	—	
539-804 / AT715-250	250(10")	270(10.63")	408(16.06")	392(15.43")	428(16.85")	—	—	—	
539-805 / AT715-300	300(12")	330(12.99")	468(18.43")	452(17.80")	488(19.21")	—	—	—	
539-806 / AT715-350	350(14")	380(14.96")	518(20.39")	502(19.76")	538(21.18")	—	—	—	
539-807 / AT715-400	400(16")	430(16.93")	568(22.36")	552(21.73")	588(23.15")	—	—	—	
539-808 / AT715-450	450(18")	480(18.90")	618(24.33")	602(23.70")	638(25.12")	—	—	—	
539-809 / AT715-500	500(20")	540(21.26")	678(26.69")	662(26.06")	698(27.48")	339(13.35")	331(13.03")	—	
539-811 / AT715-600	600(24")	640(25.20")	778(30.63")	762(30.00")	798(31.42")	389(15.31")	381(15.00")	—	
539-813 / AT715-700	700(28")	740(29.13")	878(34.57")	862(33.94")	898(35.35")	439(17.28")	431(16.97")	—	
539-814 / AT715-750	750(30")	780(30.71")	918(36.14")	902(35.51")	938(36.93")	459(18.07")	451(17.76")	—	
539-815 / AT715-800	800(32")	840(33.07")	978(38.50")	962(37.87")	998(39.29")	489(19.25")	481(18.94")	—	
539-816 / AT715-900	900(36")	940(37.01")	1078(42.44")	1062(41.81")	1098(43.23")	539(21.22")	531(20.91")	—	
539-817 / AT715-1000	1000(40")	1040(40.94")	1178(46.38")	1162(45.75")	1198(47.17")	589(23.19")	581(22.87")	—	
539-818 / AT715-1100	1100(44")	1140(44.88")	1278(50.31")	1262(49.69")	1298(51.10")	639(25.16")	631(24.84")	430(16.93")	
539-819 / AT715-1200	1200(48")	1240(48.82")	1378(54.25")	1362(53.62")	1398(55.04")	689(27.13")	681(26.81")	460(18.11")	
539-820 / AT715-1300	1300(52")	1340(52.76")	1478(58.19")	1462(57.56")	1498(58.98")	739(29.10")	731(28.78")	490(19.29")	
539-821 / AT715-1400	1400(56")	1440(56.69")	1578(62.13")	1562(61.50")	1598(62.91")	789(31.07")	781(30.75")	520(20.63")	
539-822 / AT715-1500	1500(60")	1540(60.63")	1678(66.06")	1662(65.43")	1698(66.85")	839(33.04")	831(32.72")	550(21.69")	
539-823 / AT715-1600	1600(64")	1640(64.57")	1778(70.00")	1762(69.37")	1798(70.79")	889(35.01")	881(34.70")	580(22.87")	
539-824 / AT715-1700	1700(68")	1740(68.50")	1878(73.94")	1862(73.31")	1898(74.72")	939(36.98")	931(36.67")	610(24.05")	
539-825 / AT715-1800	1800(72")	1840(72.44")	1978(77.87")	1962(77.24")	1998(78.66")	989(38.95")	981(38.62")	640(25.20")	

Extension cable*

Order No.	Cable length
09AAB674A	2m (6.5 feet)
09AAB674B	5m (16.4 feet)
09AAB674C	7m (22.9 feet)

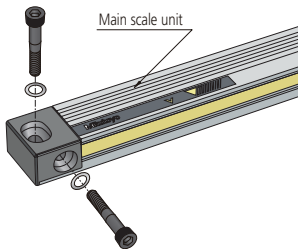
Mounting parts (provided as standard)

Items included	Quantity	Notes
• Hex-socket head screw (M6x25)	2 pcs.	<ul style="list-style-type: none"> • Plain washer (4mm nominal) 2 pcs. • Cable clip 6 pcs. • Spacer (0.3, 0.4, 0.5, 0.6mm) 1 pc. each
• Hex-socket head screw (M4x25)	2 pcs.	
• Hex-socket head screw (M4x8)	6 pcs.	
• Plain washer (6mm nominal)	2 pcs.	

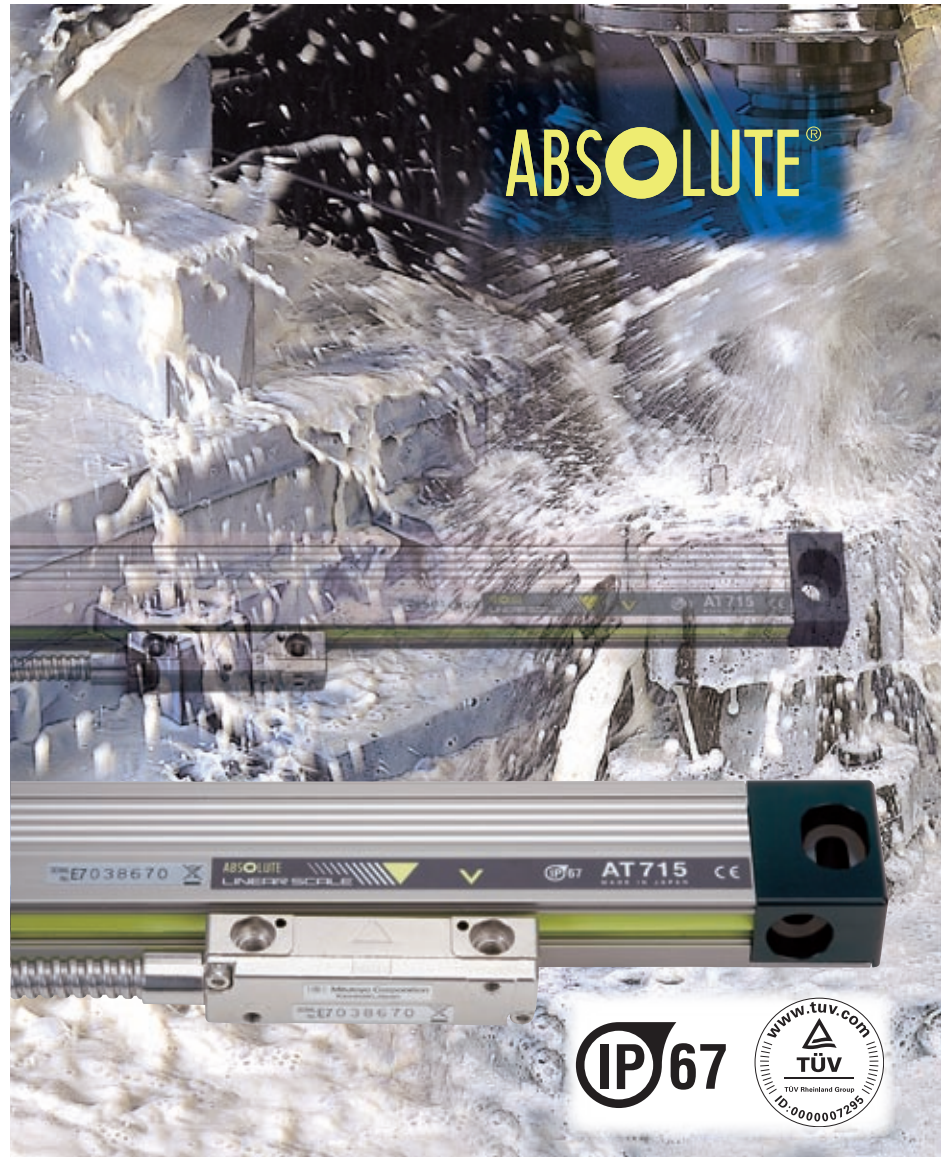
*: Use an extension cable so that the total length including the signal cable is less than 15m.

