
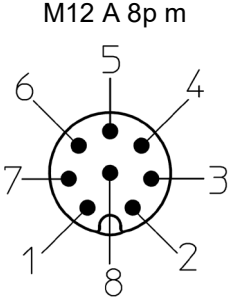


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|  | <h2>HySense CX 197</h2> | |
| | <ul style="list-style-type: none"> • Messstrecke zur Ölzustandsüberwachung • Messgrößen: Partikelanzahl, Viskosität, rel. Ölfeuchte, rel. Dielektrizitätszahl, Leitfähigkeit, Temperatur • Datenerfassung/ -analyse mit MultiSystem 5060 Plus • RS232/CANopen Schnittstellen • Minimess® Testpunkt 1620 • Einbau zwischen Druckleitung und Tankleitung | <ul style="list-style-type: none"> • <i>Measuring manifold for oil condition monitoring</i> • <i>measured variable: particle monitor, viscosity, rel. oil humidity, rel. dielectric number, conductivity and temperature</i> • <i>data acquisition/ -analysis with MultiSystem 5060 Plus</i> • <i>RS232/CANopen Interfaces</i> • <i>Minimess® test point 1620</i> • <i>Assembly between pressure line and return line</i> |
| <h3>Beschreibung Description</h3> | <p>Die Messstrecke CX 197 ist ein intelligentes Messsystem, ausgestattet mit einem Partikelmonitor Patrick, ein Viskositäts-sensor CV100 und ein Feuchtesensor CM100, die auch separat ausgelesen werden können. Zusammen mit dem Messgerät MultiSystem 5060 Plus können Messdaten verschiedener Anlagen ausgewertet und die Änderung des Ölzustands dargestellt werden. Durch diese Informationen können Ausfälle vermieden und Instantsetzungsarbeiten optimal geplant werden. Minimess® Testpunkte 1620 ermöglichen den Anschluss an hydraulische Systeme.</p> | <p><i>The measuring manifold CX 197 is an intelligent measuring system equipped with a particle monitor Patrick, a viscosity sensor CV100 and a humidity sensor CM100, which can also be used separately. Combined with the measuring device MultiSystem 5060 Plus, test data from various systems can be evaluated and the change in the oil condition can be illustrated. This information can be used to prevent failures and optimally plan installation work. Minimess® test points 1620 allow connection to hydraulic systems.</i></p> |
| <h3>Verwendungszweck Designated use</h3> | <p>Zur Überwachung des Ölzustands und die zeitliche Veränderung des Öls in stationären sowie mobilen Hydraulikanlagen. In Verwendung mit Hydraulikölen und sonstigen Ölen auf Mineralölbasis.</p> | <p><i>For monitoring the oil condition and temporal change of the oil in stationary and mobile hydraulic systems. In use with hydraulic oils and other mineral-based oils.</i></p> |
| <h3>Warnhinweise Warning notices</h3> | <p>Unbedingt Tankleitung T zuerst anschließen. Ein Druck von max. 420 bar an der Zuleitung ist möglich, wenn gleichzeitig der Druck an der Tankleitung kleiner als 20 bar ist. Betriebsdruck ≤ 45 bar</p> | <p><i>Be sure to connect tank line T first. A pressure of max. 6000 psi at supply line will be possible, if at the same time pressure at return line is smaller than 290 psi. Operating pressure ≤ 650 psi</i></p> |

| Sensoren Sensors | | |
|---------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Partikelmonitor | Patrick | Detaillierte Sensordaten sind im dazugehörigen Datenblatt ersichtlich <i>Detailed sensor data can be found in the corresponding data sheet</i> |
| Viskositätssensor | HySense CV 100 | |
| Feuchtesensor | HySense CM 100 | |

| Pinbelegung Sensoren Pin assignments sensors | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------|------------------------------|------------------------------|
| Rundsteckverbinder M12 x 1 mit Schraubverriegelung, A-Kodierung, 8-polig, Stecker <i>Circular connectors M12 x 1 with screw-locking, A-coding, 8 poles, male IEC / DIN EN 61076-2-101</i> | | | | |
|  <p>M12 A 8p m</p> | Bezeichnung Labeling | Nr. No | Funktion | Function |
| | CAN V+ | 1 | CAN-Versorgung | CAN-supply |
| | CAN GND | 2 | CAN Masse | CAN-Ground |
| | CAN L, TXD | 3 | CAN Low RS232-Signal TXD | CAN Low RS232-signal TXD |
| | CAN H, RXD | 4 | CAN High RS232-Signal RXD | CAN High RS232-Signal RXD |
| | Not Connected | 5 | Nicht verbunden | Not connected |
| | IOut1 | 6 | 4...20 mA | 4...20 mA out |
| | IOut2 ¹ | 7 | 4...20 mA | 4...20 mA out |
| | SGND | 8 | Signal Masse | Signal Ground |