Features

- Employs the ABSOLUTE® electromagnetic induction system* to achieve IP67 environmental resistance.
- Detects and outputs an absolute position - no reference point setup needed at every power-on.
- An abnormal calculation doesn't accumulate even if the calculation mistake is generated by electrical noise.
- It is the most suitable scale to mount on the X-axis of a small lathe.
- Two mounting directions of the main scale unit allows easy mounting on a machine tool with difficult mounting arrangements.



* Patent registered (Japan, USA, India, China, Germany, UK, France, Switzerland)



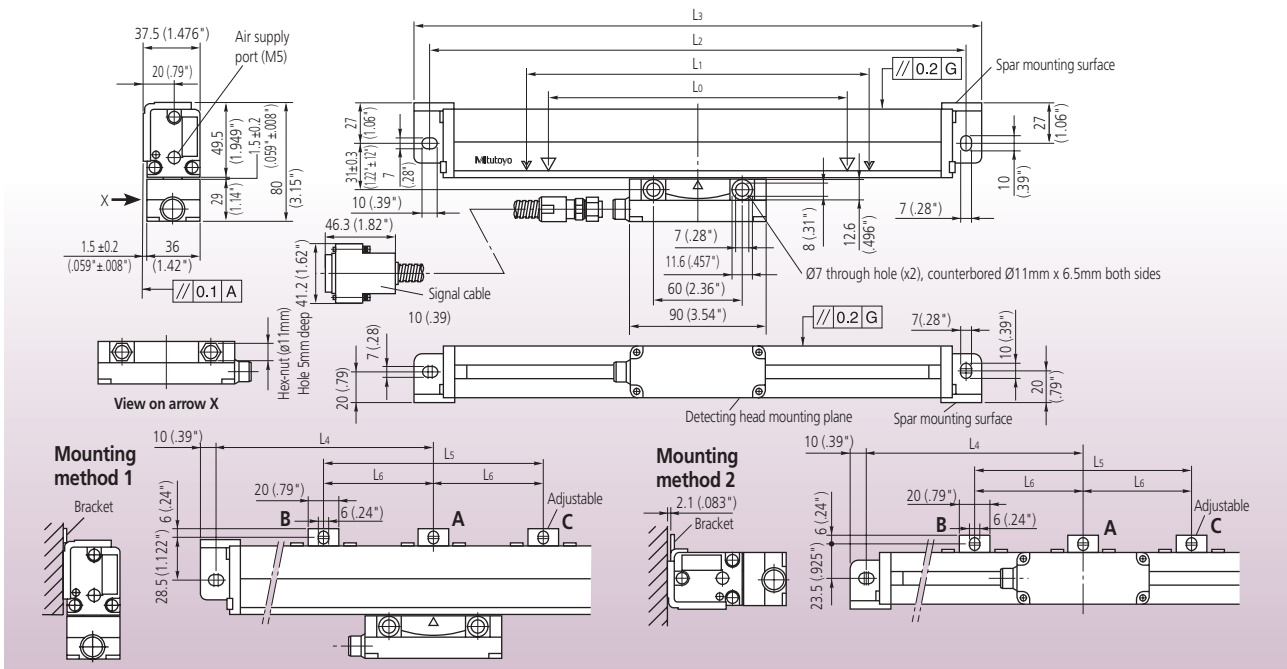
Order No. and mounting dimensions

mm (inch)

Order No. / Model No.	Effective length L ₀	Maximum travel length L ₁	Mounting hole pitch L ₂	Mounting hole pitch L ₃	Mounting hole pitch L ₄	Middle support positions			Signal cable length
						L ₅	L ₆	L ₇	
539-860 / AT715-2000	2000(80")	2040(80.31")	2178(85.75")	2162 (85.12")	2198(86.54")	539(21.22")	531(20.91")	550(21.65")	5000 (196.85)
539-861 / AT715-2200	2200(88")	2240(88.19")	2378(93.62")	2362 (92.99")	2398(94.41")	469(18.46")	461(18.15")	480(18.90")	7000*1 (275.60)
539-862 / AT715-2400	2400(96")	2440(96.06")	2578(101.50")	2562 (100.87")	2598(102.28")	509(20.04")	501(19.72")	520(20.47")	
539-863 / AT715-2500	2500(100")	2540(100.00")	2678(105.43")	2662 (104.80")	2698(106.22")	529(20.83")	521(20.51")	540(21.26")	
539-864 / AT715-2600	2600(104")	2640(103.94")	2778(109.37")	2762 (108.74")	2798(110.16")	549(21.61")	541(21.30")	560(22.05")	
539-865 / AT715-2800	2800(112")	2840(111.81")	2978(117.24")	2962 (116.61")	2998(118.03")	489(19.25")	481(18.94")	500(19.69")	
539-866 / AT715-3000	3000(120")	3040(119.68")	3178(125.12")	3162 (124.49")	3198(125.91")	529(20.83")	521(20.51")	530(20.87")	

*1: Signal cable length is the combination of signal code and extension cable (2m).

AT103, Standard-size Type



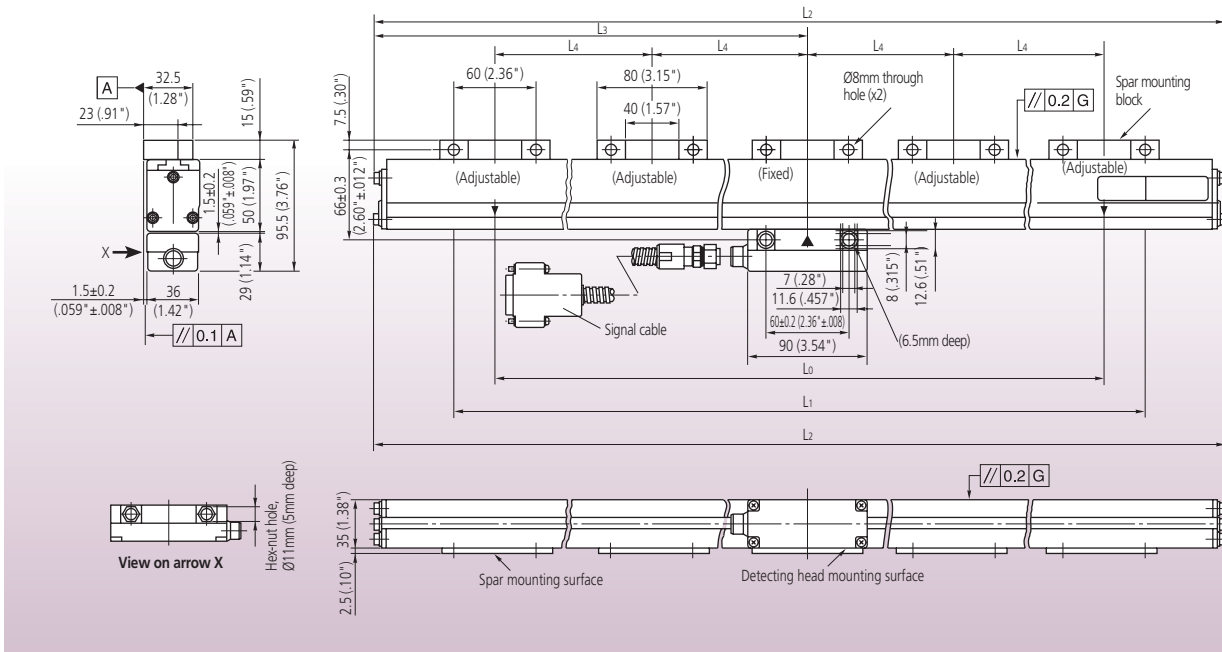
Order No. and mounting dimensions

mm (inch)

Order No. / Model No.	Effective range L ₀	Travel range L ₁	Mount interval L ₂	Overall length L ₃	Supporting bracket position			Signal cable length	Mass kg (lbs.)
() suffix for high accuracy type					L ₄	L ₅	L ₆		
539-111-30 (-40) / AT103-100 (F)	100 (4")	120 (4.72")	248 (9.76")	268 (10.55")	—	—	—	3m (9.8 feet)	1.5 (3.30)
539-112-30 (-40) / AT103-150 (F)	150 (6")	170 (6.69")	298 (11.73")	318 (12.52")	—	—	—	3m (9.8 feet)	1.6 (3.52)
539-113-30 (-40) / AT103-200 (F)	200 (8")	220 (8.66")	348 (13.70")	368 (14.49")	—	—	—	3m (9.8 feet)	1.7 (3.74)
539-114-30 (-40) / AT103-250 (F)	250 (10")	270 (10.63")	398 (15.67")	418 (16.46")	—	—	—	3m (9.8 feet)	1.8 (3.96)
539-115-30 (-40) / AT103-300 (F)	300 (12")	330 (12.99")	458 (18.03")	478 (18.82")	—	—	—	3m (9.8 feet)	1.9 (4.18)
539-116-30 (-40) / AT103-350 (F)	350 (14")	380 (14.96")	508 (20.00")	528 (20.79")	—	—	—	3m (9.8 feet)	2.0 (4.40)
539-117-30 (-40) / AT103-400 (F)	400 (16")	430 (16.93")	558 (21.97")	578 (22.76")	—	—	—	3m (9.8 feet)	2.1 (4.62)
539-118-30 (-40) / AT103-450 (F)	450 (18")	480 (18.90")	608 (23.94")	628 (24.72")	—	—	—	3m (9.8 feet)	2.2 (4.84)
539-119-30 (-40) / AT103-500 (F)	500 (20")	540 (21.26")	668 (26.30")	688 (27.09")	—	—	—	3m (9.8 feet)	2.3 (5.06)
539-121-30 (-40) / AT103-600 (F)	600 (24")	650 (25.59")	778 (30.63")	798 (31.42")	—	—	—	3m (9.8 feet)	2.6 (5.72)
539-123-30 (-40) / AT103-700 (F)	700 (28")	760 (29.92")	888 (34.96")	908 (35.75")	—	—	—	3m (9.8 feet)	2.8 (6.16)
539-124-30 (-40) / AT103-750 (F)	750 (30")	810 (31.89")	938 (36.93")	958 (37.72")	—	—	—	3m (9.8 feet)	2.9 (6.38)
539-125-30 (-40) / AT103-800 (F)	800 (32")	860 (33.86")	988 (38.90")	1008 (39.69")	—	—	—	3m (9.8 feet)	3.0 (6.60)
539-126-30 (-40) / AT103-900 (F)	900 (36")	960 (37.79")	1088 (42.83")	1108 (43.62")	—	—	—	3m (9.8 feet)	3.3 (7.26)
539-127-30 (-40) / AT103-1000 (F)	1000 (40")	1060 (41.73")	1188 (46.77")	1208 (47.56")	594 (23.39")	—	—	5m (16.4 feet)	3.7 (8.14)
539-128-30 (-40) / AT103-1100 (F)	1100 (44")	1160 (45.67")	1288 (50.71")	1308 (51.50")	644 (25.35")	—	—	5m (16.4 feet)	4.0 (8.80)
539-129-30 (-40) / AT103-1200 (F)	1200 (48")	1260 (49.60")	1388 (54.65")	1408 (55.43")	694 (27.32")	—	—	5m (16.4 feet)	4.2 (9.24)
539-130-30 (-40) / AT103-1300 (F)	1300 (52")	1360 (53.54")	1488 (58.58")	1508 (59.37")	744 (29.29")	—	—	5m (16.4 feet)	4.4 (9.68)
539-131-30 (-40) / AT103-1400 (F)	1400 (56")	1460 (57.48")	1588 (62.52")	1608 (63.31")	794 (31.26")	—	—	5m (16.4 feet)	4.6 (10.12)
539-132-30 (-40) / AT103-1500 (F)	1500 (60")	1560 (61.41")	1688 (66.46")	1708 (67.24")	844 (33.23")	—	—	5m (16.4 feet)	4.8 (10.56)
539-133-30 (-40) / AT103-1600 (F)	1600 (64")	1690 (66.53")	1818 (71.57")	1838 (72.36")	—	610 (24.02")	—	5m (16.4 feet)	5.1 (11.22)
539-134-30 (-40) / AT103-1700 (F)	1700 (68")	1790 (70.47")	1918 (75.51")	1938 (76.30")	—	650 (25.59")	—	5m (16.4 feet)	5.3 (11.66)
539-135-30 (-40) / AT103-1800 (F)	1800 (72")	1890 (74.41")	2018 (79.45")	2038 (80.24")	—	670 (26.38")	—	5m (16.4 feet)	5.5 (12.10)
539-136-30 (-40) / AT103-2000 (F)	2000 (80")	2100 (82.67")	2228 (87.72")	2248 (88.50")	—	740 (29.13")	—	5m (16.4 feet)	6.0 (13.20)
539-137-30 / AT103-2200	2200 (88")	2300 (90.55")	2428 (95.59")	2448 (96.38")	—	800 (31.50")	—	5m (16.4 feet)	6.4 (14.08)
539-138-30 / AT103-2400	2400 (96")	2500 (98.42")	2628 (103.46")	2648 (104.25")	1314 (51.73")	1300 (51.18")	650 (25.59")	7m (22.9 feet)	7.1 (15.62)
539-139-30 / AT103-2500	2500 (100")	2600 (102.36")	2728 (107.40")	2748 (108.19")	1364 (53.70")	1340 (52.76")	670 (25.38")	7m (22.9 feet)	7.3 (16.06)
539-140-30 / AT103-2600	2600 (104")	2700 (106.30")	2828 (111.34")	2848 (112.13")	1414 (55.67")	1400 (55.12")	700 (27.56")	7m (22.9 feet)	7.5 (16.50)
539-141-30 / AT103-2800	2800 (112")	2900 (114.17")	3028 (119.21")	3048 (120.00")	1514 (59.60")	1500 (59.06")	750 (29.53")	7m (22.9 feet)	7.9 (17.38)
539-142-30 / AT103-3000	3000 (120")	3100 (118.11")	3228 (127.09")	3248 (127.87")	1614 (63.99")	1600 (62.99")	800 (31.50")	7m (22.9 feet)	8.3 (18.26)

Note When selecting the size of a scale unit for your application, make sure that the maximum travel range of the scale unit (L₁) is larger than the maximum travel range of the machine. Also, take into consideration selecting a size that the accuracy of the scale unit is guaranteed only within the range of the effective measuring length (L₀).