| Pinbelegung Kabel Pin assignments cable | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------|-----------------|---------------|
| Rundsteckverbinder M12 x 1 mit Schraubverriegelung, A-Kodierung, 8-polig, Stecker <i>Circular connectors M12 x 1 with screw-locking, A-coding, 8 poles, male IEC / DIN EN 61076-2-101</i> | | | | |
|  <p>M12 A 8p m</p> | Bezeichnung Labeling | Nr. No | Funktion | Function |
| | CAN GND | 1 | CAN Masse | CAN-Ground |
| | CAN V+ | 2 | CAN-Versorgung | CAN-supply |
| | Not Connected | 3 | Nicht verbunden | Not connected |
| | CAN H | 4 | CAN High | CAN High |
| | Not Connected | 5 | Nicht verbunden | Not connected |
| | Not Connected | 6 | Nicht verbunden | Not connected |
| | CAN L | 7 | CAN Low | CAN Low |
| | Not Connected | 8 | Nicht verbunden | Not connected |

¹ Bei Partikelmonitor Patrick: Alarmausgang

| Mechanische Eigenschaften <i>Mechanical characteristics</i> | | | | |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Parameter | Min | Max | Einheit <i>Units</i> | Bemerkung <i>Remarks</i> |
| Max. Betriebsdruck <i>Max. operating pressure</i> | - | 45 650 | bar psi | |
| Betriebstemperatur <i>Operating temperature</i> | -20 -4 | +85 +185 | °C °F | Keine plausiblen Messwerte außerhalb des Messbereiches <i>No plausible measuring values outside the specified measuring range</i> |
| Rel. Feuchtigkeit <i>Rel. humidity</i> | 0 | 100 | % r.H. | |
| Kompatible Flüssigkeiten <i>Compatible fluids</i> | <ul style="list-style-type: none"> • Mineralöle • Synthetische Ester • Polyalkylenglykole • Zink- und aschefreie Öle • Polyalphaolefine | | | <ul style="list-style-type: none"> • <i>Mineral oil</i> • <i>Sythetic esters</i> • <i>Polyalkylenglycos</i> • <i>Zinc- and ash free oils</i> • <i>Polyalphaolefins</i> |
| Benetzte Materialien <i>Wetted materials</i> | Aluminium, HNBR, Polyurethanharz, Epoxidharz, Chemisch Nickel/Gold, Lötzinn, Aluminiumoxid, Glas, Gold, Silber-Palladium | | | <i>Aluminium, HNBR, polyurethan resin, epoxy resin, chemical nickel/gold, soldering tin, aluminium oxid, glass, gold, silver-palladium</i> |
| Schutzklasse <i>Protection class</i> | IP 67 | | | |
| Hydraulische Anschlüsse <i>Hydraulic connection</i> | M16 x 2 | | mm | Minimess® Testpunkt 1620 |
| Anzugsdrehmoment G 3/4 <i>Tightening torque</i> | 45 ± 4.5 | | Nm | Sensoren |
| Anzugsdrehmoment M12x1 <i>Tightening torque</i> | 0.1 | | Nm | Stecker |

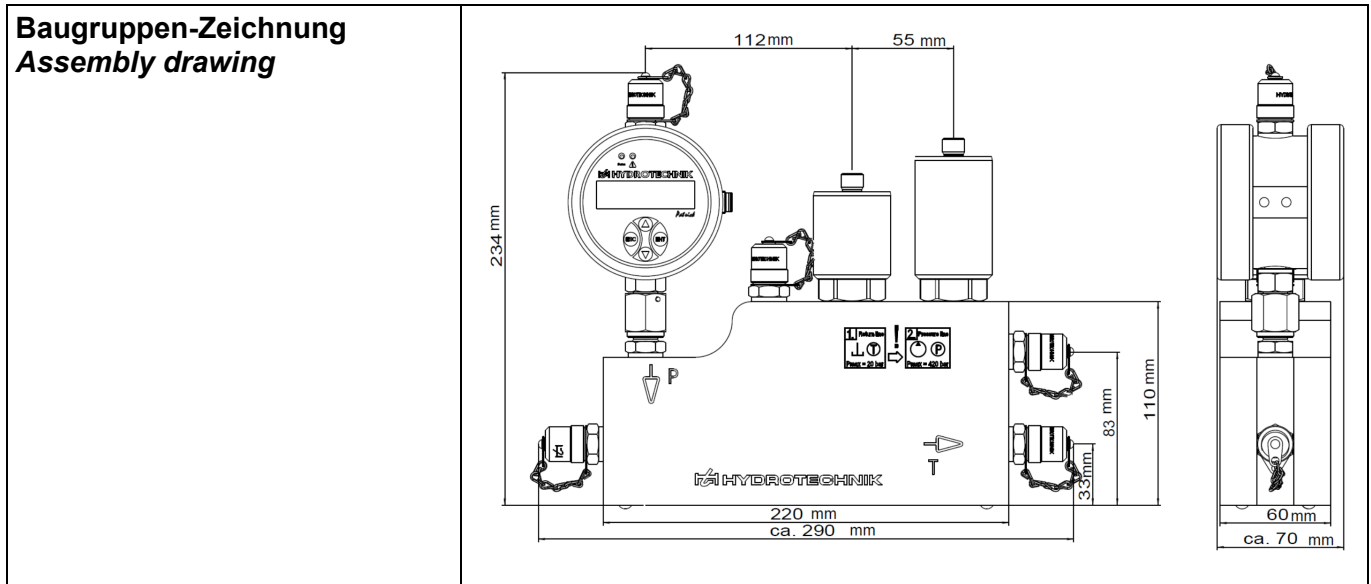
| Messbereich <i>Measuring range</i> | | | | |
|---------------------------------------------------------------------|------------|-------------|--------------------------------|-------------------------------------------------|
| Parameter | MIN | MAX | Einheit <i>Units</i> | Bemerkung <i>Remarks</i> |
| SAW-Scherviskosität | 8 | 400 | mm ² /s | Viskositätssensor CV100 |
| Rel. Dielektrizitätskonstante <i>Rel. dielectric. number</i> | 1 | 7 | - | Viskositätssensor CV100 und Feuchtesensor CM100 |
| Temperatur <i>Temperature</i> | -20 -4 | +85 +185 | °C °F | |
| Rel. Feuchtigkeit <i>Rel. humidity</i> | 0 | 100 | % r.H. | Feuchtesensor CM100 |
| Leitfähigkeit <i>Conductivity</i> | 100 | 800 000 | pS/m | |
| Partikelklasse ISO 4406:99 <i>Class of Particles ISO 4406:99</i> | 0 | 24 | | Patrick |

| | | | | |
|---------------------------------------------------------------------------------------|----|----|--|---------------------------------------------------------------------------------|
| Partikelklasse (kalibrierter Bereich) <i>Class of Particles (calibrated range)</i> | 10 | 22 | | In Anlehnung an ISO 11171:2010 <i>In dependence on ISO 11171:2010</i> |
|---------------------------------------------------------------------------------------|----|----|--|---------------------------------------------------------------------------------|

| Messgenauigkeit Accuracy | | | | |
|--------------------------------------------------------------------------------|------------|------------|--------------------------------|----------------------------------------------------------------------------------------------------|
| Parameter | MIN | MAX | Einheit Units | Bemerkung Remarks |
| SAW-Scherviskosität (8...100 mm ² /s) | ± 5 | | mm ² /s | Viskositätssensor CV100 |
| SAW-Scherviskosität (100...400 mm ² /s) | ± 5 | | % | |
| Rel. Dielektrizitätskonstante <i>Rel. dielectric number</i> | ± 0.02 | | - | Viskositätssensor CV100 und Feuchtesensor CM100 |
| Temperatur <i>Temperature</i> | ± 0.5 | | K | |
| Rel. Feuchtigkeit (10%...90%) <i>Rel. humidity (10% ... 90%)</i> | ± 3 | | % r.H. | Feuchtesensor CM100 |
| Rel. Feuchtigkeit (<10%,>90%) <i>Rel. humidity (<10%,>90%)</i> | ± 5 | | % r.H. | |
| Leitfähigkeit (2000...800000 pS/m) <i>Conductivity (2000...800000 pS/m)</i> | ± 2 | | pS/m | |
| Leitfähigkeit (100...2000 pS/m) <i>Conductivity (100...2000 pS/m)</i> | ± 200 | | pS/m | |
| Partikelklasse <i>Class of Particles</i> | ± 1 | | | Ordnungszahl / Partikelmonitor Patrick <i>ordinal numbers / Particle monitor Patrick</i> |

| Messauflösung Measuring resolution | | | | |
|----------------------------------------------------------------|--------------------|------------|--------------------------------|-------------------------------------------------------|
| Parameter | MIN | MAX | Einheit Units | Bemerkung Remarks |
| SAW-Scherviskosität | 0.1 | | mm ² /s | Viskositätssensor CV100 |
| Rel. Dielektrizitätskonstante <i>Rel. dielectric number</i> | 1*10 ⁻³ | | - | |
| | 1*10 ⁻⁴ | | - | Feuchtesensor CM100 |
| Temperatur <i>Temperature</i> | 0.1 | | K | Viskositätssensor CV100 und Feuchtesensor CM100 |
| Rel. Feuchte <i>Rel. humidity</i> | 0.1 | | % r.H. | Feuchtesensor CM100 |

| | | | |
|-------------------------------|---|------|---------------------|
| Leitfähigkeit Conductivity | 1 | pS/m | Feuchtesensor CM100 |
|-------------------------------|---|------|---------------------|