Scale Unit



Order No. and mounting dimensions

mm (inch)

Order No. / Model No.	Effective range L ₀	Travel range L ₁	Overall length L ₂	Supporting bracket position L ₃	Supporting bracket position L ₄	Signal cable length	Mass kg (lbs.)
539-143-30 / AT103-3250	3250 (130")	3350 (131.88")	3464 (136.38")	1725 (67.91")	800 (31.50")	10m (32.8 feet)	10.8 (23.76)
539-144-30 / AT103-3500	3500 (140")	3600 (141.73")	3714 (146.22")	1850 (72.83")	850 (33.46")	10m (32.8 feet)	11.4 (25.08)
539-145-30 / AT103-3750	3750 (150")	3850 (151.57")	3964 (156.06")	1975 (77.76")	930 (36.61")	10m (32.8 feet)	12.0 (26.40)
539-146-30 / AT103-4000	4000 (160")	4100 (161.42")	4214 (165.91")	2100 (82.68")	1000 (39.37")	10m (32.8 feet)	12.6 (27.72)
539-147-30 / AT103-4250	4250 (170")	4350 (171.26")	4464 (175.75")	2225 (87.60")	1050 (41.34")	10m (32.8 feet)	13.2 (29.04)
539-148-30 / AT103-4500	4500 (180")	4600 (181.10")	4714 (185.59")	2350 (92.52")	1100 (43.31")	10m (32.8 feet)	13.8 (30.36)
539-149-30 / AT103-4750	4750 (190")	4850 (191.94")	4964 (195.43")	2475 (97.44")	800 (31.50")	15m (49.2 feet)	15.2 (33.44)
539-150-30 / AT103-5000	5000 (200")	5100 (200.78")	5214 (205.28")	2600 (102.36")	830 (32.68")	15m (49.2 feet)	15.8 (34.76)
539-151-30 / AT103-5250	5250 (210")	5350 (210.63")	5464 (215.12")	2725 (107.28")	870 (34.25")	15m (49.2 feet)	16.4 (36.08)
539-152-30 / AT103-5500	5500 (220")	5600 (220.47")	5714 (224.96")	2850 (112.20")	910 (35.83")	15m (49.2 feet)	17.0 (37.40)
539-153-30 / AT103-5750	5750 (230")	5850 (230.31")	5964 (234.80")	2975 (117.13")	950 (37.40")	15m (49.2 feet)	17.6 (38.72)
539-154-30 / AT103-6000	6000 (240")	6100 (240.16")	6214 (244.65")	3100 (122.05")	1000 (39.37")	15m (49.2 feet)	18.2 (40.04)

Note When selecting the size of a scale unit for your application, make sure that the maximum travel range of the scale unit (L₁) is larger than the maximum travel range of the machine. Also, take into consideration in selecting a size that the accuracy of the scale unit is guaranteed only within the range of the effective measuring length (L₀).

Mounting parts (provided as standard)

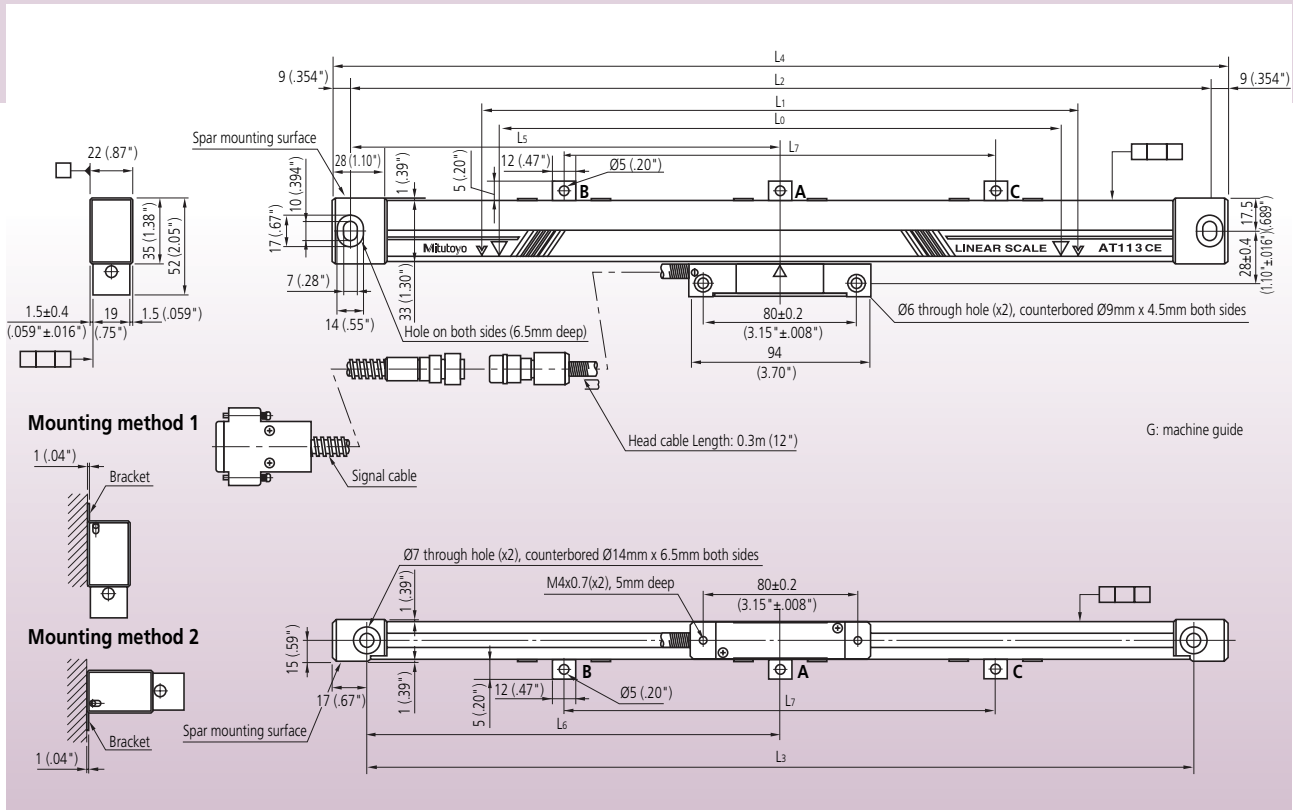
Type of spar	Standard-size	Extra-long
Effective range L ₀	100mm (4") - 3000mm (120")	3250mm (130") - 6000mm (240")
Items included	<ul style="list-style-type: none"> Hex-socket head screw (M6x1x40) 2 pcs. Hex-socket head screw (M6x1x16) 2 pcs. Hex-socket head screw (M4x0.7x8) 6 pcs. Spring washer (6mm nominal) 2 pcs. Plain washer (6mm nominal) 2 pcs. Cable clip 5 pcs. Spacer (0.3mm) 1 pc. Spacer (0.4mm) 1 pc. Spacer (0.5mm) 1 pc. Spacer (0.6mm) 1 pc. 	<ul style="list-style-type: none"> Hex-socket head screw (M6x1x40) 2 pcs. Hex-socket head screw (M6x1x30) 14 pcs. Hex-socket head screw (M4x0.7x8) 7 pcs. Spring washer (6mm nominal) 14 pcs. Plain washer (6mm nominal) 14 pcs. Cable clip 7 pcs. Spacer (0.3mm) 1 pc. Spacer (0.4mm) 1 pc. Spacer (0.5mm) 1 pc. Spacer (0.6mm) 1 pc.

Remarks: Dust-proofing and splash-proofing of the AT103 model scale units can be improved by supplying clean and dry air to the main spar. (Air pressure required: 50kPa, Air flow rate: 10 to 20 normal liters per minute)

Extension cable

Order No.	Cable length
09AAA033A	2m (6.5 feet)
09AAA033B	5m (16.4 feet)
09AAA033C	7m (22.9 feet)

AT113, Slim Type



Order No. and mounting dimensions

mm (inch)

Order No. / Model No. () : suffix for high accuracy type	Effective range L ₀	Travel range L ₁	Mount interval L ₂	Mount interval L ₃	Overall length L ₄	Supporting bracket position			Signal cable length	Mass kg (lbs.)
						L ₅	L ₆	L ₇		
539-201-30 (-40) / AT113-100 (F)	100 (4")	120 (4.72")	258 (10.16")	242 (9.53")	276 (10.87")	—	—	—	3m (9.8 feet)	0.9 (1.98)
539-202-30 (-40) / AT113-150 (F)	150 (6")	170 (6.69")	308 (12.13")	292 (11.50")	326 (12.83")	—	—	—	3m (9.8 feet)	0.9 (1.98)
539-203-30 (-40) / AT113-200 (F)	200 (8")	220 (8.66")	358 (14.09")	342 (13.46")	376 (14.80")	—	—	—	3m (9.8 feet)	0.9 (1.98)
539-204-30 (-40) / AT113-250 (F)	250 (10")	270 (10.63")	408 (16.06")	392 (15.43")	426 (16.77")	—	—	—	3m (9.8 feet)	1.0 (2.2)
539-205-30 (-40) / AT113-300 (F)	300 (12")	330 (12.99")	468 (18.43")	452 (17.80")	486 (19.13")	—	—	—	3m (9.8 feet)	1.0 (2.2)
539-206-30 (-40) / AT113-350 (F)	350 (14")	380 (14.96")	518 (20.39")	502 (19.76")	536 (21.10")	—	—	—	3m (9.8 feet)	1.1 (2.42)
539-207-30 (-40) / AT113-400 (F)	400 (16")	430 (16.93")	568 (22.36")	552 (21.73")	586 (23.07")	—	—	—	3m (9.8 feet)	1.1 (2.42)
539-208-30 (-40) / AT113-450 (F)	450 (18")	480 (18.90")	618 (24.33")	602 (23.70")	636 (25.04")	—	—	—	3m (9.8 feet)	1.1 (2.42)
539-209-30 (-40) / AT113-500 (F)	500 (20")	540 (21.26")	678 (26.69")	662 (26.06")	696 (27.40")	339 (13.35")	331 (13.03")	—	3m (9.8 feet)	1.2 (2.64)
539-211-30 (-40) / AT113-600 (F)	600 (24")	640 (25.20")	778 (30.63")	762 (30.00")	796 (31.34")	389 (15.31")	381 (15.00")	—	3m (9.8 feet)	1.3 (2.86)
539-213-30 (-40) / AT113-700 (F)	700 (28")	740 (29.13")	878 (34.57")	862 (33.94")	896 (35.28")	439 (17.28")	431 (16.97")	—	3m (9.8 feet)	1.3 (2.86)
539-214-30 (-40) / AT113-750 (F)	750 (30")	780 (30.71")	918 (36.14")	902 (35.51")	936 (36.85")	459 (18.07")	451 (17.76")	—	3m (9.8 feet)	1.4 (3.08)
539-215-30 (-40) / AT113-800 (F)	800 (32")	840 (33.07")	978 (38.50")	962 (37.87")	996 (39.21")	489 (19.25")	481 (18.94")	—	3m (9.8 feet)	1.4 (3.08)
539-216-30 (-40) / AT113-900 (F)	900 (36")	940 (37.01")	1078 (42.44")	1062 (41.81")	1096 (43.15")	539 (21.22")	531 (20.91")	—	3m (9.8 feet)	1.5 (3.3)
539-217-30 (-40) / AT113-1000 (F)	1000 (40")	1040 (40.94")	1178 (46.38")	1162 (45.75")	1196 (47.09")	589 (23.19")	581 (22.87")	—	5m (16.4 feet)	1.9 (4.18)
539-218-30 (-40) / AT113-1100 (F)	1100 (44")	1140 (44.88")	1278 (50.31")	1262 (49.69")	1296 (51.02")	—	—	430 (16.93")	5m (16.4 feet)	1.9 (4.18)
539-219-30 (-40) / AT113-1200 (F)	1200 (48")	1240 (48.82")	1378 (54.25")	1362 (53.62")	1396 (54.96")	—	—	460 (18.11")	5m (16.4 feet)	2.0 (4.4)
539-220-30 (-40) / AT113-1300 (F)	1300 (52")	1340 (52.76")	1478 (58.19")	1462 (57.56")	1496 (58.90")	—	—	490 (19.29")	5m (16.4 feet)	2.1 (4.62)
539-221-30 (-40) / AT113-1400 (F)	1400 (56")	1440 (56.69")	1578 (62.13")	1562 (61.50")	1596 (62.83")	—	—	530 (20.87")	5m (16.4 feet)	2.2 (4.84)
539-222-30 (-40) / AT113-1500 (F)	1500 (60")	1540 (60.63")	1678 (66.06")	1662 (65.43")	1696 (66.77")	—	—	560 (22.05")	5m (16.4 feet)	2.2 (4.84)

Note) When selecting the size of a scale unit for your application, make sure that the maximum travel range of the scale unit (L₁) is larger than the maximum travel range of the machine. Also, take into consideration in selecting a size that the accuracy of the scale unit is guaranteed only within the range of the effective measuring length (L₀).

Extension cable

Order No.	Cable length
09AAA033A	2m (6.5 feet)
09AAA033B	5m (16.4 feet)
09AAA033C	7m (22.9 feet)

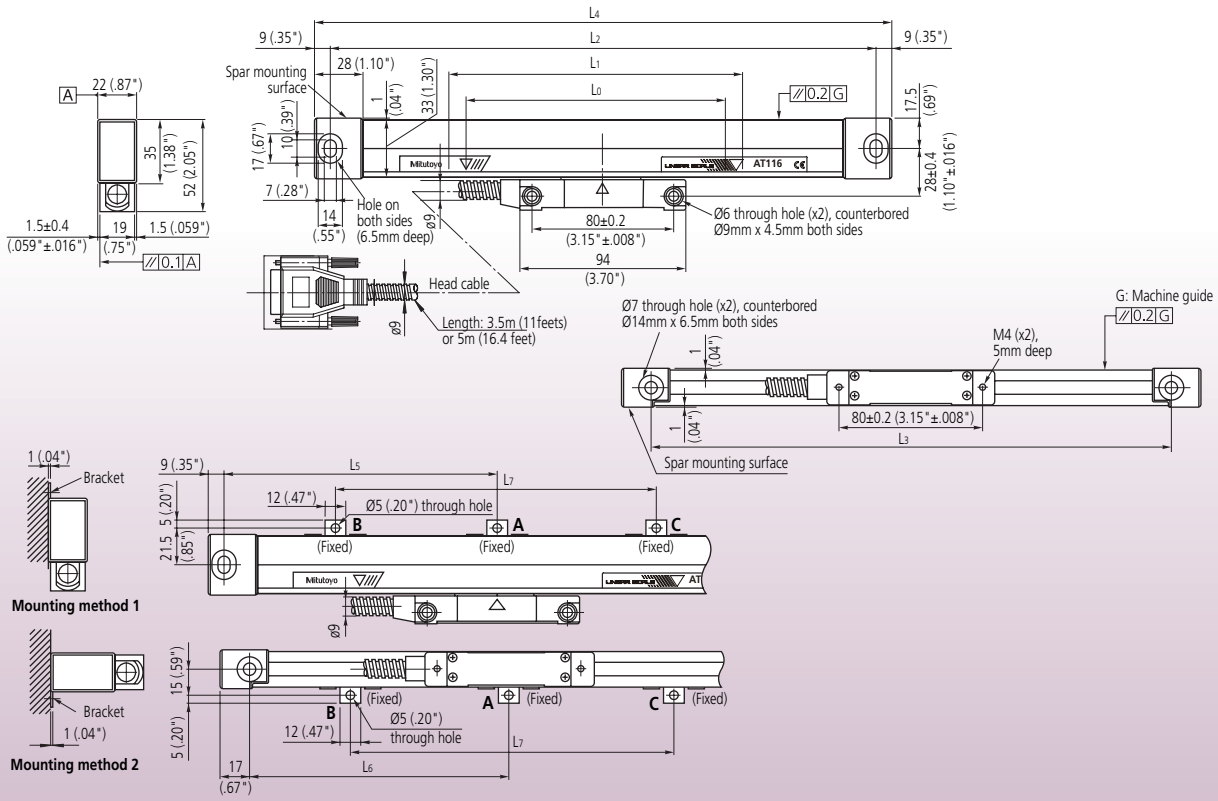
Mounting parts (provided as standard)