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| Einbauhinweise <i>Installation instruction</i> | <ul style="list-style-type: none"> • Idealerweise bei Tankeinbau in der Nähe von Rücklauf- bzw. Spüleleitung platzieren • Zur Erzielung repräsentativer Messwerte platzieren Sie den Sensor an einer charakteristischen Stelle. Die Strömungsrichtung ist am Messblock eingezeichnet. Beachten Sie für den Einbau des Blockes dessen technische Daten. • Messstrecke CX 197 vor Messung entlüften | <ul style="list-style-type: none"> • <i>Ideally the sensor should be placed in the vicinity of the return or flushing line</i> • <i>In order to obtain representative measured values, place the sensor at a characteristic location. The flow direction is marked on the measurement manifold. Observe the technical data for the installation of the block</i> • <i>Bleed measuring manifold CX 197 before measuring</i> |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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| Typenschild <i>Type plate</i> | <h1>HySense CX 197</h1> <p>Messstrecke für Ölzustandsüberwachung Measuring manifold for oil condition monitoring</p> <p>3402-CX10-D100-100</p> <p>Pmax P: 420 bar T: 20 bar SN 000000</p> | |
| | Limburg / Germany | |

| | | |
|---------------------------|-------------------------------|-------------------------------------------------------------|
| TKZ / order number | Bestellnummer Order Number | Bemerkung / Remarks |
| CX 197 Mess-Set | 3402-CX10-D100-000 | Mess-Set mit Koffer, Kabel, Anschlussleitungen und Netzteil |

| TKZ / order number | Zubehör und Ersatzteile / Accessories and spare parts | |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 3402-CV10-G926C0-000 | HySense CV 100 | Viskositätssensor <i>Viscosity sensor</i> |
| 3402-CM10-G926C0-000 | HySense CM 100 | Feuchtesensor <i>Moisture sensor</i> |
| 3160-00-76.00 | Patrick | Partikelmonitor <i>Particle monitor</i> |
| 3160-A0-79.00 | MultiSystem 5060 Plus | Handmessgerät <i>Power supply</i> |
| S110-AC-AC-0100N | Minimess® Messschlauch DN2-63 MPa, 1m <i>Minimess® measuring hose DN2-63MPa, 1m</i> | Anschluss an Messblock <i>Connection to Measuring section</i> |
| 8812-00-00.36 | Netzgerät M12 x 1; 8 pol. Buchse, mit Länder Steckeradapter <i>AC adapter M12 x 1, 8 pin female, with country adapter</i> | Stromversorgung <i>Power supply</i> |
| 8824-TB-00.00 | CAN 3-fach Verbindungskabel <i>CAN connection cable threefold</i> | CAN Verbindungskabel MS5060+ / Sensoren <i>CAN connection cable MS5060+ / sensors</i> |
| 8824-T6-00.00 | Messkabel M12 x 1; 8 pol. Stecker / 8 pol. Buchse <i>Connection cable M12 x 1; 8 pin male / 8 pin female</i> | CAN Verbindungskabel MS 5060+ <i>CAN connection cable MS 5060+</i> |
| 8808-50-01.03 | Y-Verteiler M12 8-polig; Buchse, Stecker, Buchse <i>Y-connector M12 8-pole; female, male, female</i> | Erforderlich um Stromversorgung und CAN/RS232 gleichzeitig zu nutzen <i>Required to use power supply and CAN/RS232 at the same time</i> |
| 8824-T2-00.00 | CAN Verbindungskabel MS5060Plus M12 x 1; Stecker 8 polig / Stecker 8 polig <i>CAN connection cable MS5060plus; M12 x 1; 8 pin male / 8 pin male</i> | Einsatz mit Y-Verteiler 8808-50-01.03 und MS5060Plus <i>Application with Y-connector 8808-50-01.03 and MS5060Plus</i> |
| 8824-T7-00.00 | Schnittstellenkabel M12 x 1; Stecker; 8-Pol / D-SUB-Buchse; 9 Pol <i>Interface cable M12 x 1; 8-pole male / 9 pole D-SUB female</i> | Erforderlich zur Nutzung von serieller Schnittstelle und Stromversorgung <i>Required to use serial Interface and power supply</i> |

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| Europäische Konformität <i>European Conformity</i> | CE | |
| Elektromagnetische Verträglichkeit / <i>Electromagnetic compatibility</i> | Richtlinie 2014/30/EU | <i>Directive 2014/30/EU</i> |
| Druckgeräte / <i>Pressure equipment</i> | Richtlinie 2014/68/EU | <i>Directive 2014/68/EU</i> |
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