Items included	Quantity
• Hex-socket head screw (M6x1x25)	2 pcs.
• Hex-socket head screw (M4x0.7x25)	2 pcs.
• Hex-socket head screw (M4x0.7x8)	6 pcs.
• Spring washer (4mm nominal)	2 pcs.
• Plain washer (4mm nominal)	2 pcs.
• Cable clip	5 pcs.
• Connector clamp	1 pc.
• Spacer (0.3mm)	1 pc.
• Spacer (0.4mm)	1 pc.
• Spacer (0.5mm)	1 pc.
• Spacer (0.6mm)	1 pc.

Mitutoyo

AT116, Slim and Economy Type

Scale Unit



Order No. and mounting dimensions

mm (inch)

Order No. / Model No.	Effective range L ₀	Travel range L ₁	Mount interval L ₂	Mount interval L ₃	Overall length L ₄	Supporting bracket position			Head cable length	Mass kg (lbs.)
						L ₅	L ₆	L ₇		
539-271-30 / AT-116-100	100 (4")	120 (4.72")	258 (10.16")	242 (9.53")	276 (10.87")	—	—	—	3.5m (9.8 feet)	0.5 (1.1)
539-272-30 / AT-116-150	150 (6")	170 (6.69")	308 (12.13")	292 (11.50")	326 (12.83")	—	—	—	3.5m (9.8 feet)	0.6 (1.32)
539-273-30 / AT-116-200	200 (8")	220 (8.66")	358 (14.09")	342 (13.46")	376 (14.80")	—	—	—	3.5m (9.8 feet)	0.7 (1.54)
539-274-30 / AT-116-250	250 (10")	270 (10.63")	408 (16.06")	392 (15.43")	426 (16.77")	—	—	—	3.5m (9.8 feet)	0.8 (1.76)
539-275-30 / AT-116-300	300 (12")	330 (12.99")	468 (18.43")	452 (17.80")	486 (19.13")	—	—	—	3.5m (9.8 feet)	0.9 (1.98)
539-276-30 / AT-116-350	350 (14")	380 (14.96")	518 (20.39")	502 (19.76")	536 (21.10")	—	—	—	3.5m (9.8 feet)	1.0 (2.2)
539-277-30 / AT-116-400	400 (16")	430 (16.93")	568 (22.36")	552 (21.73")	586 (23.07")	—	—	—	3.5m (9.8 feet)	1.1 (2.42)
539-278-30 / AT-116-450	450 (18")	480 (18.90")	618 (24.33")	602 (23.70")	636 (25.04")	—	—	—	3.5m (9.8 feet)	1.2 (2.64)
539-279-30 / AT-116-500	500 (20")	540 (21.26")	678 (26.69")	662 (26.06")	696 (27.40")	339 (13.35")	331 (13.03")	—	3.5m (9.8 feet)	1.3 (2.86)
539-281-30 / AT-116-600	600 (24")	640 (25.20")	778 (30.63")	762 (30.00")	796 (31.34")	389 (15.31")	381 (15.00")	—	3.5m (9.8 feet)	1.4 (3.08)
539-283-30 / AT-116-700	700 (28")	740 (29.13")	878 (34.57")	862 (33.94")	896 (35.28")	439 (17.28")	431 (16.97")	—	3.5m (9.8 feet)	1.6 (3.52)
539-284-30 / AT-116-750	750 (30")	780 (30.71")	918 (36.14")	902 (35.51")	936 (36.85")	459 (18.07")	451 (17.76")	—	3.5m (9.8 feet)	1.7 (3.74)
539-285-30 / AT-116-800	800 (32")	840 (33.07")	978 (38.50")	962 (37.87")	996 (39.21")	489 (19.25")	481 (18.94")	—	3.5m (9.8 feet)	1.8 (3.96)
539-286-30 / AT-116-900	900 (36")	940 (37.01")	1078 (42.44")	1062 (41.81")	1096 (43.15")	539 (21.22")	531 (20.91")	—	3.5m (9.8 feet)	2.0 (4.4)
539-287-30 / AT-116-1000	1000 (40")	1040 (40.94")	1178 (46.38")	1162 (45.75")	1196 (47.09")	589 (23.19")	581 (22.87")	—	5m (16.4 feet)	2.3 (5.06)
539-288-30 / AT-116-1100	1100 (44")	1140 (44.88")	1278 (50.31")	1262 (49.69")	1296 (51.02")	—	—	430 (16.93")	5m (16.4 feet)	2.5 (5.5)
539-289-30 / AT-116-1200	1200 (48")	1240 (48.82")	1378 (54.25")	1362 (53.62")	1396 (54.96")	—	—	460 (18.11")	5m (16.4 feet)	2.7 (5.94)
539-290-30 / AT-116-1300	1300 (52")	1340 (52.76")	1478 (58.19")	1462 (57.56")	1496 (58.90")	—	—	490 (19.29")	5m (16.4 feet)	2.9 (6.38)
539-291-30 / AT-116-1400	1400 (56")	1440 (56.69")	1578 (62.13")	1562 (61.50")	1596 (62.83")	—	—	530 (20.87")	5m (16.4 feet)	3.1 (6.82)
539-292-30 / AT-116-1500	1500 (60")	1540 (60.63")	1678 (66.06")	1662 (65.43")	1696 (66.77")	—	—	560 (22.05")	5m (16.4 feet)	3.2 (7.04)

Note) When selecting the size of a scale unit for your application, make sure that the maximum travel range of the scale unit (L₁) is larger than the maximum travel range of the machine. Also, take into consideration in selecting a size that the accuracy of the scale unit is guaranteed only within the range of the effective measuring length (L₀).

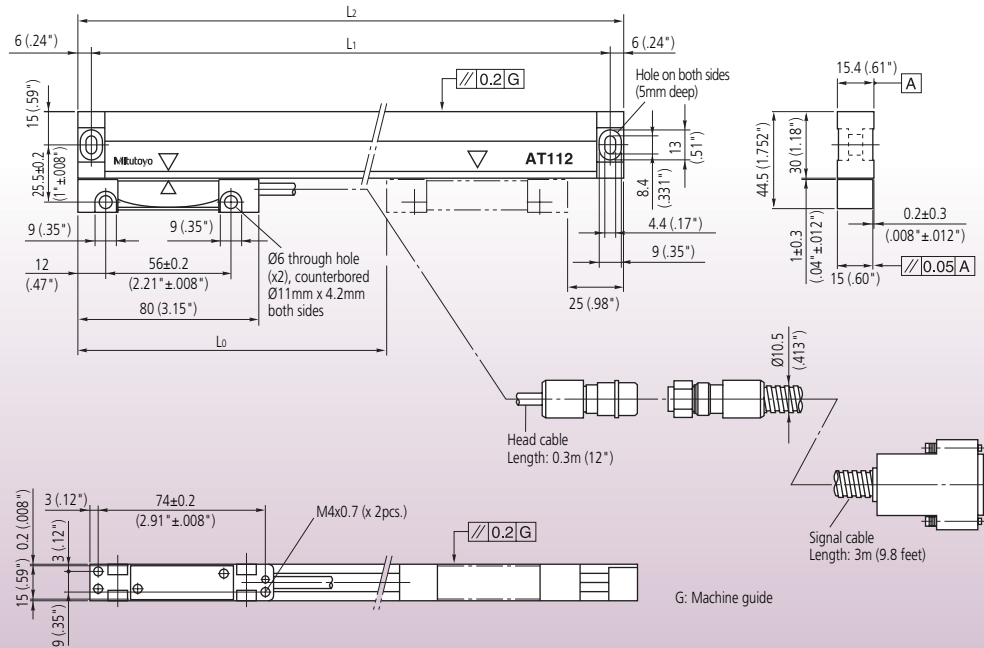
Extension cable

Order No.	Cable length
09AAA720A	2m (6.5 feet)
09AAA720B	5m (16.4 feet)
09AAA720C	7m (22.9 feet)

Mounting parts (provided as standard)

Items included		
• Hex-socket head screw (M6x1x25)	2 pcs.	
• Hex-socket head screw (M4x0.7x25)	2 pcs.	
• Hex-socket head screw (M4x0.7x8)	6 pcs.	
• Plain washer (6mm nominal)	2 pcs.	
• Plain washer (4mm nominal)	2 pcs.	
• Connector clamp	6 pc.	
• Spacer (0.3mm)	1 pc.	
• Spacer (0.4mm)	1 pc.	
• Spacer (0.5mm)	1 pc.	
• Spacer (0.6mm)	1 pc.	

AT112-F, Super Slim Type



Order No. and mounting dimensions

mm (inch)

Order No. / Model No.	Effective range L_0	Mount interval L_1	Overall length L_2	Signal cable length	Mass kg (lbs.)
539-251-10 / AT112-50F	50 (2.0")	143 (5.63")	155 (6.10")	3m (9.8 feet)	0.72 (1.58)
539-252-10 / AT112-70F	70 (2.8")	163 (6.42")	175 (6.89")	3m (9.8 feet)	0.74 (1.63)
539-253-10 / AT112-120F	120 (4.8")	213 (8.39")	225 (8.86")	3m (9.8 feet)	0.80 (1.76)
539-254-10 / AT112-170F	170 (6.8")	263 (10.35")	275 (10.83")	3m (9.8 feet)	0.85 (1.87)
539-255-10 / AT112-220F	220 (8.8")	313 (12.32")	325 (12.80")	3m (9.8 feet)	0.90 (1.98)
539-256-10 / AT112-270F	270 (10.8")	363 (14.29")	375 (14.76")	3m (9.8 feet)	0.95 (2.09)
539-257-10 / AT112-320F	320 (12.8")	413 (16.26")	425 (16.73")	3m (9.8 feet)	1.00 (2.20)
539-258-10 / AT112-370F	370 (14.8")	463 (18.23")	475 (18.70")	3m (9.8 feet)	1.05 (2.31)
539-259-10 / AT112-420F	420 (16.8")	513 (20.20")	525 (20.67")	3m (9.8 feet)	1.10 (2.42)
539-260-10 / AT112-470F	470 (18.8")	563 (22.17")	575 (22.64")	3m (9.8 feet)	1.15 (2.53)
539-261-10 / AT112-520F	520 (20.8")	613 (24.13")	625 (24.61")	3m (9.8 feet)	1.20 (2.64)
539-262-10 / AT112-570F	570 (22.8")	663 (26.10")	675 (26.57")	3m (9.8 feet)	1.25 (2.75)
539-263-10 / AT112-620F	620 (24.8")	713 (28.07")	725 (28.54")	3m (9.8 feet)	1.30 (2.86)
539-264-10 / AT112-670F	670 (26.8")	763 (30.04")	775 (30.51")	3m (9.8 feet)	1.35 (2.97)
539-265-10 / AT112-720F	720 (28.8")	813 (32.01")	825 (32.48")	3m (9.8 feet)	1.40 (3.08)
539-266-10 / AT112-770F	770 (30.8")	863 (33.98")	875 (34.45")	3m (9.8 feet)	1.45 (3.19)
539-267-10 / AT112-820F	820 (32.8")	913 (35.94")	925 (36.42")	3m (9.8 feet)	1.50 (3.30)
539-268-10 / AT112-920F	920 (36.8")	1013 (39.88")	1025 (40.35")	3m (9.8 feet)	1.56 (3.43)
539-269-10 / AT112-1020F	1020 (40.8")	1113 (43.82")	1125 (44.29")	3m (9.8 feet)	1.62 (3.56)

Note When selecting the size of a scale unit for your application, make sure that the maximum travel range of the scale unit (L_1) is larger than the maximum travel range of the machine. Also, take into consideration in selecting a size that the accuracy of the scale unit is guaranteed only within the range of the effective measuring length (L_0).

Extension cable

Order No.	Cable length
09AAA033A	2m (6.5 feet)
09AAA033B	5m (16.4 feet)
09AAA033C	7m (22.9 feet)

Mounting parts (provided as standard)

Items included	
• Hex-socket head screw (M4x0.7x25)	4 pcs.
• Hex-socket head screw (M4x0.7x8)	6 pcs.
• Spring washer (4mm nominal)	4 pcs.
• Plain washer (4mm nominal)	4 pcs.
• Cable clip	5 pcs.
• Connector clamp	1 pc.
• Spacer (0.3mm)	1 pc.
• Spacer (0.4mm)	1 pc.
• Spacer (0.5mm)	1 pc.
• Spacer (0.6mm)	1 pc.

Mitutoyo

Scale Unit Features

Scale Unit



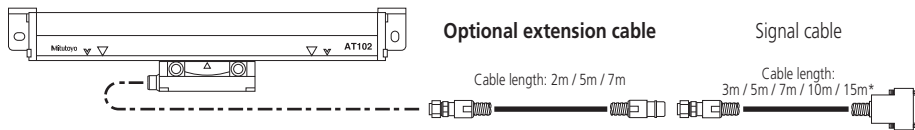
KA-200 Counter, standard type



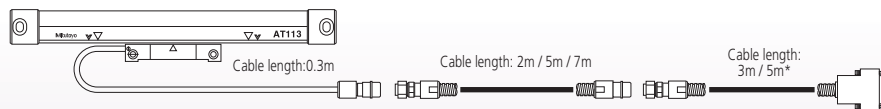
KLD-200 Counter, with limit signal output

When using an optional extension cable

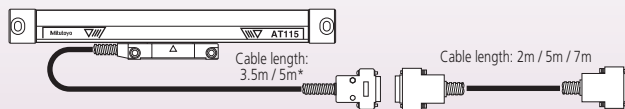
AT103



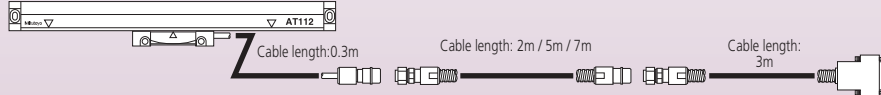
AT113



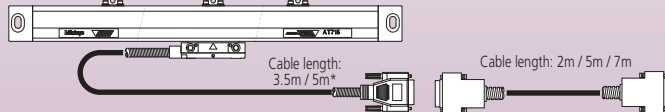
AT116



AT112



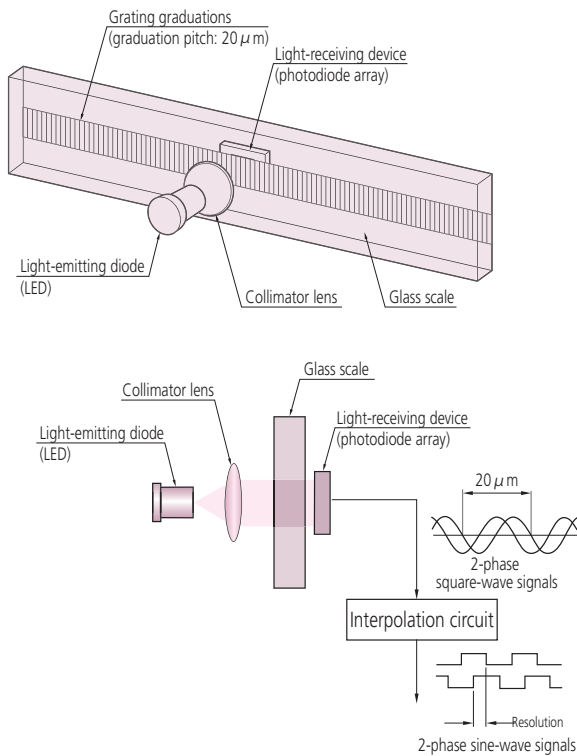
AT715



*Depending on the size of scale unit



Operating Principle of AT103/AT113 Models



The assembly-type Linear Scale® uses a highly accurate glass scale grating pitch of 20 μm as the basic standard of length. The grating is irradiated with parallel light generated with a Light-Emitting Diode (LED) and collimator lens. The parallel light transmitted through the grating generates an interference pattern with the same pitch as that of a grating on the photodiode array of the light-receiving device. The receiver output signal is 2-phase sinusoidal with a wavelength of 20μm, identical to the pitch of the grating graduations, and is electrically converted to 2-phase square-wave signals by the interpolation circuit. The much smaller working resolution is achieved by detecting the cyclic variation in light intensity incident on the receiver array, as the scale is displaced in a measuring direction, and interpolating accordingly to output a corresponding displacement value.

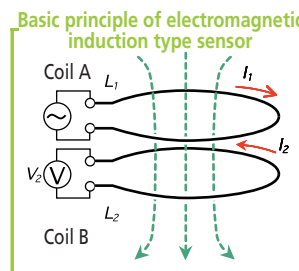
Detecting Principle Added to AT715

The Absolute system-type linear scale AT715 employs a unique, Mitutoyo-proprietary, electromagnetic induction principle that is highly resistant to environmental contamination. Achievement of a complete absolute scale with a resolution of 1μm thanks, to a multi-track configuration, enables the user to obtain absolute positional information from the scale immediately power is applied to the counter.

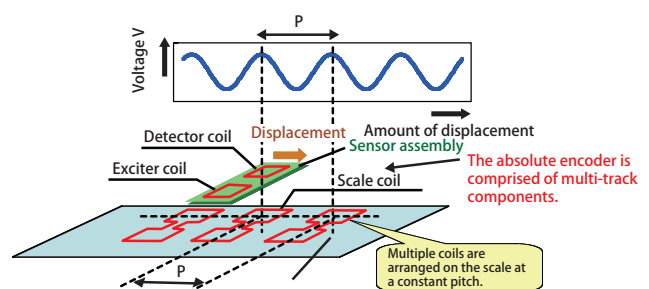
- If time-varying current I_1 is applied to coil A, a magnetic flux is generated inside the coil.
- A current I_2 is induced in coil B that tends to oppose the build-up of the magnetic flux.

The magnetic permeability between the coils will not vary whether the medium is air, water, or oil.

The electromagnetic induction type sensor has excellent water resistance and oil resistance.





























Operating Principle of Electromagnetic Induction Type Encoder



Display Unit Selection Guide

Display Unit

Functions

Counter		KA-200 Counter	KLD-200 Counter
Function			
Zero-setting		●	●
Preset		●	●
Resolution setting		●	●
Measurement direction setting		●	●
mm/inch conversion		●	●
Diameter display		●	●
Scale reference point setting ¹		●	●
1/2 calculation		●	●
Coordinate system switching		●	—
Bolt-hole circle machining		● ⁻²	—
Pitch machining		●	—
Zero approach machining (INC mode)		●	—
Addition of 2-scale data		● ⁻³	—
Linearity error compensation		●	●
Pitch error compensation		● ⁻¹	—
Smoothing		●	●
Memory backup		●	●
Expansion/contraction coefficient setting		—	●
Lower digit blanking out		●	●
External zero-setting		▲ ⁻⁴	●
RS-232C interface unit		▲ ⁻⁴	●
USB output		▲ ⁻⁵	—
Limit signal output		—	●
Error message		●	●

●: Standard function, ▲: Optional function, —: Not available

-1: Only available when connecting with AT100 series.

-2: Not available in single-axis use

-3: Only available for 3-axis model

-4: Code out unit (06AET993) is required.

-5: Text can be output by interface unit and foot switch

KA-200 Counter

FEATURES

- Can be used as a “standard counter” or a “lathe counter” by modifying parameters.
- Downsizing, weight saving and multiple function have been realized.
- Sub display for easy operation.
- Text data can be output using the optional USB interface.
- The optional external interface RS-232C enables connection to a PC and a printer.

SPECIFICATIONS

Model	KA-200 Counter
Resolution	With AT100 Series: 0.05 - 0.0001 mm With AT715: 0.01 - 0.001 mm
Scale input ports	2 or 3
Display type / digit	7-segment, 8-digit + sign + 8-character alphabet LED display
Output (optional)	RS-232C / USB
Macro functions	Rectangular drilling and round milling newly added
Main features	Feed speed display; taper machining function; tool data; multipoint compensation; scale check function; calculation function
Dimensions	Size (WxDxH) 30x168x70mm



174-183 (for 1-axis or 2-axis application)



174-185 (for 3-axis application)

Standard Accessories

- 02ZAA000:** 1.8m AC cable (Japan)
- 02ZAA010:** 1.8m AC cable (USA, Canada)
- 02ZAA020:** 1.8m AC cable (Europe)
- 02ZAA030:** 1.8m AC cable (UK)
- 02ZAA040:** 1.8m AC cable (China)
- 02ZAA050:** 1.8m AC cable (Korea)
- 06AEU075:** Dust-proof cover
- 09CAA985:** GND lead wire (4m)
- 06AEU080:** Seal set (1 pc.)
- 06AFC149:** D-SUB15P Connector cap
- 99MBE083A:** User's Manual (1 set)

Optional Accessories

- 06AET993:** Code out unit
- 06ACF941:** External extension cable
- 937179T:** Foot switch for measurement data output (USB interface)

Note: The touch-probe has been discontinued.

DIMENSIONS

